RD&I Focus Areas

29.09.2022

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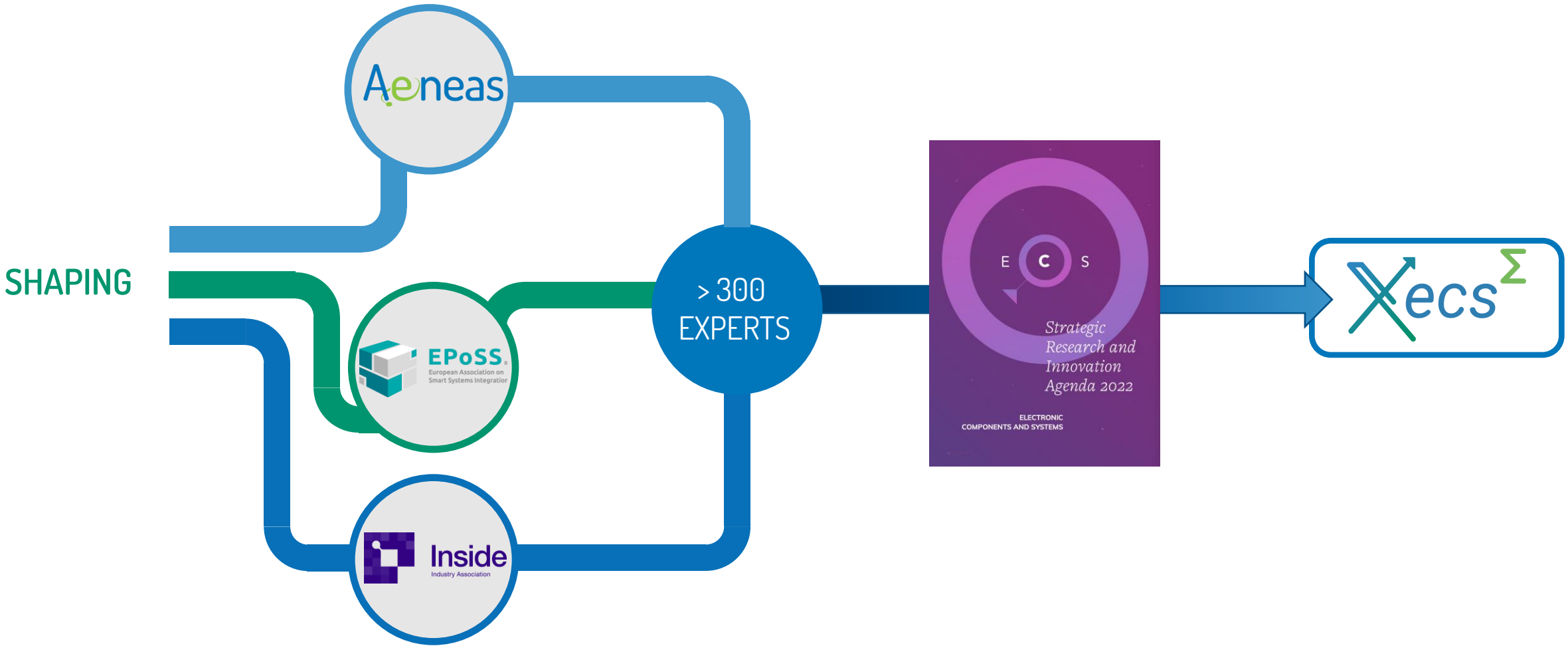
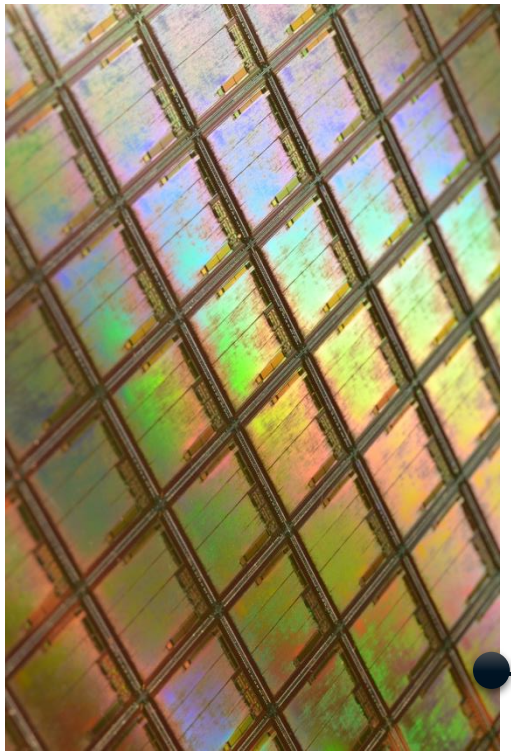
The ECS-SRIA 2022
Basis for Xecs Call 2

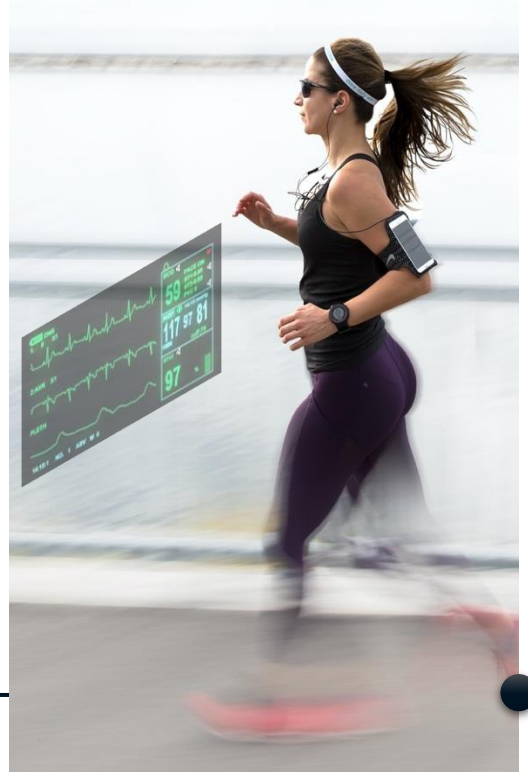


The SRIA covers the entire ECS value chain



Materials, processes, semiconductors, micro & nano electronic components, …

Smart sensors, integrated devices, edge AI, embedded SW, …



Systems and applications, value creation, societal goals, …

ECS engineering tools

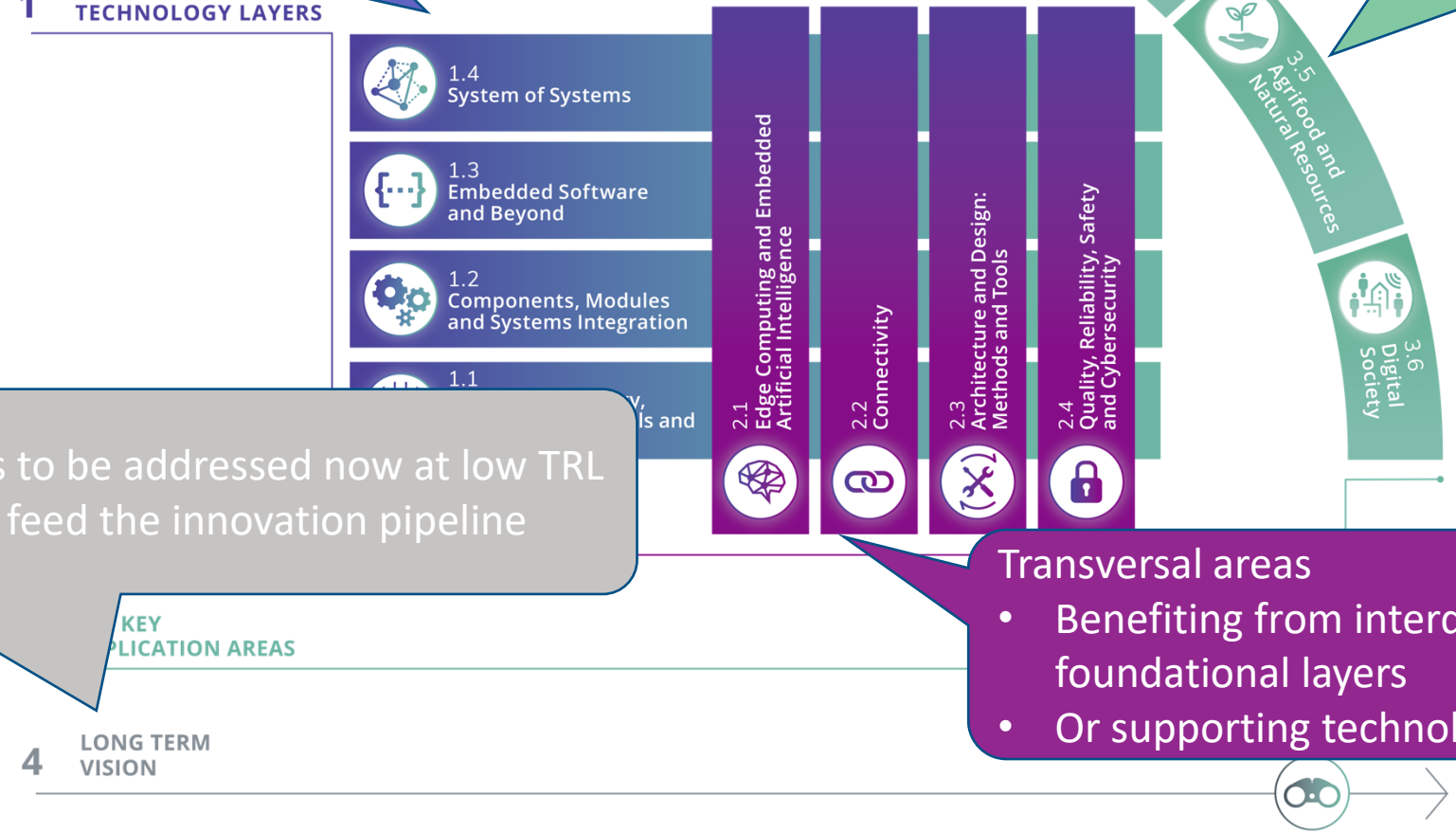
ECS COLLABORATION TOOL

https://ecscollaborationtool.eu/news-overview/news-ecs-sria-2022.html

ECS-SRIA structure

Basic technology stack of a typical digitalization solution Hierarchical dependencies

Key ECS application domains for Europe Enabled by and driving ECS technology roadmaps



What needs to be addressed now at low TRL level to feed the innovation pipeline

Transversal areas

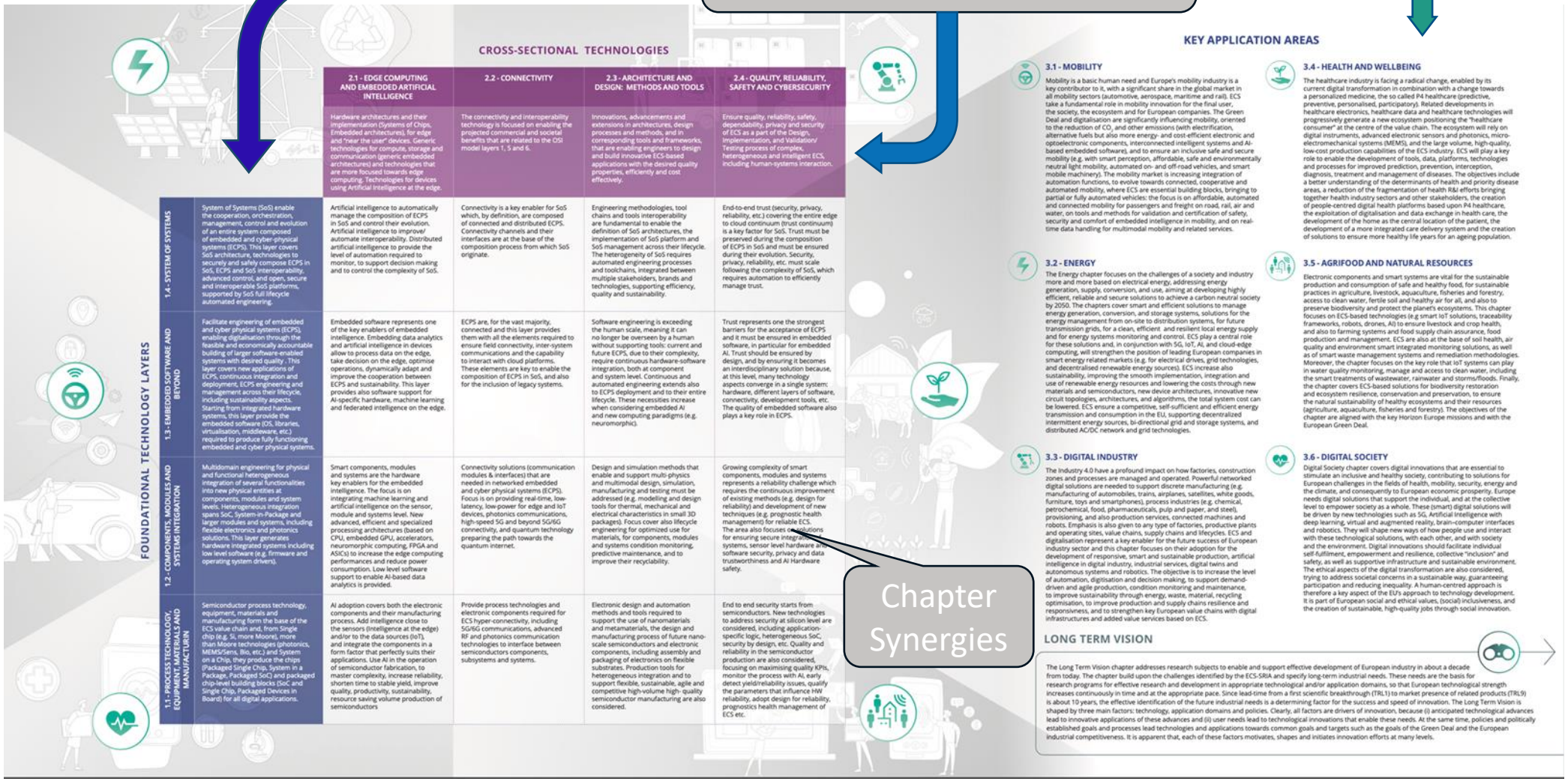
- Benefiting from interdisciplinary contribution of the foundational layers
- Or supporting technology stack across all layers

ECS-SRIA 2022 content updates

- SRIA 2022 **content updates cover the entire SRIA** and include:
  - Feedback from the ECS community and the EU Commission on specific topics
  - The input provided by the 6 thematic workshops
  - Updates planned in 2020 or emerging in 2021
- **Scope extension** to include quantum technologies, integrated photonics, flexible electronics and open-source hardware.
- **New leaders** for some chapters.
- **New contributors** in almost all the chapters

The ECS SRIA at a glance

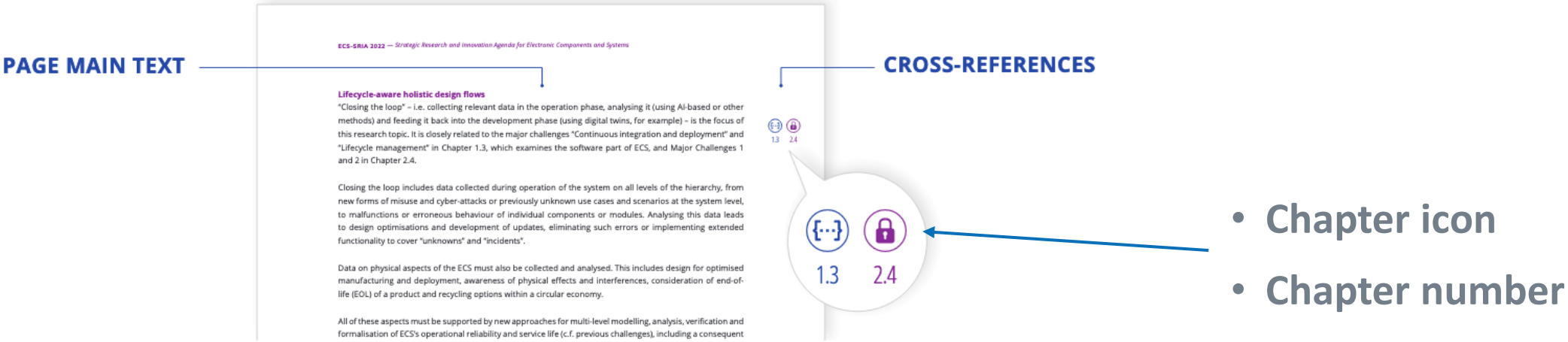
Chapter scope summary



Chapter Synergies

Chapter cross references

- To highlight the synergies between Chapters and provide hints to the reader, cross-references have been introduced alongside the text

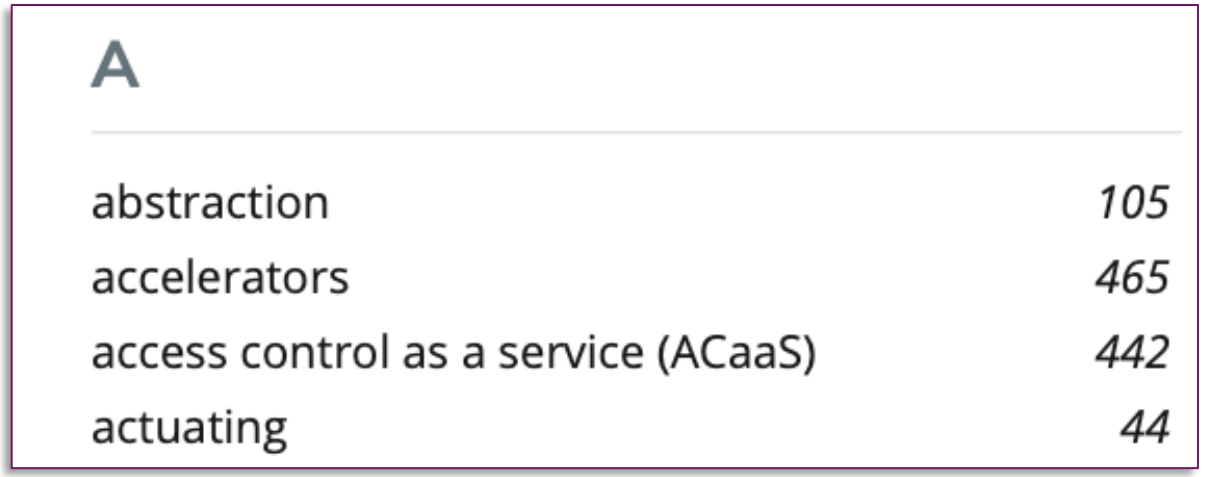


- **Chapter icon**
- **Chapter number**

- Cross-references indicate that the topic described in the main text is linked to the referenced Chapter.

Keywords index

- New index to quickly search key topics and simplify the SRIA “navigation” jumping directly to them.



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The SRIA - How to use it?

Example of a project proposal

- Infrastructure-based collision avoidance system
- Protecting all road users
- Sensors installed at crossroads
- Collision prediction based on trajectory, with self-learning capabilities
- Sending warning signals if danger is detected

How to argue for relevance?

Check for research issues?

Using the outline and the table of contents

3.1 - MOBILITY

Mobility is a basic human need and Europe's mobility industry is a key contributor to it, with a significant share in the global market in all mobility sectors (automotive, aerospace, maritime and rail). ECS take a fundamental role in mobility innovation for the final user, the society, the ecosystem and for European companies. The Green Deal and digitalisation are significantly influencing mobility, oriented to the reduction of CO_2 and other emissions (with electrification, alternative fuels but also more energy- and cost-efficient electronic and optoelectronic components, interconnected intelligent systems and AI-based embedded software), and to ensure an inclusive safe and secure mobility (e.g. with smart perception, affordable, safe and environmentally neutral light mobility, automated on- and off-road vehicles, and smart mobile machinery). The mobility market is increasing integration of

2.1 - EDGE COMPUTING AND EMBEDDED ARTIFICIAL INTELLIGENCE

Hardware architectures and their implementation (Systems of Chips, Embedded architectures), for edge and "near the user" devices. Generic technologies for compute, storage and communication (generic embedded architectures) and technologies that are more focused towards edge computing. Technologies for devices using Artificial Intelligence at the edge.

Using the keywords index

V2X

3.1.4.3.2 Key focus areas

The following research, development and innovations areas and their subtopics have been identified:

- Dependable and affordable environment perception and localisation sensors, and V2X communication. Attention should be paid to sensor interference, more in particular the robustness of sensors to environmental conditions, to interference by other sensors and to malicious interference.

Table of contents

Plain text search

Road safety

In the mobility application area, the provision of improved, robust, secure and interoperable connectivity will support breakthroughs regarding:

Increasing road safety through the CCAM programme.

Self-learning

Third, self-learning techniques (Federative learning, unsupervised learning, ...) will be necessary for fast and automatic adaptation.

In summary, the 2022 ECS SRIA…

- Is the basis for Xecs Call 2
- Covers the whole ECS value chain
- Help you build your proposals
  - Identifying research topics
  - Identifying fit with global industry roadmap

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