ARTEMIS Industry Association

'Best practices for new project creation - a Large Industry view'

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1. Motivation for funded projects
2. General approach to set up a project
3. Challenges
4. New trends
5. Ongoing research activities
6. Demand for research

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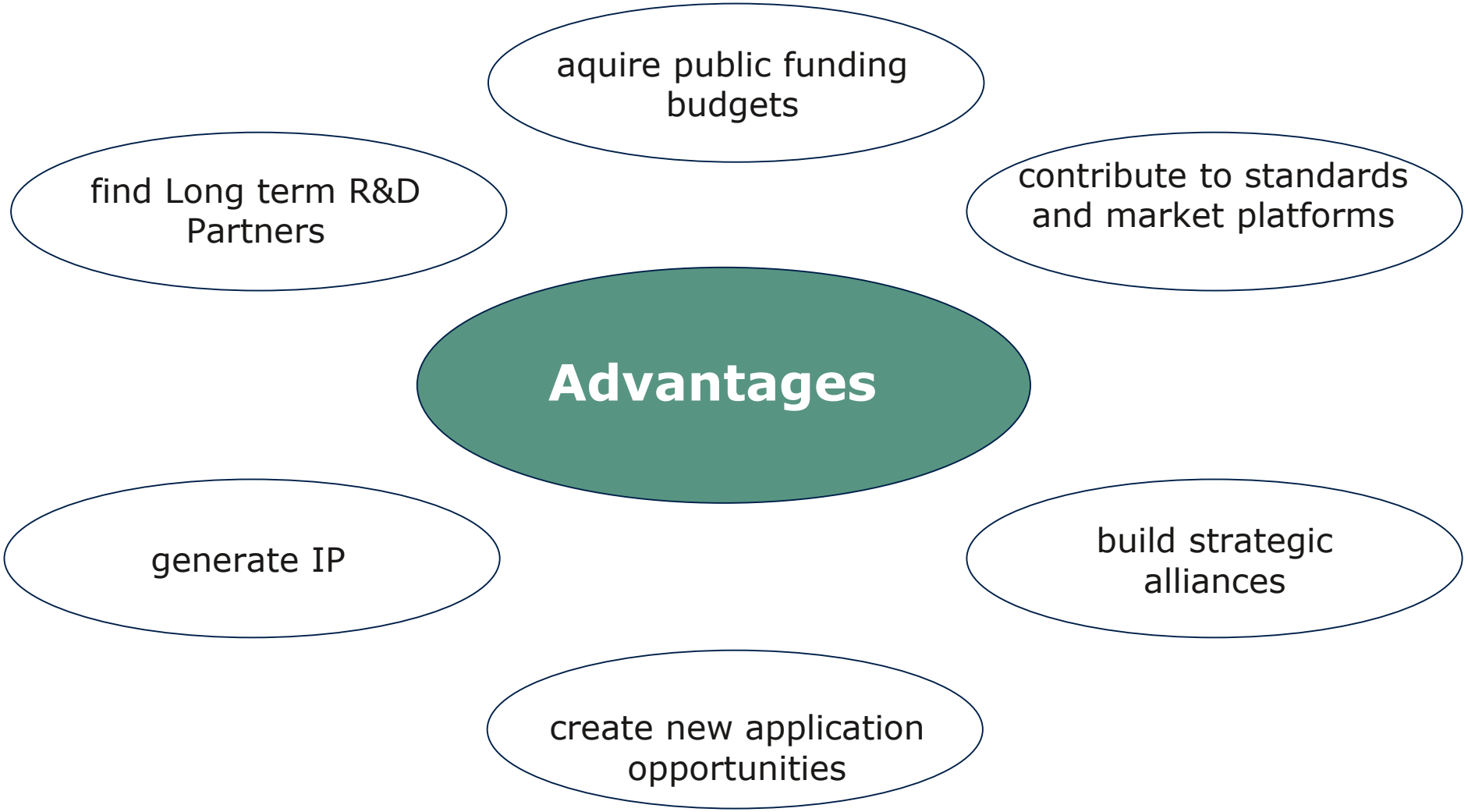
Motivation for funded projects

Best Practices??

- a committed team
- structured work
- a good portion of luck

Stick to your own creative ideas !!!

Motivation for funded projects



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General approach to set up a project

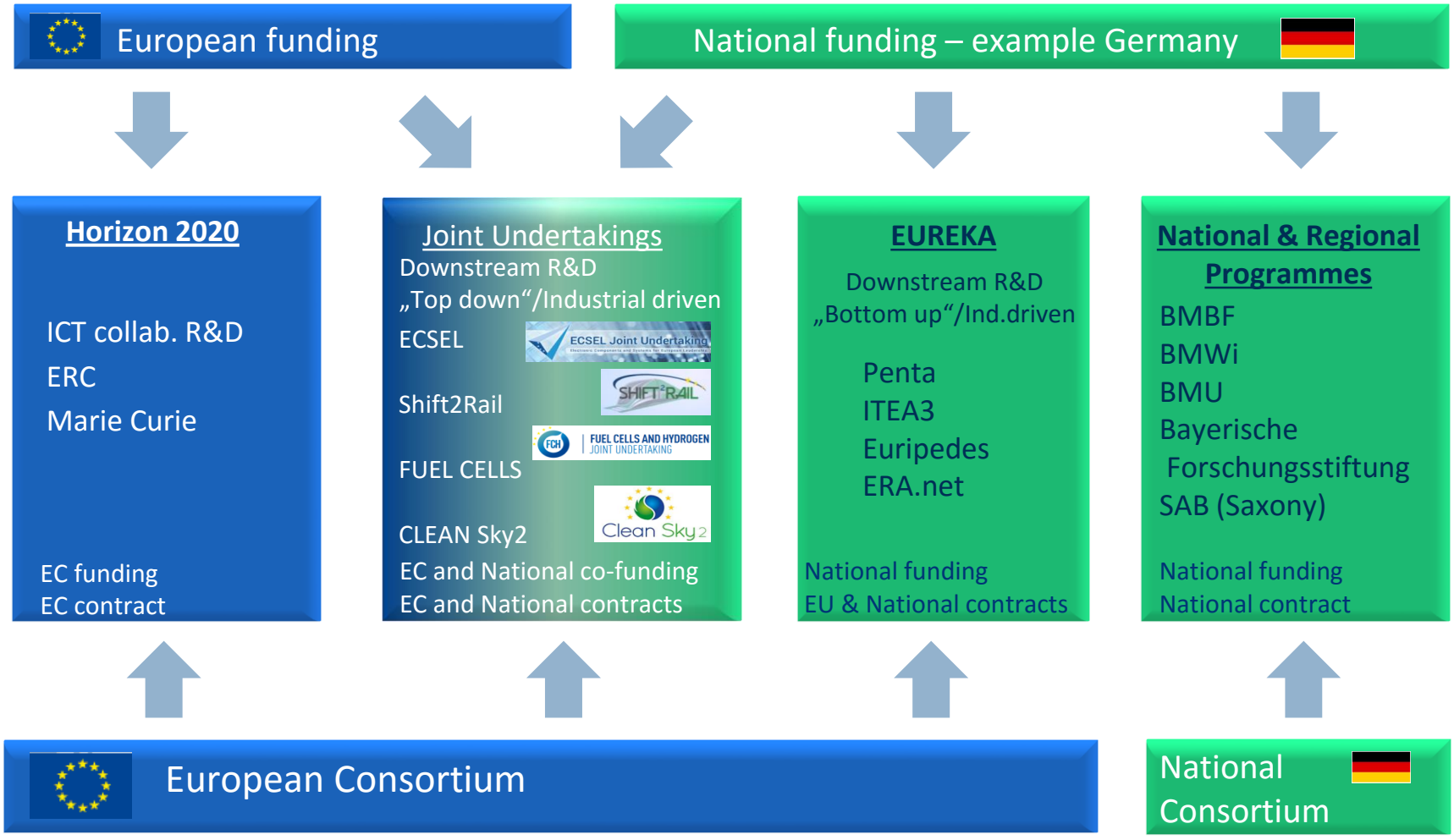
project proposals are not for free

Conservative cost estimation:

- preparation phase: at least 1 year
- 2HC at co-ordinator;
- 3PM per core member (5) ;
- 1PM per partner (50) ;
- 1PM =15k€ → 89PM → 1,335Mio€

General approach to set up a project

..select the appropriate funding scheme..



General approach to set up a project

establish a suitable environment

- Build a core team
- Establish the tool environment (document exchange server, web conferences)
- Create necessary templates (contacts, partner contributions, PO, FPP, task structure, ressources, presentations, …)
- Establish a working procedure
- Define responsibilities and a time schedule

General approach to set up a project – example time schedule

ECSEL call 2016

date	activity
15 March 2016	Publication date
10 May 2016	Deadline PO phase
8 Sept 2016	Deadline FPP phase

Productive4.0 proposal

date	activity
Dec – Feb 2016	consortium building + draft concept setup
15 Feb 2016	Draft proposal struture
24 Feb 2016	Core group formation (F2F in Munich)
15 March 2016	Initial PO description+ work distribution
31 March 2016	Consortium closed for PO (F2F in Munich)
10 May 2016	Submission PO
	…
8 Sept 2016	Submission FPP

H2020 Evaluation criteria (also for ECSEL; Impact bei IA *1,5)

Excellence

1. Clarity and pertinence of the objectives
2. Credibility of the proposed approach
3. Soundness of the concept, including trans-disciplinary considerations, where relevant
4. Extent that proposed work is ambitious, has innovation potential, and is beyond the state of the art (e.g. ground-breaking objectives, novel concepts and approaches)

Impact

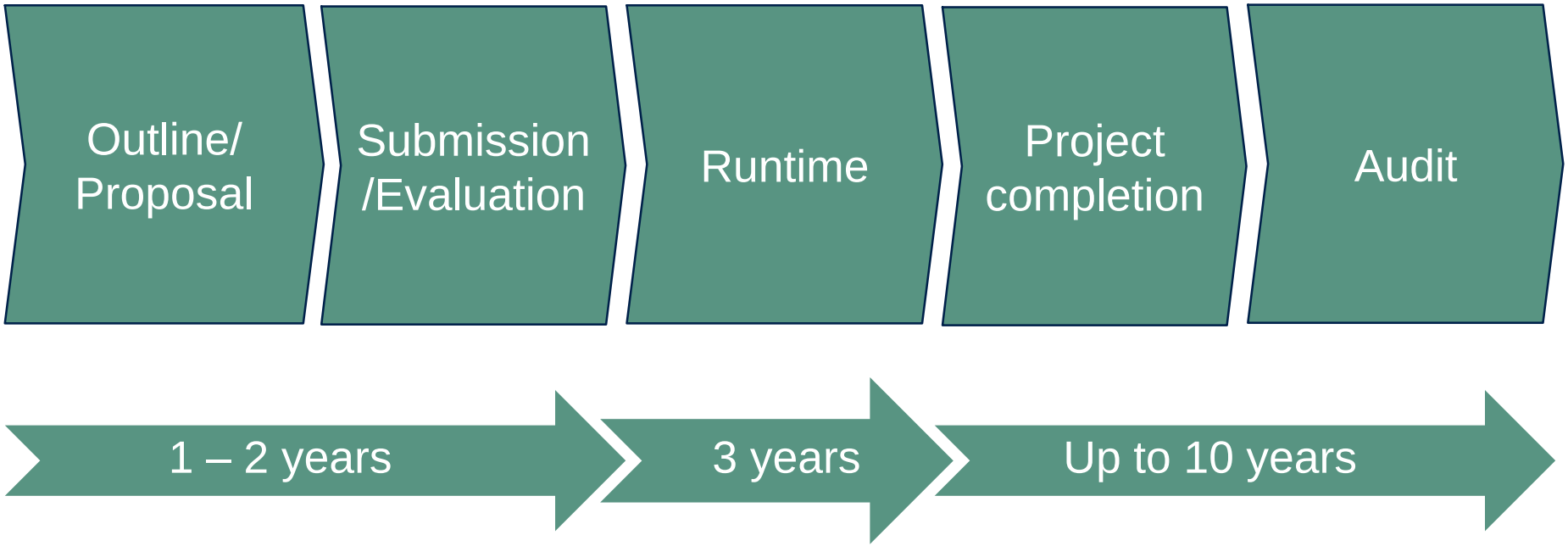
1. The expected impacts listed in the MASP for each relevant topic under the title "Impact"
2. Enhancing innovation capacity and integration of new knowledge
3. Strengthening Europe and the competitiveness and growth of companies by developing innovations meeting the needs of European and global markets; and, where relevant, by delivering such innovations to the markets;
4. Any other environmental and socially important impacts (not already covered above)
5. Effectiveness of the proposed measures to exploit and disseminate the project results (including management of IPR), to communicate the project, and to manage research data where relevant

Implementation

1. Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources
2. Complementarity of the participants within the consortium (when relevant)
3. Appropriateness of the management structures and procedures, including risk and innovation management

General approach to set up a project

Life cycle of a funded research project



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Challenges

- focus on the technological and scientific topics
- submission of a high quality proposal
- Short preparation time for FPP
- increased competition for limited funding resources
- unsatisfactory funding conditions
- conflicting interests at national and European level
- too much regulation
- evaluation based on paper
- SME involvement

"unfortunately things are getting more and more complex

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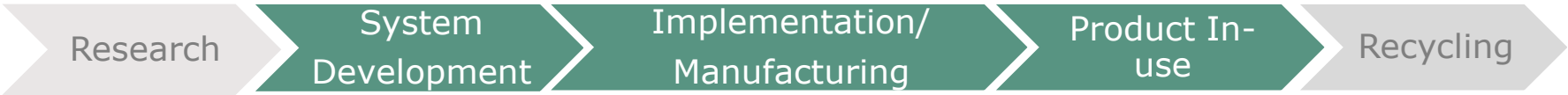
New trends

- *Holistic system approach*
- *Research along the entire supply chain*
- *Covering the entire product life cycle*
- *Involve partners globally*



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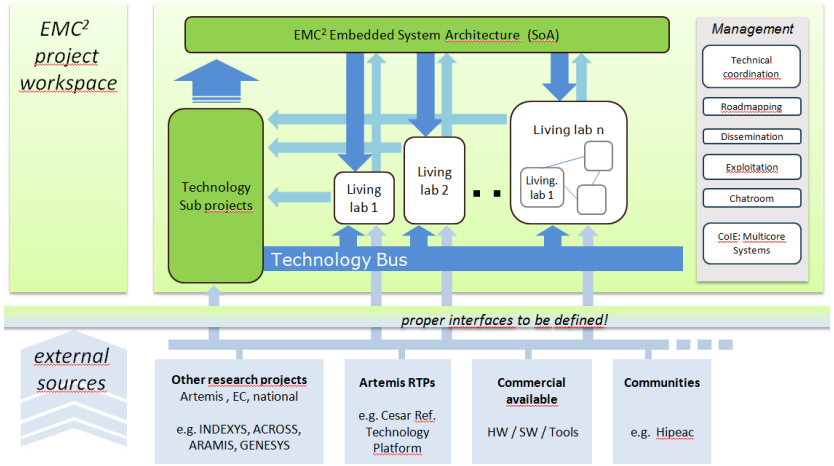
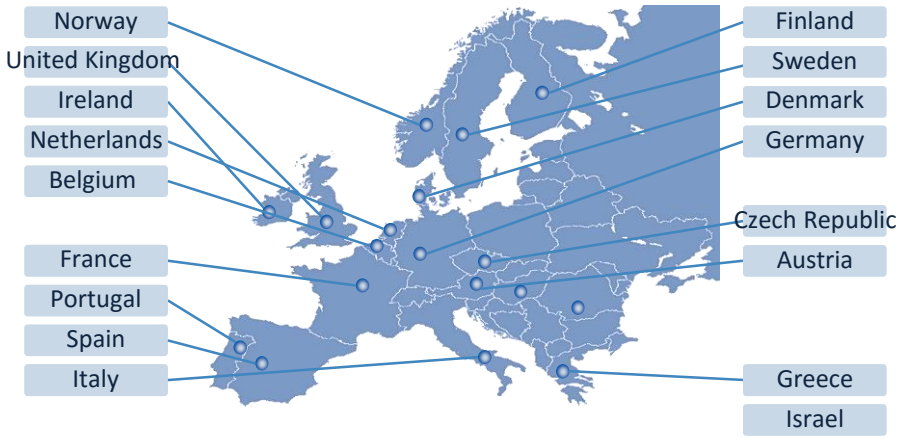
Ongoing research activities

EMC²

Embedded multi-core systems for mixed criticality applications in dynamic and changeable real-time environments

- 98 Partners
- in 16 EU-Countries +Israel
- co-ordination by Infineon, Germany
- 800 person years
- with a total Project Budget of about 100 Mio €
- duration 3 years , started: April 1st 2014





Ongoing research activities

EMC²

Multi-core Technology

INDEXYS INDustrial EXploitation of the genesYS architecture
SCALOPES Scalable LOw Power Embedded platformS
iLAND mIddLewAre for deterministic dynamically reconfigurable NetworkeD sys.
ACROSS ARTEMIS CROSS-Domain Architecture
ASAM Automatic Architecture Synthesis and Application Mapping
SMECY Smart Multicore Embedded Systems
PRESTO Improvements of Industrial Real Time Embedded Systems Development Process
CRAFTERS ConstRaint and Application driven Framework for Tailoring Embedded Real-time Systems
PaPP Portable and Predictable Performance on Heterogeneous Embedded System
COPCAMS Cognitive and Perceptive Camera Systems
R3COP Robust and Safe Reasoning Robotic Co-operative Systems

Safety-critical Systems

Cost-efficient methods and processes for safety relevant embedded systems CESAR
Critical and High Assurance Requirements Transformed through Engineering Rigour CHARTER
Composition with Guarantees for High-Integrity Embedded Software Components Assembly CHESS
System Level Modeling Environment for SMEs SYSMODEL
Industrial Framework for Embedded Systems Tools iFEST
Reduced Certification Costs Using Trusted Multi- core Platforms RECOMP
Combined Model-based Analysis and Testing of Embedded Systems MBAT
Certification of Software-Intensive Systems with Reusable Components pSafeCer
Certification of Software-Intensive Systems with Reusable Components nSafeCer
DEvelopment platform for Safe and Efficient dRiVE DESERVE
Variability in Safety Critical Embedded Systems VARIES
Verification and Testing to Support Functional Safety Standards VeTeSS
Guaranteed Component Assembly with Round Trip Analysis CONCERTO
for Energy Efficient High-integrity Multi-core Systems

Ongoing research activities

EMC²

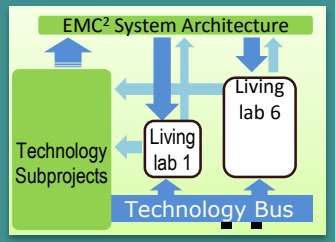
Multi-core Technology

INDEXYS 6
SCALOPES 4
iLAND 1
ACROSS 8
ASAM 2
SMECY 6
PRESTO 2
CRAFTERS 3
PaPP 2
COPCAMS 4
R3COP 7

EMC²

'Embedded Multi-Core Systems for Mixed Criticality Applications in Dynamic and Changeable Real-time Environments'

98 **Partner , 16 EU Countries, 100 Mio € Budget**



10 CESAR
2 CHARTER
4 CHESS
1 SYSMODEL
6 iFEST
6 RECOMP
11 MBAT
4 pSafeCer
5 nSafeCer
5 DESERVE
1 VARIES
7 VeTeSS
4 CONCERTO

Safety-critical Systems

Scientific Communities

HiPEAC COMPILATION ARCHITECTURE

Innovation Pilots

ARROWHEAD

CRYSTAL

content

Demand for research

holistic system approach:

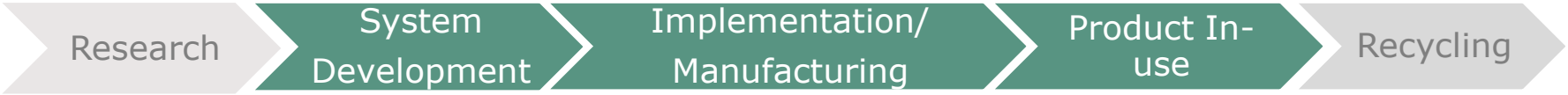
- Design challenge –deterministic, predictable, heterogeneous, RT
- Performance and energy challenge, ultra low power
- Programming challenge
- Test, Verification and maintenance challenge (even at runtime)
- Simulation, Modelling, Virtualisation
- RT-communication challenge, even wireless
- Safety and security challenge
- Reliability challenge - test at runtime, lifetime prediction, monitoring
- Autonomous challenge – fail operational

transition towards autonomous systems ⇒ fail-operational

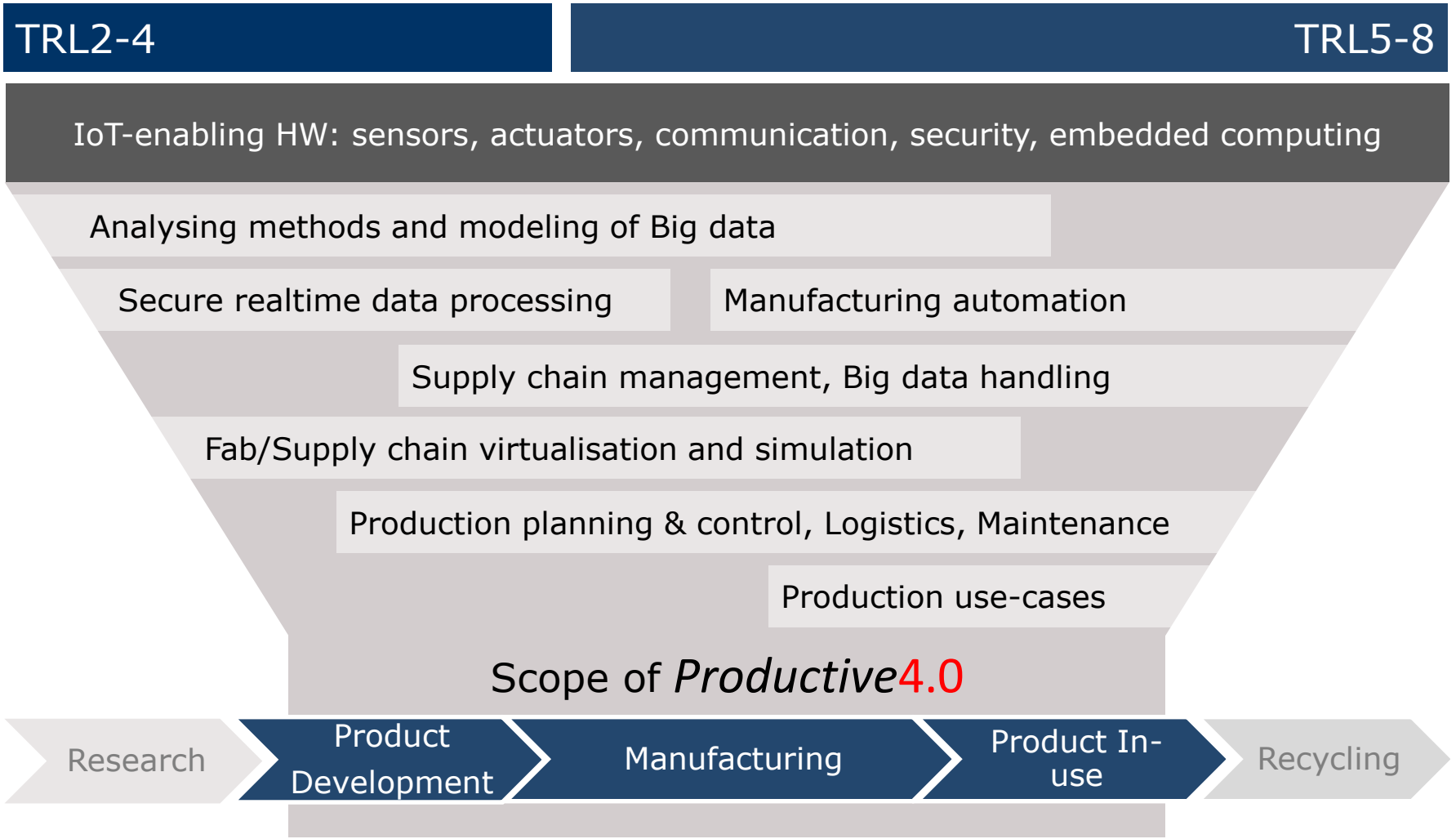
Demand for research

holistic system approach with various challenges:

- Dynamic adaptability challenge
- Evolution over lifetime,Uncertainties, open environment
- Mixed criticality
- Cross-domain deployment
- Standardization challenge
- Manufacturing challenge
- Application and domain specific requirements
- 3D-integration – smart modules
- Cost challenge



Flagship/IA Approach – 1st draft project structure



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