

IoT and the Future of Edge Computing in Europe

The Internet of Things (IoT) is a network of connected digital devices, sometimes known as “smart” devices, with its related research encompassing domains like AI, 5G, cloud computing, blockchain, and micro- or nano-systems. What has recently changed is the augmented capabilities of devices, faster communication networks, the standardisation of communication protocols and more affordable sensors and microelectronic devices, which is turbocharging the IoT phenomena.



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After a 2-year break the IoT Week is back, organised in Dublin from 20-23 June 2022. Co-located with its research-focused branch, the Global IoT Summit (GloTS), it gathered over 380 speakers and almost 700 participants from 49 countries, attending a total of 115 conference sessions. Ossian Smyth, the Irish Green Party Minister of State, opened the event’s exhibition space, where certain EU-funded projects such as VEDLIoT were able to showcase their work.

An unavoidable consequence of the IoT and devices and applications that it powers, is the massive amount of constantly changing data that is generated as a result of digitalisation. The full potential of data can be seized through a common framework for data exchange. Key elements of data spaces will be supported through the Digital Europe programme; the European Commission is co-investing in the deployment of common European data spaces for sectors like agriculture, energy, healthcare, manufacturing, and transport, to ensure that more data becomes available for use in our economy and society, while keeping the companies and individuals who generate the data in control.

IoT data needs to be processed in real-time if meaningful conclusions are to be drawn and swift decisions are made. With advances in embedded computing, microprocessor powers and lightweight AI, more data processing and decisionmaking is possible at the edge.

IoT Week 2022 was the first event of its kind in the context of the area “From Cloud to Edge to IoT” whereby it gathered stakeholders of the first Horizon Europe call under its Cluster 4, Destination 3. On 22 June, a launch session was dedicated to a new group of 6 meta-operating systems research and innovation actions – ICOS, FluiDOS, NEMO, NebulOus, aeROS and NEPHELE – and 3 coordination and support actions – OpenContinuum, Unlock-CEI and HiPEAC – in the cloud-edge-IoT domain, receiving a total of €64 million in EU funding and kicking off on 1 September (with Unlock-CEI and HiPEAC launching on 1 June and 1 December respectively). The session also discussed the launch of a new eucloudedgeiot.eu web portal acting as a platform to support the Horizon Europe ecosystem and promote opportunities for open calls and large-scale piloting.

With computing power moving closer to the edge, data legislation influences the rules across the computing continuum. The Commission has put forward the legislative framework for a prospering data economy, such as the Data Act which was proposed to the Council and Parliament in March 2022, with the goal of making more data available and setting rules on data usage and access.

In a new post-Covid era, IoT is accelerating transition pathways for key sectors and helping industries that face fundamental challenges linked to the impact of the Ukraine crisis. It facilitates the new trends such as addressing energy resilience and integration of renewables, transition towards e-mobility and digitalisation of key industrial sectors. Such a holistic strategy for mastering the cloud-edge-IoT continuum opens up new ways to exploit innovation across the computing continuum.

Several European initiatives demonstrate how responding to geopolitical challenges can be an opportunity to accelerate the green and digital transitions. To do so, industry must join forces at EU level as well as on an international scale to embrace innovation and push for the security, resilience, and carbon-neutrality of EU’s industrial fabric. The emerging area of IoT and edge computing represents an opportunity to reiterate on working with US partners; in an IoT Week session featuring American speakers, the EU explored new ways of collaborating on fundamental research between the Commission and the US National Science Foundation, focusing on new concepts for distributed computing and swarm intelligence.

Harnessing the power of IoT technologies will undoubtedly create positive spins to all sectors of activity; it is tightly interwoven with the Digital Decade and upcoming digital policies, like the Data Act and the Data Governance Act, and will benefit from Europe’s ambition to secure supply next-generation chips through the Chips Act, because of the considerable demand side that the IoT represents.

Read the event report.

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Internet of Things

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