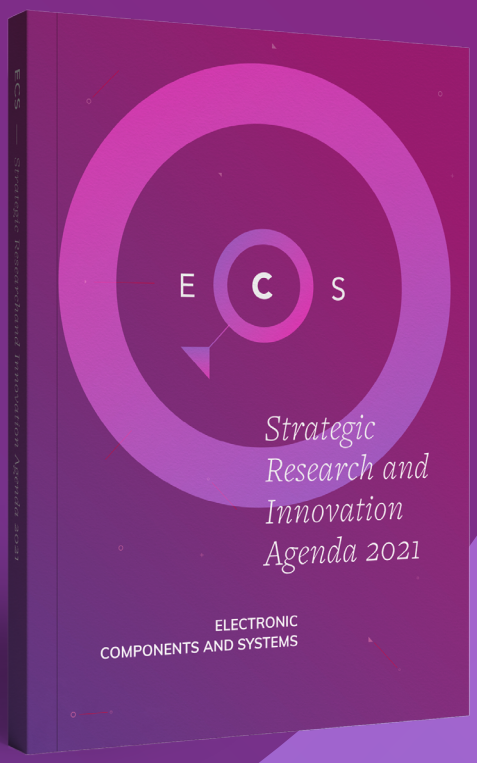
ECS-SRIA 2021

12 JANUARY 2021



ECS-SRIA 2021: RELEASE NOTES

E C S Strategic Research and Innovation Agenda 2021

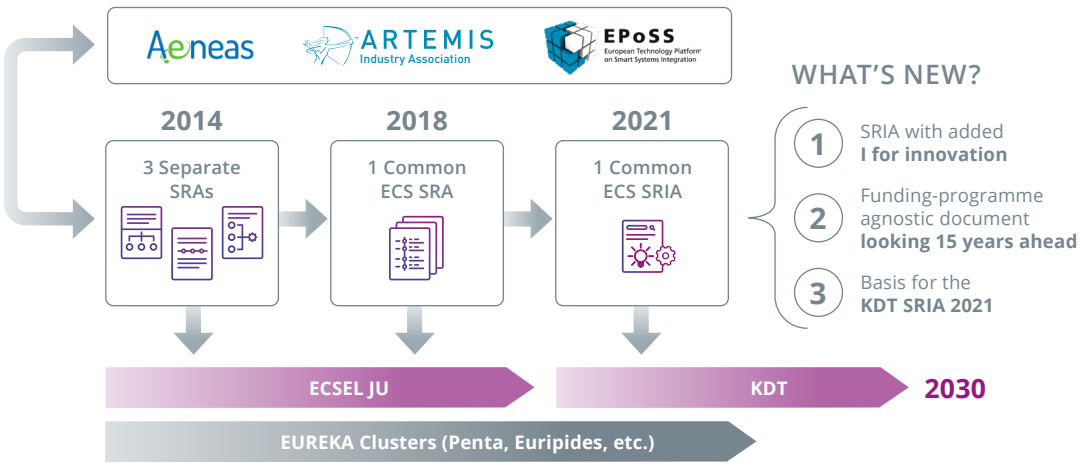
This is the fourth edition and the major update of the ECS Strategic Research and Innovation Agenda (ECS-SRIA), which was jointly developed by members of three industry associations: AENEAS, ARTEMIS-IA and EPOSS. This ECS is as wide-ranging as that of the three communities on micro- and nanoelectronics, Smart Systems Integration and embedded systems of systems.

ECS-SRIA 2021 RELEASE NOTES

ECS-SRIA 2021: A major update!

Since 2017, AENEAS, ARTEMIS-IA and EPoSS have combined their SRAs into one common ECS-SRA. This year 15 section teams with 53 section leaders and co-leaders and nearly 300 contributors have created this major update: the Strategic Research and Innovation Agenda (SRIA) 2021.

Based on analysis of the major applications fields where Europe must maintain and/or develop its leadership, and of its current and foreseeable technology capabilities, this ECS-SRIA aims to identify the main focus areas for research and innovation in Europe in Electronic Components and Systems and Key Digital Technologies for the next 10–15 years. To achieve these objectives, it must reflect the dynamics of our industry, characterised by continual technological advances and new applications being invented at an ever-increasing pace. Therefore, this cannot be a static document, and it will continue to evolve – with reviews every year and a major update every three years. This continuous process will enable all ECS stakeholders to be constantly aware of new emerging technologies, potential game-changers and the evolving long-term vision of the industry.



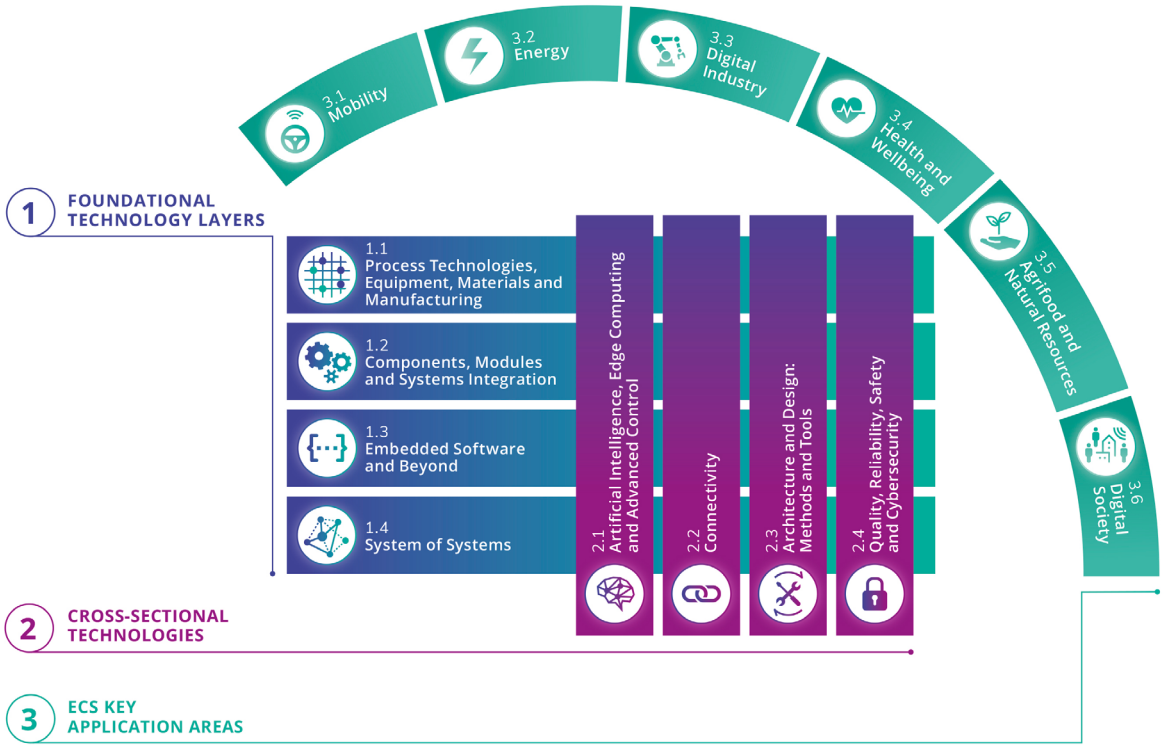
Its purpose

The European Commission recently coined the term "Key Digital Technologies" (KDT) to express why ECS is the basis on which many other digital technologies and many application areas are founded. The ECS-SRIA 2021 will provide direction not only to new KDT joint undertaklngs, but also to longer-term R&D&I activities on ECS in Horizon Europe, as well as to EUREKA clusters such as PENTA and EURIPIDES, and their successors.

A new structure

In this new edition, we start the ECS-SRIA with a focus on **Foundational Technology Layers** (Chapter ①) and their technical challenges along the technology stack from materials and process technologies to components, modules and their integration into electronic systems, embedded software developments and software technologies, to full systems and System of Systems. They are complemented by a **Cross-Sectional Technology** chapter (Chapter ②) that focuses on transversal areas of scientific research and engineering where innovative results emerge from the joint contribution of the foundational layers to those specific areas. Artificial Intelligence, Edge Computing and Advanced Control now have their own chapter, as does Connectivity (5G/6G), Architecture and Design, and Quality, Reliability, Safety and Cybersecurity.

In Chapter ③, for six **ECS Key Application Areas**, the challenges arising from specific application domains are described and the R&D&I efforts required by these application domains identified. For the first time, we have now a whole section on Agrifood and Natural Resources.



Finally, the **Long-Term Vision** chapter illustrates our vision of the ECS beyond the time horizon covered by the other chapters. It seeks to identify those research subjects that must be addressed in the interim at low TRL levels as foundation and preparation for developments in European industry a decade from now.

In this ECS-SRIA, all Major challenges identified by the different chapter teams were analysed and finally merged into **Main common objectives** for the ECS community. In addition, for the first time three **common Roadmaps** with short-term (until 2025), mid-term (until 2030) and long-term (2031 and beyond) key milestones were derived by the individual competence teams.

For feedback on this document, please contact: contact@smart-systems-integration.org.