

Nano-Photonique et 7^{ème} PCRD

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Direction générale Société de l'information et médias**

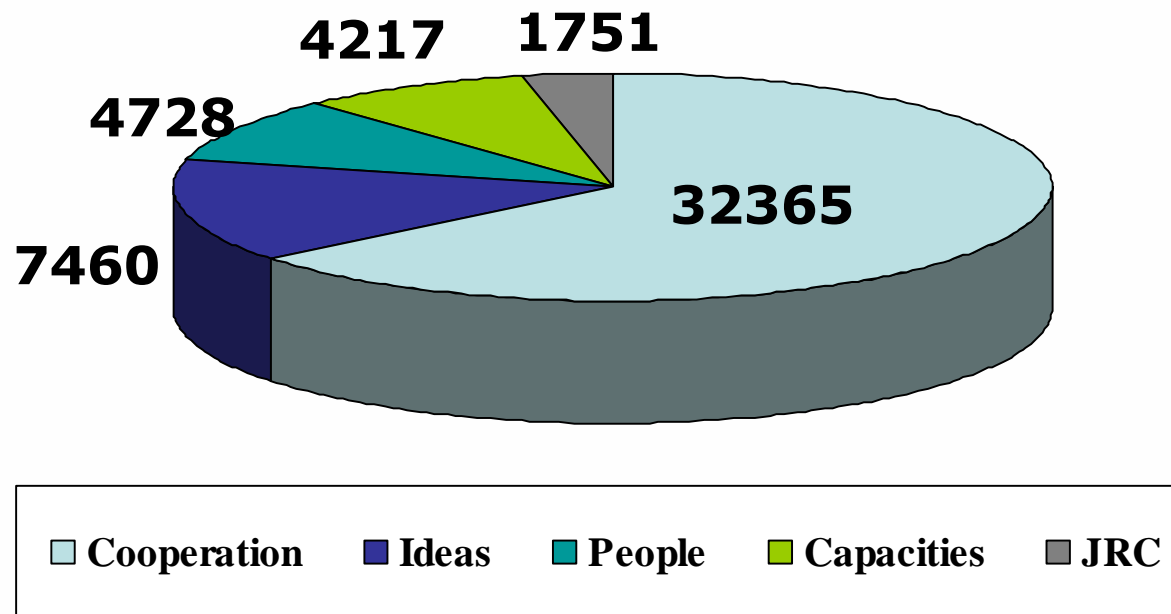
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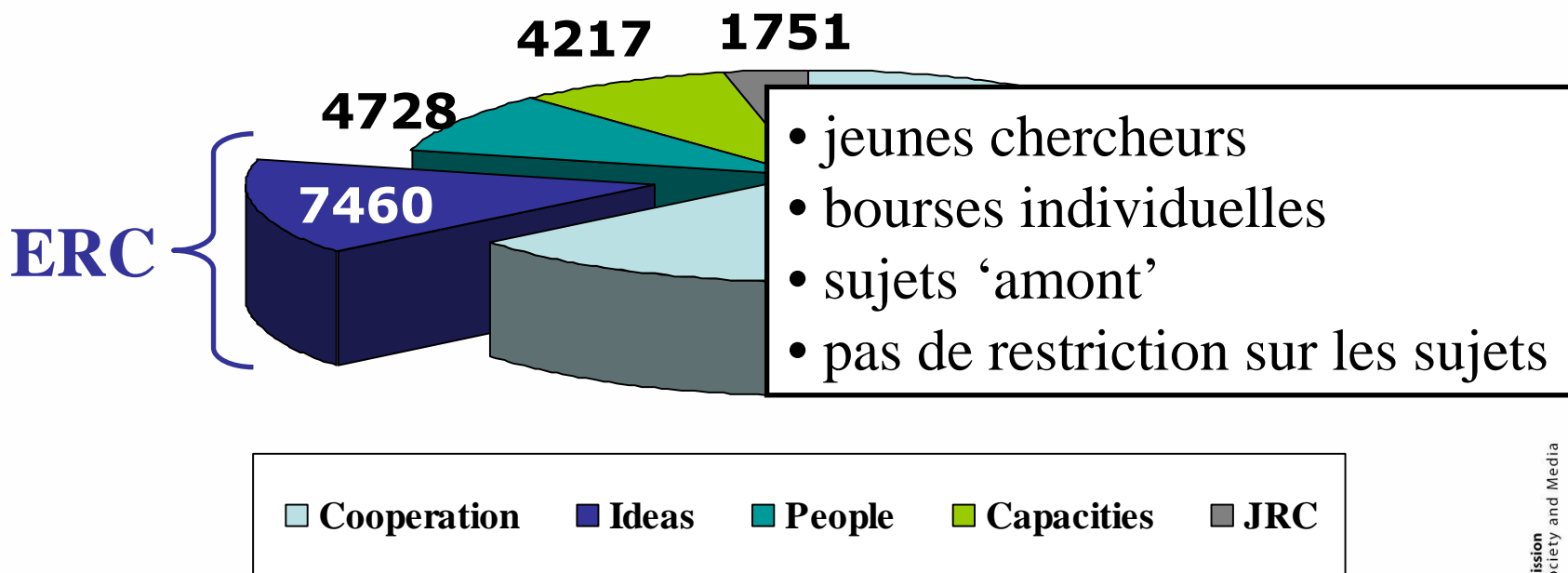
7ème Programme Cadre 2007 - 2013

Budget Indicatif (€ million)



7ème Programme Cadre 2007 - 2013

Budget Indicatif (€ million)



7ème Programme Cadre 2007 - 2013

Budget Indicatif (€ million)

- R&D coopérative – par équipe
- sujets ‘appliqués’ → ‘amont’
- contenu prédéfini – par appels
- sujets avec impacte sur l’industrie, marchés, société, ...

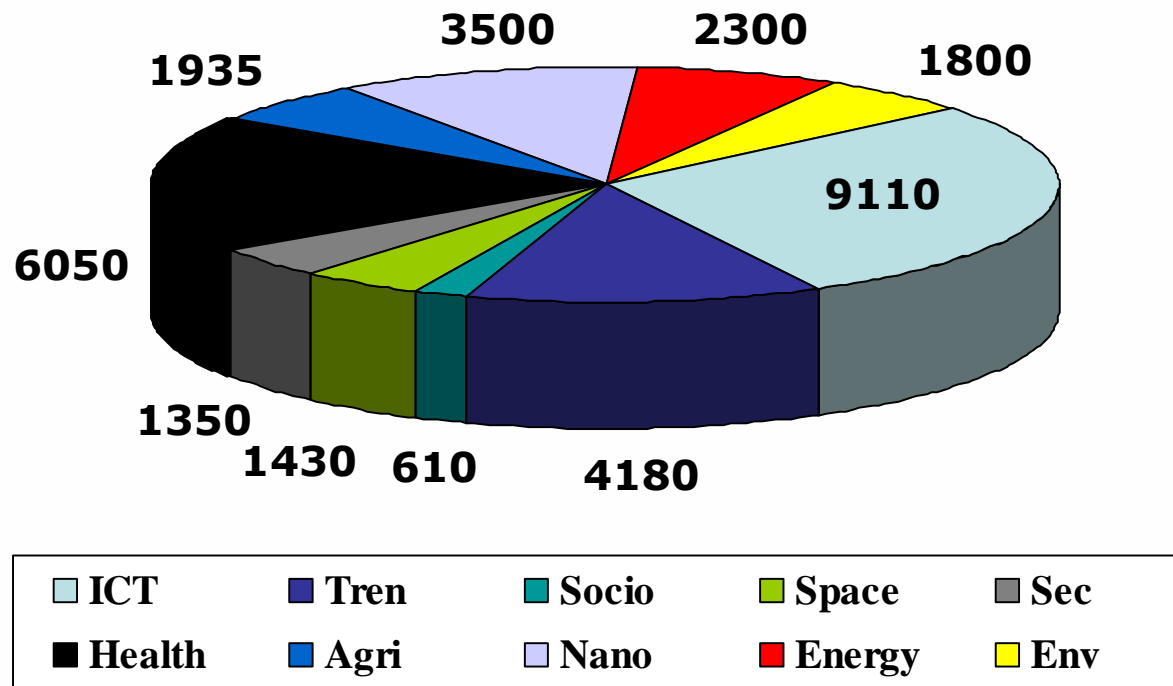
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ICT, NMP, ...

■ Cooperation ■ Ideas ■ People ■ Capacities ■ JRC

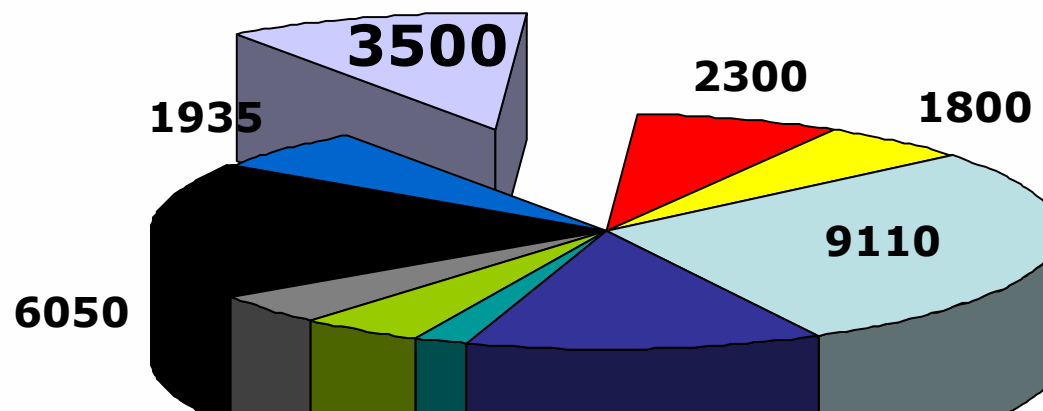


Programme "Coopération" 2007-2013



Programme NMP 2007

Nanosciences, Nanotechnologies, Matériaux et
Nouvelles Technologies de Production (NMP)



- NMP-2007-2.2-1 ‘Matériaux organiques pour composants électroniques et photoniques’
- Évaluation en 2 étapes
- Fermeture: 4 mai 2007
- Projets Larges ≥ 4 M€



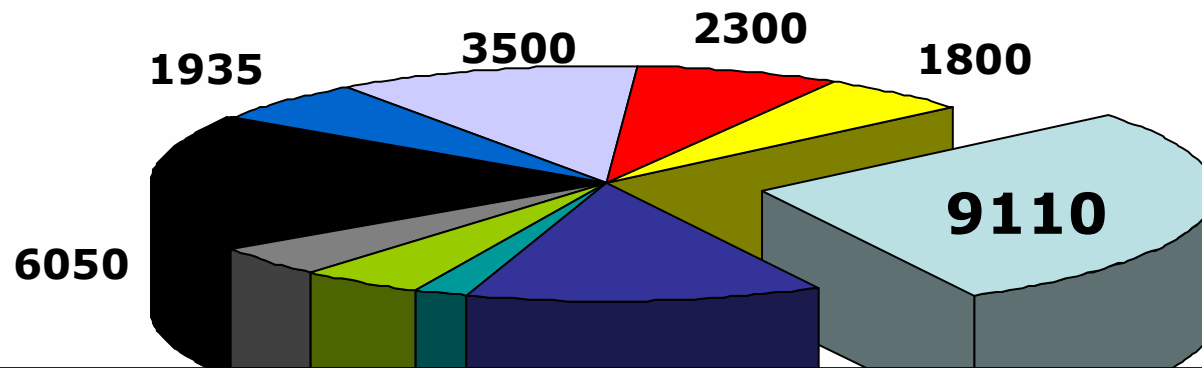
Programme NMP 2007

- Améliorer la manufacturabilité des matériaux (production à bas coût, grands volumes, basse température)
- Développement de matériaux organiques nanostructurés possédant des propriétés électroniques, optiques déterminés
- Pour une implémentation ultérieure en capteurs, écrans, 'papier électronique', composants optoélectroniques, LED, cellules solaires,...
- Contrôle de la structure à l'échelle du nanomètre → mobilité accrue des porteurs de charge, propriétés spectrales, tuning, adaptation d'interfaces, durée de vie,
- Techniques innovantes de production (patterning, self-assembly, laser deposition,)



Programme ICT 2007-2013

Technologies de l'Information et des Communications (ICT)



- ICT-2007.8.0 'FET-Open'
- ICT-2007.8.1 'FET-Proactive - Composants et systèmes Nano-ICT'
- ICT-2007.3.5 'Composants et systèmes photoniques'
- ICT-2007.3.6 'Micro/nanosystèmes'

■ Health ■ Agri ■ Nano ■ Energy ■ Env



ICT-2007.8.0 "FET-Open"

2007-2008

- R&D **fondamentale**, visionnaire, long terme, conceptuelle, à haut risque
- **Ouvert** à tout sujet ICT (pas de plan de travail prédéfini)
- ‘Juste retour’ pour la société, collaboratif, interdisciplinaire
- Promotion de nouvelles idées & nouveaux participants / communautés
- Ouvert en **Continu** (soumission / évaluation)
- STREP, CA, SSA
- 65 M€
- Evaluation en 2 étapes



ICT-2007.8.1 "FET-Proactive"

Composants et systèmes Nano-ICT

- Nouveaux concepts de commutateurs et mémoires
 - Inclus: principes se basant sur des photons
 - Performance, coût, densité d'intégration, consommation, assemblage, reconfiguration
- Nouveaux concepts d'interconnexion
 - Intra- / inter-puce
 - Vitesse de transmission, densité d'intégration, consommation, intégration de nouvelles fonctionnalités, design, manufacturabilité
- Nouvelles fonctionnalités et concepts visionnaires
 - Jusqu'à l'échelle atomique
 - NEMS, photons, plasmons, phonons, molécules,
- IP, STREP, CA
- 20 M€
- Clôture de l'appel: 8 mai 2007



ICT-2007.3.6 "Challenge 3" Micro/nanosystèmes

- Objectif a) - Prochaine génération de systèmes intelligents
- Objectif b) - Convergence micro/nano/bio
- où est l'innovation: en nano-photonique ou en intégration ?
- à voir cas par cas
- IP, STREP, NoE
- 83 M€
- Clôture de l'appel: 9 Octobre 2007

- Ex. NoE NANOPLASMODEVICES



ICT-2007.3.5 "Challenge 3" Composants & Systèmes Photoniques

IP, STREP

Composants &
Systèmes spécifiques à
une application

Composants &
Systèmes essentiels

Technologies
sous-jacentes

CA, SSA

Actions de Support

**IP, STREP,
NoE**

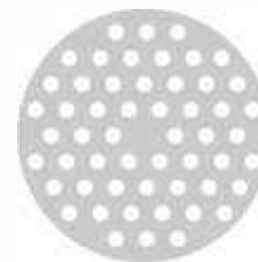
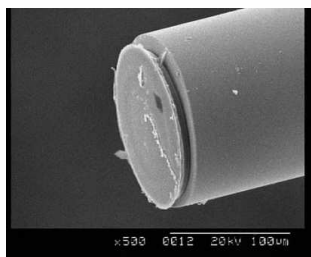
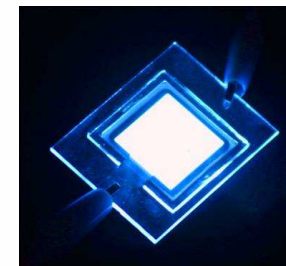
Actions
Complémentaires



ICT-2007.3.7

Composants & Systèmes essentiels

1. Lasers hautement performants
2. Sources de lumière 'solid-state' brillantes
3. Fibre-optiques présentant des fonctionnalités spécifiques
4. Capteurs d'images hautement performants
5. Capteurs exploitant des principes innovants



Composants & Systèmes spécifiques à un application

- Peu probable de trouver la nano-photonique en
 - Réseaux télécom à 40 GBit/s
 - Réseaux d'accès large bande
- Y-a-t'il un place en
 - Diagnostique et prévention médicale ?
 - Détection de l'environnement, sécurité et du bien-être ?



Perspectives Composants Photoniques & Nano

- À court terme, les jeux sont faits:
 - Le contenu est défini dans le plan de travail
 - Support CE: Interprétation de l'appel
- Moyen terme:
 - Définition WP 2009-2010 → Juin'08
 - Consultations publiques
 - Développer un stratégie Européenne



Perspectives Réflexion sur la Nano-Photonique

- Qu'appelons nous la Nano-Photonique?
- Quel sujet faut-il inclure?
- Où mettre les priorités?
- Sujet indépendant ou en compétition / collaboration avec:
 - Plasmonique, Cristaux Photoniques, Métamatériaux, Photonique Si, Polymères, dimensions $\ll \lambda$, atomique, bio-, moléculaire ... ?



Perspectives Réflexion sur le Futur de la Photonique

- Photonique = technologie universelle?
- Se rendre indépendant des grands marchés / applications?
- Sujet trop vaste pour tout couvrir
- Complémentarité avec les programmes nationaux?
- Orientation plus 'amont' ?
- Ou mettre les priorités en Europe ???



Conclusion

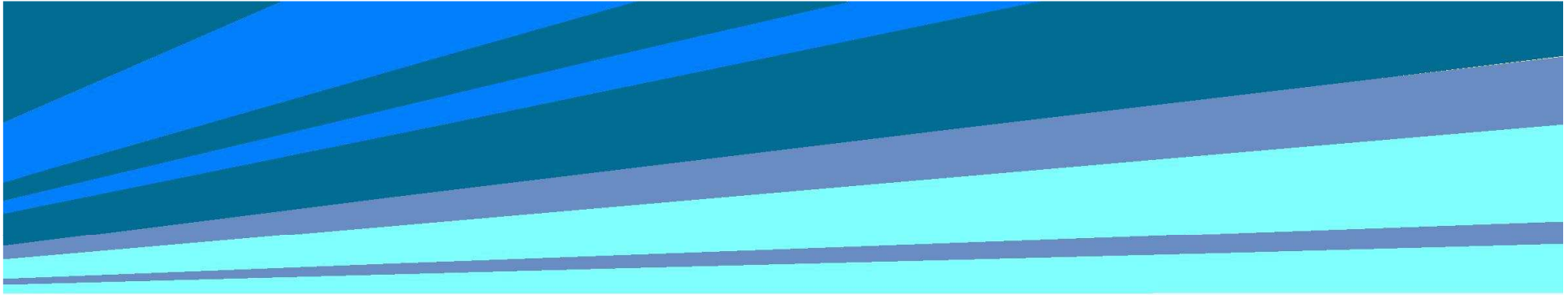
- FET-Open
⇒ tout sujet ‘amont’ ICT
- FET-Proactive
⇒ à condition d’inclure composant ‘logique’
- Composants & Systèmes Photoniques
⇒ pas mentionné explicitement, mais pas exclus non plus
⇒ le plus probable en “core components”, e.g. lasers, détecteurs, imagerie
- Micro/Nanosystèmes
⇒ si l’accent est sur l’intégration
- Matériaux organiques pour la photonique
⇒ science des matériaux



Pour en savoir plus....

- **NMP-2007-2.2-1** 'Matériaux organiques pour composants électroniques & photoniques'
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- **ICT-2007.8.0** 'FET-Open'
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- **ICT-2007.3.5** 'Composants et systèmes photoniques'
gustav.kalbe@ec.europa.eu
- **ICT-2007.3.6** 'Micro/nanosystèmes'
henri.rajbenbach@ec.europa.eu
- Appels, Programme de Travail, 'Guide for applicants'
<http://cordis.europa.eu/fp7/dc/index.cfm>





Merci et à bientôt?

En cas de doute, contactez nous.....



Integrating Projects (IPs)

Activities in an Integrating Project may cover

- research and technology development activities
- demonstration activities
- technology transfer or take-up activities
- training activities
- dissemination activities
- knowledge management and exploitation
- consortium management activities
- other activities

An Integrating Project comprises

- a coherent set of activities
- and an appropriate management structure



Integrating Projects (IPs)

Experience of IPs in FP6

- Purpose: Ambitious objective driven research with a 'programme approach'
- Target audience: Industry (incl. SMEs), research institutions. Universities – and in some cases potential end-users
- Typical duration: 36-60 months
- Optimum consortium: 10-20 participants
- Total EU contribution: €4-25m (average around €10m)
- Flexibility in implementation:
 - Update of workplan
 - Possibility for competitive calls for enlargement of consortium



Focused projects (STREPs)

Targeting a specific objective in a clearly defined project approach

Fixed overall work plan with stable deliverables that do not change over the life-time of the project

Contain two types of activity or combination of the two:

- A **research and technological development activity** designed to generate new knowledge to improve competitiveness and/or address major societal needs /or
- A **demonstration activity** designed to prove the viability of new technologies offering potential economic advantages but which can not be commercialised directly (e. g. testing of product like prototypes)

as well as

- **Consortium management activities** (including innovation related activities like protection of knowledge dissemination and exploitation)



Focused projects (STREPs)

Experience of STREPs in FP6

- Purpose: Objective driven research more limited in scope than an IP
- Target audience: Industry incl. SMEs, research institutes, universities
- Typical duration: 18-36 months
- Optimum consortium: 6-15 participants
- Total EU contribution: €1-4 m (average around €2m)
- Fixed workplan and fixed partnership for duration



Networks of excellence

NoEs are an instrument to overcome the fragmentation of the European research landscape in a given area and remove the barriers to integration

Their purpose is to reach a durable restructuring and integration of efforts and institutions or parts of institutions

The success of an NoE is not measured in terms of scientific results

.....but by the extent to which the social fabric for researchers and research institutions in a field has changed due to the project,

....and the extent to which the existing capacities become more competitive as a result of this change



Networks of excellence

The JPA contains a range of “additional to normal business” activities:

Integrating activities

- coordinated programming of the partners’ activities
- sharing of research platforms/tools/facilities
- joint management of the knowledge portfolio
- staff mobility and exchanges
- relocation of staff, teams, equipment
- reinforced electronic communication systems

Activities to support the network’s goals

- Development of new research tools and platforms for common use
- Generating new knowledge to fill gaps in or extend the collective knowledge portfolio

Activities to spread excellence

- training researchers and other key staff
- dissemination and communication activities
- networking activities to help transfer knowledge to outside of the network
- where appropriate, promoting the exploitation of the results generated
- where appropriate, innovation-related activities

Consortium management activities



Networks of excellence

Experience of NoEs in FP6

- Purpose: Durable integration of participants' research activities
- Target audience: research institutions, universities, mainly indirectly: industry – through governing boards etc
- Typical duration: 48-60 months
(but indefinite integration!)
- Optimum consortium: 6-12 participants
- Total EU contribution: €4-10m (average around €5m)
- Flexibility in implementation:
Update of workplan
Possibility to add participants through competitive calls



Coordination Actions

Designed to

- promote and support the ad hoc networking and co-ordination of research and innovation activities at national, regional and European level over a fixed period for a specific purpose
- by establishing in a coherent way coordinated initiatives of a range of research and innovation operators, in order to achieve improved cooperation of the European research

May combine the following two types of activities

- Co-ordination activities
- Consortium management activities

(Coordination actions do not conduct S&T research !)



Coordination Actions

Coordination activities include

- Organisation of events (conferences, meetings)
- Performance of studies, analysis
- Exchanges of personnel
- Exchange and dissemination of good practice
- Setting up of common information systems
- Setting up of expert groups
- Definition, organisation, management of joint or common initiatives
- Consortium management activities



Coordination Actions

Experience of CAs in FP6

- Purpose: Co-ordination of research activities
- Target Audience: Research institutions, universities, industry incl. SMEs
- Typical duration: 18-36 months
- Optimum consortium: 13-26 participants
- Total EU contribution: €0.5-2m (average around €1m)
- Fixed overall workplan and partnership for the duration



Support Actions

Designed to

- underpin the implementation of the programme
- complement the other FP7 funding schemes,
- help in preparations for future Community research and technological development policy activities and
- stimulate, encourage and facilitate the participation of SMEs, civil society organisations, small research teams, newly developed and remote research centres, as well as setting up research clusters across Europe
- Cover one off events or single purpose activities

May combine the following two types of activities

- Support activities
- Consortium management activities

(Support actions do not conduct S&T research !)



Support Actions

Support activities include

- Conferences, seminars, working groups and expert groups
- Studies, analysis
- Fact findings and monitoring
- Preparatory technical work, including feasibility studies
- Development of research or innovation strategies
- High level scientific awards and competitions
- Operational support, data access and dissemination, information and communication activities

SA proposals may be presented by a consortium or a single organisation, from any country or countries



Support Actions

Experience of SSAs in FP6

- Purpose: Support to programme implementation, preparation of future actions, dissemination of results
- Target audience: Research organisations, universities, industry incl. SMEs
- Typical duration: 9-30 months
- Optimum consortium: 1-15 participants
- Total EU contribution: €0.03-3m (average around €0.5m)
- Fixed overall workplan and partnership for the duration

