



# Towards the ARTEMIS Joint Undertaking

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ADVANCED RESEARCH & TECHNOLOGY FOR EMBEDDED INTELLIGENCE AND SYSTEMS



# Embedded (Computer) Systems

- Software, Processors, Hardware 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
- Bring intelligence and ease of use
- Internet to devices,
- energy savings, reduce cost, ...



# Key to Europe's competitiveness



- Key enabler for innovation in major industries
- Knowledge-based high value-added products
- Create and keep jobs in Europe
  
- Car industry estimate: +600 000 new jobs in Europe
- Up to 50% of development cost of airplane
- 40% of world's manufacturing industry is in Europe
  
- Demanding applications: reliability, availability (24/7), safety, security, time criticality

# Key enabler for innovation

90% future innovations  
40% price

Level of dependency



Electronic Injections  
Check Control  
Speed Control  
Central Locking  
...

1970



Electronic Gear Control  
Electronic Air Condition  
ASC Anti Slip Control  
ABS  
Telephone  
Seat Heating Control  
Autom. Mirror Dimming  
...

1980



Navigation System  
CD-Changer  
ACC Adaptive Cruise Control  
Airbags  
DSC Dynamic Stability Control  
Adaptive Gear Control  
Xenon Light  
BMW Assist  
RDS/TMC  
Speech Recognition  
Emergency Call  
...

1990



ACC Stop&Go  
BFD  
ALC  
KSG  
42 voltage  
Internet Portal  
GPRS, UMTS  
Telematics  
Online Services  
BlueTooth  
Car Office  
Local Hazard Warning  
Integrated Safety System  
Steer/Brake-By-Wire  
I-Drive  
Lane Keeping Assist.  
Personalization  
Software Update  
Force Feedback Pedal  
...

2000



# Good results from good preparation

- **2006 – ARTEMIS publishes Strategic Research Agenda**
  - R&D challenges and structural challenges: Innovation ecosystems, impact on standards, lack of human resources, fragmentation of effort
- **January 2007 – ARTEMISIA Association established**
  - Will represent the R&D actors in the future Joint Undertaking
- **September 2007 – ARTEMISIA expert groups prepare the Research Agenda of the ARTEMIS Joint Undertaking**
  - Objectives and roadmap for the Calls of the JU



# JU research agenda: approach

## – High Industrial Ambition

- Projects with appropriate critical mass and strong impact on EU competitiveness

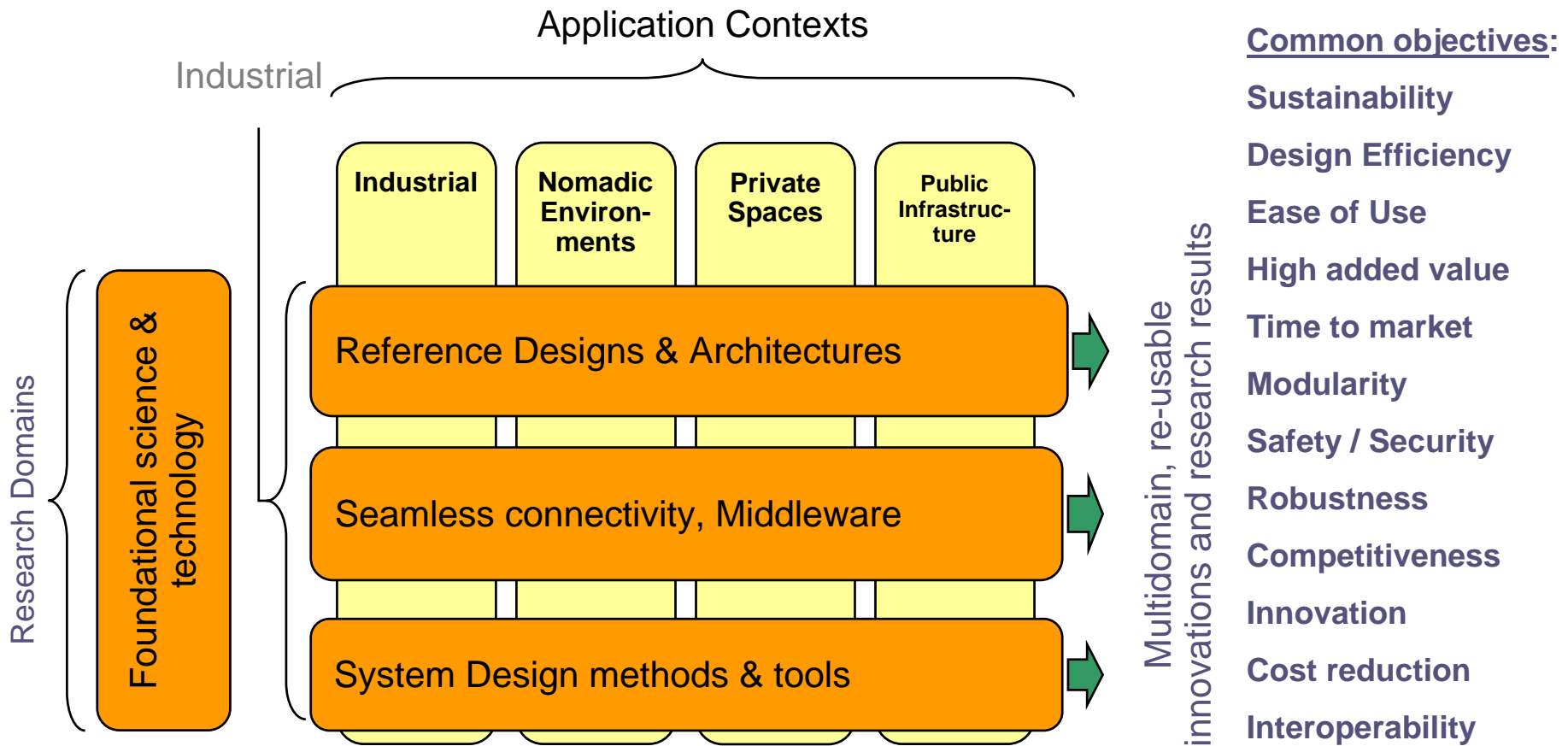
## – Strong Socio-Economic Benefits


- Objectives with strong societal relevance
- enable the emergence of new markets and applications

## – Novel Approach

- Public-private partnership: bringing together national and EU resources to support industry-led R&D agendas
- Cross-sectoral solutions to increase efficiency and unleash new market potential

# Cross-application solutions





# ARTEMIS-JU Research: relationship to the ARTEMIS SRA

<b>Sub-Programme</b>	<b>DM&amp;T</b>	<b>SC&amp;M</b>	<b>RD&amp;A</b>
<b>Safety-relevant Embedded Systems</b>		X	X
<b>Person-centric Health Management</b>	X	X	X
<b>Smart Environments and Scalable Digital Services</b>		X	X
<b>Efficient Manufacturing and Logistics</b>	X	X	X
<b>Computing Environments for Embedded Systems</b>	X	X	X
<b>Information Security, Privacy and Dependability</b>		X	X
<b>Embedded Technology for Sustainable Urban Life</b>	X	X	X
<b>Human-centric Design of Embedded Systems</b>	X		X



# ARTEMIS JU Sub-Programmes



- **Safety-relevant Embedded Systems**
  - Cost-effective design and integration of new systems used in safety-critical situations
  - For transport, manufacturing, ...
- **Embedded Technology for Sustainable Urban Life**
  - Sustainable delivery of energy and other utilities
  - Improved energy use through cost-effective and intelligent embedded systems



# ARTEMIS JU Sub-Programmes



- **Smart Environments and Scalable Digital Services**
  - New architectures for enhanced user experience of (mobile) media, applications and services
- **Efficient Manufacturing and Logistics**
  - Sustainable and flexible manufacturing
  - Support products over their complete life-cycle
- **Person-centric Health Management**
  - Embedded Systems for prevention, care and well-being
  - Rising cost of health-care demands new paradigms supported by ICT



# ARTEMIS JU Sub-Programmes



- **Computing Environments for Embedded Systems**
  - New architectures and design paradigms
- **Human-centric Design of Embedded Systems**
  - Easier-to-use, friendly electronics for home, work and play
  - Eliminate user errors for safer plants and transportation
- **Information Security, Privacy and Dependability**
  - Protect individuals, suppliers and infrastructures from abuse
  - Increase confidence in the use of technology-based services



To complete the story

**ARTEMISIA is ready and committed to collaborate with its partners in setting up the Joint Undertaking and pursuing its ambitious R&D goals**