E C S

Electronic Components and Systems

ECS-SRIA 2022

Draft

Paolo Azzoni, ECS-SRIA Chairman, Inside-IA

Patrick Cogez, ECS-SRIA Co-Chair, AENEAS

Elisabeth Steimetz, ECS-SRIA Co-Chair, EPOSS

The ECS-SRIA 2022

Electronic Components and Systems

The ECS Strategic Research and Innovation Agenda (ECS-SRIA):

- describes the **major challenges** and **priorities**,
- and the necessary **R&D&I efforts** to tackle them,
- in the area of the **electronics components and systems, and systems of systems**
- spanning the entire **ECS value chain**, from foundational and cross-sectional technologies to application fields.

Joint effort of the **3 Industry Associations**

- AENEAS, EPOSS and Inside-IA,
- with a core team of **9 members, 57 chapter leaders**,
- and the involvement of more than **300 experts** from the ECS community.

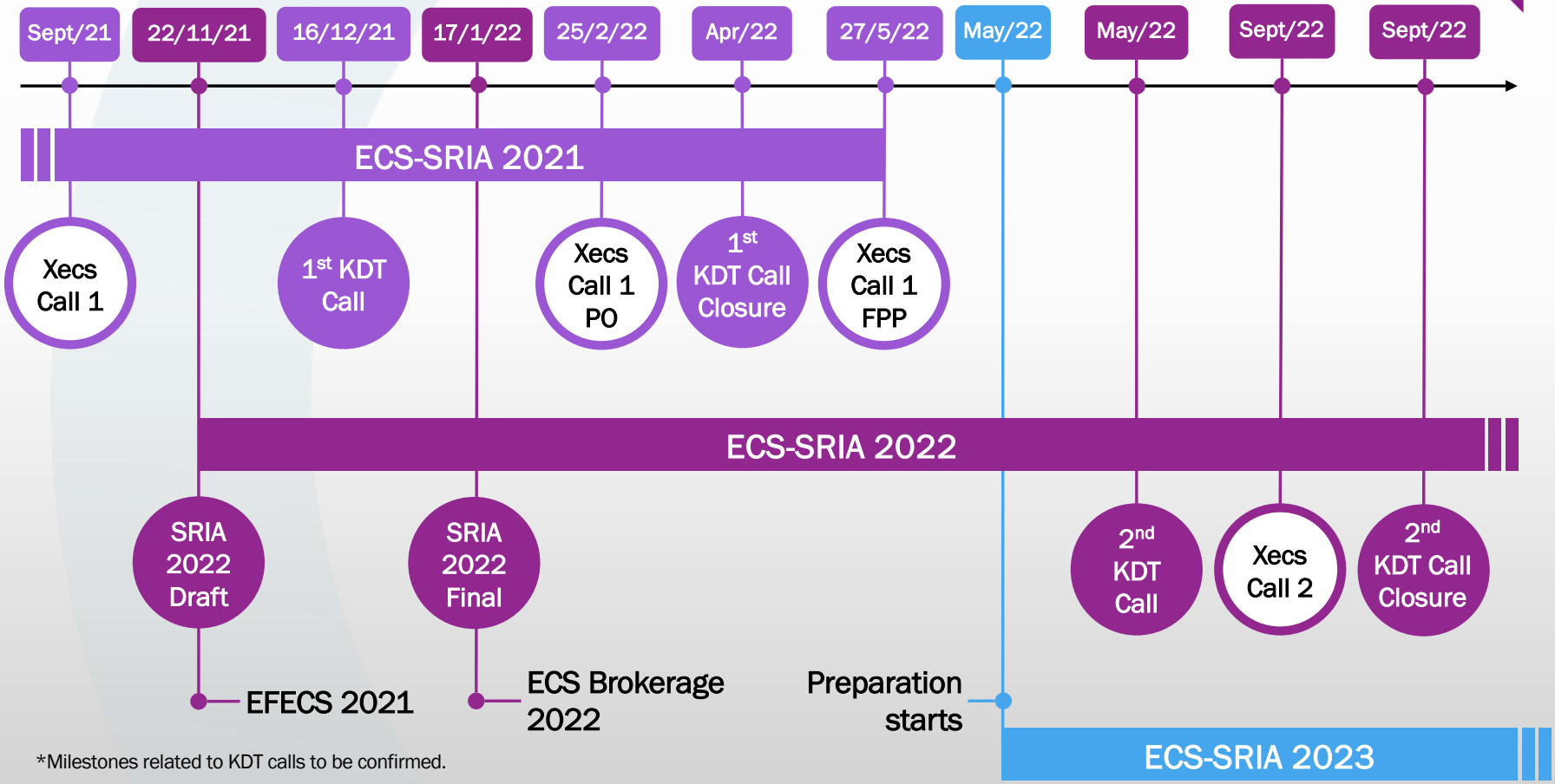
Funding-programme agnostic document looking 15 years ahead.

The ECS-SRIA is the reference document for:

- **KDT** (previously ECSEL), the KDT JU adopts the ECS-SRIA as the KDT-SRIA,
- **EUREKA** Clusters (e.g. Xecs, PENTA, Euripides).

https://efecs.eu/publication/download/ecs-sria-2022-first-draft.pdf

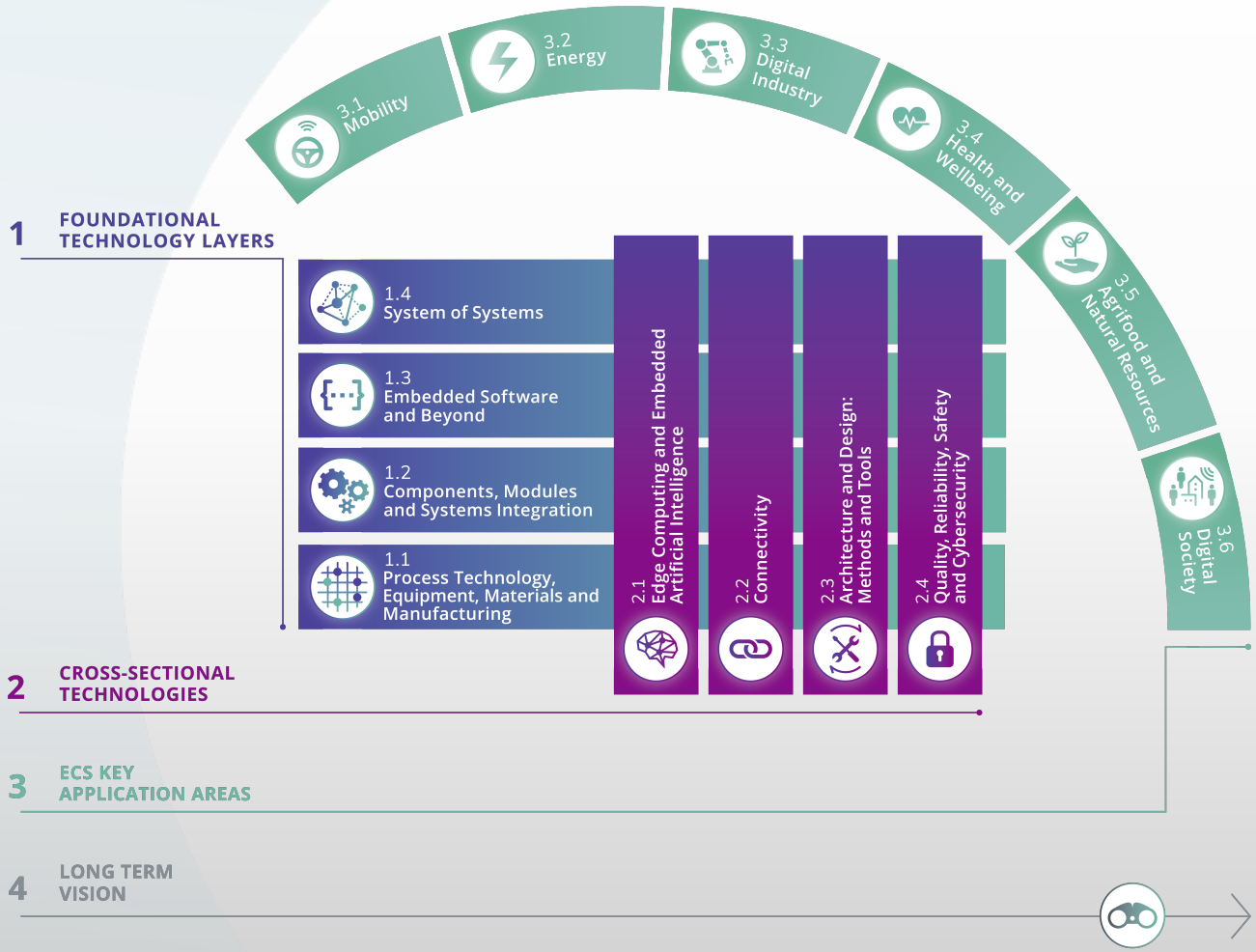
ECS-SRIAs Timeline*



*Milestones related to KDT calls to be confirmed.

E C S
Electronic Components and Systems

ECS-SRIA structure



Electronic Components and Systems

Foundational technologies

Electronic Components and Systems

The **Foundational Technology Layers** cover the **technology stack** of a typical digitalization solution based on ECS.

They have **hierarchical dependencies**, due to the inherent nature of ECS and the way they compose and integrate in complex entities.

Essential to creating the main components of a digitalization solution.

Represent a very **fertile ground** where new **interdisciplinary** technologies, products and solutions can grow.

Cross sectional technologies

Four **Cross-Sectional Technology** chapters focus on **transversal** areas, where innovative results emerge from the **interdisciplinary** contribution of the foundational layers.

E.g.: embedded intelligence on the edge requires

- new integrated circuits
- to develop innovative electronic components
- that can be used to develop smarter and more connected components, modules and entire systems,
- running smart software that will offer new functionalities and capabilities
- that will allow these systems to interact, cooperate and merge in larger Systems of Systems.

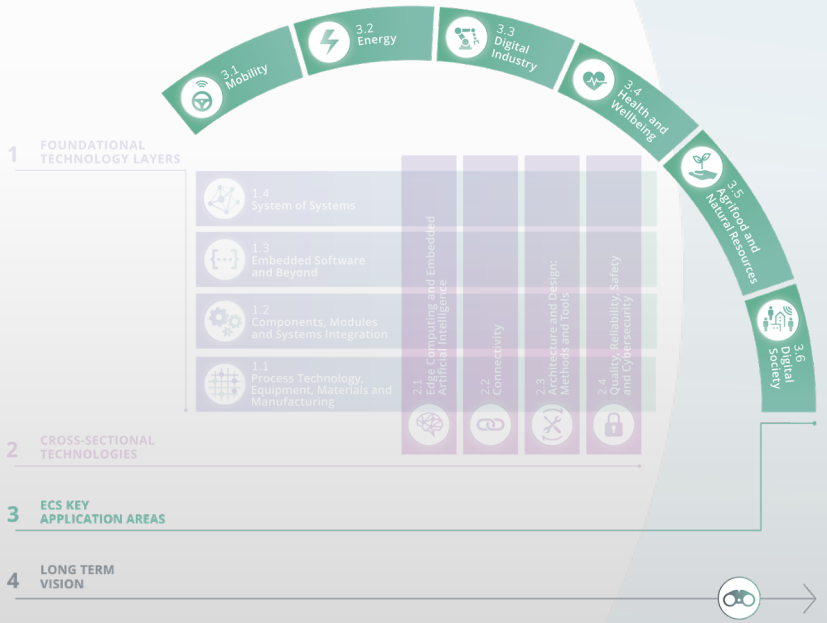
The innovation generated by cross-sectional technologies influences foundational layers and **amplifies the effect** of innovation also in the application domains.

Application chapters and LTV

Six **Application chapters** describe the challenges of specific ECS application domains, that are key for Europe, and identify the required R&D&I efforts.

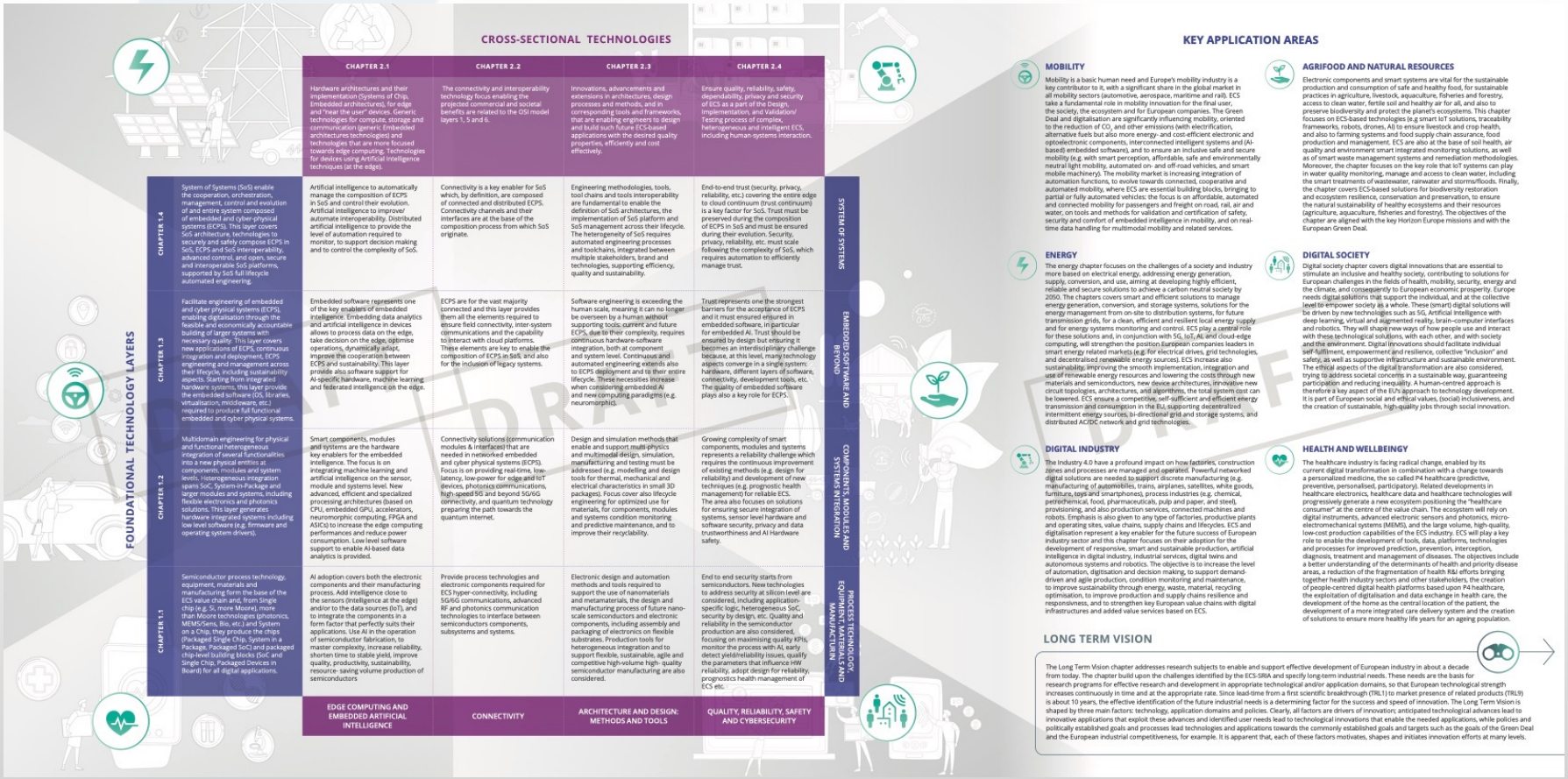
Finally, the **Long-Term Vision** chapter illustrates our vision of the ECS beyond the time horizon covered by the other chapters:

- it seeks to identify the research subjects that must be addressed at low TRL levels
- and help the research programs in the continuous improvement of European digital technology



ECS-SRIA Outline

Electronic Components and Systems



Objectives of 2022 Update

Electronic Components and Systems

Updates follow/influence research and market trends and focus both on **contents and the relations** between them.

Updates focused on **contents**:

- Improve the delineation of existing concepts and introduce new concepts
- Minimize unnecessary overlapping and avoid fragmentation

Updates are intended to show the **ECS-SRIA "systemic" nature**:

- Highlight and improve the **synergies** between the chapters
- Highlight **interdisciplinarity**
  - Between technology domains
  - Between technology and applications

ECS-SRIA updates

Electronic Components and Systems

SRIA 2022 updates cover, in different ways, 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 already planned last year.
- Updates emerging this year.

New chapter leaders, e.g. in chapters 1.1 (PTEMM), 3.3 (Digital Industry) and 4 (LTV).

New contributors, in almost all the chapters.

ECS-SRIA updates (2)

Introduction updates:

- 4 Main Objectives analysis update
- Global timelines update
- ECS-SRIA Outline

Scope extension to include quantum technologies, integrated photonics, flexible electronics and open-source hardware.

Improved delineation of concepts and synergies between chapters 1.1 and 1.2.

Restructuring of chapter 1.4, to improve concepts delineation and a new challenge about “Advanced Control”.

ECS-SRIA updates (3)

Electronic Components and Systems

Complete restructuring and editing of chapter 2.1 to:

- Better delineate edge computing and artificial intelligence
- And their convergence towards the embedded intelligence on the edge
- Broaden the scope of “advanced control”, that has been moved in chapter 1.4 (SoS)

Update of all the application chapters, at different levels.

Complete restructuring of the ECS long-term vision, covering all the SRIA.

Introduced an analytical index, to efficiently search key topics and simplifying the SRIA “navigation” jumping directly to them.

E C S

Electronic Components and Systems

ECS-SRIA 2022

Draft

Open for your feedback and contribution until December 15 2021

email: info@inside-association.eu