FP7 ICT Work Programme 2011-12

Focus on remaining calls up to end 2012

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FP7 ICT Programme Objectives

- Reinforce basic ICT technologies and infrastructures
  - seize new opportunities in emerging fields, build on existing strengths, help share risks and build partnerships

- Reinforce ICT contributions to major socio-economic challenges
  - health and ageing, lower-carbon economy, sustainable manufacturing and services, learning and cultural resources

- Support to international cooperation

- Strengthen cooperation in an enlarged Europe

- Support to pre-commercial procurement

ICT in FP7 - Where do we stand?

- Behind us
  - ICT CfPs under WP 2007-08, WP 2009-10 and WP 2011-12
    - >4200 M€ of EU funding committed
    - >1200 projects launched or to be launched
    - >11700 participations
    - >3900 distinct organisations participating
  - Calls under two Joint Technology Initiatives (Artemis and Eniac) and the Ambient Assisted Living Joint Programme (AAL) in 2008, 2009 and 2010

- Ahead of us
  - ICT WP 2011-12 Calls 8 and 9
    - ~1350 M€ funding
  - ICT WP 2013
    - >1500 M€ funding
  - JTIs + AAL WPs 2011, 2012, 2013

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FP7/ICT Programme Structure

ICT for socio-economic challenges

2 years budgets

260 M€, 11% | 280 M€, 12% | 140 M€, 6% | 100 M€, 4%

5. ICT for Health, Ageing, Inclusion & Gov.

6. ICT for Lower-Carbon Economy

7. ICT for Manufac. & Enterprise

8. ICT for Learning & Cultural Resources

Basic ICT technologies & infrastructures

1. Network and Service Infrastructures   625 M€, 26%

2. Cognitive Systems and Robotics   155 M€, 6%

3. Component and Systems   402 M€, 17%

4. Digital Content and Languages   165 M€, 7%

261 M€, 11%

Future & Emerging Technologies (FET)

Future Internet PPP

Green Car PPP
Energy Efficient Buildings PPP

Factory of the Future PPP

PPPs Deadline: 1/12/11

FI PPP Deadline: 24/10/2012

International cooperation, Cooperation in an **enlarged** Europe, **Pre-commercial Procurement**

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Why Public Private Partnerships (PPP)?

- Strong focus on industry-led roadmaps
- Cut across themes, technologies and research disciplines
- Cut across policy silos ("supply and technology push" + "demand and market pull")

- INFSO/ICT PPP
  - Future Internet PPP
- Jointly implemented with other Themes (DG RTD, ENV, ENERGY)
  - ICT in the Factories of the Future PPP
  - ICT in the Green Cars PPP
  - ICT in the Energy Efficient Buildings PPP

Network and service infrastructures

160 M€ 1.1: Future Networks supporting the convergence and interoperability of heterogeneous mobile, wired and wireless broadband network technologies

– novel Internet architectures; network management and operation frameworks, wireless and broadband systems and ultra-high capacity all-optical networks

70 M€ 1.2: Cloud computing, Internet of Services & advanced software engineering

– technologies specific to the networked, distributed dimension of software and the access to services and data
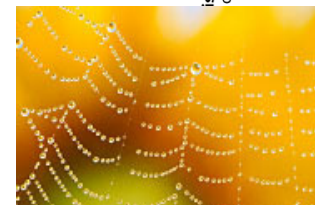
80 M€ 1.4: Trustworthy ICT

– security in networked service and computing environments; trust, privacy and claims management infrastructures; data policy, governance and socio-economic aspects of trustworthy ICT

25 M€ 1.6: Future Internet Research and Experimentation (FIRE)

– FIRE Federation
– FIRE Experimentation
– Coordination and support

Future Internet PPP

67.5 M€ ## 1.8: Use case scenarios and early trials

- Working experimentation sites building upon common components and generic enablers
- Selected test applications
- Validation of the openness and versatility of the Core Platform and its Software Development Kit
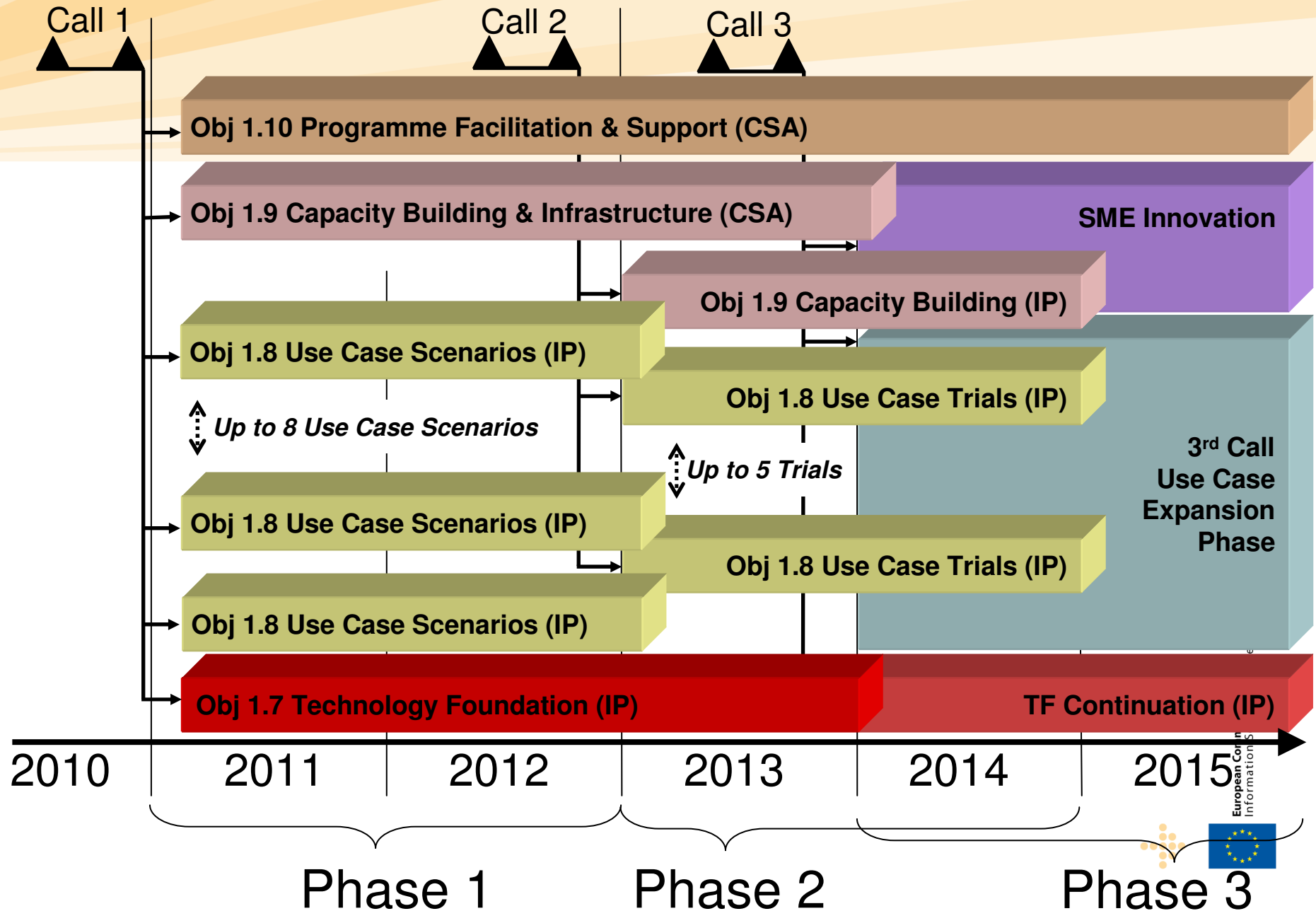- Detailed plan for the large scale expansion of platform usage

12.5 M€ ## 1.9: Capacity Building and Infrastructure support

- Integration of identified infrastructures satisfying the interoperability requirements
- Adaptation, upgrade and validation of the infrastructures to support usage requirements from use cases
- Pan-European federation of test and experimental infrastructures satisfying interoperability requirements

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Programme Architecture

Call 1 Call 2 Call 3

Obj 1.10 Programme Facilitation & Support (CSA)

Obj 1.9 Capacity Building & Infrastructure (CSA)

SME Innovation

Obj 1.9 Capacity Building (IP)

Obj 1.8 Use Case Scenarios (IP)

↕ Up to 8 Use Case Scenarios

Obj 1.8 Use Case Trials (IP)

↕ Up to 5 Trials

3rd Call Use Case Expansion Phase

Obj 1.8 Use Case Scenarios (IP)

Obj 1.8 Use Case Trials (IP)

Obj 1.8 Use Case Scenarios (IP)

Obj 1.7 Technology Foundation (IP)

TF Continuation (IP)

2010   2011   2012   2013   2014   2015

Phase 1   Phase 2   Phase 3

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2.1 Cognitive systems and robotics

82 M€

- Cognition and control in complex systems
  - cognitive capabilities to enhance performance and manageability of artificial systems

- Gearing up cross-fertilisation between academic and industrial robotics
  - strengthen synergies
  - joint industrially-relevant scenarios
  - shared research infrastructures
  - joint small- to medium scale experimentation
  - comparative performance evaluation

- Smarter robots through targeted competitions
  - reference scenarios
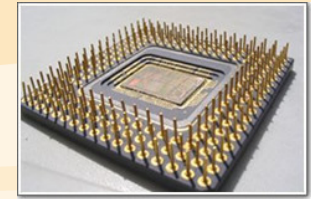 - soliciting private sponsorships
  - organising and managing events

@Sensopac
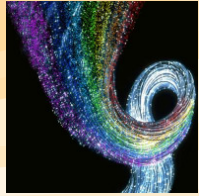
Nanoelectronics, Smart systems, Photonics

Deadline: 17/1/12

60 M€ **3.1: Very advanced nanoelectronic components: design, engineering, technology and manufacturability**

- alternative solutions to the traditional miniaturisation path, for information & communication systems & other applications

39 M€ **3.2: Smart components and smart systems integration**

- Micro-Nano Bio Systems (MNBS)
  - Increased intelligence
  - Enhanced miniaturisation
  - Increased integration

92 M€ **3.5: Photonics**

- Core photonics technologies
  - Optical data communications / Biophotonics / Imaging and sensing for safety and security / Lighting and displays / Photonics integration platforms
- ERANET-Plus action
- Innovative solutions through Pre-Commercial Procurement (PCP)

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Technologies for digital content and languages

Deadline: 28/4/11 (short)
28/9/11 (full)

35 M€ 4.1: SME initiative on Digital Content and Languages
– Putting the ability to create quality content and innovative services within the reach of individuals and small organisations by lowering skill and cost barriers

Deadline: 17/4/12

30 M€ 4.3: Digital preservation
– Ensuring reliability of retrieval and use of digital resources across applications and platforms over time, and design digital content natively engineered for obsolescence avoidance

50 M€ 4.4: Intelligent information management
– Scaling up data analysis to keep pace with the rate of growth of data streams and collections and enable novel forms of real-time intelligence only possible on extremely large data volumes

Deadline: 17/1/12

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ICT for health
5.2 Virtual Physiological Human

66.5 M€

- Patient-specific predictive computer-based models and simulation
  - integrating medical, biological and environmental data
  - explore the interaction and integration of environmental factors with medical & biological factors
  - demonstrate for a specific clinical need (all major diseases)

- ICT tools, services and infrastructure for multi-scale models and larger repositories
  - robustness and reproductibility
  - standards for models and data, tools and repositories
  - VPH Infostructure including a sustainable VPH model and data repositories
  - open environments and open-source software expected

- Demonstrators and proof of concept of digital representations of health status
  - integrating different patient-specific data and models of organs
  - coherent representation of a "Digital Patient"

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ICT for a low-carbon economy

Deadline: 17/1/12

30 M€ 6.1: Smart energy Grids
– Intelligent systems and integrated communication infrastructure to assist in management of electricity grids

Deadline: 17/1/12

15 M€ 6.3: ICT for efficient water resources management
– ICT-enabled solutions for integrated water resources management (innovative demand management systems, decision support systems, data management technologies)

Deadline: 1/12/11

30 M€ 6.5: PPP EEB: ICT for energy-positive neighbourhoods
– management and control, decision-support systems for energy supply and demand in neighbourhoods and extended urban/rural communities

->Part of Public-Private Partnership on Energy-Efficient Buildings

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ICT for a low-carbon economy

40 M€ 6.7: Cooperative systems for energy efficient
and sustainable mobility

- Cooperative Systems for low-carbon multi-modal mobility
  - focus on road transport
- European Wide Service Platform (EWSP) for cooperative system enabled services
- Coordination and support actions

- 6.8: PPP GC: ICT for fully electric vehicles (FEV)

30 M€
- Electric Drive and Electronic Components
- Integration of the FEV in the cooperative transport infrastructure
- Functional Safety and Durability of the FEV
- Coordination and Support Action "FEV made in Europe"

   ->Part of Public-Private Partnership on Green Cars

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ICT for the enterprise and manufacturing

40 M€ 7.1: 'Smart factories'

Deadline: 1/12/11

– Demonstration and benchmarking of novel process automation and control
– Large-scale validation of advanced industrial robotics systems
– Applications based on factory-wide networks of intelligent sensors and new metrology tools and methods
– Lasers and laser systems for manufacturing and materials processing

20 M€ 7.2: 'Manufacturing solutions for new ICT products'

Deadline: 1/12/11

– Feasibility demonstrators for industrial, low cost, high volume and high throughput manufacturing
– Production of organic and large area electronics and photonics products
– Industry-driven projects with quality control, testing and validation

->7.1 & 7.2 are part of Public-Private Partnership on Green Car

ICT for learning and cultural resources

60 M€ 8.1: Technology-enhanced learning

- – Advances in learning through ICT
- – Systems endowed with the capabilities of human tutors
- – Educational technologies for science, technology and maths
- – Solutions for deployment of learning opportunities at the workplace
- – Computational tools fostering creativity in learning processes

40 M€ 8.2: ICT for access to cultural resources

- – Enhancing the meaning and experiences from digital cultural and scientific resources
- – Creating personalised and engaging digital cultural experiences
- – Platforms for building services to support use of cultural resources for research and education
- – Technologies for the digitisation of cultural resources
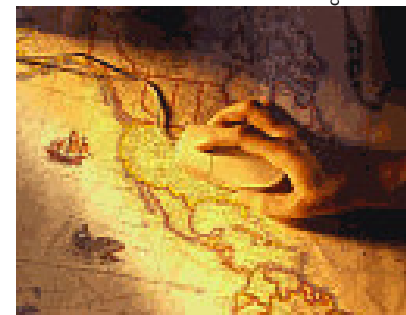
FET Open
Future and Emerging Technologies

Deadline: 31/12/12

75 M€ 9.1: Challenging current Thinking

9 M€ 9.2: High-Tech Research Intensive SMEs in FET research

6 M€ 9.3: FET Young Explorers

3 M€ 9.4: International cooperation on FET research

- Cut-off dates:

Batch	Short STREPs	Full STREPs and CSAs
11	30/11 2010	17/5 2011
12	3/5 2011	25/10 2011
13	25/10 2011	10/4 2012
14	10/4 2012	25/9 2012
15	11/9 2012	12/3 2013

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FET Proactive and special initiative

- **15 M€** – 9.6: Unconventional Computation
- **23 M€** – 9.7: Dynamics of Multi-Level Complex Systems
- **15 M€** – 9.8: Minimising Energy Consumption of Computing to the Limit
- **3 M€** – 9.12: Coordination Call 8

Deadline: 17/1/12

- **22 M€** – 9.9: Quantum ICT
- **23 M€** – 9.10: Fundamentals of Collective Adaptive Systems
- **23 M€** – 9.11: Neuro-Bio Inspired Systems
- **2.5 M€** – 9.12: Coordination Call 9

Deadline: 17/4/12

- **3.5 M€** – 9.14 'Science of Global Systems'
  - Tools to represent uncertainty and to construct chains of causality for use in socio-political decision processes

Deadline: 17/1/12

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International collaboration
Horizontal actions

2 M€ 10.3: International partnership building & support to dialogues

- Enable Partnership building in low and middle income countries

- Low-cost technologies, technologies promoting or enabling use of ICT, intuitive user interfaces and local content provisioning

- Targeted countries: Low and middle income countries including Africa

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11.1 Pre-Commercial Procurement Actions

Deadline: 17/1/12

5 M€ Networking and coordination
- Strengthen the networking and cooperation of public bodies in Europe to establish and coordinate mid-to-long term procurement strategies
- Development of new ICT solutions that can help better address public sector needs through PCP

- Implementation of joint PCP calls for tenders
  - Encourage stronger coordination of non-Community R&D procurement programmes
  - Support public bodies in Europe to establish joint PCP calls for tenders on topics of common European interest

- Minimum number of participants
  - Three independent legal entities which are public bodies preparing for, or already experienced in the implementation of PCP
  - Each of these must be established in a different Member or Associated States

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Next Calls for Proposals - Deadlines

- SME Initiative ….short: 28 Apr 2011; full: 28 Sep 2011

- Energy-Efficient Buildings, Green Cars,
  Factories of the Future PPPs Call 2011…... 1 Dec 2011

- ICT Call 8…………… ………………………………..17 Jan 2012
- ICT Call 9……… ………………………………..17 Apr 2012

- Future Internet PPP Call 2 ……………………. 24 Oct 2012

- FET Open ………………………………………… Continuously open

Use of Internet Protocol version 6 (IPv6) by research projects

- Depletion of IPv4 addresses is today a reality (IANA pool is now exhausted)

- Commission adopted in May 2008 an action plan to support deployment of IPv6

- In this action plan, FP7 research projects are strongly encouraged to use IPv6 for a durable and sustainable impact on ICT

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Getting help with proposals

- http://cordis.europa.eu/fp7

- National Contact Points:http://cordis.europa.eu/fp7/ncp_en.html

- Partner search facilities: http://www.ideal-ist.net/

- Information desk: ict@ec.europa.eu

- IPR Helpdesk: http://www.ipr-helpdesk.org/index.html

- Electronic proposal submission helpdesk: support@epss-fp7.org

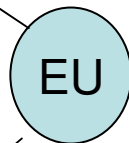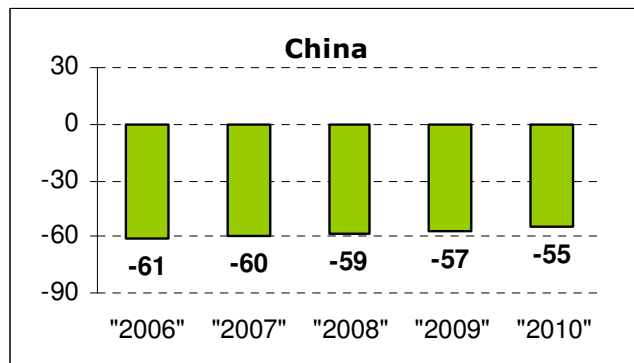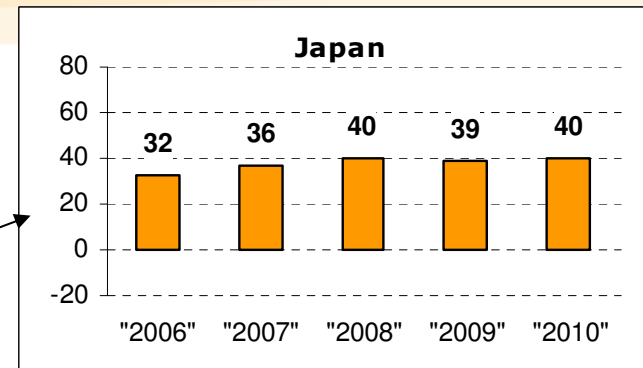# The rationale for the Horizon 2020 programme

The context: Europe 2020 strategy

- Objectives of **smart, sustainable and inclusive growth**
- Headline targets, including **3% of GDP** invested in R&D
- Includes the **Innovation Union Flagship initiative**
    - A strategic and integrated approach to research and innovation
    - Putting in place the key conditions to make Europe attractive for research and innovation
    - Focus on major challenges and aiming at competitiveness and jobs

- Endorsed by February European Council (Heads of State) as key to future growth and jobs

Innovation gap with US and Japan, emerging countries catching up

United States

| | 46 | 45 | 46 | 48 | 49 |

Japan

| | 32 | 36 | 40 | 39 | 40 |

China

| | -61 | -60 | -59 | -57 | -55 |

EU
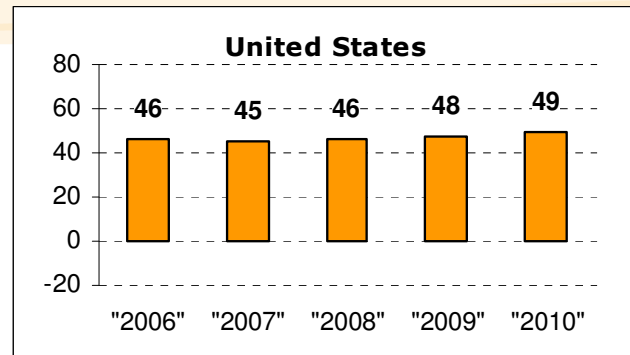
Percentage gaps between EU performance (0) and other countries across 12 indicators. Other counties, such as India and Brazil, are developing fast.

Source: 2010 Innovation Union Scoreboard

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EU R&D investment is lagging behind our main competitors

Evolution of R&D Intensity, 2000-2009
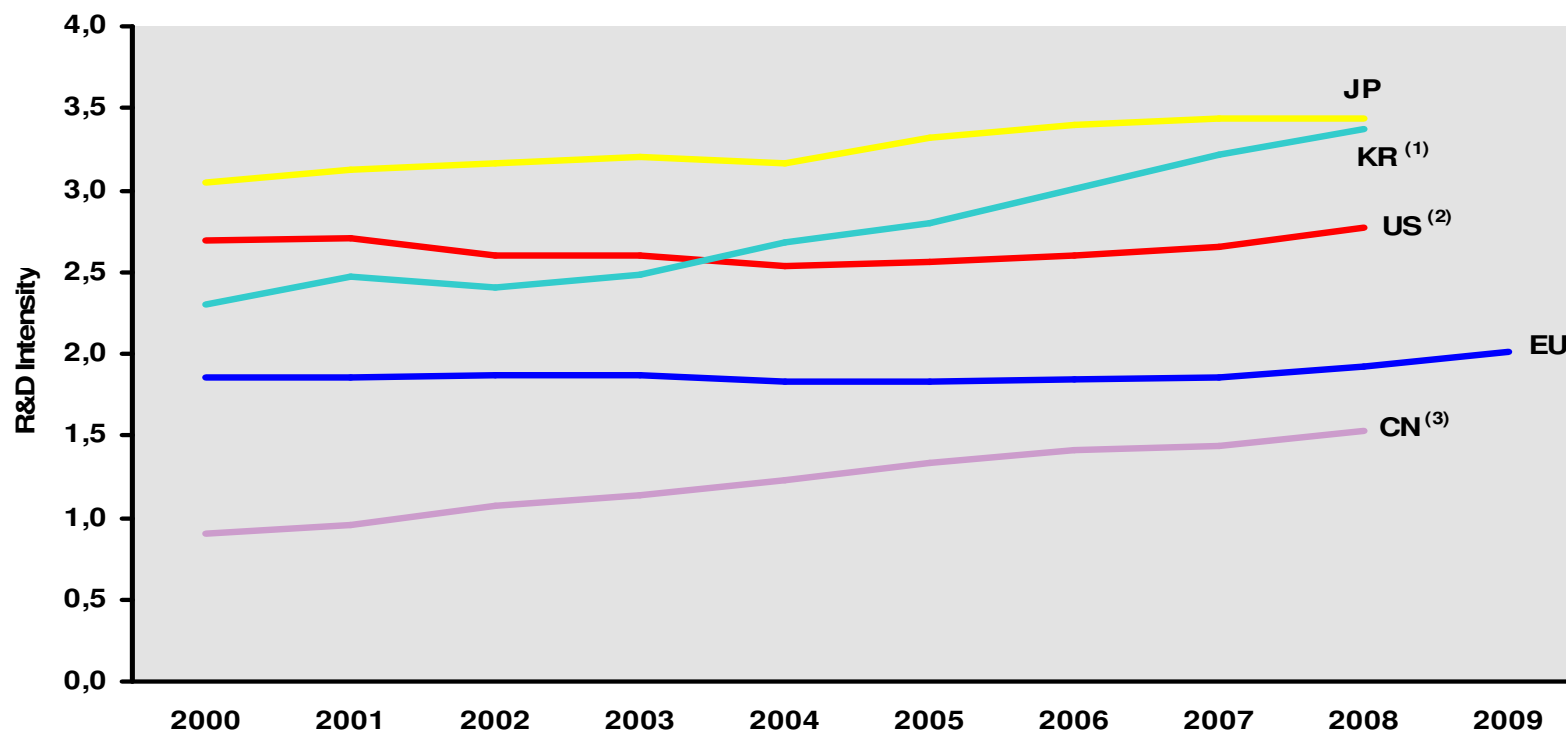
Benefits from current EU research and innovation funding **(evaluations, other sources)**

- Enable cross-border **pooling** of resources to achieve **critical mass** and **diffusion of knowledge**
- Promote **competition** in research and innovation, thereby raising levels of **excellence**
- Offers a wide range of **training possibilities** and enhances Europe's research and innovation capacities
- Provides a way to deal with **pan-European policy challenges** and link to EU market frameworks
- Raises the **international attractiveness** of EU research and innovation
- Act as a **catalyser** and for development of **common solutions**
- Financial instruments with **high leverage** and high efficiency

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But also concerns

- **Complexity** - too many instruments and funding mechanisms, complex landscape

- **Further simplification-** less variation in rules, simpler audits and controls, avoid duplicate information

- **Better strategy for innovation** – involve users, how to commercialise results, generate impacts

- **Need to focus resources** – with critical mass to address the grand challenges

- **Broaden participation** – industry, SMEs, new Member States, women, new innovation actors

- **Clearer agendas -** driven by scientific, industrial, social objectives

Scope of the Horizon 2020

- **Covering current funding for:**
- The **7th Framework Programme** (FP7) for research, technological development and demonstration
  - €53 billion (2007-13). 4 main programmes on Ideas, Cooperation, People and Capacities.
- The **Competitiveness and Innovation Framework Programme (CIP)**
  - €3.6 billion (2007-13). 3 programmes on enterprise & innovation, intelligent energy, and ICT policy support.
- The **European Institute for Innovation and Technology (EIT)**
  - Autonomous EU body bringing together higher education, research and business to stimulate innovation in Knowledge and Innovation Communities. EU budget contribution of €309 million (2007-13)
- **And strengthening complementarities** with the **Structural Funds**
  - €86 billion allocated (2007-13) to R&D and innovation, enterpreneurship, ICT and human capital development

Why a Common Strategic Framework?
- Increasing IMPACT

- **FROM** different priorities in each programme and initiative
  - **TO common strategic priorities**, focusing on societal challenges, competitiveness and research excellence.

- **FROM** gaps between the stages (R&D, demonstration, market take up, etc)
  - ➢ **TO** coherent support for projects and organisations across the innovation cycle **from research to retail**

- **FROM** research results that are not used and focus on technologies
  - ➢ **TO stronger support for innovation,** including non-technological innovation and market take up

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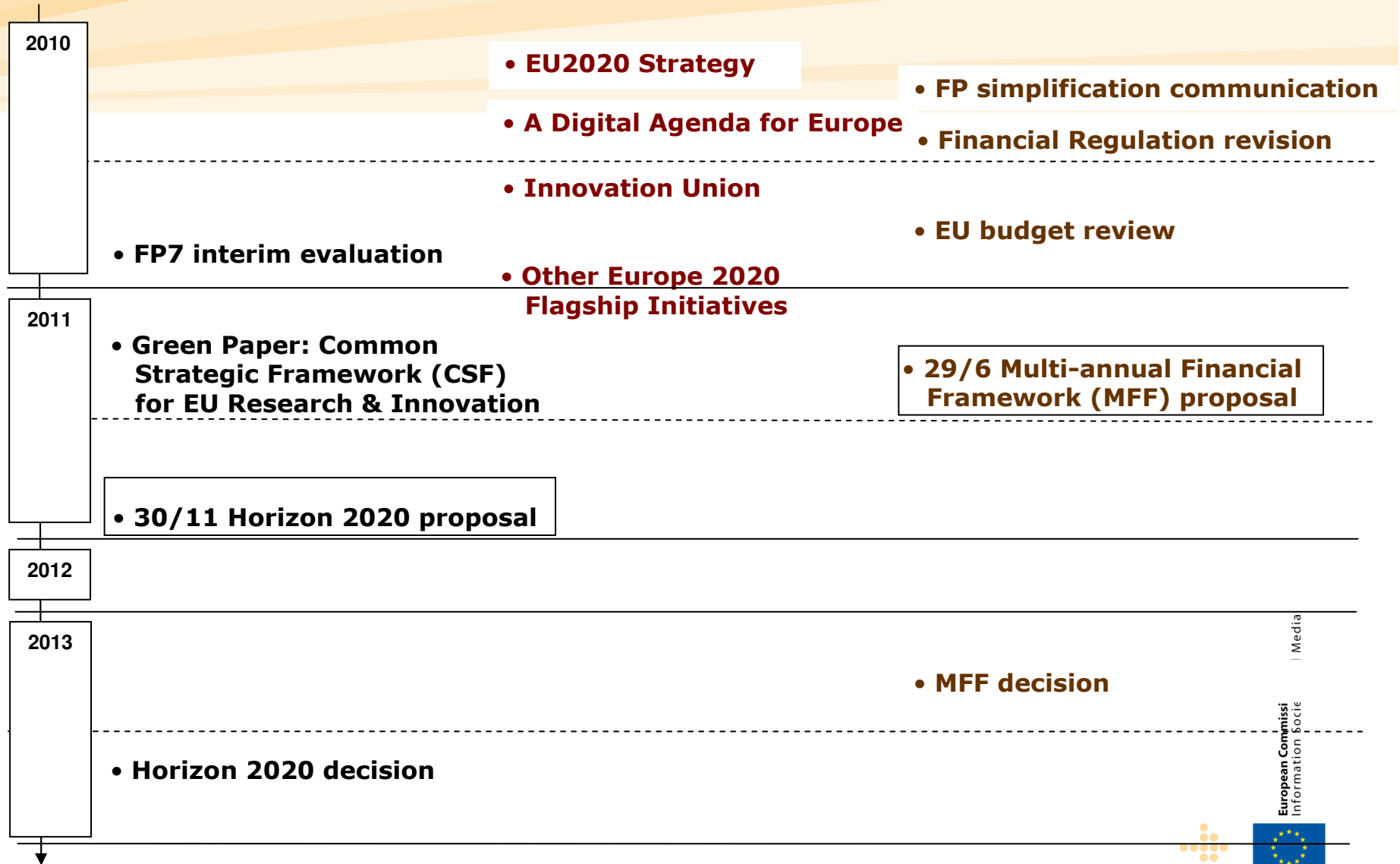Information Society and Media

Why a Common Strategic Framework? - SIMPLIFICATION

- **FROM** different rules in each programme and initiative
  - ➢ **TO more standardised rules** across all initiatives – which meet the different needs and with flexibility where needed (e.g. for the EIT)

- **FROM** a large variety of funding schemes within and between programmes
  - ➢ **TO a rationalised toolkit** of schemes across the Common Strategic Framework

- **FROM** multiple websites, guidance documents, applications
  - ➢ **TO common entry points**, one stop shops, common IT platforms

Timeline Horizon 2020

2010

- **EU2020 Strategy**
- **FP simplification communication**
- **A Digital Agenda for Europe**
- **Financial Regulation revision**
- **Innovation Union**
- **EU budget review**
- **FP7 interim evaluation**
- **Other Europe 2020 Flagship Initiatives**

2011

- **Green Paper: Common Strategic Framework (CSF) for EU Research & Innovation**
- **29/6 Multi-annual Financial Framework (MFF) proposal**
- **30/11 Horizon 2020 proposal**

2012

2013

- **MFF decision**
- **Horizon 2020 decision**

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Horizon 2020 Architecture

Shared objectives and principles

Tackling Societal Challenges
- Health, demographics and wellbeing
- Food security and bio-based economy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Resource efficiency & climate impact
- Inclusive, innovative & secure society
- (EIT)

Creating Industrial Leadership & Competitive Frameworks
- Leadership in enabling technologies
  - ICT
  - Nanotech, Production, Materials
  - Biotech
  - Space
- Access to risk finance & venture capital
- High potential SMEs

Excellence in the Research Base
- Frontier research (ERC & FET Flagships)
- Skills and career development (Marie Curie)
- Research infrastructures incl. e-Infrastructures

Common rules, toolkit of funding schemes

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