

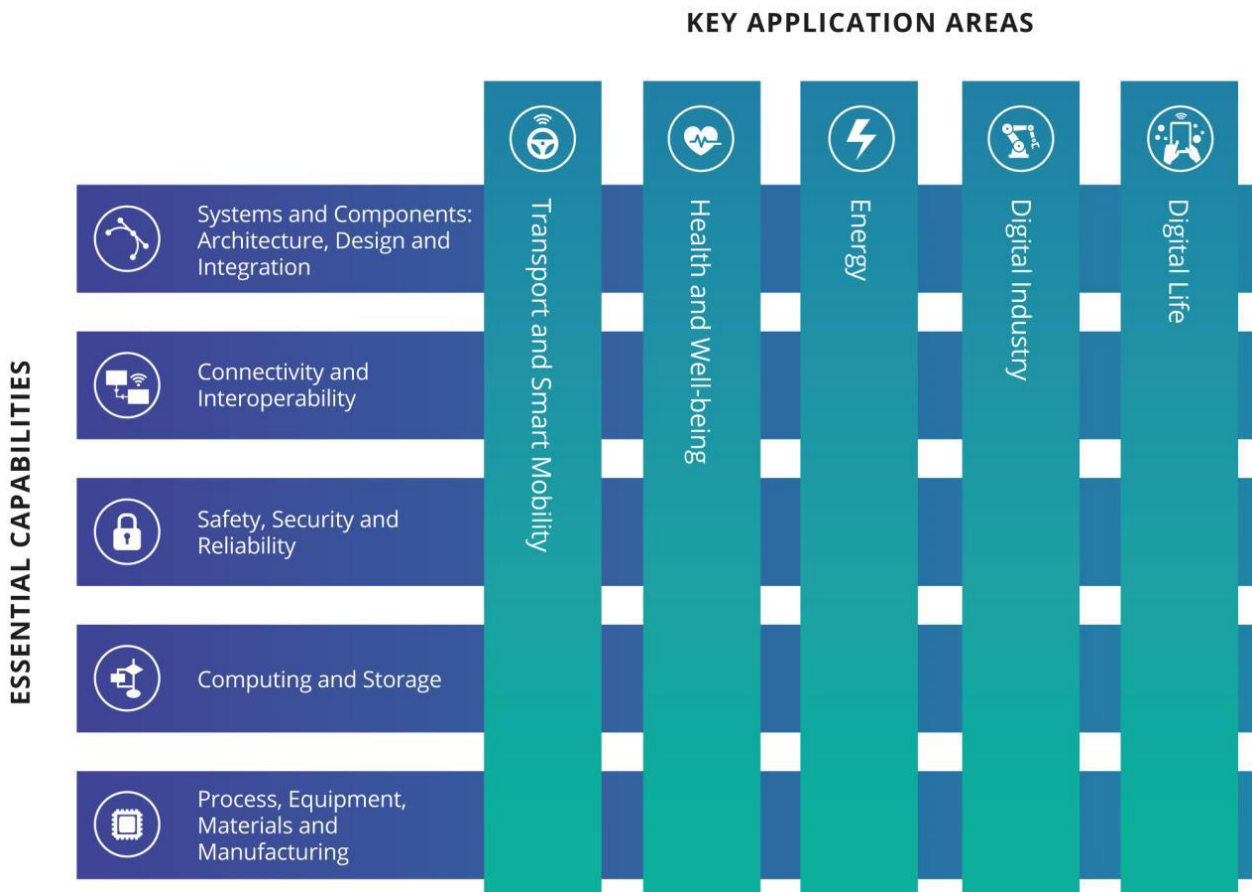


Electronic Components and Systems for European Leadership (ECSEL) - JOINT UNDERTAKING



The “Electronics Components and Systems for European Leadership” Joint Undertaking (ECSEL JU) has the mission to contribute towards keeping Europe at the forefront of the technology development addressing capabilities of essential systemic and strategic importance for each citizen, company and nation in the contemporary world and even more in the future world. The information and communication technology and its applications run on this fabric: no industrial product or system is conceivable today without extensive usage of electronic components and systems (ECS), and the trend will become stronger in the future.

The ECSEL JU will contribute to the above industrial ambition of value creation in Europe and the objectives in its basic act by establishing a programme through a **two-dimensional matrix of 5 key applications and 5 essential technology capabilities**, altogether the ECSEL **Focus Areas** (see figure below). The Key Applications are strongly connected to the Societal Challenges identified under Horizon 2020, and can be summarized under the umbrella of ‘Smart Everything Everywhere’, riding the next Internet wave (i.e. Internet of Things [IoT]) by integrating networked electronic components and systems in any type of product, artefact or goods. In this context, the Key applications are enabled by Essential capabilities in technologies.



In 2018, ECSEL launched 4 Calls for proposals for **1) Innovation Actions (IA)**, **2) Research and Innovation Actions (RIA)**, 3) CSA to support the Industry4.E lighthouse initiative and 4) CSA to support the Mobility.E lighthouse initiative.

This document summarises the IA and RIA calls: they opened on February 21st 2018. The deadlines are:

Project Outline (PO) phase: 26/04/2018.

Full Project Proposal (FPP) phase: 20/09/2018

Funding:

ECSEL projects will be funded by 1) **the EU** and by 2) **national public authorities** (MIUR or MISE, depending on the action).

1: EU funds

The total EU budget is: 110 M€ for IAs; 53M€ for the regular RIA call; 10M€ for the special RIA call (see below). The EU funding rates are:

Type of beneficiary	IA	RIA
Large enterprise	20%	25%
SME	25%	30%
University/other (not for profit)	35%	35%

2: Italian funds

The **Italian public authorities’ budgets, special eligibility rules and funding rates are detailed in the 2018 WP.**



All Italian participants must upload a set of additional information and national documents on national public authorities’ (MIUR or MISE) platforms. These documents must be submitted by the same deadline of the Project Outline (PO) phase of the ECSEL call.



NOTE: apart from the exception described below, **participants can choose any of the topics by applying either to the RIA or the IA call.** The essential differences between the two actions are the addressed Technology Readiness Level (TRL) (RIA – TRL 3 to 4; IA – TRL 5 to 8) and the funding rates. For more details on the difference between the two actions in ECSEL, see [MASP](#) – Chapter 3.



NOTE: a special call has been opened for the topic “9.3.2. Major challenge 2 Implementing AI and machine learning, to detect anomalies or similarities and to optimize parameters” for RIA actions.



NOTE: differently from other JU or H2020 calls, the topics (specific challenge, scope and expected impacts) are not described in the Research Participant Portal but in the related sections of the [2018 Multi-Annual Strategic Plan \(MASP\)](#).

All open topics, grouped by Focus Area are listed in the following pages.

Key Application Areas

Transport & Smart Mobility		
RIA	6.3.2. Major Challenge 1 Developing clean, affordable and sustainable propulsion	IA
	6.3.3. Major Challenge 2 Ensuring secure connected, cooperative and automated mobility and transportation	
	6.3.4. Major Challenge 3 Managing interaction between humans and vehicle	
	6.3.5. Major Challenge 4 Implementing infrastructure and services for smart personal mobility and logistics	

Health and Well-Being		
RIA	7.3.2. Moving healthcare from hospitals into our homes and daily life enabling preventive and patient centric care	IA
	7.3.3. Restructuring healthcare delivery systems, from supply-driven to patient-oriented	
	7.3.4. Engaging individuals more actively in their own health and well-being	
	7.3.5. Ensuring affordable healthcare for the growing amount of chronic, lifestyle related diseases and an ageing population	
	7.3.6. Developing platforms for wearables/implants, data analytics, artificial intelligence for precision medicine and personalized healthcare and well-being	

Energy		
RIA	8.3.2. Major Challenge 1 Ensuring sustainable power generation and energy conversion	IA
	8.3.3. Major Challenge 2 Achieving efficient community energy management	
	8.3.4. Major Challenge 3 Reducing energy consumption	

Digital Industry		
RIA	9.3.1. Major challenge 1 Developing Digital twins, simulation models for the evaluation of industrial assets at all factory levels and over system or product life-cycles	IA
	9.3.3. Major challenge 3 Generalizing conditions monitoring, to pre-warn before damages and to help on-line decision-making	
	9.3.4. Major challenge 4 Developing digital platforms, application development frameworks that integrate sensors and systems	

Digital Industry (Special RIA call)		
RIA	9.3.2. Major challenge 2 Implementing AI and machine learning, to detect anomalies or similarities and to optimize parameters	

Digital Life		
RIA	10.3. 1. Major Challenge 1 Ensuring safe and secure spaces	IA
	10.3. 2. Major Challenge 2 Ensuring healthy and comfortable spaces	
	10.3. 3. Major Challenge 3 Ensuring anticipating spaces	
	10.3. 4. Major Challenge 4 Ensuring sustainable spaces	



Deadlines:

Project Outline (PO) phase: 26/04/2018.

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Essential Technology Capabilities

Systems and Components: Architecture, Design and Integration		
RIA	11.3. 1. Major Challenge 1 Managing critical, autonomous, cooperating, evolvable systems	IA
	11.3. 2. Major Challenge 2 Managing Complexity	
	11.3. 3. Major Challenge 3 Managing Diversity	
	11.3. 4. Major Challenge 4 Managing Multiple Constraints	
	11.3. 5. Major Challenge 5 Integrating miniaturized features of various technologies and materials into smart components	
	11.3. 6. Major Challenge 6 Providing effective module integration for highly demanding environments	
	11.3. 7. Major Challenge 7 Increasing compactness and capabilities by functional and physical systems integration	

Connectivity and Interoperability		
RIA	12.2.1. Major Challenge 1 Meeting future connectivity requirements leveraging heterogeneous technologies	IA
	12.2.2. Major Challenge 2 Enabling nearly lossless interoperability across protocols, encodings and semantics	
	12.2.3. Major Challenge 3 Ensuring Secure Connectivity and Interoperability	

Safety, Security and Reliability		
RIA	13.3.1. Major Challenge 1 Ensuring safety, security and privacy by design	IA
	13.3.2. Major Challenge 2 Ensuring Reliability and Functional Safety	
	13.3.3. Major Challenge 3 Ensuring secure, safe and trustable connectivity and infrastructure	
	13.3.4. Major Challenge 4 Managing privacy, data protection and human interaction	

Computing and Storage		
RIA	14.3.1. Major Challenge 1 Increasing performance at acceptable costs	IA
	14.3.2. Major Challenge 2 Making computing systems more integrated with the real world	
	14.3.3. Major Challenge 3 Making "intelligent" machines	
	14.3.4. Major Challenge 4 Developing new disruptive technologies	

Electronics Components & Systems Process Technology, Equipment, Materials and Manufacturing		
RIA	15.3.1. Major Challenge 1 Developing advanced logic and memory technology for nanoscale integration and application-driven performance	IA
	15.3.2. Major Challenge 2 More than Moore and Heterogeneous System-on-Chip (SoC) Integration	
	15.3.3. Major Challenge 3 Heterogeneous System-in-Package (SiP) integration	
	15.3.4. Major Challenge 4 Maintaining world leadership in Semiconductor Equipment, Materials and Manufacturing solutions	



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