

EUROPEAN PARTNERSHIPS STRATEGIC DIRECTIONS AND RESEARCH PRIORITIES IN A GLOBAL CONTEXT.

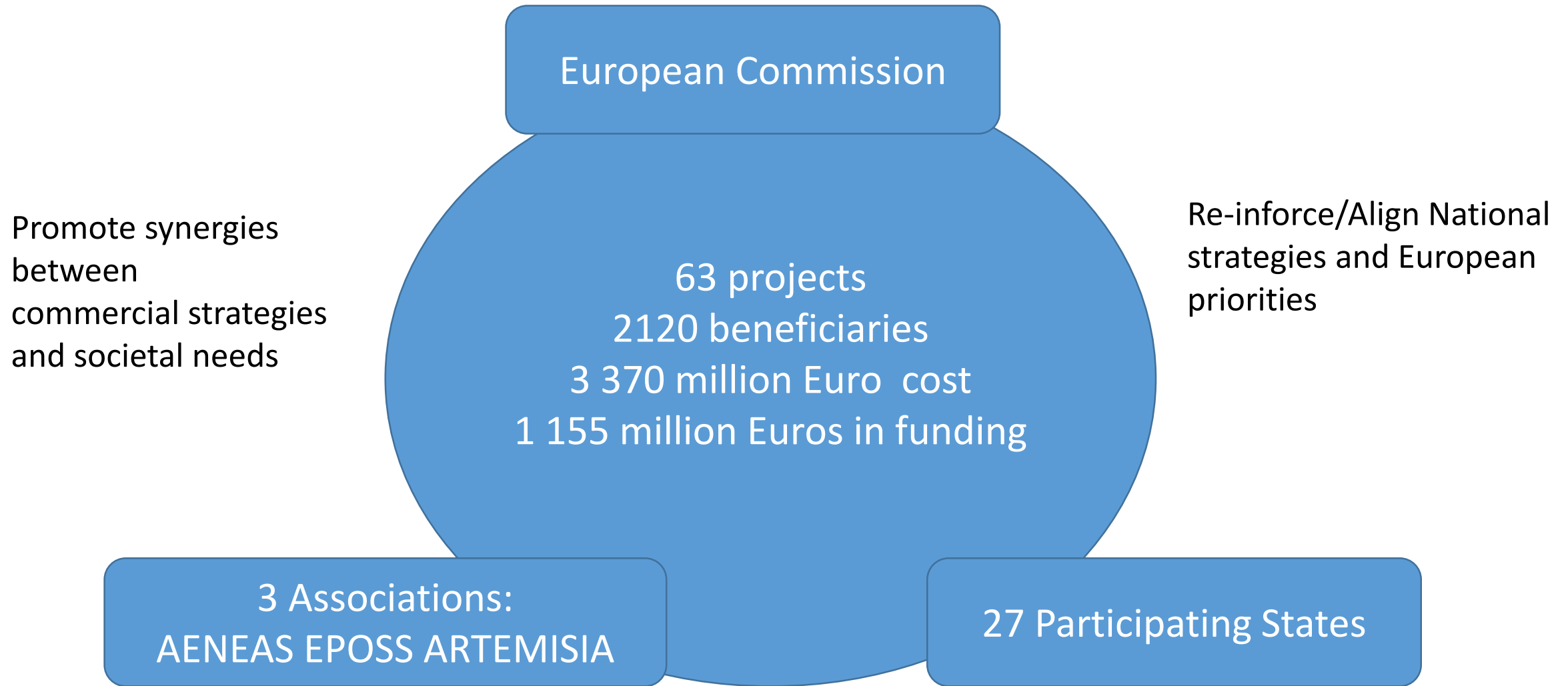
YVES GIGASE
HEAD OF PROGRAMMES
ECSEL JU

Digital autonomy, Future standardisation and regulatory landscape, 17 April 2019



ECSEL

A UNIQUE MODEL TO PROMOTE EUROPEAN INNOVATION

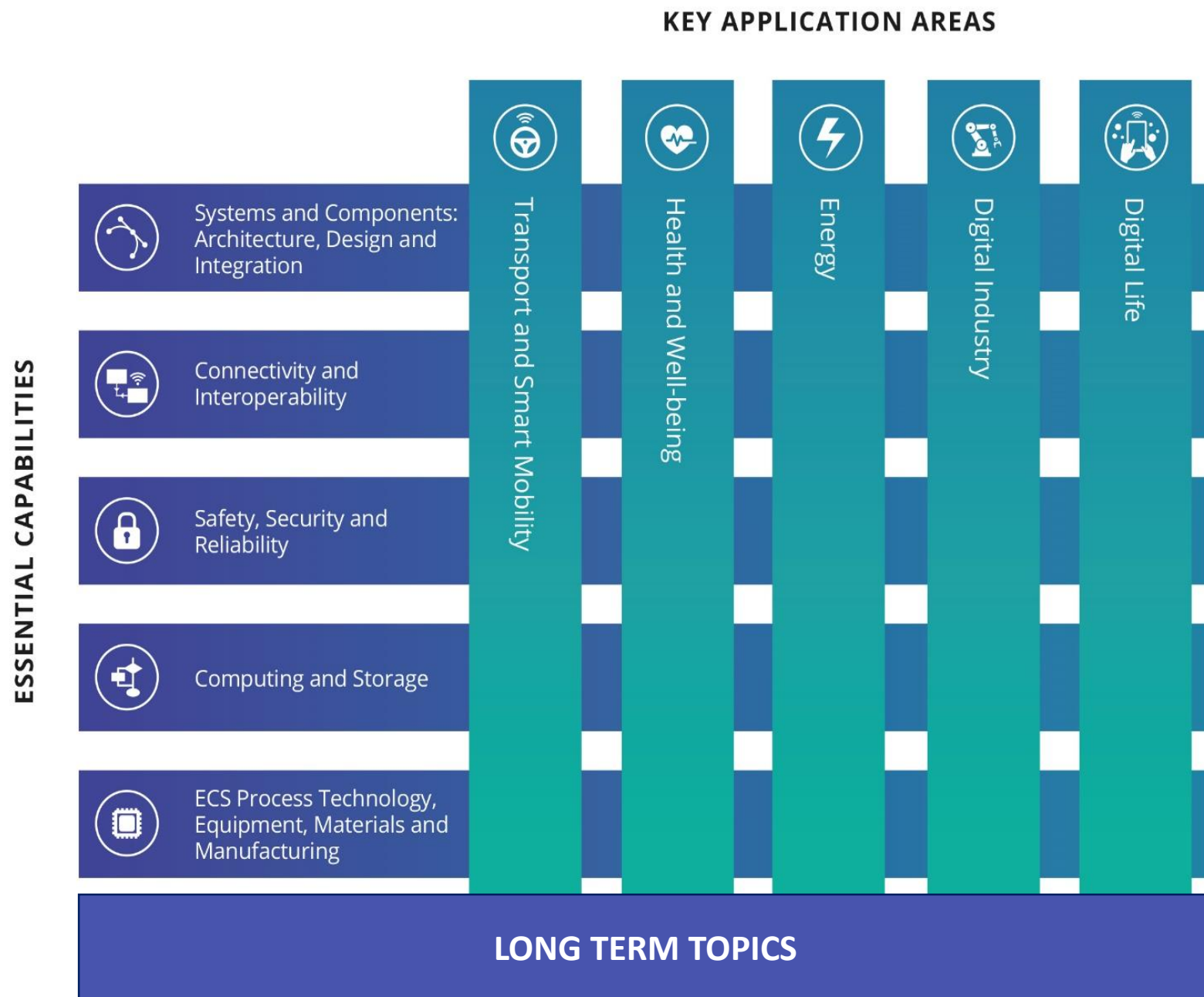


Pilot to business?

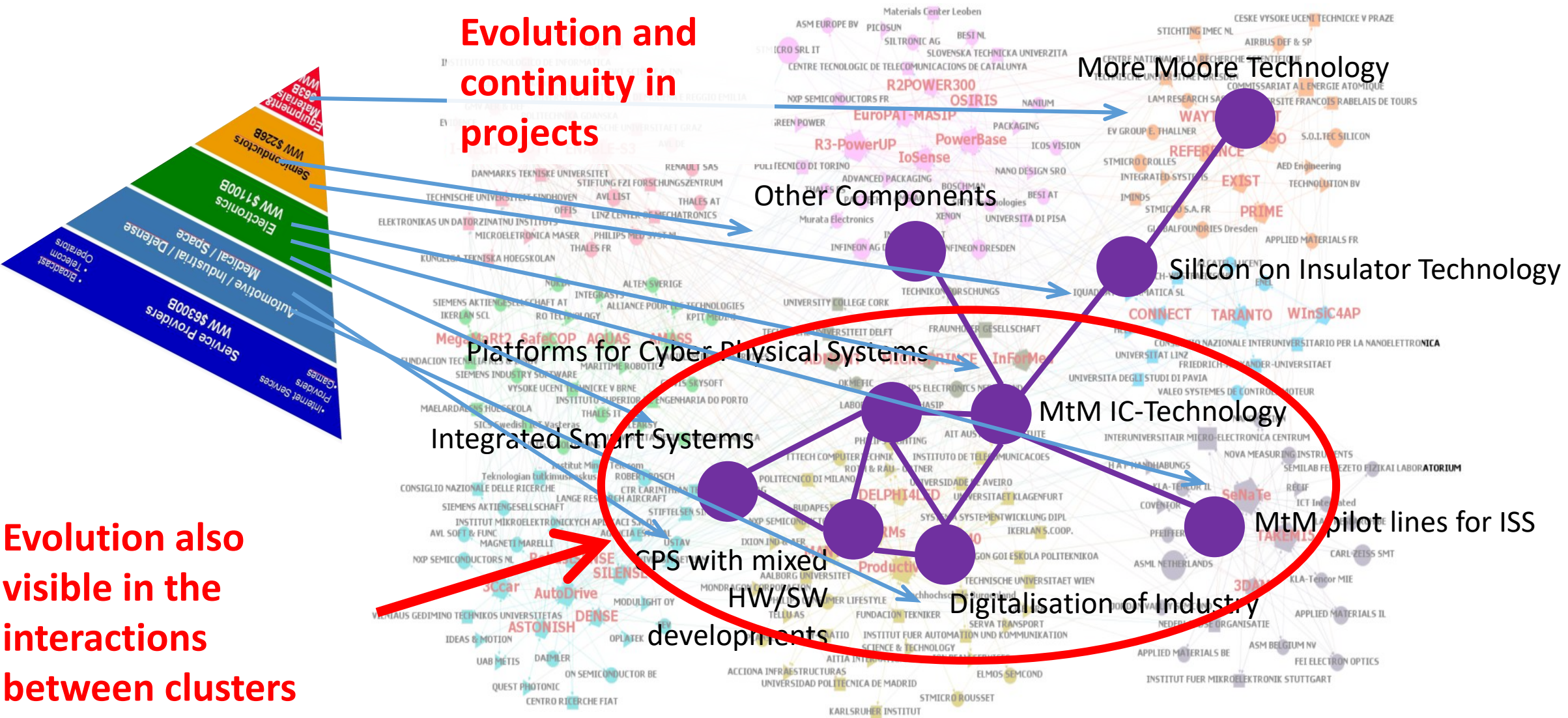


SRA

1 Strategic Research Agenda
3 Associations
For different funding programmes



ECSEL: NETWORKS OF PARTNERS AND PROJECTS



Examples of projects:

Call 2018 selected projects

All selected projects reach out to programmes outside of ECSEL: value chain stakeholders, other associations or programmes, etc by:

- Developing standards
- Using roadmaps and priorities of other organisations
- Integrating communities outside ECSEL in the ECSEL value chains
- Developing key enabling technologies enabling technologies of other programmes/associations/communities

Cost 780Mio€ ; Funding 380Mio€ ; 11 projects ; 465 beneficiaries



Comp4Drones, NewControl

Framework of key enabling technologies for safe and autonomous drones' applications

COMP4DRONES project **complements SESAR JU** efforts with a particular focus on safe software and hardware drone architectures

complements to SESAR JU

COMP4DRONES will also build an **open sustainable ecosystem around public, royalty-free and goal-driven software platform standards**

Standards

Integrated, Fail-Operational, Cognitive Perception, Planning and Control Systems for Highly Automated Vehicles

Participation to **standardization activities** (described in detail in T7.3) targeting the transfer of the main **NewControl** outcomes in the relevant future standards

Standards

It is important for Europe to **overcome silos** to be a competitive player on automated and connected vehicles. ECSEL itself is already supporting and taking into account several activities of the **European Green Vehicles Initiative PPP** and specific parts of of H2020, e.g. **Mobility for Growth, Green Vehicle, Automated Road Transport, Smart Cities and Communities** by advances in electronic components and systems for smart mobility.

Link to other priority areas

NewControl **contributions to priority areas** from European Roadmaps: **GEAR 2030, EPoSS European Roadmap Smart Systems for Automated Driving, ERTRAC Automated Driving Roadmap,**



HELIAUS, VIZTA

**Integrating one value chain in one project:
chip manufacturing, embedded software, smart system integration technology**

tHERmal vision Augmented awareness

- development of a **novel chip architecture** together with on-chip integrated functions to make the IR sensor as easy to use as visible sensor,
- design and manufacturing of **innovative IR optic systems** utilizing cutting edge component manufacturing technologies,
- as well as **cost efficient and ultraprecise packaging and assembly technologies** in order to provide a thermal infrared module,
- development of **specific embedded systems** for computer vision developments.
- **Innovative neural network** based algorithms

Vision, Identification, with Z-sensing Technologies and key Applications

Development of a high resolution Time-of-Flight ranging sensor module with integrated VCSEL, drivers, filters and optics and of a very high resolution depth camera sensor with integrated filters and optics. Demonstrators/use cases (bringing in various expertise eg in AI and neural networks, citizen services, robotics, etc.):

- automotive in-cabin
- smart building
- Security
- automotive medium-range LiDAR,
- automotive long-range LiDAR
- industry 4.0
- mobile robotics for smart cities



UltimateGaN, APPLAUSE

**Integrating existing vertical supply chains with stakeholders from different horizons:
health, mobility, communication, sensors,...**

Research for GaN technologies, devices and applications to address the challenges of the future GaN roadmap

- project proposal with strong involvement of the vertical supply chain
- spans expertise and partners from raw material research, process innovation and assembly innovation.
- envisioned Use Cases will be validated and exploited in compact power application domains representing **enhanced smart systems**.

Bringing GaN on Silicon radio frequency (RF) performance close to GaN on Silicon Carbide thus enabling an **affordable 5G rollout**

Advanced packaging for photonics, optics and electronics for low cost manufacturing in Europe

- **use cases:** cardiac implants, cardiac monitoring patches, ambient light sensor for mobile wearable applications, thermal IR sensor for automotive, datacom transceiver, optical humidity measurement module.



Power2Power, PIN3S

The next-generation silicon-based power solutions in mobility, industry and grid for sustainable decarbonisation in the next decade

The consortium is composed of a good **mix among** research institutions, automotive electronics innovation expertise, small and large industry representatives, non-profit organizations, and smart system application companies.

Power2Power will enable innovations and create opportunities from possible disruptions by providing cost effective high power electronics components. The work within the project is structured in work packages **along the value chain**.

Pilot Integration 3nm Semiconductor technology

Development of new advanced alignment models: alignment and focus sensors scan every wafer creating an advanced model that intelligently combines the data from these sensor and generate a hybrid, high density wafer map which is used as input to the many actuators in the lithography system thereby further improve the performances

Focus on key enabling technologies, involvement of others through roadmapping



Other

TEMPO

Technology & hardware for neuromorphic computing

Supporting adoption of advanced technologies by the European industry

Arrowhead Tools

Arrowhead Tools for Engineering of Digitalisation Solutions

System of Cyber Physical Systems

MADEIN4

Metrology Advances for Digitized ECS industry 4.0

Technologies for Manufacturing, integrating big data use from metrology tools in manufacturing



But is that enough? Why work together?

As a programme can we achieve more impact?

(DISSEMINATION)

✓ **EXPLOITATION OF THE
INNOVATION**

➡ **PROJECT LEVEL**

MORE IMPACT?

✓ **CREATE SYNERGIES
BETWEEN COMMUNITIES**

➡ **META PROJECT LEVEL
LIGHTHOUSE INITIATIVES**



ECSEL Lighthouses Initiatives: Goals

A “Lighthouse Initiative” will:

- Build on well identified **market-pull demands related to societal needs**.
- Offer visionary solutions for those demands creating/expanding/improving ecosystems along the relevant **value and supply chains**.
- Have a **strong pan-European dimension** in each of the steps: demands, solutions, ecosystems, technologies, demonstrators.
- Whenever appropriate, work towards **clustering of projects** in the identified areas and therefore organize the attraction of other contributing projects.
- Accelerating the social impact and **uptake of projects’ results**.
- Establish a **standardization strategy** when relevant and drive it.
- Address the relevant **non-technical aspects** (such as legislative, regulatory, social, etc) and where possible develop concepts and take concrete steps for resolving issues linked to those aspects.



LIGHTHOUSE INITIATIVES

MOBILITY.E

INDUSTRY4.E

HEALTH.E

A container of coordinated activities coming from different programmes using their synergy to achieve overarching common goals.

Lighthouse initiatives ≠ Lighthouse projects!!!



MOBILITY.E LIGHTHOUSE INITIATIVE

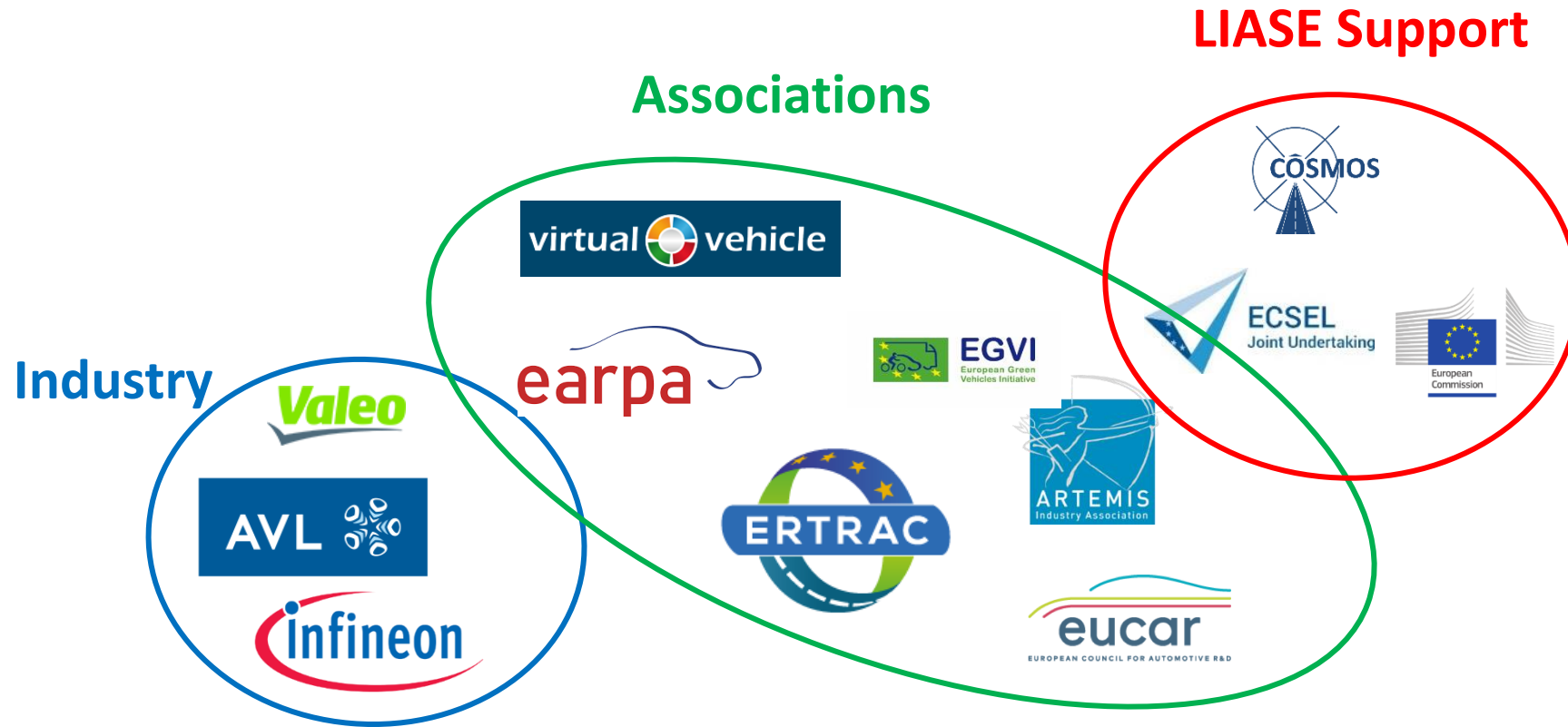
ECSEL projects active in Mobility.E

- Total cost: 700M€
- Total funding: 330M€
- Number of participants: 356
- Distributed over 26 countries



Mobility.E LIASE

Clean Connected Autonomous Mobility



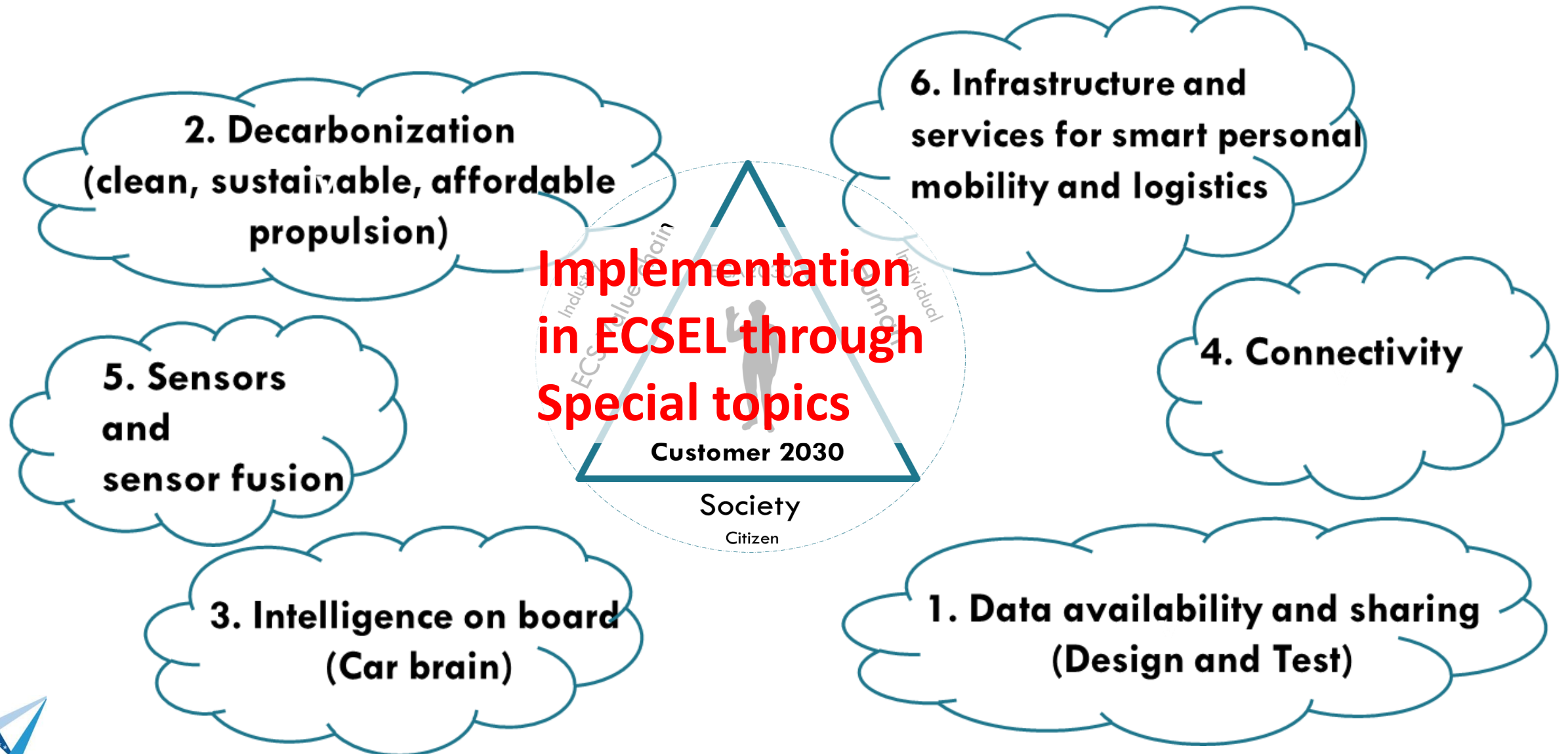
LIASE=Lighthouse Initiative Advisory Service



Mobility.E builds bridges between the roadmaps
and search for gaps on the path to 2030



Six Urgent priorities, One vision



Call 2019

Special topics on advice of Mobility.E LIASE
but also in edge computing on proposal of
the public authorities (in particular the EC)

