

ARTEMISIA ASSOCIATION

The association for R&D actors in the field of ARTEMIS



The ARTEMIS JTI

General overview

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Advanced Research & Technology for EMbedded Intelligence and Systems



The story of ARTEMIS



- The European Technology Platform on Embedded Systems :
Advanced Research & Technology for Embedded Intelligence and Systems

- An initiative of European Industry and the EC
 - DG Information Society and Media
 - Initiated by 10 of the top-25 EU companies in terms of global R&D
 - Industry, academia, SME federation, ITEA2, MEDEA+ involved
 - 24 countries + EC involved
 - Most of the 25 countries involved in ITEA2 (Eureka)
 - Proposed as a Joint Technology Initiative (JTI)

- Aim: develop and drive joint European vision and strategy on embedded systems through a Joint Technology Initiative
 - Create and keeps jobs in Europe
 - Through products and related services
 - Through design and manufacturing excellence
 - Car industry estimates +600 000 new jobs in Europe
 - Up to 50% of development cost of airplane is in Embedded Systems
 - **40% of world's manufacturing industry is in Europe**





Embedded (Computer) Systems



- SW, Processors, HW and connectivity
- Used in airplanes, cars, consumer electronics, white goods, robotics, machines, public infrastructures, buildings, mobile phones, ...
 - Car has 60 processors
 - Mobile phone contains 5-10 processors
 - **98% of processors are in Embedded Systems**
 - 16 Billion Embedded Systems by 2010 (conservative estimate)





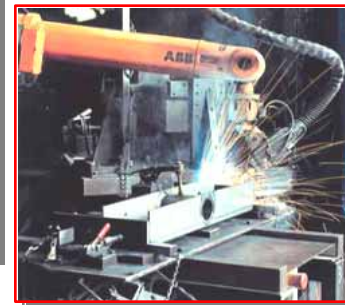
Embedded Systems Applications



- ES's bring intelligence and ease of use
 - To products
 - For manufacturing etc...
 - Additionally: energy savings, reduced costs, ...



- Compared to General Purpose computers, they are **demanding applications**:
 - exponentially increasing complexity (design and maintenance)
 - reliability,
 - availability (24/7),
 - safety, security,
 - time critical, ...





The story of the ARTEMIS JTI

Good results from good preparation



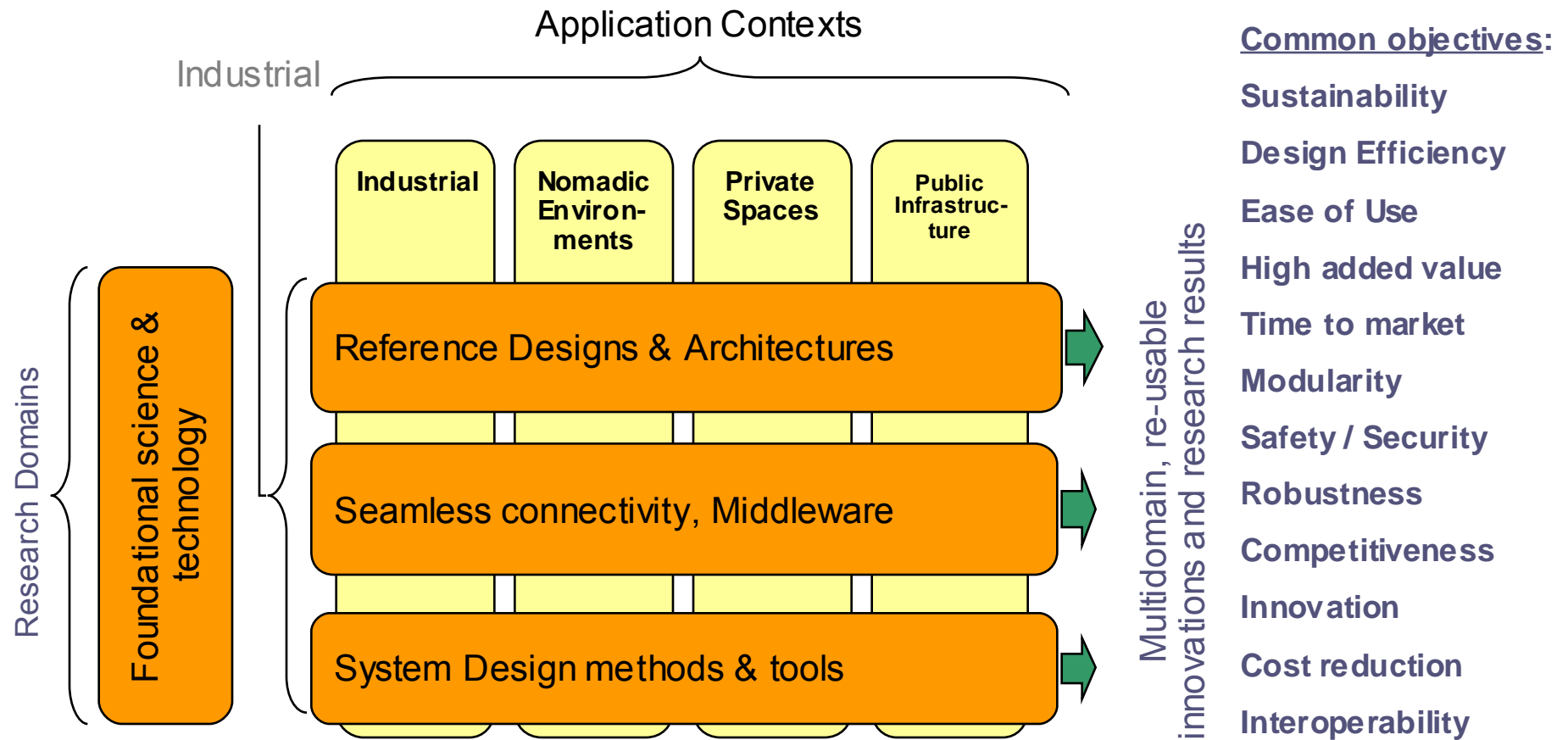
- 2004 – High-level group publishes “Building ARTEMIS”
 - Describes the importance of Embedded Systems expertise to European industrial competitiveness
- 2006 – ARTEMIS ETP publishes detailed Strategic Research Agenda
 - Describes technical challenges **and** novel approaches for R&D
 - Involvement of SMEs, Centres of Excellence, Financing schemes (JTI)



The ARTEMIS Strategic Research Agenda



- ARTEMIS envisages cross-application solutions





Envisioned synergetic cooperation to attain the targets of the ARTEMIS SRA



ARTEMIS
Industry-driven vision
Common pan-European SRA
Coordination and policy alignment in ERA

FP7

Upstream
ICT collab. R&D
ERC
Marie Curie
Research infrastr.

WP

ARTEMISIA Working Group SRA

JTI/JU

Downstream
Unified processes
National contracts
EC co-funding
Innovation Env.

RA

EUREKA

Downstream
ITEA 2
(embedded part),
MEDEA+
(application part)

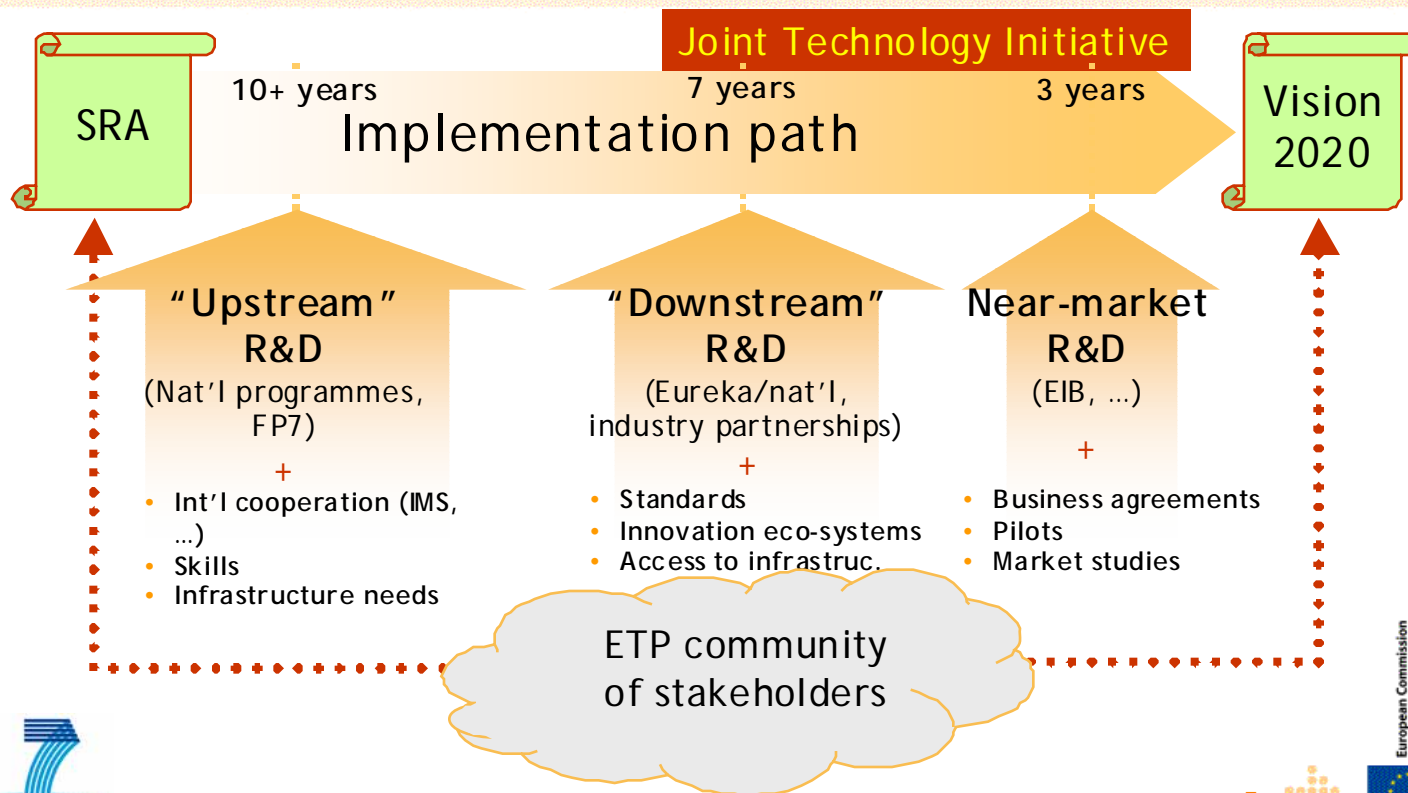
RM

National / Regional Programmes

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JU Research – a matter of “selection”

Implementing the Strategic Research Agenda



European Commission
Information Society and Media





ARTEMIS JTI

Good results from good preparation



- January 2007 – ARTEMISIA Association established
 - Takes over custodianship of the ARTEMIS ETP and its SRA
 - Will represent the R&D actors in the future Joint Undertaking
 - See www.artemisia-association.org for membership
- 2007 – ARTEMISIA expert groups derive a Research Agenda proposal for the ARTEMIS Joint Undertaking
 - Technical Research roadmap for the JU, taking most significant elements of the ARTEMIS SRA
 - Reference document for the Plans and Calls of the JU



ARTEMIS JU Research Agenda – the process

- Starts from a new, high-level industrial view on Embedded Systems
 - “Building ARTEMIS”
- Bottom-up technical analysis produced the ARTEMIS SRA
 - Identifies 3 key (transversal) Research Domains for 4 Application Contexts
- Reconciliation with top-down Societal Needs (from Steering Board) *and* business priorities yields **meet-in-the-middle Research Agenda for the JU**
 - 8 Sub-programmes with links to SRA domains



ARTEMIS JU Research: First principles



- The JU Research Agenda considers the expectations of the JU and resulting projects:
 - **“Think BIG”**
 - = projects with appropriate critical mass and significant societal impact
 - **“Socio-Economic Benefits”**
 - = improved industrial efficiency “... to strengthen European competitiveness and allow the emergence of new markets and societal applications.”
 - i.e. a focus on key technical issues, solving high-visibility issues with commercially valorisable results
 - **“Multi-national”**
 - = considers national/regional strategic priorities
 - **“Think Different”**
 - = significant and complementary added-value over existing programmes



ARTEMISIA proposals for the ARTEMIS-JU Research Agenda



- ARTEMISIA expert groups identify **8 sub-programmes**
 - Address well-known societal concerns
 - Environment, safety, healthcare, secure employment, ...
 - ... In a viable business context
 - Relevant for new businesses and growth markets

- Each sub-programme is elaborated to embrace the ARTEMIS SRA approach



ARTEMIS JU Sub-Programmes



1. Methods and Processes for Safety-relevant Embedded Systems
2. Person-centric Health Management
3. Smart Environments and Scalable Digital Services
4. Efficient Manufacturing and Logistics
5. Computing Environments for Embedded Systems
6. Information Security, Privacy and Dependability
7. Embedded Technology for Sustainable Urban Life
8. Human-centric Design of Embedded Systems



ARTEMIS-JU Research: relationship to the ARTEMIS SRA



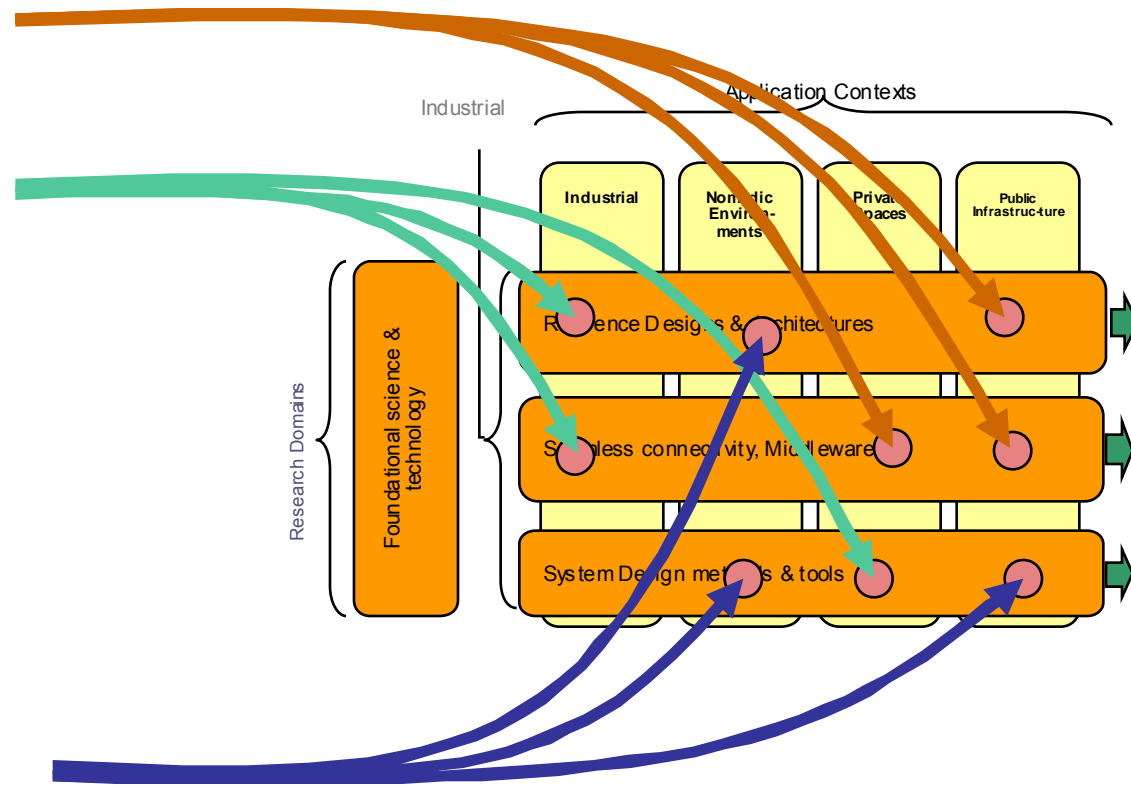
- ARTEMIS-JU programme addresses the Research Domains and Application Contexts identified in the ARTEMIS SRA

Sub-programme A

Sub-programme B

-
-
-
-

Sub-programme X





ARTEMIS Joint Undertaking is now under construction

- **ARTEMIS Joint Undertaking** will be the legal embodiment of the ARTEMIS Joint Technology Initiative
 - Achieve world leadership in ES technologies
 - Address societal scale/industry wide fundamental challenges
 - These are reflected in the numerical targets listed in ARTEMIS Strategic Research Agenda

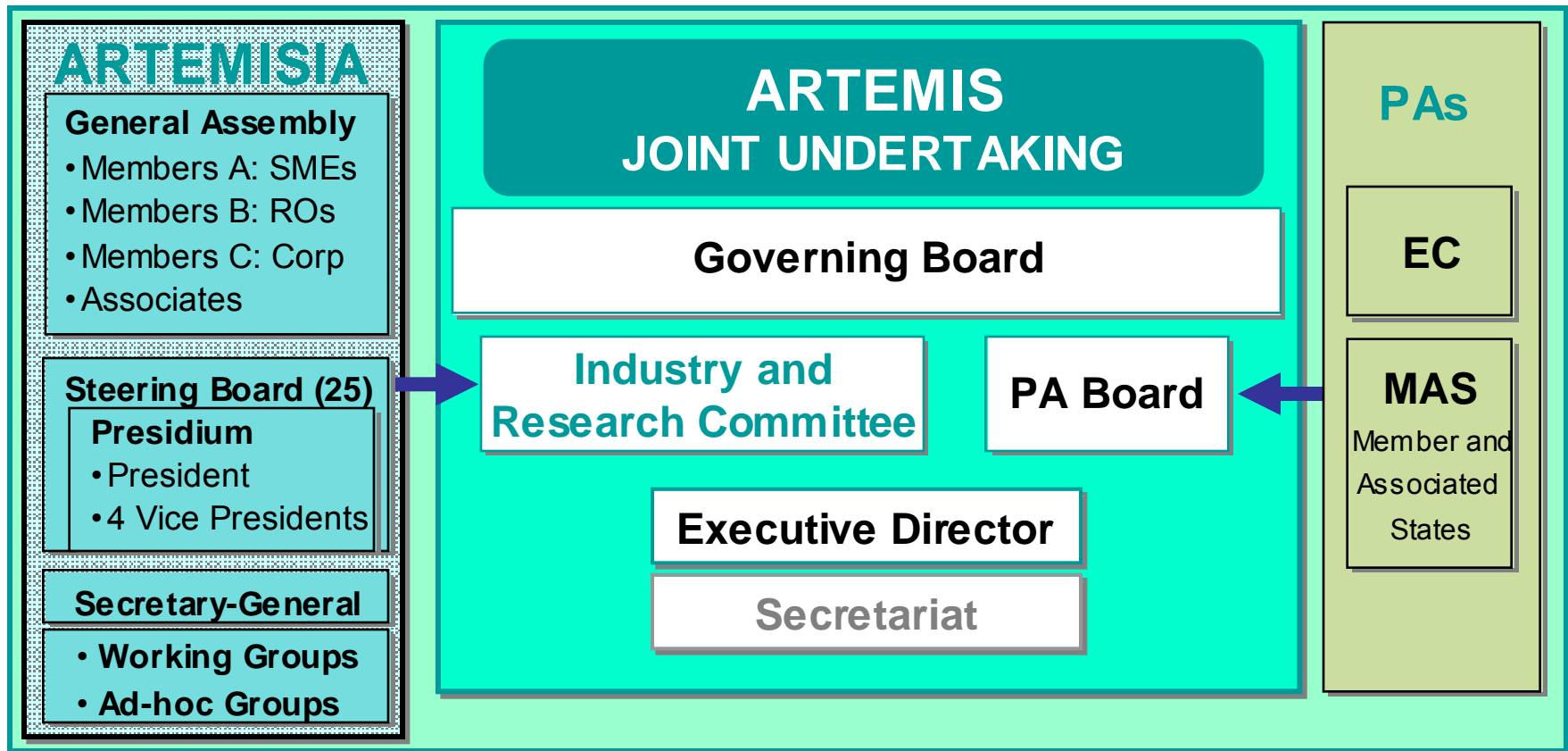
- Reach critical mass through a **Public-Private-Partnership (PPP)** R&D programme (about 2.7 BEuro's)



ARTEMIS JU structure



Members of ARTEMISIA Steering Board are also members of the Industry and Research Committee





ARTEMIS JU - Next Steps



- **JU office will be established**
 - Executive director, staff, ...
 - Anticipate \approx 6 month time frame for this
 - AREMISIA / EC / Member-States will work together ad-interim to assure progress
 - Publish MASP, RA, first AWP and Call
 - = work programme and Call procedures
- **Targetting first Call in March 2008**
 - Launch event to:
 - Fully inform candidate project participants and project leaders
 - Establish initial consortia around the Sub-Programme themes



To complete the story...



- **2008** – ARTEMISIA is fully ready and committed to executing the ambitious R&D goals of the ARTEMIS Joint Undertaking

THANK YOU

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SPARES

Advanced Research & Technology for EMbedded Intelligence and Systems



- What are the topics to be covered by the Strategic Research Agenda? ?
- State an example for a typical project/participants/budget/length??
- Evaluation procedures (e.g. How will evaluators be chosen? What will be the evaluation criteria? Who will fix them?)
- Project management (?e.g. How will the calls/financial management differ from what we know from traditional FP7 projects??)
- Timeframe, Next steps (e.g. Recruitment of staff, first calls, will the calls differ ?from what we know from FP7, where will they be published? Links to Cordis? Knowing that topics dealt within the JTIs will no longer appear in the work programmes in FP7)?



ARTEMIS-JU Research: relationship to the ARTEMIS SRA



Sub-Programme	DM&T	SC&M	RD&A	MPSoC	Industry T / M*	Private Spaces	Nomadic Enviro.	Public Infrast.
Methods and Processes for Safety-relevant Embedded Systems	X	X	X	X	T/M			X
Person-centric Health Management	X	X	X			X		X
Smart Environments and Scalable Digital Services		X	X			X	X	
Efficient Manufacturing and Logistics	X	X	X		M			X
Computing Environments for Embedded Systems	X	X	X	X		X	X	
Information Security, Privacy and Dependability		X	X		X	X	X	X
Embedded Technology for Sustainable Urban Life	X	X	X	X	X	X		X
Human-centric Design of Embedded Systems	X		X	X	X	X	X	X

* T = Transport, M = Manufacturing