

RD&I Focus Areas



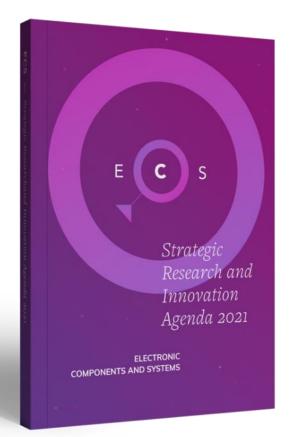
For more information: www.eureka-xecs.com





RD&I Focus Areas?

The Strategic Research and Innovation Agenda!



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Tool to coordinate R&D&I and funding across the entire ECS value chain

Combined research agenda from the three Industry Associations AENEAS, ARTEMIS-IA and EPoSS that represent large companies, SMEs, universities and research institutes from the whole domain spectrum.

 \times Results from a collective work of experts contributing on a voluntary basis

 \times Targets Excellence, Expertise and Openness:

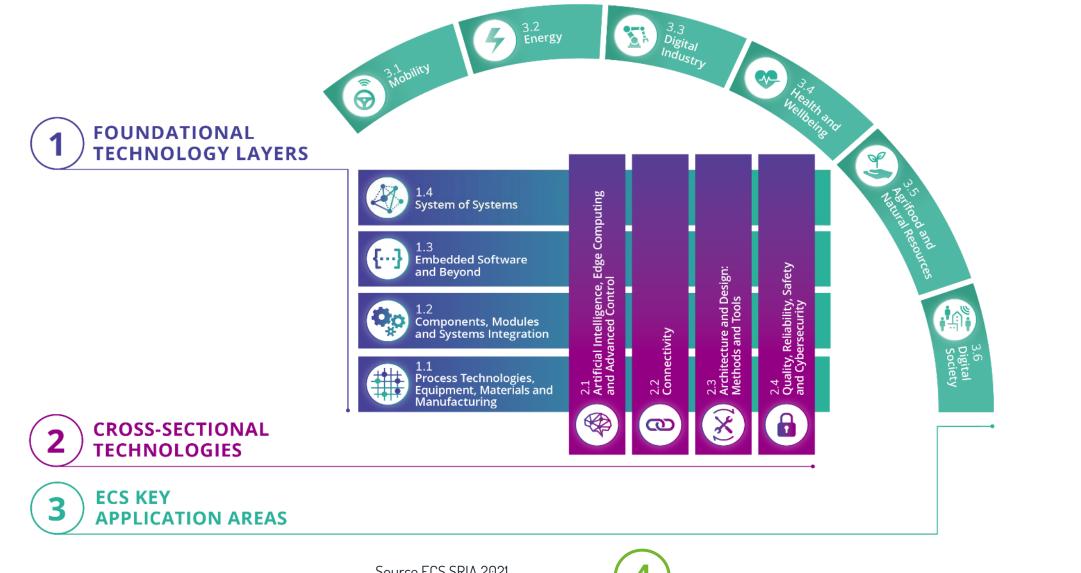
- No limitation on participation: Legitimacy comes from the collective effort
 - Over 250 experts participated to the 2021 version
- Reach beyond our "traditional" community: Being aware of / involving other communities
 - SRIA is guidance for ECS community R&I: Need to be aware of trends
 - Roadmap useful if strong adoption
- Expertise over obedience No requirement to belong to an Association, or balance between association representation at the level of section teams



ECS SRIA 2021 Structure



LONG TERM VISION CHAPTER



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Source ECS SRIA 2021

Xecs^Σ

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Global Timelines



X "A journey of a thousand miles begins with a single step"

• From Tao Tö King, circa 400 BC

XSelected milestones over three time periods

- Short term (2021–2025): The industry has a precise idea of what must be achieved during that timeframe.
- Medium term (2026–2030): Reasonably good knowledge of what can possibly be achieved.
- Long term (2031 and beyond):

Expected achievements are more of a prospective nature.

- XDescribed features expected to be available as ECS at TRL levels 8–9 (prototype or early commercialisation) within that timeframe
- XDetailed timelines available in each technology or application section



https://fr.wikipedia.org/wiki/Lao_Tseu



Global Timelines

Short term example

Materials enabling recycling and repair Components, Modules and System Integration Foundational Technology

Advanced AI edge solutions leveraging open source or alternative strategies

Artificial Intelligence, Edge Computing and Advanced Control Cross-Sectional Technology

Widespread deployment of sensors to monitor forests, fields and oceans Agrifood and Natural Resources Key Application Area

GLOBAL TIMELINE: SHORT TERM 2021-2025

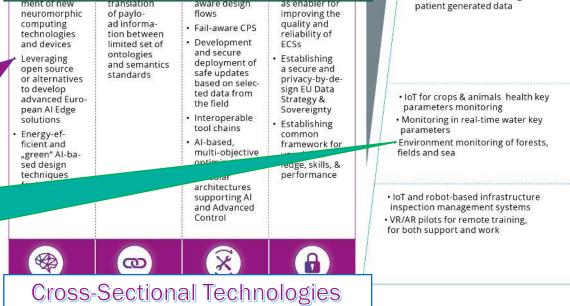
System of Systems reference architecture and implementation platforms

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- Embedded software enabling systems to be easily configured and to adapt to changes in the environment
- Green awareness in software integration
- Physical and chemical sensors & imaging and image-based detection
- Materials enabling recycling and repair
- Additive manufacturing, rapid prototyping, hetero-integration on multi-level
- Semiconductor equipment for 3nm node for logic and memory
- ULP 18nm FDSOI technology
- 3D heterogeneous integration
- Devices enabling 5G connectivity

Foundational Technology Layers



 EV passenger car Energy-optimized EV urban and H₂ long distance mobility Driver assisted and partially automated mobility V&V procedures for partially automated mobility 	9	-0
 Pilot European AI Framework Remote engineering and operations, telepresence Pilots of Digital twins combined with data-driven models 	E	
 Real Time (RT) digital twins for energy and conversion and storage systems Smart energy networks for RT application in smart grid Communication infrastructure to support self-organised communities 	9	Key App
• Internet of medical things for patient generated data	•	lication Ar
 IoT for crops & animals health key parameters monitoring Monitoring in real-time water key parameters Environment monitoring of forests, fields and sea 	Ł	Areas
 IoT and robot-based infrastructure inspection management systems VR/AR pilots for remote training, for both support and work 		

