Course contents

Unit 1: INTRODUCTION
- Objectives for a PhD, base concepts, types of research, relationship with supervisor

Unit 2: SCIENTIFIC METHOD
- Overview of research methods, steps of the scientific method, engineering research

Unit 3: LITERATURE REVISION
- Information sources, information search, special sources, synthesis and critics

Unit 4: PUBLICATION OF RESULTS
- Writing scientific papers, publication channels, evaluation procedures, citations

Unit 5: THESIS ORGANIZATION AND VALIDATION
- Structure, research question, thesis contribution, validation of results

Unit 6: RESEARCH IN COLLABORATION
- Types of projects and partnerships, requirements, collaboration spirit and constraints

Unit 7: PROJECT PROPOSAL PREPARATION
- General structure of a proposal, typical example

Unit 8: RESEARCH PROJECT MANAGEMENT
- Management structure, management principles, tools, risks, reporting

Unit 9: ASSESSMENT OF RESEARCH RESULTS
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Unit 10: RESEARCH ETHICS
- Ethical issues and behavior, responsible conduct, scientific practices and violation

Unit 11: INTELLECTUAL PROPERTY RIGHTS
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Unit 12: ROADMAPPING AND FUTURE PLANNING (1)
- Future planning objectives and approaches, concept of roadmapping

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- Roadmapping methodology

Unit 14: PROJECT PROPOSAL PREPARATION - EXAMPLES
- Examples in different programs – EC-FP7-ICT, ESA, IMS & ISSS

Unit 15: PANEL
Contents of Unit 14.a

• This Unit presents a project proposal preparation example to a call in the Information and Communication Technologies (ICT) of the Seventh Framework Programme of the European Commission (FP7).

• At the end of this Unit, the audience should be able to identify the key aspects on building a proposal to ICT-FP7, including, the steps to follow from the first idea to the proposal submission.

FP7 research areas and activities

Theme 3 ICT

Cooperation (2/3 budget)

• Health
• Food, Agriculture and Biotechnology
• Information and Communication Technologies
• Nanosciences, Nanotechnologies, Materials and new Production Technologies
• Energy
• Environment (including climate change)
• Transport (including Aeronautics)
• Socio-economic sciences and Humanities
• Security
• Space
Participants in FP7

Participation in FP7 is open to a wide range of organisations and individuals:

- research groups at universities or research institutes
- companies intending to innovate
- small or medium-sized enterprises (SMEs)
- SME associations or groupings
- public or governmental administration (local, regional or national)
- early-stage researchers (postgraduate students)
- experienced researchers
- institutions running research infrastructures of transnational interest
- organisations and researchers from third countries
- international organisations
- civil society organisations

Accordingly with the European Commission:

**ICTs have a catalytic impact in three key areas:**

- **productivity and innovation**, by facilitating creativity and management;
- **modernisation of public services**, such as health, education and transport;
- **advances in science and technology**, by supporting cooperation and access to information.
ICT research in FP7 - Overview

- The **ICT thematic area** is the largest one in the Cooperation programme
  - with a budget of 9.1 billion (28% of the total budget)

- It is under the responsibility of **DG Information Society and Media**
  - all other themes are under one of the other DGs (Research, Environment, etc.)

- The **ICT work programme** is in line with the policy priorities defined in EU’s 2010 initiative
  - a European Information Society for Growth and Employment

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DG Information Society and Media

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ICT Work Programme (cordis.europa.eu/fp7/ict/)

- The **FP7 ICT Work Programme** defines, for a specific period, the priorities for the calls for proposals to be launched.
- The **priorities** are faithful to the FP7 Framework Programme and Specific Programme decisions and in line with the main ICT policy priorities as defined in the i2010 initiative.
- They reflect the input received from the Programme Committee and Advisory Group, the European Technology Platforms and a series of detailed consultations with the main stakeholders.
- The ICT Work Programme under FP7 is divided into eight ‘Challenges’ of strategic interest to European society, plus research into ‘Future and emerging technologies’ and support for horizontal actions.


ICT research in FP7 – wp structure (2011-12)

- **Eight key challenges**

<table>
<thead>
<tr>
<th>Socio-economic Goals</th>
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<tr>
<td>4. Technologies for Digital Content and Languages</td>
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<td>5. ICT for Health, Ageing Well, Inclusion and Governance</td>
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<tr>
<td>6. ICT for a low carbon economy</td>
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<td>7. ICT for the Enterprise and Manufacturing</td>
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<td>8. ICT for Learning and Access to Cultural Resources</td>
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Technology Roadblocks

1. Pervasive & Trustworthy Network and Service Infrastructures
2. Cognitive Systems, Interaction, Robotics
3. Alternative Paths to Components and Systems

And two cross-area actions: **Future & Emerging Technologies (FET)** and **Horizontal support actions**
## Types and characteristics of eligible projects

<table>
<thead>
<tr>
<th>Collaborative project (CP)</th>
<th>Project type</th>
<th>Aim</th>
<th>Number of partners</th>
<th>Project duration</th>
<th>EC contribution</th>
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<tbody>
<tr>
<td>Integrated project (IP)</td>
<td>Large scale integrating research project</td>
<td>10 to 20</td>
<td>36 to 60 months</td>
<td>4 to 25 M€</td>
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<tr>
<td>Specific Targeted Research Project (STREP)</td>
<td>Small to medium scale focused research project</td>
<td>6 to 15</td>
<td>18 to 36 months</td>
<td>1 to 4 M€</td>
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<tr>
<td>Specific International Cooperation Action (SICA)</td>
<td>R&amp;D project with developing countries or emerging economies (ICPC)</td>
<td>SICAs did not exist under FP7</td>
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</table>

| Network of Excellence (NOE) | Coordination Action (CA) | Integration of research activities and capacities | 6 to 12 | 48 to 50 months | 4 to 10 M€ |
| Specific Support Action (SSA) | Coordination of research activities and policies | 13 to 26 | 18 to 36 months | 0.5 to 2 M€ |
|                           | Support to research activities and policies | 1 to 15 | 9 to 30 months | 0.03 to 3 M€ |

## Contents of the work programme

- Introduction and general objectives;
- Priorities, features and structure;
- **Content of calls**
  - For each challenge (e.g. 4. Technologies for Digital Content and Languages):
    - There are a set of Objectives, for example:
      - **ICT-2011.4.2 – Language Technologies**
        - Target outcomes (a), (b) …)
        - Expected impact
        - Funding schemes (IP, NoE, STREP, …)
        - Indicative budget distribution (e.g. IP/STREP EUR 42 million)
        - Calls (e.g. FP7-ICT-2011-7)
  - Implementation of calls (**what and when!**)
- Final remarks and appendix.
Proposals characteristics

- Highly innovative R&D project
  - It’s R&D (beyond CSAs), **not to support deployment or commercial initiatives** and it’s very competitive
    - most proposed projects are of high quality and only few are selected!

- Only collaborative projects
  - The basic idea is to encourage organisations from EU countries (and from third countries) to join their forces
    - see the typical participation rule: **“(at least) 3 independent legal entities from 3 different member States or associated countries”**

- Projects answering the specification of FP7 Calls
  - Proposals can be **submitted only in response to Calls** for proposals and have to strictly answer the specification of the Calls
    - specific rules for participation, addressed ICT areas, expected project outcomes, foreseen budget per type of project (IP, STREP, SICA, etc.)
Success Criteria

• **Project idea** (innovative, excellence of scientific content, etc.)
• **Co-ordinator and partners** (key players, diversity, coverage, etc.)
• **Proposal** (“SELLING the PROJECT”):
  – What are you doing?
  – Why are you doing this?
  – Who benefits?
  – Who is doing what?
  – What does it cost?

• **Put yourself on the evaluator shoes…**

EC Evaluation criteria

<table>
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<tr>
<th>S/T QUALITY</th>
<th>IMPLEMENTATION</th>
<th>IMPACT</th>
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<tbody>
<tr>
<td>&quot;Scientific and/or technological excellence (relevant to the topics addressed by the call)&quot;</td>
<td>&quot;Quality and efficiency of the implementation and the management&quot;</td>
<td>&quot;Potential impact through the development, dissemination and use of project results&quot;</td>
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<tr>
<td>• Soundness of concept, and quality of objectives</td>
<td>• Appropriateness of the management structure and procedures</td>
<td>• Contribution, at the European and/or international level, to the expected impacts listed in the work programme under relevant topic/activity</td>
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<td>• Progress beyond the state-of-the-art</td>
<td>• Quality and relevant experience of the individual participants</td>
<td>• Appropriateness of measures for the dissemination and/or exploitation of project results, and management of intellectual property</td>
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<tr>
<td>• Quality and effectiveness of the S/T methodology and associated work plan</td>
<td>• Quality of the consortium as a whole (including complementarity, balance)</td>
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<td>• Appropriateness of the allocation and justification of the resources to be committed (budget, staff, equipment)</td>
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Finding a partner

**EC Organised Events**
- Usually, during the most active period of a work programme there are meeting events (Proposers’ Day) where everyone has the opportunity to present their ideas and discuss them with other potential partners and even advisors from the commission.

**CORDIS**
- CORDIS has a number of services and information sources which may be useful in partner search for participation in ICT projects, as well as a list of organisations which have already expressed an interest in participating in the calls (call for Expression of Interest).

**National Contact Points**
- There is a network of National Contact Points (NCPs), which can be helpful to organisations from their country both for general advice (particularly on preparing proposals) and for finding partners from other countries. Organisations should contact the NCP of their own country.

**Ideal-ist project web-service**
- The Ideal-ist project helps potential proposers and newcomers to find the right partners across international boundaries. It comprises a network of 49 national representatives in each Member and Associated State, as well as Western Balkan Countries, New Independent States and Mediterranean Countries.

Experiences – **DO NOT (BE)**

...too ambitious and complex to be believable;
...unclear and chaotic;
...irrelevant to the call and Work Programme;
...not going beyond the state of the art;
...miss to explain how to achieve the objectives;
...miss to clarify/quantify the results (=no exploitation);
...present unrealistic cost estimates;
...present an unbalanced project consortium;
...lack to present appropriate management structure and processes.
Experiences - DO

- **Start** by reading the **work programme** document and try to understand what, **exactly**, EC is expecting from proposals;
- Cross the objectives of the work programme with your scientific interests and ask yourself **“what do I have to offer fulfilling these objectives/needs?”**;
- Prepare a first abstract on your idea and try to discuss it with EC project officers from the unit your project will fit. They won’t tell you where to go but they will tell you if you are misdirected.

Structure of the proposal

A ICT proposal has two parts:
- **Part A** will contain the administrative information about the proposal and the participants.
- **Part B** is a "template", or list of headings, rather than an administrative form. You should follow this structure when presenting the scientific and technical content of your proposal. The template is designed to highlight those aspects that will be assessed against the **evaluation criteria**.
  - **Section 1**: Scientific and/or technical quality, relevant to the topics addressed by the call
  - **Section 2**: Implementation
  - **Section 3**: Impact
  - **Section 4**: Ethical issues
Proposal submission

- Proposals must be **submitted electronically**, using the Commission's **Electronic Proposal Submission Service (EPSS)**. Proposals arriving at the Commission by any other means are regarded as ‘not submitted’, and will not be evaluated.

- Only the **project coordinator** is authorised to submit the proposal.

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**Example** – Small or medium-scaled focused research projects (STREP)

- **STREP** projects are quite dynamic projects, not very large, focusing on a single research issue.

- Often mono-disciplinary.

- **Common STREP structure:**
  - Between 8 and 10 partners from 3-4 countries;
  - Duration between 24 and 36 months.
  - Total budget around € 2.5M (≠ EC financing!).

- **Target audience:** Industry (including SMEs) and RTDs (research institutes, universities).
Part A – Administrative Forms (I)

• **Form A1: Content**
  – Proposal acronym
  – Proposal title
  – Duration
  – Call identifier
  – Keywords and abstract
  – Plus, some questions about previous/current submissions of the same proposal.

Part A – Administrative Forms (II)

• **Form A2.1: Participants**
  – One form per participant;
  – Organisation legal name and address;
  – Organisation status (profit/non-profit, research/industrial, SME, etc.);
  – Main area of activity (NACE code);
  – Size indicators (turnover and number of employees);
  – Dependencies with other participants;
  – Contact point (person in charge!) details.
Part A – Administrative Forms (III)

- **Form A3.1: Budget** - One form per participant.
- **Form A3.2: Budget** - Automatically compiled from the A3.1 forms.

### Proposal Submission Form

**A3.1: Budget**

- My legal entity is established in an ICPC and I shall use the lump sum funding method

<table>
<thead>
<tr>
<th>Personnel costs (in €)</th>
<th>RTD</th>
<th>Demonstration</th>
<th>Training</th>
<th>Coordination</th>
<th>Support</th>
<th>Management</th>
<th>Other</th>
<th>Total</th>
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<th>Subcontracting (in €)</th>
<th>RTD</th>
<th>Demonstration</th>
<th>Training</th>
<th>Coordination</th>
<th>Support</th>
<th>Management</th>
<th>Other</th>
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<th>Other direct costs (in €)</th>
<th>RTD</th>
<th>Demonstration</th>
<th>Training</th>
<th>Coordination</th>
<th>Support</th>
<th>Management</th>
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<th>RTD</th>
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<th>Training</th>
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<th>Support</th>
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<tr>
<th>Lump sum, flat-rate or scale of unit (option only for ICPC) (in €)</th>
<th>RTD</th>
<th>Demonstration</th>
<th>Training</th>
<th>Coordination</th>
<th>Support</th>
<th>Management</th>
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<th>RTD</th>
<th>Demonstration</th>
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<th>Requested EC contribution (in €)</th>
<th>RTD</th>
<th>Demonstration</th>
<th>Training</th>
<th>Coordination</th>
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<th>Total Receipts (in €)</th>
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<th>Demonstration</th>
<th>Training</th>
<th>Coordination</th>
<th>Support</th>
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Part B - Scientific and technical content (I)

1. Scientific and/or technical quality, relevant to the topics addressed by the call
   - **Concept and objectives**
     The idea at a glance (2-3 pages)!
     **PICTURE IT! BE CLEAR AND CREATIVE!**
   - **Progress beyond the state-of-the-art**
     - State-of-the-art – the starting point you dominate
     - Innovation – your expected contribution to improve the State-of-the-Art
   - **S/T methodology and associated plan**
     - Development of the idea… (see next slide)
Part B - Scientific and technical content (II)

- S/T methodology and associated plan
  - Conceptual structure – refine the idea!
  - Identify the results – material results!
  - Identify the methodology and metrics to evaluate the results – quality of the results!
  - Study logic and structure of work plan – how do you plan to achieve the results.
  - Project breakdown in workpackages
  - Workpackages breakdown in tasks
  - Gantt chart – project timeline!
  - Pert diagram – tasks interdependency.
  - List of deliverables – written reports with work progress.

Key aspects: the WP structure

- WPs should structure the workflow. **Example:**

```
SotA and User
Requirements Analysis

Concept Development

Specification

Development

Testing, Evaluation and
Assessment

Demonstration

M1

M2

M3

Milestones
(# reporting periods)
```

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Key aspects: the evaluation/assessment metrics

- At some point, the scientific and technological objectives have to be translated in socio-economical goals.
- Typically, the industrial users within the consortium establish a set of business objectives to be achieved using the project results.
- It’s very important to quantify these objectives comparing the current business situation (baseline) with the expected situation.
- The assessment methodology should demonstrate the ability to truly measure these quantities.

Key aspects: Gantt chart and budget

- Balance the participation of all partners within the consortium accordingly with the project objectives.
- Balance the budget but take into consideration the specific management costs (<7%) to the project coordinator.
- Note that, the coordinator does not own the project.
- If the project is accepted you will have to run it – don’t put anything on the proposal that you don’t want to do in case of success.
- Smooth the efforts contribution along the project duration as much as you can for all partners.
Part B - Scientific and technical content (III)

2. Implementation
   • Management structure. Ex.:

   - Individual participation
     Describe the partners, their role in the project, previous relevant experience, people involved and their curricula.
   - Consortium as a whole

Part B - Scientific and technical content (IV)

2. Implementation (cont.)
   - Resources to be committed (tables):
     • Budget distribution per partner, including efforts, travel and requested EC funding.
     • Budget distribution by partners type (RTD/industrial).
     • Risk assessment – identify the main risks of the project and contingency plans.
Part B - Scientific and technical content (V)

3. Impact

- Expected impacts listed in the work programme
  - Relation to the topics addressed by the Call
  - S/T impact
  - Socio-economic impact
  - Exploitation strategy
  - Dissemination and/or exploitation of project results, and management of intellectual property

4. Ethical issues – there’s a template with a quest.!

5. References – at least for your SotA, but not only!

From the proposal to the project

- Submission
  - Is made electronically through a set of documents respecting detailed templates & guidelines, and... in time (strict deadline!)
- Evaluation
  - A fair, transparent and relatively quick process (2-3 months) involving independent experts working on the basis of the Call documents and of (public) selection criteria
- Negotiation
  - If the proposal is pre-selected, the proposers and the EC work together on the possibility to transform the proposal into a project, on the basis of evaluators’ remarks and comments
- Contract
  - (if the negotiation phase is successful) a contract is signed between the EC and the project coordinator, usually, around 4 to 6 months after the submission deadline
- Project
  - The project can then smoothly develop on the basis of a “Description of Work” and of the “Contract and its annexes” (administrative and financial issues)
  - Its progress will be reviewed by the EC every 6-12 months
Closing remarks

- Read the objectives of the open call;
- Keep your ideas on a restricted group;
- Build a balanced consortium and explain who is doing what;
- Picture your ideas as if you were explaining them in a kinder-gardening;
- Be nice to the evaluator: clarity! clarity! clarity!
- Don’t forget to add anything but be concise;
- Give everything you’ve got in preparing the proposal;
- Most important: Don’t give up on rejection, don’t blame the referee - learn from your mistakes!

Homework assignment

- group of 3 persons prepare proposal to any call in the work-programme to any objective of Challenge 6: ICT for a low carbon economy
- Elements to include:
  - Proposal acronym, proposal title, duration, call identifier, keywords and abstract;
  - Consortium: identify the roles needed and give examples of true companies that could take them;
  - Concept and objectives, including business goals;
  - Study logic and structure of work plan (workpackages and tasks); draft Gantt chart;
  - Expected impacts listed in the work programme (Relation to the topics addressed by the Call);
  - Draft budget;
Thank you for your attention!