MANAGING KNOWLEDGE FOR GROWTH

Public research programmes for business and academia

COURSE 2
THE EU RESEARCH POLICY
The European Research Area – ERA
Framework Programmes – Horizon 2020

1. The EUROPEAN RESEARCH AREA
2. HISTORY: PAST EC RESEARCH POLICY
3. HORIZON 2020 (2014 – 2020)
4. PUBLIC-PUBLIC PARTNERSHIPS
5. FEED-BACK ON EU RESEARCH AND INNOVATION POLICY
Innovation Union - ERA – Horizon 2020
1. EUROPEAN RESEARCH AREA
1.1 CHALLENGES TO RESEARCH & INNOVATION in the EU
APPLYING THE LISBON STRATEGY TO THE KNOWLEDGE ECONOMY

S&T contributes to the Lisbon objectives: economic growth, employment creation, environmental protection, social challenges: fight poverty, improve human health and quality of life (GSM, remote working, safe roads, etc.)
Research: exploiting a strong human potential

PhDs in S&E per 1,000 in the age group 25-34 (2010)

- Sweden: 1.24
- Finland: 1.01
- Germany: 0.81
- UK: 0.68
- France: 0.65
- Austria: 0.58
- EU-15: 0.56
- Ireland: 0.50
- Denmark: 0.49
- Belgium: 0.43
- US: 0.41
- Portugal: 0.39
- Netherlands: 0.34
- Spain: 0.33
- Japan: 0.25
- Italy: 0.16
Research: fighting the brain drain
Share of EU born PhD recipients planning to stay in the US after PhD

In 2010, ~400,000 Europeans with an S&E degree lived in the US.

In 2005, 51% of US Ph.D were not born in the US. Visas start becoming a problem.
EU Citizens & Interest in Science

Eurobarometers 55.2 (December 2001) and CC 2002.3 (April 2003)

- Sports
- Politics
- Economics & Finance
- Science & Technology
- Culture

- Fairly interested
- Fairly not interested
- DK
- Students
1. EUROPEAN RESEARCH AREA

1.2 NEW PERSPECTIVES and INITIATIVES (2007)
What is ERA about?

- A European “single market” where researchers, technology and knowledge circulate freely across borders
- Effective coordination and better integration of research activities at national and European level
- Research initiatives implemented and funded at European level
Scientific, economic and competitive benefits of the ERA

- Avoiding fragmentation
- Lowering costs of knowledge
- Creating critical mass
  - Scientific excellence
  - Complex projects
  - Scale economy
  - Avoiding redundant investments
  - Attracting industry

Free circulation will foster science & competitiveness
ERA partnership initiatives (2007-2012)

1. European Partnership for Researchers
   ◆ National Plans + EU initiatives (Euraxess, Pension Fund, Multirank)

2. European Partnership for Researchers
   ◆ 1st ERIC status Mar 2011, 10 (+16) ESFRI projects

3. Joint Programming
   ◆ 10 Joint Programming Initiatives by end of 2011

4. Accessing Knowledge
   ◆ Some changes in national legislation (Open Innovation)

5. [ International cooperation – until 2012 ]
   – Pilots for India (Water), USA (Energy) & China (Urban)
   – + EU - Africa S&T policy dialogue

6. Gender Equality (since 2012)
2. “PAST” EU RESEARCH POLICY
Programming of research

◆ ‘Manhattan project’, 1943
◆ ‘From linear model to circular model’:
  – Research (R&D) -> Invention -> Innovation -> Product/Market
  – Research (R&D) – Invention – Innovation – Product/Market

◆ Biggest R&D budgets in 1999
  – US (1999) - Private: General Motors ($7.9 billion),
    DaimlerChrysler ($7.1 billion) and Ford ($6.3 billion)
    aeronautics (8%) and engineering (8%)
EU research: the story so far

- **1952**: ECSC treaty; first projects started March 1955
- **1957**: EURATOM treaty; Joint Research Centre set up
- **1990**: Third Framework Programme (1990-1994)
- **1993**: Treaty on EU (Maastricht) - role of RTD in enlarged EU
- **2000**: European Research Area
- **2002**: Sixth Framework Programme (2002-2006)
- **2009**: Treaty on EU functioning (Lisbon) – RTD is shared competence
- **2014**: Horizon 2020 (2014-2020)
EU research: some key figures

- About 2,000 new projects launched per year
  → About 6,000 new projects launched per year

- At peak activity:
  - > 30,000 proposals → 60,000 proposals
  - > 4,000 experts per year → 8,000 experts

- EU financial support
  - From 4.0 to 8.0 B€ per year → 10.0 B€ in 2013

- Average of
  - 7 organisations from 3 countries per project
COLLABORATION and COOPERATION in the EU
(Public Research Programmes only)*

**Yearly Budget (M€)**

- INTERGOVERNMENTAL: EIROs (CERN, EMBL, EMBO, ESA, ESO, ESRF, ILL) + ESF + COST + EUREKA
- EU COMMUNITY RTD FRAMEWORK PROGRAMMES (FP7 + H2020)
- PUBLIC PUBLIC PARTNERSHIPS (Joint Calls in ERA-NET Scheme + Eurocores + Art.185+JPIs+SET)

*Sources*: FP7, Joint Programming and Horizon 2020 Impact Assessments

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* Uni TRENTO / Crash course on Research funding...

Teach/Trento/EU RTD - 4/13 Gi©
Success through co-operation

For the Public

(EuroBarometer poll, 6/08)
Success through co-operation

For Researchers

Two examples of world firsts

Biggest campaign ever to study the ozone layer and ozone loss (2000)

> 350 scientists from more than 65 organisations (20 countries)

First full sequencing of a plant genome (2000)

> 150 scientists and technicians from 30 organisations (15 countries)
Success through co-operation

European-Developing Countries Clinical Trials Programme (EDCTP) for Poverty-Related Diseases

For Programme Managers

Visit to Africa (29 August - 1 September 2005)

Mbeya Medical Research Centre, Tanzania

Manhiça Health Research Centre, Mozambique (picture)
MANAGING KNOWLEDGE for GROWTH – EU RTD

TOTAL PUBLIC RESEARCH in the ERA

**Sources**: FP7, Joint Programming and Horizon 2020 Impact Assessments

*Giorgio Clarotti*

**Total EU Public (GERD then GBAORD Civil)**

**INTERGOVERNMENTAL**: EIROs (CERN, EMBL, EMBO, ESA, ESO, ESRF, ILL) + ESF + COST + EUREKA

**EU Community RTD Framework Programmes (FP7 + H2020)**
Research: filling the gap
Total expenditure on R&D, % of GDP
Barcelona Summit, 2001

- Japan: 3.0
- USA: 2.7
- EU-15: 1.9

Objective ‘00
Objective ‘07
Reached 2010
MANAGING KNOWLEDGE for GROWTH – EU RTD

EC Framework Programmes Budgets

Commission asked + 50% of funding (15 B€/yr),
Council agreed +20% (11B€/yr)

€ Billion


3.27 5.36 6.6 13.12 14.96 17.5 55 79
EU research: changing priorities

- Basic research
- Coordination & development
- Space
- Science and society
- Training of researchers
- Dissemination & exploitation
- International cooperation
- Socio-economic
- Transport
- Energy
- Life sciences
- Environment
- Industrial & materials technology
- IT and Communications
3. HORIZON 2020
4. PARTNERING INITIATIVES
Partnering instruments in FP7

**ERA-NET**
- Like in FP6: Coordination of programmes
  - MS agree and fund joint calls/programmes
  - EU funding only for coordination

**ERA-NET Plus**
- New in FP7: Top up of a single joint call
  - MS contribute to joint trans-national call 2/3
  - EU funding for research: 1/3 of the joint call

**Art. 185**
- Full integration of national programmes at 3 levels:
  1. **Scientific** & **financial** between MS & EU
  2. **Management**: Single implementing structure
Benchmarking JPIs (Status at 31/12/09 + WP 2010)

 JP 101, ERA Train, 4-'14

JPI NAME
Joint Calls, EC support

% MS
Funding
% EC
Funding

Legend

1/12/2009 TFUE Comes into Application

3/12/2009 Council Conclusions on JPND

JPND
Secretariat by FR CSA in WP 2010

~90%

% of EC funding to joint actions
Benchmarking JPIs (Status at 31/12/10 + WP 2011)

VI. IP Implementation
V. Policy Lifecycle
IV. Implementation Programme
III. Joint Calls & Actions
II. Expanded partnership
I. JP 101, ERA Train, 4-'14

12/10/2010 Council Conclusions on 1st Wave JPIs

JPND
Launched 3/12/09
Pilot Call '11
1 Joint Action '11
Secretariat
CSA 2010

FACCE
Pilot call
CSA in '11

Cultural Herit.
CSA 2011

Diet & Health
CSA2012

Legend

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<th>JPI NAME</th>
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<td>% MS Funding</td>
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~10% ~20% ~95%

% of EC funding to joint actions

End 2010, for 2011
End 2011, for 2012

Benchmarking JPIs (Status at 31/12/11 + WP 2012)

Legend

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During 2011 Councils
3 Counc. Conclusions on
2nd Wave JPIs

I. Expanded partnership
JP 101, ERA Train, 4-14

II. Joint Calls & Actions
Urban Europe
JC'11, no CSA

III. Programme
JPND
3 Joint Calls
2 Joint Actions
Secretariat CSA

FACCE
1 Joint Call 2011
CSA

Diet & Health,
JC 2012, CSA

Water
JC '13, CSA

Cultural Herit.
JC'12, CSA

IV. Implementation Programme

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VI. IP Implementation

V. Policy Lifecycle

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Benchmarking JPIs (2012 predictions for end 2015)

JPI Development Stage

VI. IP Implementation
V. Policy Lifecycle
IV. Implementation Programme
III. Joint Calls & Actions
II. Expanded partnership
I. JP 101, ERA Train, 4-'14

JPI NAME
Joint Calls, EC support

% MS Funding
% EC Funding

Legend

JPND
5 Joint Calls since ‘11
2 Joint Actions
Secretariat
CSA

FACCE
4 JC since 2012
CSA + EN+’13

Diet & Health, 2JC since ‘12, CSA

Cultural Herit. JC’12, CSA+EN+

Urban Europe
2 JC, CSA

Water JC’13, CSA

Climate JC’13, CSA

Oceans CSA

Anti-Microbial, CSA

More Years, CSA

~5%
~20%
~30%
~50%
~90%

% of EC funding to joint actions

End 2012, for 2015
End 2013, by 2016

Benchmarking JPIs (2013 predictions for end 2016)

JPI Development Stage

VI. IP Implementation
V. Policy Lifecycle
IV. Implementation Programme
III. Joint Calls & Actions
II. Expanded partnership
I. JP 101, ERA Train, 4-'14

JPND CSA + EN '14
FACCE CSA+CSA 2.0 3 ERA-NETs
Climate CSA + EN '15
Diet & Health CSA + EN '15
Water CSA EN '14 + EN '15
Oceans CSA+CSA 2.0
Urban Europe CSA + 2/3 EN?
Anti-Microbial CSA + EN '15
Cultural Herit. CSA + EN '13

Legend

JPI NAME EC support measures
% MS Funding % EC Funding

Legend

% of EC funding to joint actions

~10% ~20% ~30% ~40% ~50%

JPND FACCE Climate Diet & Health Water Oceans Urban Europe

More Years...

~10% ~20% ~30% ~40% ~50%

JPND FACCE Climate Diet & Health Water Oceans Urban Europe

More Years...

~10% ~20% ~30% ~40% ~50%

JPND FACCE Climate Diet & Health Water Oceans Urban Europe

More Years...

~10% ~20% ~30% ~40% ~50%

JPND FACCE Climate Diet & Health Water Oceans Urban Europe

More Years...

~10% ~20% ~30% ~40% ~50%

JPND FACCE Climate Diet & Health Water Oceans Urban Europe

More Years...

~10% ~20% ~30% ~40% ~50%
5. Feed-back on EU RTD & Inno policy

"So, Manuel, for EU 2020 we should...."