

EPISTEP Workshop

7 December 2007

Joint Technology Initiatives and ARTEMIS

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European Commission, Brussels



European Commission
Information Society and Media

Outline of presentation

- **Embedded systems**
- **European Technology Platforms (ETP)**
- **ARTEMIS**
- **ARTEMIS JTI**
- **FP7**

Embedded Systems - what they are

- **Combine HW & SW**
 - part of larger non-computing system(s)
 - resource constrained
- **Reactive to their environment**
 - “real-world” systems
 - control, perception and cognition
- **Networked**
 - Ad-hoc collaboration



*Connecting the physical to
the virtual world*

EmS business expenditure

2003	ICT R&D business expenses/ total R&D business expenses	ES R&D business expenses/ total R&D business expenses	Ratio of business expenditures for R&D in ES/ICT
EU25	17%	9%	56%
US	36%	15%	42%
JP	30%	19%	62%
Rest of Asia	19%	10%	54%
World	27%	13%	49%

2003-2009 in PPP (Purchasing Power Parity)	ICT R&D Business Expenses	ES R&D Business Expenses	ICT R&D Business Expenses	ES R&D Business Expenses
	2003		2009	
EU25	21.7 b€	12.1 b€	34.6 b€	22.9 b€
US	68.0 b€	28.3 b€	103.2 b€	54.9 b€
JP	24.8 b€	15.4 b€	40.7 b€	29.3 b€
Rest of Asia	14.2 b€	7.6 b€	23.1 b€	15.2 b€
World	128.7 b€	63.4 b€	201.6 b€	122.3 b€



Economic importance of EmS

2002-2004 Industry domains	Average annual growth rate for Embedded System market	% of embedded electronics in final value (2004)	% of embedded electronics in final value (2009)
Automotive	10%	20%	36%
Avionics/ Aerospace	14%	n.a.	n.a.
Industrial automation	7%	>13%	22%
Telecommunications	15%	>23%	37%
Consumer electronics and intelligent homes	15%	>14%	41%
Health & medical equipment	18%	25%	33%



Worldwide trends and R&D programmes in Embedded Systems, FAST 2005

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European Technology Platforms (1)

Stakeholders getting together to define a Strategic Research Agenda on a number of strategically important issues where achieving Europe's future growth, competitiveness and sustainable development objectives is dependent upon major research and technological advances in the medium to long term.

“Partnerships between public and private organisations to mobilise European R&D & innovation efforts to achieve common goals”

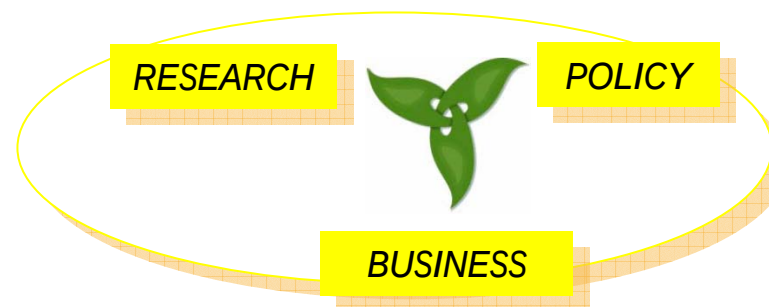


European Technology Platforms (2)

“Partnerships between public and private organisations to mobilise European R&D & innovation efforts to achieve common goals”

Pre-requisites

- **A strategically important area of technology**
 - For Europe’s future industrial competitiveness
 - With hard research or structural challenges to address
- **Ability to define and pursue common vision**
 - Capitalising on European strengths
- **A committed industrial and research constituency**
 - Agreement on objectives, challenges, specific strategies
 - Mobilising the necessary efforts



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ARTEMIS

- maintain and consolidate European world leadership in embedded computing technologies which are crucial for the competitiveness of many important sectors of EU industry and for key applications



(picture from ARTEMIS European Technology Platform)



The Artemis European Technology Platform

Aim and Scope

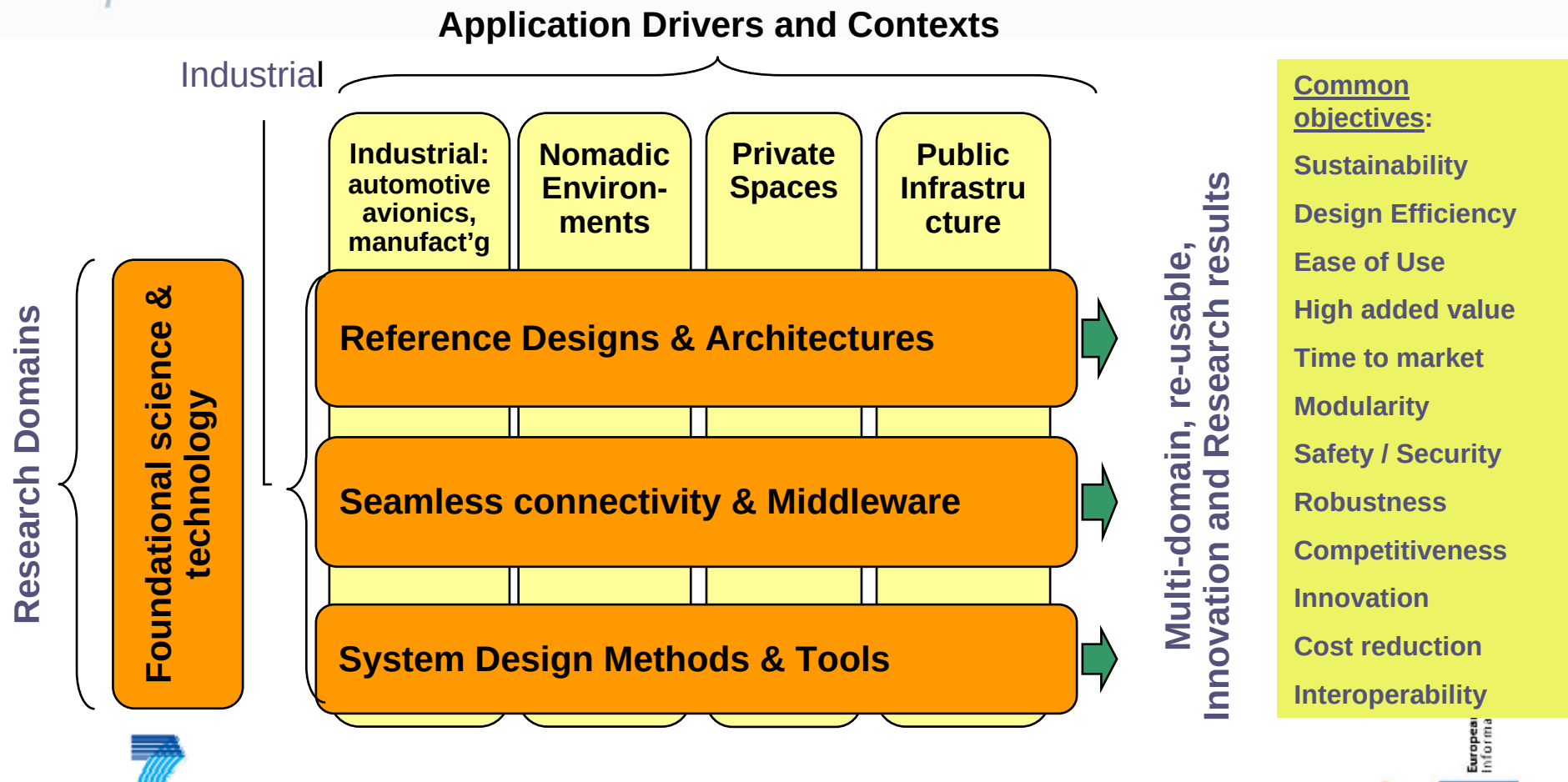
- Develop and drive a joint European vision and strategy on Embedded Systems:
 - Competitiveness and productivity growth
 - Security, safety, health and well-being
- Align fragmented R&D efforts in the ERA along a common strategic agenda
 - Community, intergovernmental and national levels

ARTEMIS Vision: “... An ongoing, major evolution of our society in which all systems, machines and objects will become digital, communicating and self-managed”



The Artemis Strategic Agenda

Research domains vs. application contexts : the complete synthesis of the SRA



ARTEMIS research cuts barriers between application sectors, stimulating creativity and yielding multi-domain, re-usable results

ARTEMISIA: ARTEMIS Industrial Association

- **ARTEMISIA**

- Wife of King Mausolus of Halicarnassos, for whom she had the Mausoleum built in 353 BC as one of the 7 Wonders of the World

- **Established in Eindhoven**

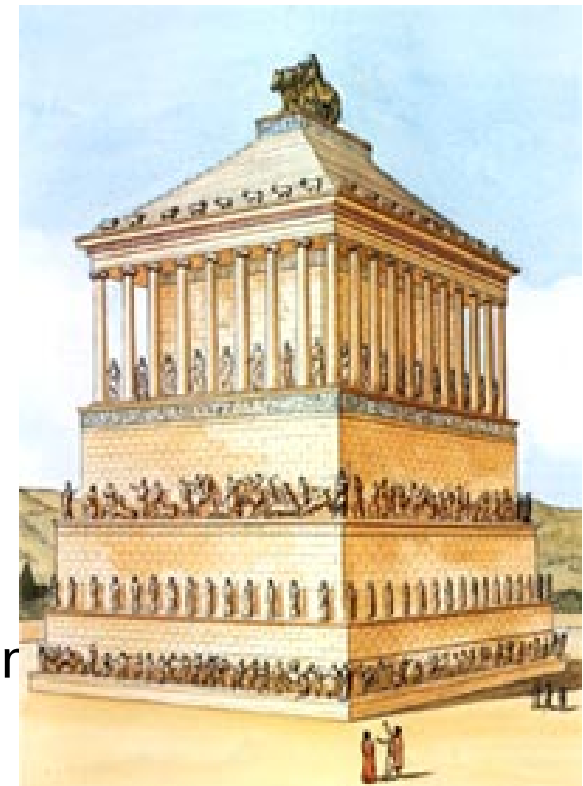
- Association under Dutch law

- **Dual purposes**

- Continuing ARTEMIS ETP activities
- Representing R&D actors in JTI

- **Constituency**

- Members A: SMEs
- Members B: Public Research Organisation
- Members C: Corporate
- Associates (non-voting)



ARTEMISIA Steering Board, elected on 4th June 2007 by General Assembly

5 SME's

15 Large Companies

5 Public Research Organisations

Presidium: Nokia, DaimlerChrysler, Philips, STMicroelectronics, Thales



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JTIs in FP7: what they are

- **Long term public-private partnerships**
 - In a very limited number of cases
 - Resulting from the work of European Technology Platforms
 - Covering one or a small number of selected aspects of R&D
 - Combine private with European and national funding
 - Legal basis: Article 171 of the Treaty
- **Criteria**
 - Inability of existing instruments to achieve objectives
 - Impact on industrial competitiveness
 - Strength of commitment from industry
 - Capacity to attract additional national support and leverage industry funding
 - ...

Six Joint Technology Initiatives under preparation

- **Embedded Computing Systems (ARTEMIS)**
- **Innovative Medicines (IMI)**
- **Aeronautics and Air Transport ("Clean Sky")**
- **Nanoelectronics Technology 2020 (ENIAC)**
- **Fuel Cells and Hydrogen (FCH)**
- **Global Monitoring for Environment and Security (GMES)**

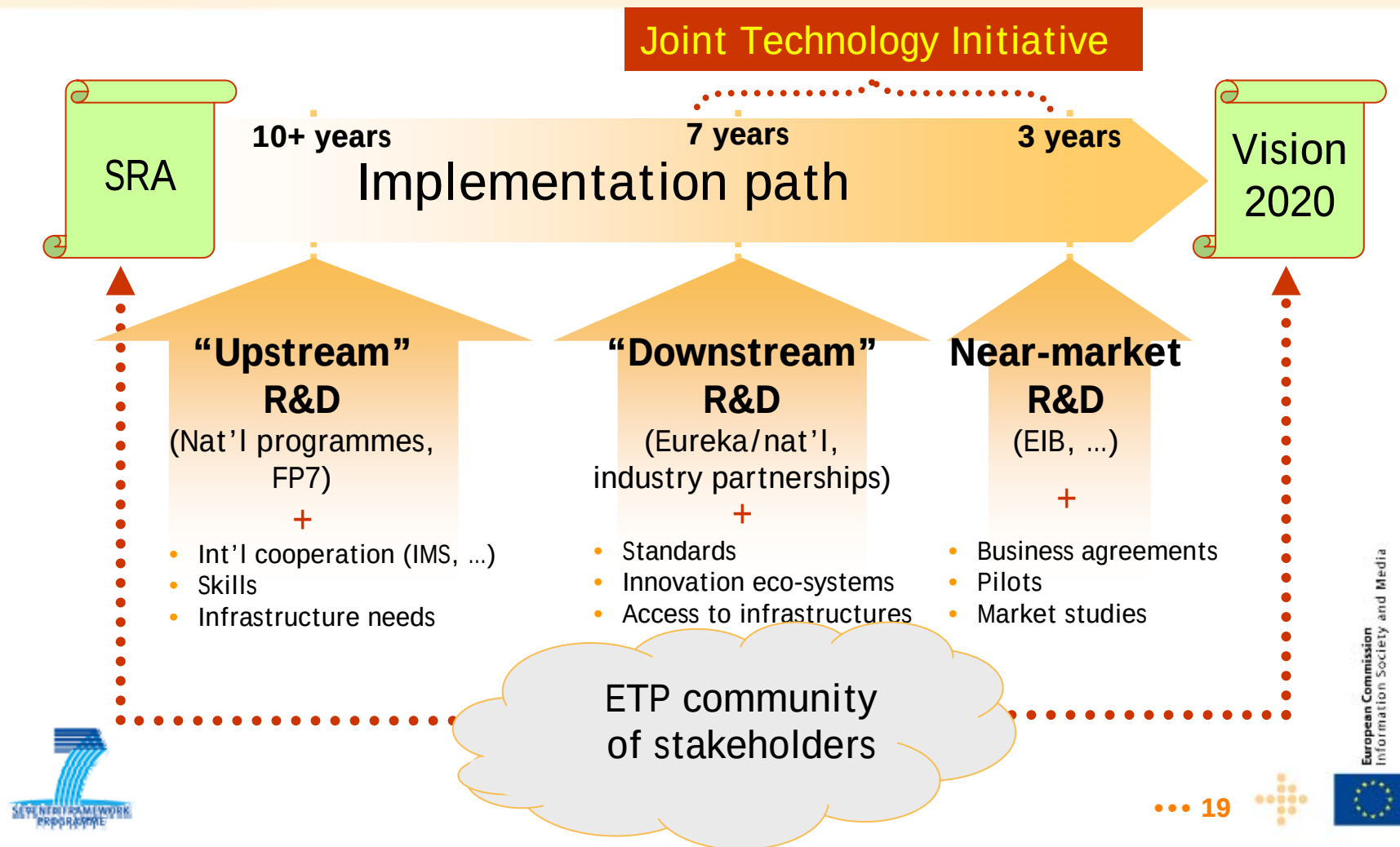
Why JTIs for ARTEMIS?

- **Single R&D programme, focusing on specific SRA objectives for downstream research:**
 - To bring together fragmented efforts & build critical mass
 - A combination of national, European & private funding
 - To stimulate additional R&D investment in Europe
 - Providing incentives to industry & Member States to increase their R&D investment
 - To combine the strengths of trans-national (EUREKA) & European programmes
 - No budget uncertainty (e.g. compared to Eureka)
 - No duplication of evaluation/monitoring procedures (as in Eureka)
 - Shorter time-to-contract, decentralised approach
 - Less red tape for participants

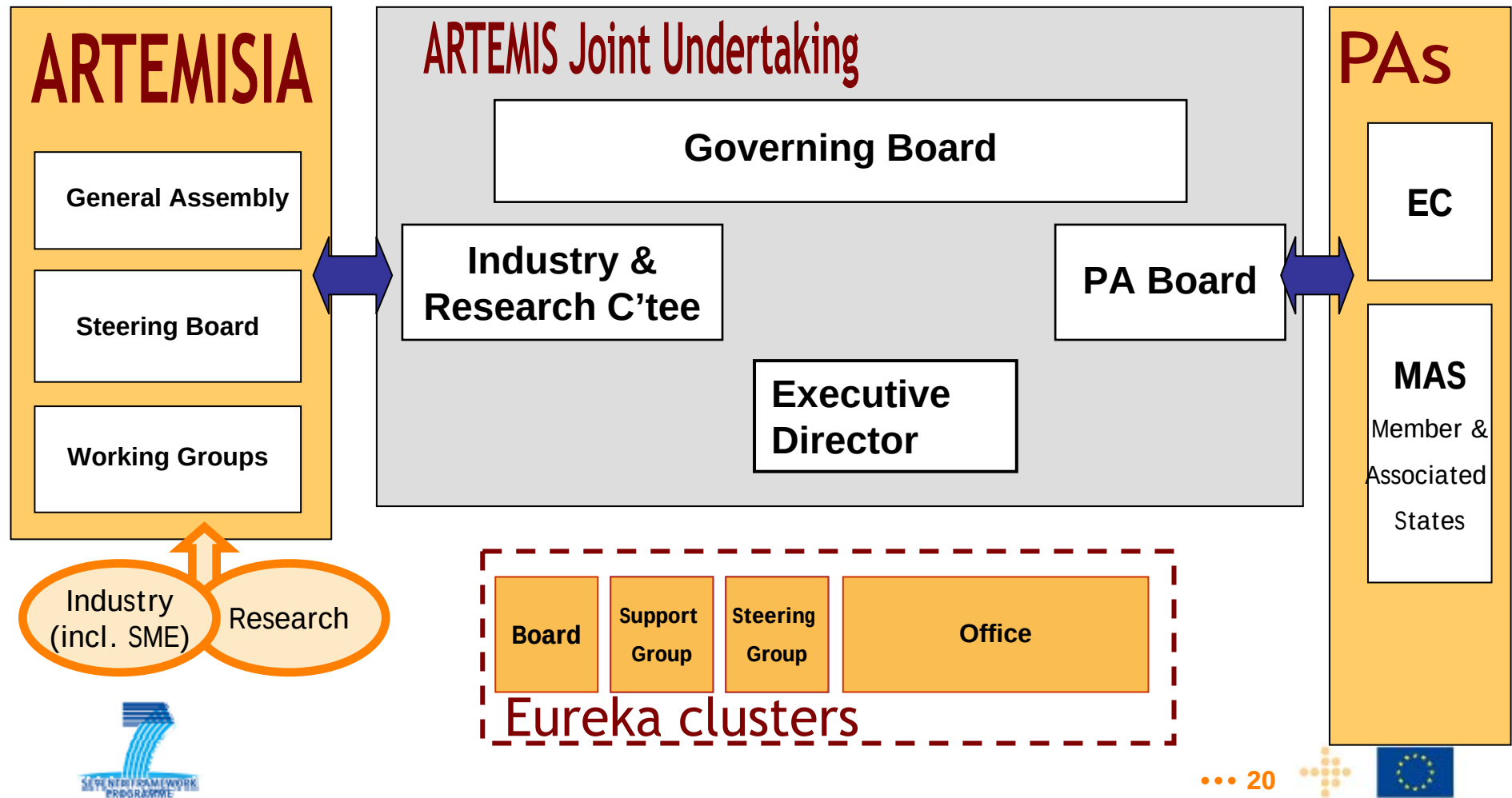
Making ERA in
electronics a reality!



Implementing the Strategic Research Agenda



Who would be involved ?



Joint Undertaking

- **Body set up by the Community**
- **Duration: till 31-12-2017**
- **Seat: Brussels**
- **Funding of R&D**
 - Calls for proposals with JU and national earmarked budgets
 - JU budget = 55% of total national budgets
 - Calls open to all participants from EU and associated countries
 - Consortia to include at least 3 organisations from 3 ARTEMIS Member States
 - Evaluation and selection on the basis of “excellence and competition”
 - JU funding: up to 16.7% of costs
 - ARTEMIS Member States co-fund up to (nationally) desired level



Budget of Joint Undertaking ARTEMIS

- Operating costs
 - ARTEMISIA: not exceeding 30m or 1% of R&D costs
 - Commission: not exceeding 10m
 - Member States and associated countries: in-kind
- Total R&D budget of the initiatives (total R&D costs in projects):
 - Community (FP7): ARTEMIS up to 410 million €
 - States: > 1.8x Community contribution
 - R&D actors: in-kind >50% of costs (50% in FP - ~65% in EUREKA)

ARTEMIS ~2.6 billion €

Participation in JTIs: What's in it for me?

(1/4)

- **Participation for Industry**

- *R&D programme* driven by industry's priorities (SRA)
- *A partnership* approach, avoiding conflicts of interest.
- *An attractive funding regime with larger public budgets*
- *Lower overheads for project delivery*, through single gateway access to funding and streamlined processes (compared to Eureka)
- *Reduced time to market* for new products and services due to the faster proposal evaluation and project funding process
- *European-scale networks* between SMEs, large companies and academia that will speed the take-up and deployment of technologies
- A long term commitment from public authorities (7 years)

Participation in JTIs: What's in it for me?

(2/4)

- **... in particular SMEs**
 - SME participation is ~40% in ITEA (Eureka cluster), ~26% in FP6 (Call 5, embedded systems) and 30% in FP7
 - JTI is more advantageous for SMEs:
 - simplified procedures of Joint Undertaking
 - shorter time to contract
 - contracting/administrative handling of costs at local/national level
 - Member State policies for SMEs as part of the JTI!

Participation in the Joint Undertaking: What's in it for me? (3/4)

Industry & academia in ARTEMISIA

- ARTEMISIA will represent European R&D actors in the JTIs
- Unique opportunity to shape the future evolution of the industrial R&D!
 - Definition of Research Agenda and Calls for proposals
 - Definition of industrial policy and activities of the JTI
- Voting rights for elections and key decisions
- Extensive and respected network of potential R&D partners
- Fee structure: cost similar to Eureka

Participation in the Joint Undertaking: What's in it for me? (4/4)

Member States

- Mobilisation of resources, leveraging own resources against European and industry funding
- Critical mass, through the opportunity to have national budgets work in synergy and avoid duplication of effort.
- Strategic management, by having a key role in the JTI's decision-making procedures
- Cost-effective implementation not excessively disruptive for national administrations
 - taking advantage of existing arrangements for contracting and processing of cost claims under Eureka

Expected Benefits

- **Political**
 - **Pioneering approach** in pooling public and private efforts
 - **Common** framework to pursue joint European-level strategy (ERA)
 - **Increase** in R&D expenditure (Barcelona objectives)
- **Economic**
 - Unprecedented **leverage effect** of EC investment
 - 1 EC Euro will trigger 5-6 Euros of further investment
 - Direct **economic impacts** (e.g. exceeding 100 billion euros) by the achievement of JTIs' goals
 - Fast cycle time. Reduction of time-to-project and shortened time-to-market for research results
 - Boosting the **competitiveness** of EU industry
 - Impact on key **applications**
- **Programme efficiency**
 - Approach adapted towards **industrially driven** applied research with features that attract further **SME** participation
 - Avoid budget uncertainty and duplication of procedures
 - Administrative handling by national administrations



ARTEMIS JTI proposal - timeline

- ✓ **ARTEMIS JTI Proposal adopted on 15 May 2007 by the Commission**
 - ✓ Major achievement for European research
- ✓ **ARTEMIS JTI proposal presented to the Competitiveness Council on 22 May 2007**
- ✓ **European Parliament**
 - ✓ Discussion in ITRE Committee (Sept - Nov)
 - ✓ Vote at EP Plenary (Dec)
- ✓ **European Economic Social Committee**
- ✓ **General approach for ARTEMIS agreed at Competitiveness Council on Friday 23 November 2007**
- **Decision by the Council expected in Dec 2007/Jan 2008**
- **First Call for proposals in 2008**

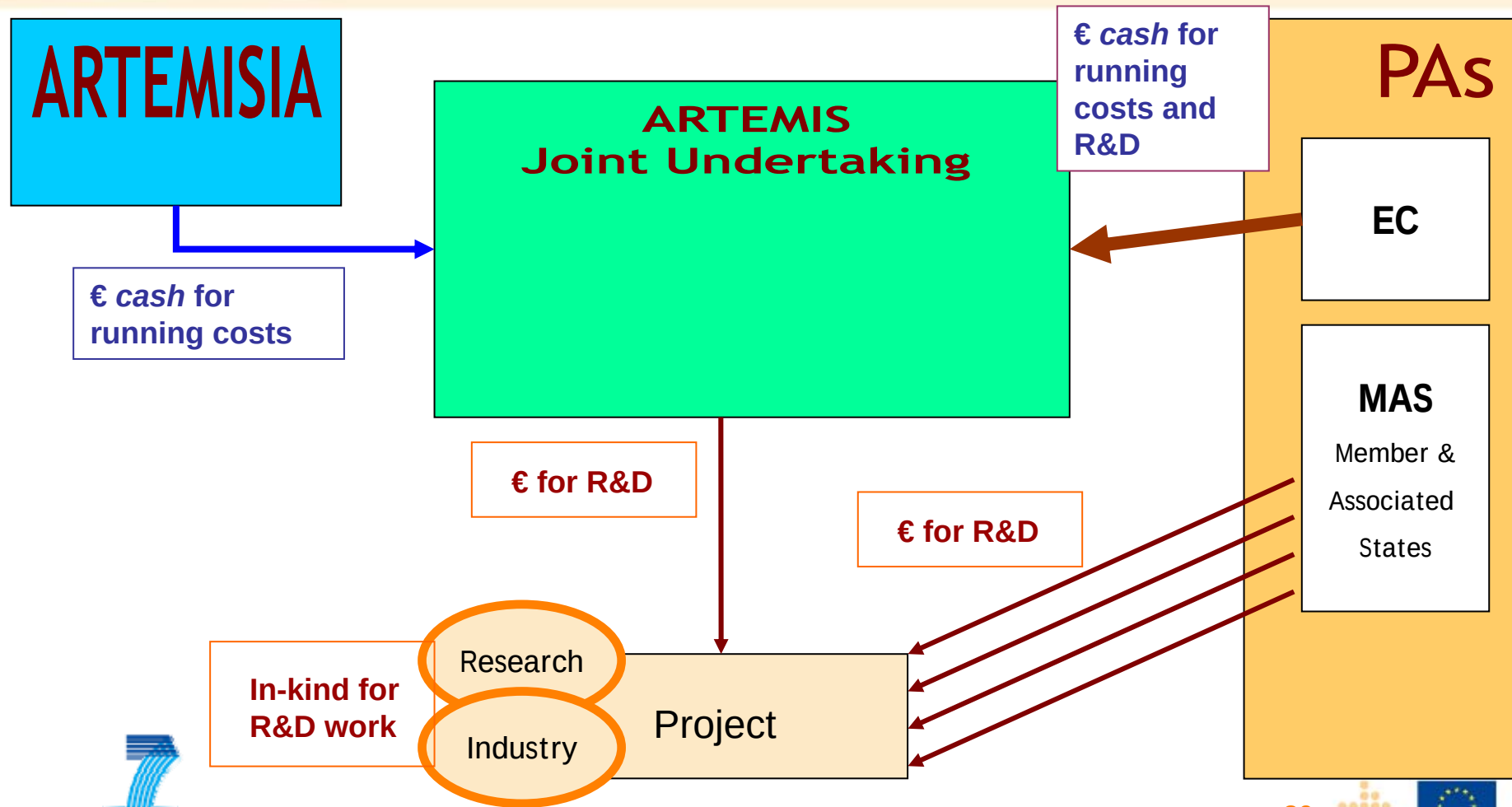
Thank you !

For more information:

- Directorate „Components & Systems“ / Embedded Systems
 - http://cordis.europa.eu/ist/directorate_g
 - <http://cordis.europa.eu/ist/embedded>
- JTIs:
 - http://ec.europa.eu/information_society/research/priv_invest/jti/index_en.htm
- ARTEMISIA:
 - <http://www.artemisia-association.org/>



Joint Undertaking funding flow



Joint Undertaking: Example of project financing

- Industrial:
 - at least 50% in-kind
- Participating States:
 - national contracts
 - possibility of cross-border funding & subcontracting to other JU member participants
- Joint Undertaking:
 - **In addition** to national payments

