FP7 ICT WP2013

Objective 8.2
Technology-enhanced learning

Unit G4 "Skills, Youth and Inclusion"

DG CONNECT

European Commission (Luxembourg)

What are we looking for?

*The work programme continues to **support ICT for learning in different contexts**, but it also marks a shift in focus for more **demand-driven and evidence-based** RTD in this field:*

- *Tailored, scalable and tested RTD for **stimulating the take-up** of learning technologies in different learning contexts*

- *Reinforce the **evidence-base** of effectiveness of learning technologies and **encourage** their innovative use*

FP7 - WP2013
Rationale

- *Education is a strong prerequisite for economic growth.*

- *Europe must support national efforts to help students to learn better, teachers to teach better, and school systems to become more effective.*

- *We need customised learning systems that can adapt to effective use in a wide variety of diverse contexts.*

- *This is key for a successful modernisation of educational and training systems in Europe.*

What is new?

- ***Pre-commercial procurement*** *(a)*
  - ➢ *Demand-driven approach*
  - ➢ *Possibility for public bodies in charge of educational system to procure tailored RTD*
  - ➢ *Increased European and international visibility and stimulation of suppliers of RTD through competitive EU-level bidding process*

- ***Learning analytics*** *(b)*
  - ➢ *New emerging research field aiming to reduce the gap between research and practice with reliable analytics tools; support and cooperation of the analytics researchers community*

What is new?

- *Holistic learning solutions for **public administration** (c)*
  - ➢ *Targeted organisational learning solutions for the public administration*
  - ➢ *Targets a specific sector *public administration* (in analogy of the call 6 with a specific target outcome on the SMEs)*

- *Support for **competitions** (d)*
  - ➢ *Prize competitions as a trigger for demonstrating and inducing innovative ICT in formal learning contexts (all levels)*

Objective ICT-2013.8.2: TEL
Budget and timing

- **CP-CSA, IP/STREP: EUR 22 million**
  - *minimum of 25% allocated to CP-CSA (max 25% for the CSA part)*
  - *minimum of 40% to IPs and 30% to STREPs*
  - *Outcome b) : 1-2 STREPS*

- **CSA: EUR 3 million**

- **Call 11: 18 Sept 2012 – 16 April 2013**

Objective ICT-2013.8.2: TEL Target outcomes

a) **ICT-enabled learning environments:** *innovative solutions for teaching national curricular topic(s) in primary and/or secondary education (CP-CSA)*

b) **Learning analytics, educational data mining:** *tools and processes for collecting, storing, exploring and reasoning on large-scale educational data (STREP/CSA)*

c) **Holistic learning solutions:** *managing, reaching and engaging learners in the public administrations (IP/STREP)*

d) **Support for organising competitions:** *breakthroughs in the successful adoption and scaling-up of innovative learning technologies in formal learning contexts (CA)*

a) ICT-enabled learning environments

Rationale:

- *Innovative solutions combining digital media, devices, teaching practices and learning methods, tailored to specific curricular requirements and contextual needs, to facilitate uptake*

- *Potential scaling up appropriate regional/national levels through joint pre-commercial procurement, stimulating *demand in concordance with *supply*

Characteristics of the solutions
for improved acceptance, ownership and adoption

...for teaching national curricular topic(s) in primary/secondary education...

-> *to address the shortage of use of ICT in schools*

-> *to procure solutions that are closely linked with the curriculum*

...based on latest advances of pedagogical, cognitive and other relevant scientific disciplines...

-> *not only technological solutions, but solutions that are embedded on latest knowledge on how we learn*

... the solutions should combine different digital media and devices, rich and intuitive interfaces, adapt to different learning/teaching practices and provide for efficient support for teacher...

-> *integral solutions for taking digital media in the classroom to support both students and teachers*

Design process
for improved acceptance, ownership and adoption

... participatory design, involve all key stakeholders, aim for wide adoption ...

-> contextualised process taking into account the particularities in a specific educational scenario...

... relevance and effectiveness demonstrated by appropriate evaluation methods and benchmarking...

-> not only new technology but useful technology!

What is joint pre-commercial procurement?

Pre-Commercial procurement (PCP) is an approach for **procuring R&D services** *which enables public procurers to:*

- *Share the risks and benefits of designing, prototyping and testing a limited volume of new products and services with the suppliers, without involving State aid;*

- *Create the optimum conditions for wide commercialisation and take-up of R&D results through standardisation and/or publication;*

- *Pool the efforts of several procurers.*

Why pre-commercial procurement?

- *By acting as technologically demanding first buyers, public procurers can drive innovation from the demand side.*

- *In addition to improving the quality and effectiveness of public services this can help creating opportunities for companies to take international leadership in new markets.*

The instrument for pre-commercial procurement (PCP) is CP-CSA

Combination of:

- *Networking and coordination activities: for public bodies in Europe to cooperate in the innovation of their public services through a strategy that includes pre-commercial procurement*

- *Joint research activities: related to validating the PCP strategy jointly defined by the public bodies participating in the action. This includes the exploration, through a joint PCP, of possible solutions for the targeted improvements in public sector services, and the testing of these solutions against a set of jointly defined performance criteria*
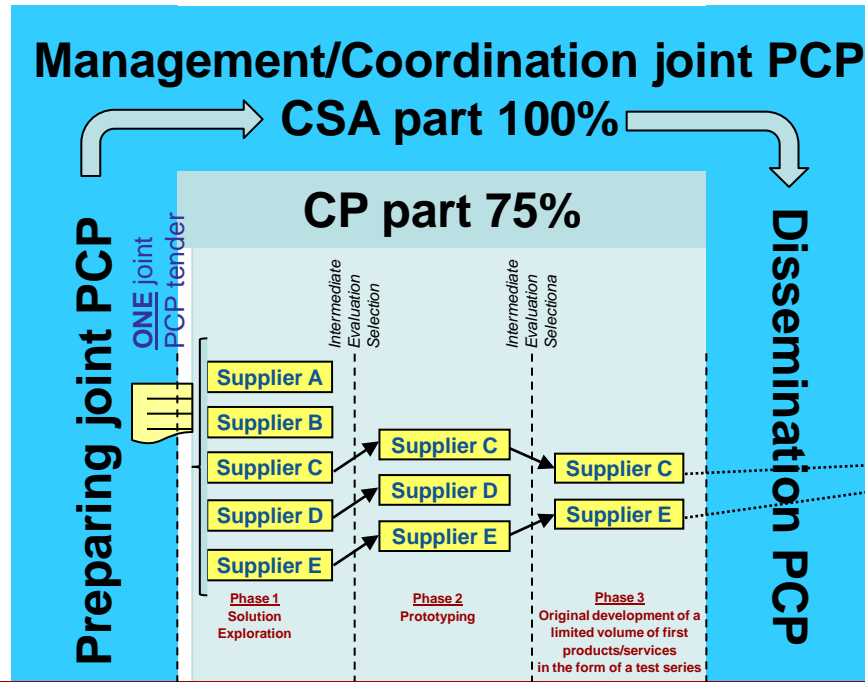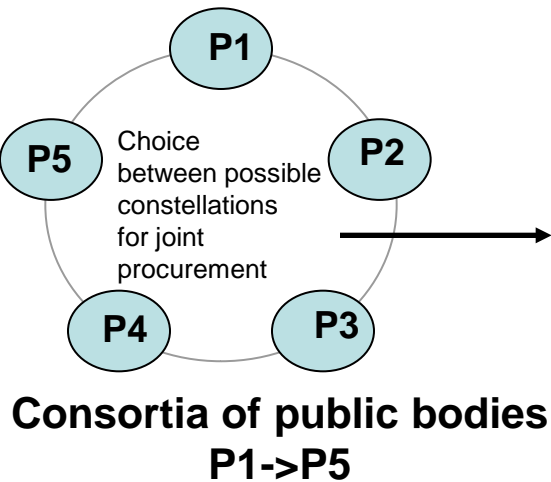
What does "CP-CSA for PCP" EC financing cover ?

European Commission

Preparation proposals CP-CSA for PCP

CP-CSA for PCP

Public Procurement for commercial roll-out

Management/Coordination joint PCP
CSA part 100%

CP part 75%

P1
P5
P2
P4
P3

Choice between possible constellations for joint procurement

Consortia of public bodies P1->P5

Preparing joint PCP

ONE joint PCP tender

Intermediate Evaluation Selection

Intermediate Evaluation Selectiona

| Supplier A |
| Supplier B |
| Supplier C |
| Supplier D |
| Supplier E |

| Supplier C |
| Supplier D |
| Supplier E |

| Supplier C |
| Supplier E |

Phase 1
Solution Exploration

Phase 2
Prototyping

Phase 3
Original development of a limited volume of first products/services in the form of a test series

Dissemination PCP

Commercial Tendering

Supplier A,B,C,D,E or X

Phase 4
Commercialisation of products/services (commercial development)

EU-Funding
100 % for CSA part: Networking and Coordination activities
75 % for CP part: Joint research activities , Joint PCP tendering (R&D Services)

| **Product Idea** | **Solution Design** | **Prototype** | **First Test-Products** | **Commercial End-Products** |

Typical Product Innovation Life Cycle

Eligibility criteria

Minimum number of participants:

- **3 mutually independent public bodies** from 3 different Member States or FP7 Associated Countries

- Critical mass of public **purchasers** necessary to trigger wide implementation of the public service innovation strategies and solutions that will be specified and/or developed during the PCP.

Eligible public bodies:

- **Public purchasers**, planning to integrate PCP into their procurement programs

- **Public authorities** (e.g. managing R&D&I programs) planning to provide incentives to public purchasers to do PCP

Eligibility criteria

- **Other stakeholders**
  - Whose participation well justified -> may participate, but...
- **Private bodies:**
  - Potential suppliers of solutions sought for by the public bodies -> not eligible to participate as EC grant beneficiaries (to avoid conflicts of interest)
  - Not potential suppliers of solutions sought for by the public bodies -> may participate as EC grant beneficiaries (e.g. private hospitals, health insurance companies etc)
- **Universities**
  - May participate on the buyers side as "public bodies" interested in procuring new development of solution xyz
  - If "for profit", may participate on the supply side as bidders/contractors developing solutions in the PCP

Typical joint procurement constellations under CP part of CP-CSA

• In the "**common procurement entity" constellation** *all involved public purchasing authorities commonly establish or designate one external legal entity to conduct the joint procurement with a joint mandate and joint resources of all public purchasing authorities.*

• In the **"lead authority" constellation** *a group of public purchasing authorities collaborate through their existing purchasing departments so that one public purchasing authority of the group is designated as lead authority to take responsibility for sourcing markets, tendering and arranging contractual documentation for specific procurements, all in consultation with other purchasing authorities involved in the joint procurement.*

• In the **"piggy-backing" constellation** *one public purchasing authority executes the procurement and provides access to the results of the contract for a wider range of authorities, essentially by stating in the Contract Notice that other named public purchasing authorities may also wish to may also wish to make use of the resulting contract a later date (normally during the timeframe of the original contract).*

CP-CSA for PCP:

Public bodies around Europe working together on new ICT-based solutions responding to concrete public sector needs, bringing radical improvements to the quality and efficiency of public services with innovative solutions

-> **..." contribute to standards in digital educational solutions"...**

... "development until validated test-series"

→ *Not a subsidy for the implementation of already-existing technology.*

b) Learning analytics, educational data mining: rationale

What?

- *Collect (big) data from students' technology supported learning activities, transforming the data into information and producing / recommending actions aimed at improving learning outcomes*

Why?

- *Building the evidence base for more effective learning with technology*

Learning analytics, educational data mining:
Usability

...improve learning and teaching (including 21st century skills)...

-> not only analysing learning in the "old school" but reaching towards 21st century learning

*... **tools equipped intuitive interfaces for visualising and interacting with the data...***

-> usability of the tools and processes for teachers and learners

-> improved acceptance adoption and rate by attractive and easy-to-use interfaces and visualising tools

Learning analytics, educational data mining: Foundations for comparative science

*… **provide cognitive models for different learning styles tested against data sets** ….*

-> systems embedded in appropriate learning theories that facilitate comparison of the collected data

*… **Standardised nomeclature and categorization**…*

-> baseline for an emerging comparative science

***

*->→ **Instruments**: STREP or CSA to suit different ambitions of the community and the possible consortia*

Holistic learning solutions for public administrations

Rationale:

- Sectoral approach to take into account specificities of different public organisations / administrations and their learning needs for higher uptake of technologies for learning

-> In analogue to call 6 which called for specific solutions in SMEs

Holistic learning solutions for public administrations

Holistic =

> ** organisational dimension:*

> *… manage, reach, engage learners…*

> *… flexible and cost-effective solutions…*

> *… development of performance culture…*

> *… engage entire organisation at all levels…*

> ** and/or individual dimension:*

> *… adaptation to rapidly changing environment/requirements…*

> *…critical skills, including transversal skills…*

Holistic learning solutions for public administrations

* Validity, effectiveness, wide applicability, and transferability of the solutions:

… Providing an efficient measuring method, based on performance metrics…

…solutions validated in public administrations…

…use of OER and OS learning…

NB: Instrument either STREP or IP:

- scale of validation and wide applicability may vary, but may not be absent

Support for organising competitions

- *Successful adoption and scaling up of innovation*

- *Formal learning contexts*

- *Raising awareness*

NB:

- *Grant for CA, coordination of the organisation of the prize competition*

- *The prize itself is not covered by the grant!*

Objective ICT-2013.8.2: TEL Expected impact

- *Broaden use of ICT in education in at least one curricular topic leading to wider take up by end-users*
- *Effective public-private partnerships for providing digital learning solutions in Europe*
- *Stronger growth of the European ICT-enabled learning markets*
- *More efficient use of ICT for learning through the exploitation of learning analytics tools*
- *More timely and effective acquisition of skills/competences through learning technologies, in public administrations*
- *Increased awareness on the benefit of the adoption of learning technologies*

REMINDER:
Current R&I contributions

FP7 / Research and technological developments

- **The FP7 (2007-2013) budget for technology-enhanced learning totals 211 M€, corresponding to a project portfolio of 26 active and 18 projects under negotiation.**

CIP / Piloting

- **Open discovery Space (~7.5 M€ Cont.) April 2011**
- **Inspiring Science (~ 4.8 M€) – under negotiation**

REMINDER:

Current thematic research portfolio

- **The 21st century classroom**
- **Learning and teaching science and maths**
- **Learning at the workplace**
- **Serious games**
- **Learning, cognition and creativity**
- **Adaptivity and guidance**
- **Collaborative learning**
- **Building a European Research Area in the field technology-enhanced learning**
- **Promoting interoperability and standards**

Latest FP7 Call 8 - retained projects

Instrument	Total	Failed	Above	% above	Funded
STREP	147	100	47	32%	12
IP	44	27	15	34%	3
CSA	10	6	3	30%	3
Total	201	133	65	32%	18

- *Learning technologies for children with dyslexia and/or dysorthographia.*

- *Advanced intelligent agent and analysis technologies to support and inspire musical practice sessions*

- *Intelligent tutors helping children learn mathematics and science*

- *Artificial embodied tutors that have perceptive capabilities to engage in empathic interactions with learners in a shared physical space.*

- *Physical embodiment of an intelligent tutor with an affect-driven responsive robot in order to to promote student engagement and learning*

FP7 On-going negotiations

- *Personalized scientific experiments with online labs*

- *Supporting workplace practices in SMEs unlocking peer production and scaffold learning / living lab participative co-creation aspects*

- *Creative learning environments / free exploration in a game environment by example and encouragement / assist designers during all phases of the creative process, focusing on creative problem-solving and creative practice*

- *Living schools networks producing 'baseline' validation methodologies and service and fostering creation of Learning Expeditions by schools supported by facilitators and technology pool*

- *Support action to design, test and validate a new innovation working method for TEL*

Additional background documents

TEL:

http://cordis.europa.eu/fp7/ict/telearn-digicult/telearn_en.html

PCP:

http://cordis.europa.eu/fp7/ict/pcp/home_en.html

Questions?

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