



Research Infrastructures in FP7 and beyond – options for a European dimension of plant phenotyping

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EPSO: The European Plant Science Organisation
EPSO Workshop on Plant Phenotyping
November 02-03, 2009
Forschungszentrum Jülich, Germany

Forschungszentrum Jülich, Germany
ICG-3: Phytosphere
Jülich Plant Phenotyping Centre (JPPC)
Website: <http://www.jppc.de>

<http://www.plantphenomics.com/phenotyping2009>



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Research Infrastructures in FP7



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EPSO Workshop

Jülich, 3 November 2009





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The 7th EU Framework Programme (2007-2013)

= Research Projects



Total 53 billion € for 7 years

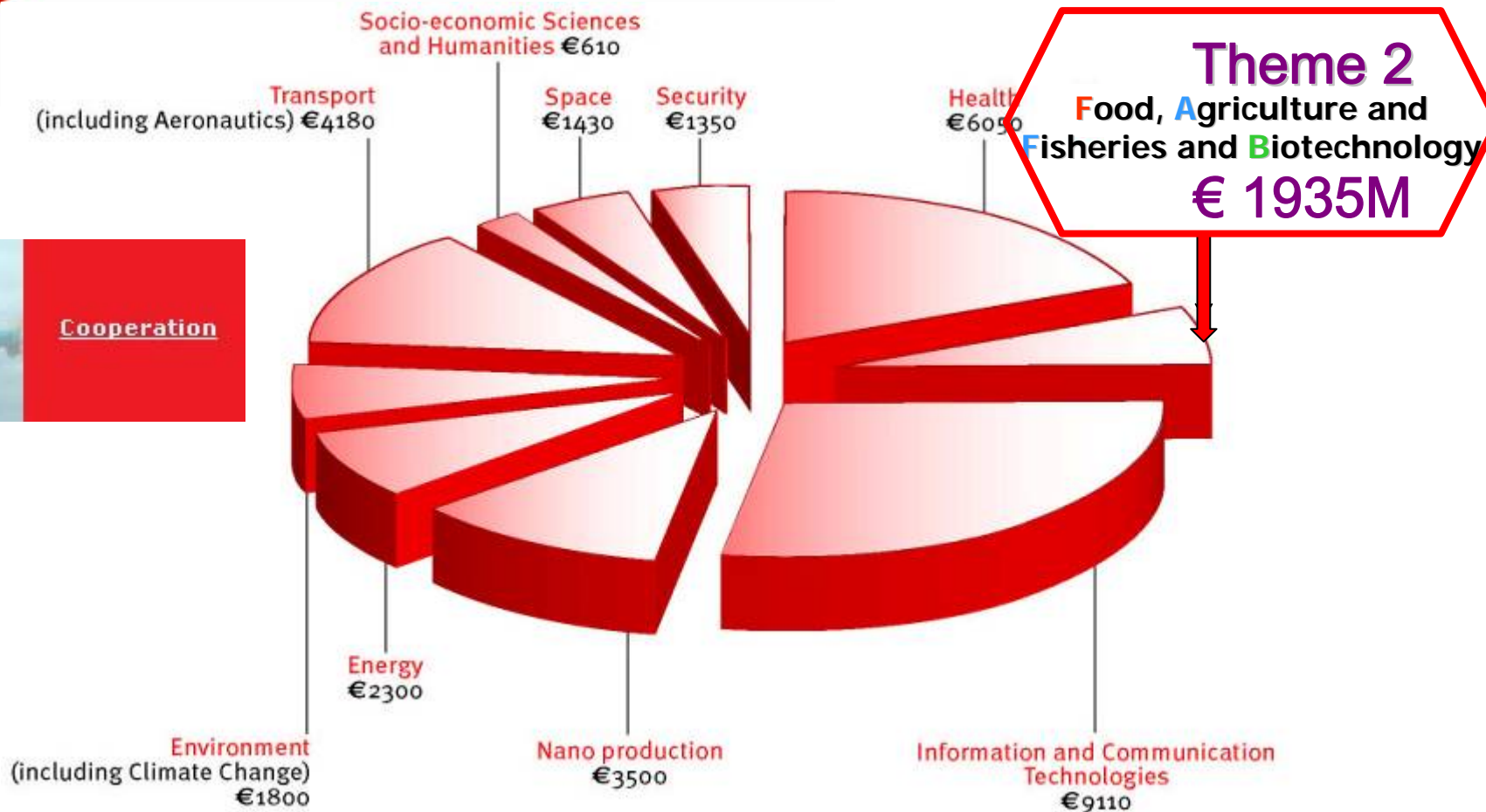




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Cooperation Programme – 10 themes





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The 7th EU Framework Programme (2007-2013)



**Research
Infrastructures**
1 715 M€





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Capacities – Research Capacity

1. Research infrastructures
2. Research for the benefit of SMEs
3. Regions of Knowledge
4. Research Potential
5. Science in Society
6. Coherent development of policies
7. Activities of International Cooperation





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Objectives of the Research Infrastructures actions

- **Optimising the use and development of the best research infrastructures existing in Europe**
- **Helping to create in all fields of S & T new research infrastructures of pan-European interest needed by the European scientific community**



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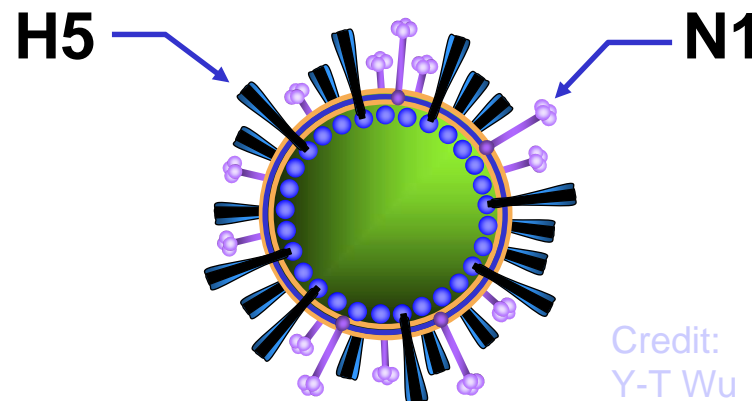
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Example (e-)infrastructures

EGEE Grid attacks Avian Flu

During April 2006, a collaboration of Asian and EU laboratories has analysed 300,000 possible drug components against the avian flu virus H5N1 using the EGEE Grid infrastructure (for the docking of 300,000 compounds against 8 different target structures of Influenza A neuraminidases, 2000 computers were used during 4 weeks – the equivalent of 100 years on a single computer)

Enabling Grids for E-science (EGEE) is Europe's leading grid computing project, providing a computing support infrastructure for over 10,000 researchers worldwide, from fields as diverse as high energy physics, earth and life sciences.



Credit:
Y-T Wu





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Definition of Research Infrastructures

- **Facilities, resources, and related services** used by the scientific community for conducting top-level research in their respective fields
- **They include**
 - **Major scientific equipment or set of instruments**
 - **Scientific collections, archives and structured information**
 - **ICT-based “e-Infrastructures”**
 - **Any other entity of a unique nature, used for research**
- **“Single-sited” or “distributed”**
- **Clear European dimension**





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Research Infrastructures support : 2 possibilities

- Support to existing research infrastructures:
 - Integrating activities
- Support to new research infrastructures:
 - Construction of new research infrastructures and major updates of existing ones
 - Design studies

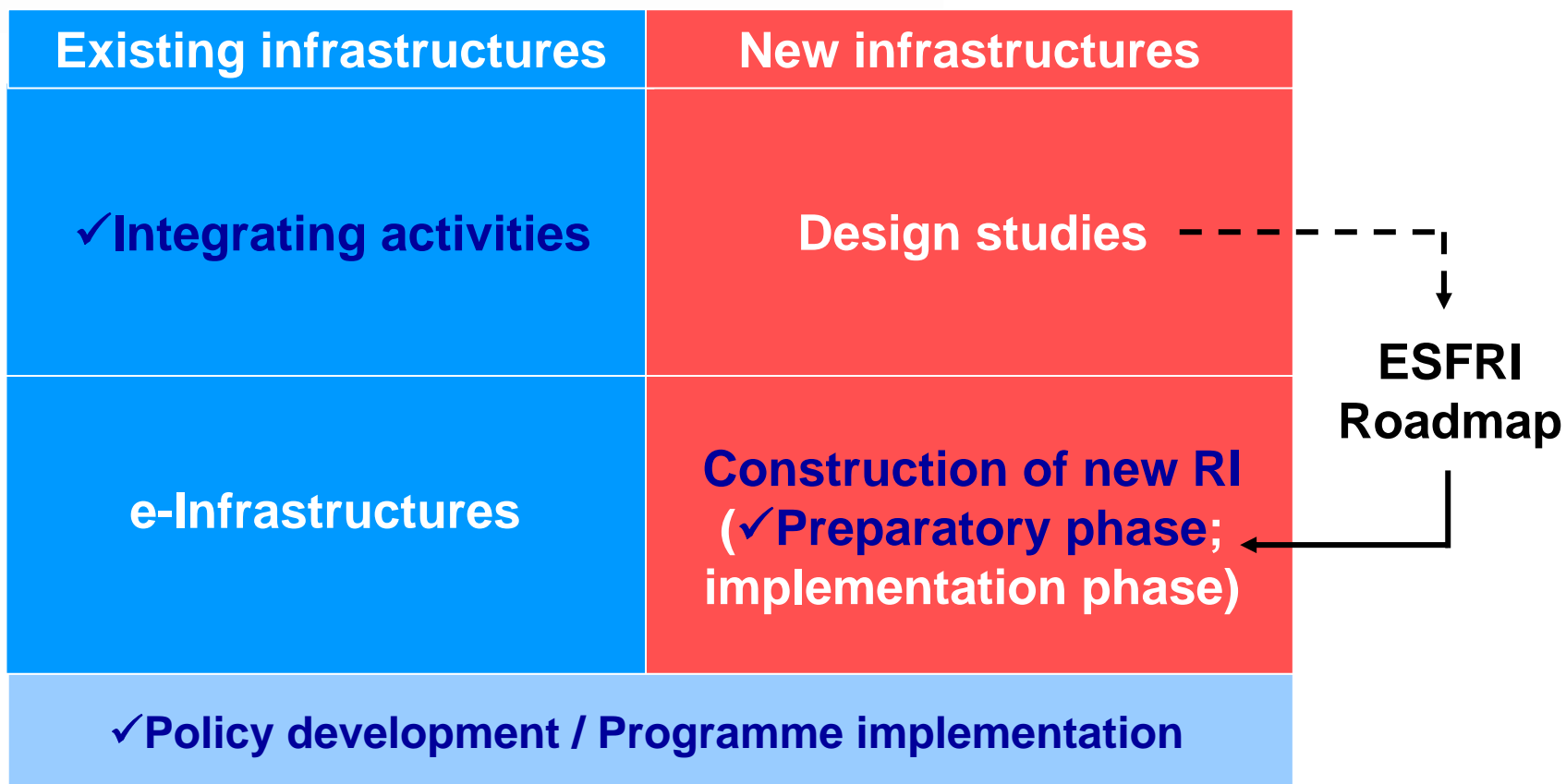




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FP7 Research Infrastructures action



(✓ call FP7-INFRASTRUCTURES-2010-1)





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Need for a clear vision...

- Definition of medium/long-term needs for new research infrastructures
- Clear roadmap
- Major role : European Strategy Forum on Research Infrastructures (**ESFRI**)

<http://cordis.europa.eu/esfri/>





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What is ESFRI?

- **A European Strategy Forum on Research Infrastructures**
- Launched in April 02
- Brings together representatives of the 27 Member States, 5 Associated States, and 1 representative of the European Commission (EC)





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The ESFRI Roadmap

- Addressing seven fields of Research and major challenges
- From around 200 original proposals, 45 projects have been identified through several review stages
- Community produced ideas that will open up new and unexpected areas of knowledge

Some fields should be stimulated for further integration





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ESFRI 2008: 45 projects for new large scale research infrastructure

> Biological and Medical Sciences 47

| | |
|---|-----------|
| BBMRI - Biobanking and Biomolecular Resources Research Infrastructure | 49 |
| EATRIS – European advanced translational research infrastructure in medicine | 50 |
| ECRIN – Pan-European infrastructure for clinical trials and biotherapy | 51 |
| ELIXIR - European Life-Science Infrastructure For Biological Information – A Major Upgrade..... | 52 |
| EMBRC - European Marine Biological Resource Centre | 53 |
| EU-OPENSREEN - European Infrastructure of Open Screening Platforms for Chemical Biology..... | 54 |
| EURO-Biolmaging – European Biomedical Imaging Infrastructure..... | 55 |
| European High Security BSL4 Laboratories | 56 |
| INFRAFRONTIER – The European infrastructure for phenotyping and archiving of model mammalian genomes | 57 |
| INSTRUCT – An Integrated Structural Biology Infrastructure for Europe..... | 58 |

(Extract from ESFRI report, 2008)

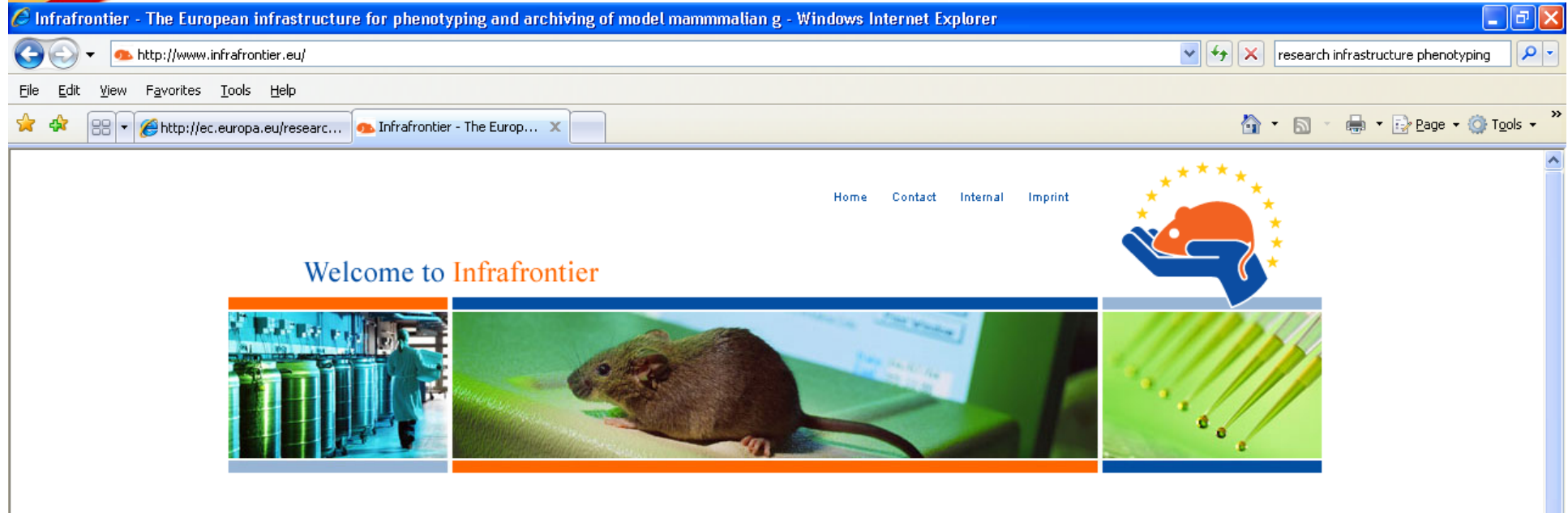




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Infrafrontier : mouse phenotyping



Infrafrontier will organize two complementary and linked infrastructure networks for large-scale and comprehensive phenotyping and archiving of mouse models serving the European genetics and biomedical research community for the benefit of human health.

<http://www.infrafrontier.eu/>





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Infrafrontier : Key facts

Preparatory phase of the construction started March 2008, for 36 months.
Project mobilises **22 Organisations** (including 12 Funding Organisations).

Two parts :

- "*Phenomefrontier*" : provide a European platform offering access to comprehensive phenotyping to every laboratory, including the latest in vivo imaging technologies as well as informatics tools to handle the phenotype data. Facilities will be upgraded and new ones will be constructed
- "*Archivefrontier*", which goal is archiving and distribution of mouse models under highest quality standards as well as dissemination of knowledge

This project will enable European laboratories to make effective use of the mouse models in order to understand complex systems and human disease.

INFRAFRONTIER is expected **to give Europe a leading position** in a worldwide competition for **resources and knowledge** for medically relevant mouse models.

>Timeline.

Preparatory phase: 2008-2011; construction phase: 2011-2020.

>Estimated costs.

| | |
|---------------------------|-----------------|
| Preparation costs: | 6 M€. |
| Total construction costs: | 270 M€. |
| Operation costs: | 36 M€/year. |
| Decommissioning costs: | not applicable. |

>Website: www.infrafrontier.eu





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How to participate ?

Support for:

- Existing research infrastructures
 - For optimising the access to and the utilisation and performance of such infrastructures
- New research infrastructures
 - (incl. major upgrades) Through the implementation of a 'strategic' approach





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Support to existing research infrastructures

- Generic (bottom-up) basis and in close co-operation with the thematic areas:
 - Integrating activities
 - Research e-infrastructure
- Call for proposals; selection through a peer review system



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Support to new research infrastructures

- Construction of new infrastructures and major updates of existing ones
 - Based on work of ESFRI
 - Based on EC-Treaty Article 171
- Design and foresight studies
 - Bottom-up approach
 - Exploratory awards and feasibility studies for new infrastructures



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Is it time for a plant phenotyping infrastructure?



ESFRI : until now, infrastructures highly related to health / medicine / human

But last ESFRI report :

“Finally, particular attention will need to be given to identifying and **supporting the new infrastructure requirements of agricultural research.** Agriculture is indeed facing important challenges linked in particular to globalisation, consumer demands and environmental concerns.

Future work in the area of Biological and Medical Sciences will in particular incorporate the outcome of the infrastructure analysis currently carried out by the Standing Committee for Agricultural Research (SCAR).”

SCAR : http://ec.europa.eu/research/agriculture/scar/mapping_en.htm





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Clear Criteria for new Research Infrastructures

- Added value of EU financial support
- Capacity to offer a service to users from the scientific community at European level
- Scientific excellence and relevance at international level
- Contribution to capacity building
- Technological feasibility
- Commitment of major European stakeholders
- Evaluation of construction and operating costs

More pragmatic : Who, how, when, where, which technologies...





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More information





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The operational mechanism to support construction in FP7

A two-stage process:

1. The preparatory phase

- Restricted calls targeting priority projects
 - For construction plans, legal organisation, management structure

2. Implementation phase

- Following successful first phase
- Engineering various financial instruments
 - e.g. national funds, structural funds, loans, pre-commercial procurements





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Call INFRASTRUCTURES- 2010-1 : budget

FP7-INFRASTRUCTURES-2010-1

Indicative total budget: **EUR 217 million (M€)**

| | |
|---|-----------------|
| 1.1 Support to existing research infrastructures | |
| <i>1.1.1 Integrating activities</i> | ~ 162 M€ |
| 1.2 Support to new research infrastructures | |
| <i>1.2.2 Construction of new infrastructures (or major upgrades) – Preparatory phase</i> | ~ 45 M€ |
| 1.3 Support to policy development and programme implementation | ~ 10 M€ |



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Call INFRASTRUCTURES-2010-1

Indicative timetable

- **Date of publication** 30 July 2009
- **Deadline** 3 December 2009 17:00
(Brussels time)
- **Evaluation** Dec. 2009 – Feb. 2010
- **Evaluation results** March 2010

30/07/09

FP7-INFRASTRUCTURES-2010-1





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First call with plant related topics FP7-Infrastructures-2010-1

Support to existing infrastructures :

- **INFRA-2010-1.1.7: Plant genetic Resources Centres.**
- **INFRA-2010-1.1.18: Research Infrastructures for native seed conservation.**

**Integrating activities : combination of Collaborative Projects and Support Actions.
Maximum EC funding request : 10 Million €– 4 years maximum**

Many topics within KBBE calls with phenotyping workpackages / thematics

- **SPICY : Smart tools for prediction and improvement of crop yield**
- **AGRON-OMICS : Arabidopsis growth network integrating OMICS technologies**
- **DROPS : Drought Tolerant Yielding Plants**

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Essential documents

- **Work Programme (FP7 ‘Capacities’, Research Infrastructures, 2010) and ‘Call fiche’**
 - Detailed information on **objectives**, actions and budgets
 - List of **topics** (targeted approach)
 - Deadline, **eligibility** conditions, **evaluation criteria** and procedures, particular requirements
- **Guides for applicants**
 - Practical information on how to apply (**electronic submission** of proposals only)
 - Specific to a **call** and a **funding scheme**
 - Instructions for completing ‘part A’ (forms) and drafting ‘part B’ (text) of the proposal

(on Cordis web site, along with other useful documents)

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Contact persons : Capacities

National Contact Points

http://cordis.europa.eu/fp7/get-support_en.html

European Commission (*name.surname@ec.europa.eu*)

- General information: *Agnes.Robin* or *Hugues.Crutzen*
- Life sciences: *Jean-Emmanuel.Faure* or *Brigitte.Sambain*
- Environmental sciences: *Anna-Maria.Johansson* or *Agnes.Robin*
- Analytical facilities: *Hugues.Crutzen*
- Preparatory phases, international cooperation: *Elena.Righi-Steele*



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Other relevant information

- **FP7 and Capacities Specific Programme**
 - <http://cordis.europa.eu/fp7/>
 - <http://cordis.europa.eu/fp7/capacities/>
- **Research Infrastructures on Europa website**
 - <http://ec.europa.eu/research/infrastructures/>
- **ESFRI on CORDIS**
 - <http://cordis.europa.eu/esfri/>

Thank you!

