

Future and Emerging Technologies (FET) Projects Compendium 2007-2011



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Foreword

Future and Emerging Technologies (FET) is the basic research engine fueling the Information and Communication Technologies (ICT) programme. It provides a unique combination of high-risk, long-term, multidisciplinary and collaborative, frontier research with the structuring of more mature ideas and communities. Thus, it is able to convert novel proofs of concepts into mainstream research and innovation and ultimately industrial applications and systems.

FET supported research goes beyond the conventional boundaries of ICT and ventures into uncharted territories, increasingly relying on fresh synergies, cross-pollination and convergence with different scientific disciplines (for instance, biology, chemistry, nano- and molecular science, neuro- and cognitive science, ethology, social science, economics) and with the arts and humanities.

FET consists of two complementary schemes that work together towards a common mission, that is nurturing new and emerging foundational trends in future ICT:

- FET-Proactive fosters **transformative ICT research through a set of focused thematic initiatives** that are defined in wide consultations with research communities. The proactive initiatives are focused on novel and non-conventional topics that aim to spearhead research and support maturing of new multidisciplinary research communities. Proactive initiatives involve a set of complementary and collaborating projects, supporting building of new multidisciplinary research communities and enhancing Europe's innovation potential.
- FET-Open supports a **bottom-up approach for exploring novel and visionary ideas** that can contribute to solving challenges of long term importance for Europe. It flexibly accommodates the exploration of new and alternative ideas, concepts or paradigms that may not be supported elsewhere in the ICT Programme. The scheme acts as an easy entry point by being open in terms of themes within ICT and call implementation (continuous and light two-step submission process).

Today FET aims at being an internationally recognised player in the global landscape of ICT-supported research, notably through programme-level initiatives of an unprecedented scale and ambition like FET-Flagships. The collaborative nature of the science-driven research supported by FET, including targeted actions towards young researchers and high-tech SMEs, to international cooperation with worldwide leaders in their fields, right up to Flagships, promises a spectacular impact on science, technology, and more generally society as a whole.



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1. FET Proactive Initiatives

Introduction

FET-Proactive initiatives constitute clusters of interacting and collaborating projects. In most cases a coordination action is in charge of organising and facilitating the collaboration and performing joint tasks, such as compiling research roadmaps, organising joint events (workshops, conferences, summer schools,...), editing joint publications, maintaining the web portal of the initiative, and organising international co-operation.

In FP7 (2007-2011) in Call 1 – Call 6 FET Proactive supported 23 Integrated Projects (IP), 39 targeted research projects (STREP) and 19 Coordination and Support actions (CA, CSA, SA) for a total funding of 321M€.

In FP7 so far (2007-2011), FET-Proactive has launched 14 initiatives whose ambition is to address key scientific challenges, structure and support community building, shape the European Research Area along with Member States, and contribute to a common research and innovation framework for Europe's future technologies and industrial applications nucleated in ICT.

The thematic areas supported by FET-Proactive in FP7 are represented as addressing key challenges along three main axes:

Computing & Communication

- Nano-Scale ICT Devices and Systems
- Pervasive Adaptation
- Science of Complex Systems for Socially Intelligent ICT
- Concurrent Tera-Device Computing
- Quantum Information Foundations & Technologies
- Molecular Scale Devices and Systems
- Brain-Inspired ICT

Interacting with the environment

- Embodied Intelligence
- ICT Forever Yours
- Human-Computer Confluence
- Self-Aware Autonomous Systems

ICT and Beyond

- Bio-ICT Convergence
- Bio-Chemistry based ICT
- Towards Zero-Power ICT

On the next page you will find the description of each of these initiatives (Calls 1 through 6) and in the Project Portfolio (page 16) the breakdown of projects.



Description of Proactive Initiatives and Coordination & Support Actions

1. Nano-Scale ICT Devices and Systems: Paving the way for electronic devices 100 times smaller and faster than today.

This cluster consists of eight STREPs and one coordination action for research activities on nanometer-scale ICT devices and systems that demonstrate new concepts for (1) switches and memory cells, and (2) chip-level interconnects. The research in this proactive initiative addresses devices that represent, store, process and exchange information at nano scale, as a basis for fully functional ICT devices and systems. *The coordination action NANO-ICT* reinforces and supports the whole European research community, consolidates and enhances its visibility, and conducts mapping and benchmarking of research at European level, and comparison with other continents.

http://cordis.europa.eu/fp7/ict/fet-proactive/nanoict_en.html

2. Pervasive Adaptation

This proactive initiative is a cluster of one integrated project, five STREPs and one coordination action. It addresses on the one side evolve-able and adaptive pervasive systems, able to respond robustly to dynamically changing environments and operating conditions, and on the other side networked societies of artefacts, able to adapt to each other and to changing needs, collectively harnessing dispersed information. The main objectives of the *coordination action PERADA* are to construct and maintain the research agenda, to disseminate ideas internally and externally, build a community and co-ordinate research.

http://cordis.europa.eu/fp7/ict/fet-proactive/perada_en.html

3. Bio-ICT convergence: Exploiting solutions used in nature for information processing

This cluster includes two integrated projects and five STREPs as well as a coordination action. It focuses on bio-inspired computer paradigms, biomimetic and biohybrid artefacts, including their interfaces. The *coordination action CSN* organises roadmapping events with accompanying policy documents, high-impact workshops and schools to achieve intense exchange among the leading groups in the field as well as brokerage and outreach events to address additional stakeholders, deploys the CSN web portal and produces of a handbook of biomimetic and biohybrid systems.

http://cordis.europa.eu/fp7/ict/fet-proactive/bioict_en.html

4. Science of Complex Systems for Socially Intelligent ICT: Towards an understanding of the behaviour of systems combining people and technology

This cluster consists of four integrated projects and a coordination action in the area of complex systems science to (1) understand complex techno-social networks and their webs of cause and effect, and (2) to gain insights how to engineer them to achieve socially beneficial and intelligent outcomes. The *coordination action ASSYST* informs scientific policy makers and funders on the state-of-the-art in complex systems science, showcases successful applications, promotes applications of complex systems, and builds bridges by organising meetings between complex systems scientists, policymakers, industry and commerce in Europe. It also provides open educational resources and conference support to promote complex systems science.

http://cordis.europa.eu/fp7/ict/fet-proactive/cosiict_en.html

5. Embodied Intelligence: Towards an understanding how the emergence of intelligence depends on the interaction between a body and its environment

This cluster, consisting of one integrated project and five STREPs addresses new technologies and design approaches for building physically embodied intelligent agents and artefacts, with emphasis on the relationship between shape, function and the physical and social environment. The coordination between the projects is organised by the integrated project OCTOPUS, including roadmapping, organisation of joint events and joint publications, as well as maintaining a joint website of the initiative.

http://cordis.europa.eu/fp7/ict/fet-proactive/embodyi_en.html

6. ICT Forever Yours: How to ensure the longevity and security of IT systems and knowledge

The research objectives of the cluster (consisting of four integrated projects and a coordination action) address the growing expectation on longevity, dependability and security of the software intensive systems pervading economy and society, in particular (1) theoretical and practical framework for extremely long-lived systems, (2) new approaches for eternal and reliable access to knowledge assets, and (3) methods and tools for high-level verifiably secure and dependable programming, and new metrics to aid assessability of the security and dependability of software intensive systems. The *coordination action Eternals* aims at:

- establishing the *Eternals* Task Forces in four different areas of research (eternal data and knowledge, software systems, networked systems, and secure systems) by recruiting leading experts in eternal systems
- examining in-depth the four areas to distil roadmaps
- organising the infrastructure and logistics to host the work and facilitate smooth collaboration and partnerships amongst the different constituencies.

http://cordis.europa.eu/fp7/ict/fet-proactive/ictfy_en.html

7. Concurrent Tera-Device Computing: New concepts for massively parallel computing

This cluster consists of two integrated projects and two STREPs that develop new methods and tools for architecture design and programming of chips and systems beyond 2020, including compilers and run-time systems with a special emphasis on addressing (a) the complexity of design and run-time of many-core heterogeneous systems, (b) the design of dependable systems with faulty components and (c) new programming paradigms.

http://cordis.europa.eu/fp7/ict/fet-proactive/teracomp_en.html

8. Quantum Information Foundations and Technologies: How quantum mechanics offers new concepts and resources for computing and communications

This cluster with three integrated projects exploits the quantum nature of information for new ways of computing and communication. The research advances quantum information theory, devise new algorithms and computing paradigms, develop entanglement-enabled quantum technologies; improve the scalability of quantum processing systems and last, but not least lay the scientific ground for long distance quantum communication e.g. by developing quantum repeaters. The *coordination action QUIE2T* is structured around a set of four Virtual Institutes, mapped to the major QIFT sub-domains as identified by the scientific and technological roadmap. QUIE2T will organize a set of activities to spread its results, achievements and excellence, in particular through a public web site. The coordination action will also organize a set of thematic conferences on a bi-annual basis, targeting especially young researchers. Finally, a dedicated activity will target mainly industries in the field to ensure a strong interaction and involvement.

http://cordis.europa.eu/fp7/ict/fet-proactive/qift_en.html

9. Bio-Chemistry-Based Information Technology: Computing with chemicals and cells

This proactive initiative is a cluster of three STREPs and one coordination action, aiming at developing the foundations for a radically new kind of information processing technology, inspired by chemical processes in living systems. *The coordination action COBRA* will establish and maintain a living roadmap document, describing the background, strategic goals and future directions for European biochemistry-based IT, organise meetings, maintain a database of expertise and skills, develop educational curricula and support transnational research links.

http://cordis.europa.eu/fp7/ict/fet-proactive/chemit_en.html

10. Human-Computer Confluence: Boosting the human-computer communication link

This cluster (two integrated projects and a coordination action) investigates and demonstrates new possibilities emerging at the confluence between the human and technological realms. It seeks to examine new modalities for individual and group perception, actions and experience in augmented, virtual spaces. The goals of the *coordination action HC2* are: 1) to stimulate, structure and support the research community, promoting identity building; 2) to consolidate research agendas with special attention to the interdisciplinary aspects of HCC, producing useful visions and roadmaps to support the construction of an HCC ERA-NET; 3) enhance the public understanding of HCC and foster the early contact of researchers with high-tech SMEs and other industry players, and; 4) establish guidelines for the definition of new educational curricula to prepare the next generation of HCC researchers.

http://cordis.europa.eu/fp7/ict/fet-proactive/hcco_en.html

11. Self-Awareness in Autonomic Systems

The research projects (two integrated projects, two STREPs and a coordination action) in this cluster aim to create computing and communication systems that are able to optimise overall performance and resource usage in response to changing conditions, adapting to both context (such as user behaviour) and internal changes (such as topology). The long-term purpose of the *coordination action AWARE* is to build a new, self-sustaining scientific community. It will engage in a number of specific initiatives to bring this about, including workshops, summer schools, researcher placements, a periodical newsletter, a magazine, book, a video documentary, research consultations and other road-mapping, agenda-setting activities.

http://cordis.europa.eu/fp7/ict/fet-proactive/aware_en.html

12. Towards Zero-Power ICT: Getting rid of the battery

The proactive initiative (three STREPs, one coordination action) called for new and disruptive ideas for energy harvesting and storage at the nanometre and molecular scale to power our future information and communication technologies (ICT). The *coordination action ZEROPOWER* targets communities of scientists interested in low power, energy efficient ICT. It aims at assessing the impact of our research efforts and proposing measures to increase the visibility of ICT-Energy related initiatives to the scientific community, targeted industries and to the public at large through exchange of information, dedicated networking events and media campaigns

http://cordis.europa.eu/fp7/ict/fet-proactive/zzerop_en.html

13. Molecular Scale Devices and Systems

This cluster is built around one integrated project (ATMOL) and three STREPs (DIAMANT, ELFOS, and FOCUS). Additionally, a Support Action (MULT.EU.SIM) provides expertise on European Multiscale Simulation. The proactive initiative addresses novel approaches to represent, store, process and exchange information from the atomic and molecular scale, up to fully functional ICT devices and systems, exploiting intrinsic properties of atoms and molecules (e.g. atomic precision and control). Projects are expected to demonstrate proof of concept at laboratory level to prepare future applied RTD, investigate alternative, new materials, develop new methods and realize new ICT devices and systems at the atomic and molecular scale. Built-in collaborative tasks in all four projects above are intended to provide dissemination and publication means to give more visibility to this emerging and exciting area that represents a true alternative to today's most advanced semiconductor devices and systems subject to severe physical and technological limitations in the coming 10-20 years.

http://cordis.europa.eu/fp7/ict/fet-proactive/amolit_en.html

14. Brain-Inspired ICT

This proactive initiative includes one integrated project and three STREPS, and involves research into how information is processed and communicated in the brain and peripheral nervous system. An understanding of such processes is expected to form the basis for new computing paradigms, as well as help the diagnosis and treatment of brain disorders. The *coordination action* CSN organises related roadmapping activities and training for young researchers (see the entry on Bio-ICT Convergence above for more information).

http://cordis.europa.eu/fp7/ict/fet-proactive/brainict_en.html

15. Coordination & Support Actions

Coordination Actions (CAs) are linked to specific topics and communities and play a crucial role in supporting communities by structuring them, providing a forum for discussion, identifying new research challenges and setting out research roadmaps, and taking joint actions in areas such as education and supporting collaboration with groups outside Europe. CAs play a key role in the research funded by FET as they are able to provide a structuring effect and community support that creates an added value to the research projects, making the whole greater than the sum of the parts of a Proactive. A number of key issues within research policy, such as identifying research challenges and new research topics, supporting young researchers and creating contacts with high-tech SMEs, are to a large extent dealt with by CAs, making them both a key factor for achieving existing objectives and also an important partner when discussing new directions.

Some CAs, such as CHIST-ERA and FET¹¹, play a special and much wider role and have an impact across the different FET communities.

A number of support actions perform in-depth analyses of emerging global trends in multidisciplinary science and technology fields that contribute to the future of ICT. They identify possible future FET topics by assessing the potential of such as area, analysing the risks, and evaluating the the necessary resources and critical mass.

http://cordis.europa.eu/fp7/ict/fet-proactive/csa_en.html



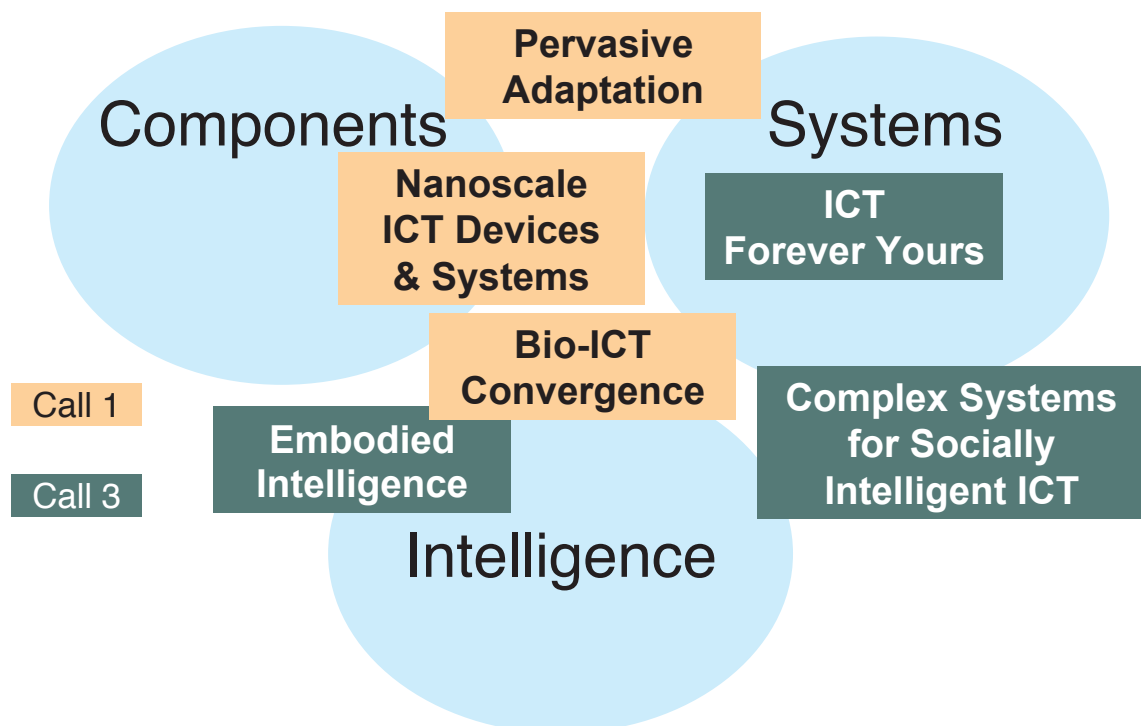
Graphical overview of projects

FET Proactive supports highly ambitious, unconventional ICT research built around thematic clusters, which have been defined through broad consultation with scientific communities.

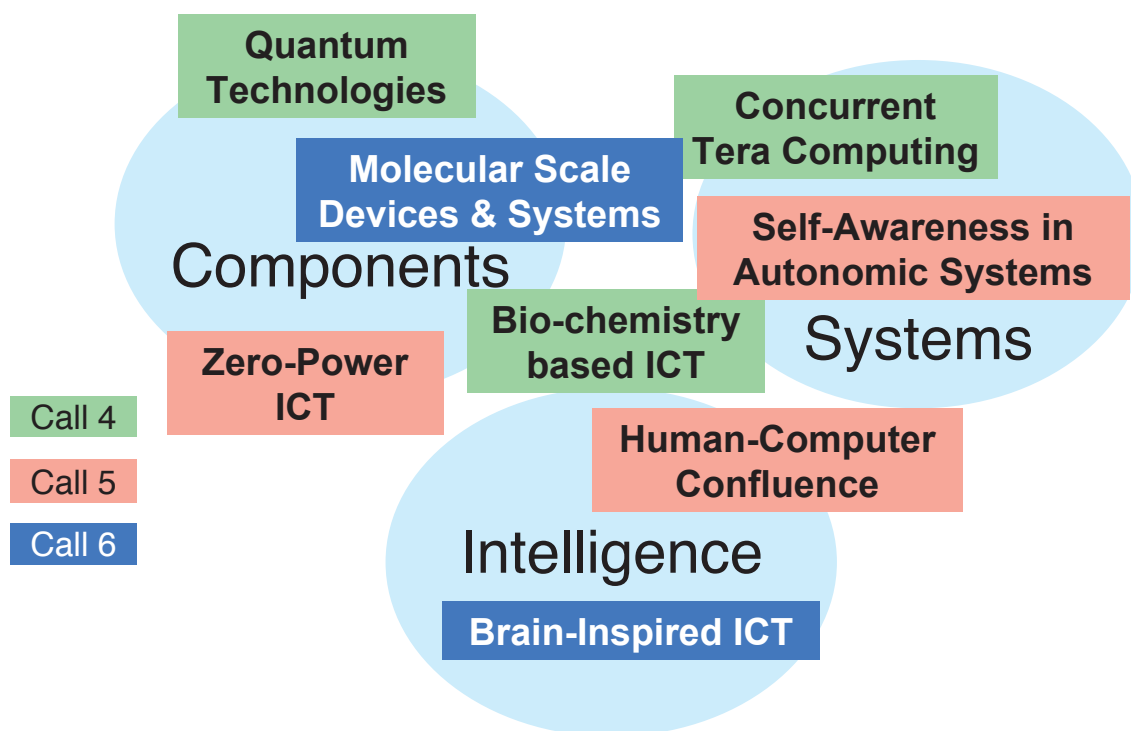
It aims to promote transformative, long-term and multidisciplinary research, with particular attention to topics emerging from the convergence of ICT and other disciplines (e.g., physics, social sciences, medicine, chemistry, biology), through research projects and community building.

Schemes with the positioning of the FET Proactive Initiatives are shown here below.

FP7 Proactive Initiatives: WP2007-2008



FP7 Proactive Initiatives: WP2009-2010



The mission of promoting and stimulating long-term ICT and multidisciplinary research on specific topics is addressed by a combination of large (**IP**), focused (**STREP**) and support (**CSA**) projects.

An **Integrated Project (IP)** is a large scale project that addresses multiple issues.

A **Strategic Targeted Research Project (STREP)** is a focused project targeting a specific objective aiming to generate new knowledge.

Coordination and Support Action (CSA) are either Coordination Actions (CA) or Support Actions (SA), both aiming to support research activities and policies.



FET Proactive Project Portfolio

LISTED BY PROACTIVE INITIATIVE

1. Nano-Scale ICT Devices and Systems

http://cordis.europa.eu/fp7/ict/fet-proactive/nanoict_en.html

PROJECT ACRONYM & SUMMARY

AFSID

AFSID investigates new functionalities arising from the control of a single charge and spin on individual dopants in silicon. The devices with the new functionalities to be developed will be based on ultimate silicon “single electron transistors” (SETs). A SET-FET hybrid device will be built on chip, in order to prove the validity of the hybrid SET-CMOS approach.

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

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,200,000 €	01/2008	42 months

CATHERINE

CATHERINE develops a new unconventional technology based on carbon nanotubes (CNT) for local and chip-level interconnects. This technology should extend ICT beyond the limits of CMOS technology. The proposed approach consists of depositing CNT-based nano-interconnects for integrated circuit by vapour deposition on alumina nanostructures or on patterned substrates. In addition, design and simulation tools will be developed to predict the performance of the CNT interconnects. The filing of two patents by the consortium will be helpful in enabling transfer of know-how to interested companies.

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

STREP	2,649,999 €	01/2008	36 months
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CHIMONO

CHIMONO will demonstrate a detailed control of molecules realized by means of integrated electric, magnetic, RF, microwave and optical fields, and aims at integrating all these components on a microchip for preparing and storing molecules. As a result, the project will demonstrate new possibilities for the transfer of information between molecular states and optical or microwave fields or charged currents.

<http://chimono.lens.unifi.it/>

STREP	2,519,902 €	02/2008	42 months
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GRAND

GRAND verifies and assesses whether graphene, consisting of a single atom layer of carbon with a structure similar to graphite can bring conventional semiconductor technology beyond the CMOS era. Industry-compatible strategies for fabrication of 2D grapheme nanostructures for switches and interconnects will be developed. Device transport properties will be experimentally evaluated.

<http://www.grand-project.eu/>

STREP	2,389,704 €	01/2008	42 months
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MOLOC

MOLOC seeks to design and to provide the demonstration of principle, feasibility and significant advantages of logic circuits where the basic element is a single molecule acting itself as a logic circuit. The project proposes to take advantage of inherent internal degrees of freedom of molecules and their dynamics in order to implement finite state machines and parallel computing with a multilevel logic.

<http://www.moloc.ulg.ac.be/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,040,000 €	02/2008	42 months

NABAB

NABAB targets the realization of useful computing functions by means of the integration of elementary nanometer-scale and molecular electronic devices using a post fabrication adaptation. It will be demonstrated that the acquired functionality of the built nanometer-scale computing blocks is exploitable within a larger computing system.

<http://www.nabab-ict.org/>

STREP	2,140,000 €	01/2008	39 months
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NANO-ICT

Nano-ICT is a coordination action which brings together 12 teams active in nanometerscale ICT. Its objectives are: reinforcing and supporting the whole European research community in ICT nanoscale devices (new concepts for switches and memories, local and chip level interconnects, radically new functionalities etc.), consolidation and enhancing the visibility of the research community in ICT nanoscale devices, mapping and benchmarking of research at European level, and comparison with other continents.

<http://www.nanoict.org>

CA	950,000 €	01/2008	48 months
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SINGLE

SINGLE aims at understanding the transmolecular conductance at a single molecule level as well as the relations between the transmolecular conductance and the strength of electronic coupling to the electrode and to internal degrees of freedom (vibrations, conformational changes, intramolecular electronic levels, spins) or external stimuli (magnetic field, light). The final goal is to demonstrate the projection of electronic functions resembling electron devices onto a single molecule prepared by chemical synthesis.

<http://single.ku.dk>

STREP	2,580,000 €	01/2008	36 months
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VIACARBON

VIACARBON aims to develop carbon nanotubes for vertical and horizontal interconnects for CMOS nodes of 22 nm and beyond, and for NEMS RF switches. It strives to grow single wall nanotube mats with ultra high densities by optimisation of the growth catalyst, and convert this into an industrially compatible technology for both vertical and horizontal interconnects.

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

STREP	2,530,000 €	01/2008	42 months
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2. Pervasive Adaptation

http://cordis.europa.eu/fp7/ict/fet-proactive/perada_en.html

PROJECT ACRONYM & SUMMARY

ALLOW

ALLOW develops a new programming paradigm for human-oriented adaptive pervasive applications, based on the concept of adaptive pervasive flows. A flow consists of a set of actions that is glued together by an execution plan in order to achieve a goal, and is situated in the real world by being attached to artifacts or people. This paradigm will enable pervasive technical systems to adapt more seamlessly to humans involved and embedded in their context.

<http://www.allow-project.eu/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	3,200,000 €	02/2008	42 months

ATRACO

ATRACO develops technologies that will lead to the realisation of ecologies comprising people, context-aware artefacts and digital commodities. The main project focus is research on adaptation, interoperability, context awareness, user interaction and the dynamics of trust.

<http://www.uni-ulm.de/in/atrac0>

STREP	1,949,992 €	01/2008	42 months
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FRONTS

FRONTS establishes a theoretical foundation for adaptive networked societies of small or tiny heterogeneous artefacts. The fundamental properties, laws as well as trade-offs of these societies will be developed. This goal will be achieved by working on quantitative theory of networked adaptation and in particular on the ability of self-organised networks to adapt to environmental changes.

<http://fronts.cti.gr/>

STREP	2,350,000	02/2008	39 months
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PERADA

The goal of the PERADA coordination action is to bring together the wide range of researchers in the field covered by the Pervasive Adaptation proactive initiative, and to build a new community of researchers who can work together on common goals, so ensuring that the research carried out by members of that community is integrated, coordinated and informed.

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

CA	999,999 €	02/2008	40 months
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REFLECT

REFLECT will develop new concepts for self-organised and adaptive collaboration between people and their specific environments. It will research emotional, cognitive and physical aspects affecting the user within the environment offering ways of controlling/adapting. The framework will be tested on a driver/racing car scenario.

<http://reflect.pst.ifi.lmu.de/>

STREP	2,600,000 €	01/2008	39 months
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SOCIALNETS

SOCIALNETS will exploit social anthropology results and social networks for communication between electronic devices as a unique way of translating human behaviour into adaptation for pervasive systems via the design of trustable and adaptive networking protocols and data management systems for pervasive information and communication systems.

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

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,149,999 €	02/2008	39 months

SYMBRION

The main focus of this project is to investigate and develop novel principles of adaptation and evolution for symbiotic multi-robot organisms. Such robot organisms will consist of large swarms of robots, which can dock with each other and share energy and computational resources within a single artificial-life-form. The project will develop software and hardware for such large-scale aggregation, and apply self* strategies and artificial long term evolution to the resulting symbiotic organisms.

<http://www.symbion.eu>

IP	5,300,000 €	02/2008	60 months
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3. Bio-ICT convergence

http://cordis.europa.eu/fp7/ict/fet-proactive/bioict_en.html

PROJECT ACRONYM & SUMMARY

BIOTACT

Whereas in nature there are many animals that use the sense of touch instead of sight for exploring their surroundings, robots have yet to take advantage of this. By studying animals with well developed facial whisker systems, BIOTACT is developing a robotic tactile sensor which monitors the forces on artificial hairs while they are constantly moved in regular patterns in order to “see” its surroundings.

<http://www.biotact.org/>

TYPE	EC FUNDING	START DATE	DURATION
IP	5,399,913 €	01/2008	48 months

BRAINSTORM

Brainstorm is developing an integrated system enabling on-chip intracellular electrical recordings from a relatively large cultured neuronal network combined with chemical sensing and intracellular delivery of biologically active molecules. This enables radically new types of communication between silicon and neurons.

<http://www.imec.be/brainstorm/>

STREP	3,200,000 €	01/2008	36 months
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CSN

The CSN coordination action works with projects in the Bio-ICT convergence and Brain-Inspired ICT proactive initiatives to advance the understanding and engineering of biomimetic and hybrid biological and artificial systems. The project's activities include roadmapping events, workshops and summer schools.

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

CA	520 000 €	03/2010	36 months
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CYBERRAT

CYBERRAT is developing an innovative interface between a semiconductor chip or an ensemble of semiconductor chips and the brain. The interface will have a spatial resolution close to that of a single neuron and a temporal resolution of a few tens of microseconds.

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

STREP	1,800,000 €	01/2008	42 months
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LAMPETRA

LAMPETRA will develop lamprey/salamander bio-inspired artefacts to find new solutions for high-performance artificial locomotion, in terms of fast-response, adaptability, reliability, energy efficiency, and control. This will be done by developing a bio-inspired artificial system and by performing advanced numerical simulations focused on the neural control system of locomotion.

<http://www.lampetra.org/>

STREP	1,700,000 €	02/2008	42 months
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NEUROCHEM

NEUROCHEM is developing novel computing paradigms and biomimetic artefacts for chemical sensing, inspired by the biological olfactory pathway. A demonstrator is being developed featuring a large scale sensor array mimicking the olfactory receptor layer.

<http://www.neurochem-project.org/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,150,000 €	01/2008	42 months

RENACHIP

RENACHIP strives to replace the aged cerebellar brain circuit with a biomimetic chip bi-directionally interfaced to the inputs and outputs of the system. Information processing will interface with the cerebellum to actuate a normal, real-time functional behavioural recovery, providing a proof-of-concept test for the functional rehabilitation of more complex neuronal systems.

<http://www.renachip.org/>

STREP	2,599,917 €	02/2008	36 months
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SECO

SECO studies by a fusion of experimental neuroscience, detailed physical simulation, and theoretical analysis, the principles by which a population of real or artificial neurons can grow and assemble themselves into functioning circuits. These principles will be applied by engineering some first self-constructing applications. Understanding this radically different approach that uses algorithmic self-programming and construction could have enormous consequences for future computing and manufacturing technologies.

<http://www.seco-project.eu/>

IP	4,600,00 €	03/2008	48 months
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4. Science of Complex Systems for Socially Intelligent ICT

http://cordis.europa.eu/fp7/ict/fet-proactive/cosiict_en.html

PROJECT ACRONYM & SUMMARY

ASSYST

ASSYST addresses coordination activities for complex systems specifically in the area of socially intelligent ICT. It will significantly contribute to the integration of knowledge across the complex systems scientific community, and to the spreading of complex system science towards its use in diverse engineering domains and policy support.

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

TYPE	EC FUNDING	START DATE	DURATION
CA	900,000 €	01/2009	38 months

CYBEREMOTIONS

CYBEREMOTIONS aims to understand the process of collective emotion formulation in e-communities as a spontaneous emergent behaviour occurring in complex techno-social networks. It will create decentralized adaptive tools to amplify positive and suppress negative collective emotions. In addition it will develop a theoretical background for the next generation of emotionally intelligent ICT systems using self-organised active agent models and socio-physics methods.

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

IP	3,600,000 €	02/2009	48 months
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EPIWORK

The EPIWORK will set up of a computational platform for epidemic research and forecast including: mathematical and computational methods needed to achieve prediction and predictability of disease; large scale, data driven computational models with high level of realism; and collection of real-time disease incidence, through the design of innovative web and ICT applications.

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

IP	4,850,000 €	02/2009	48 months
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QLECTIVES

QLECTIVES aims to understand, experiment with, design and build cooperative socially intelligent ICT systems that will enable and support emergent quality collectives (communities). One of its key contributions will be to define, predict and to quantify the conditions necessary to achieve trust and quality in on-line collective activities.

<http://qlectives.eu>

IP	5,350,000 €	03/2009	48 months
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SOCIONICAL

SOCIONICAL develops complexity science based modelling, prediction and simulation methods for large scale socio-technical systems. The focus is on specific examples of Ambient Intelligence based smart systems and the global properties and emergent phenomena that arise from local feedback loops and their coupling. Transportation and emergency response will be used as example domains for the research. The work will lead to novel tools to better understand and model techno-social systems in general.

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

IP	5,300,000 €	02/2009	48 months
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5. Embodied Intelligence

http://cordis.europa.eu/fp7/ict/fet-proactive/embodyi_en.html

PROJECT ACRONYM & SUMMARY

ANGELS

The ANGELS project is building a prototype reconfigurable swimming robot able to split into smaller agents (and vice-versa), each equipped with a bio-inspired “electric sense” used both for the recognition of objects and communication between agents. ANGELS will use this to explore the range of abilities conferred by different mechanical and electric morphologies.

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

TYPE	EC FUNDING	START DATE	DURATION
STREP	3,100,000 €	02/2009	36 months

EMORPH

EMORPH is developing a novel biologically inspired artificial vision system based on neuromorphic VLSI circuits. Such robotic “eyes” have several advantages over conventional frame-based vision sensors such as wide dynamic range, low power, and a fast response time. The prototype will be tested in the humanoid robot iCub.

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

STREP	1,250,000 €	02/2009	36 months
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EVRYON

The ultimate goal of the EVRYON project is to develop a novel design approach for the development of wearable robots, such as active orthoses, prostheses and exoskeletons for functional restoration, functional substitution, rehabilitation and human augmentation. The proposed approach is based on the co-evolution of morphology and control, where the design of the artificial system takes into account the dynamics of the biological counterpart so that the human body and the robot symbiotically benefit from each other, exhibiting emergent dynamic behaviours. The selected robot is an actuated bilateral orthosis for the lower limbs destined to restore proper walking capabilities in chronic impaired subjects. The approach and methodology to be developed within the project will have a deep potential impact in the field of wearable robotics, biorobotics, rehabilitation and functional restoring.

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

STREP	2,000,000 €	02/2009	40 months
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LOCOMORPH

LOCOMORPH's goal is to push beyond the state of the art in robotic locomotion and movements, by increasing efficiency, robustness, and thus usability in unknown environments. It does so by focusing on the two concepts of morphology and morphosis (change of morphology) via multidisciplinary approaches involving biology, biomechanics, neuroscience, robotics, and embodied intelligence. The resulting advances will bring us closer to the highly-in-demand service robotics and give Europe a significant competitive advantage.

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

STREP	2,700,000 €	02/2009	48 months
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OCTOPUS

OCTOPUS aims at investigating and understanding the principles that give rise to the octopus sensory-motor capabilities and at incorporating them in new design approaches and technologies for building physically embodied, soft-bodied, hyper-redundant, dextrous artefacts. To this purpose, a robotic artefact will be built in OCTOPUS that can locomote in water over a variety of terrains, explore narrow spaces, grasp objects and manipulate them effectively. The grand challenge that this IP will pursue is the design and development of the ICT and robotics technologies allowing the building of an embodied artefact, based broadly on the anatomy of an octopus, and with similar performance in water, in terms of dexterity, speed, control, flexibility, and applicability.

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

TYPE	EC FUNDING	START DATE	DURATION
IP	7,600,000 €	02/2009	48 months

VIATORS

VIATORS is developing safe, energy-efficient and highly dynamic variable impedance actuation systems which will permit the embodiment of the natural characteristics found in biological systems into the structures of a new generation of mechatronic devices.

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

STREP	3,350,000 €	02/2009	36 months
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6. ICT Forever Yours

http://cordis.europa.eu/fp7/ict/fet-proactive/ictfy_en.html

PROJECT ACRONYM & SUMMARY

CONNECT

CONNECT aims at enabling continuous composition of networked systems in order to respond to the evolution of functionalities of the networked environment. The objective is to overcome the interoperability barrier by adopting the revolutionary approach of synthesizing on the fly the connectors via which networked systems communicate. The project involves research in the areas of behaviour learning, formal methods, semantic services, software engineering, dependability, and middleware.

<http://connect-forever.eu/>

TYPE	EC FUNDING	START DATE	DURATION
IP	4,820,000 €	02/2009	42 months

ETERNALS

ETERNALS aims at coordinating research in methods making software systems capable of adapting to changes in user requirements and application domains. Adaptation and evolution depend on several dimensions like time, location, and security conditions, expressing the diversity of the context in which systems operate. A design based on an effective management of these dimensions would constitute a remarkable step towards the realization of Trustworthy Eternal Systems. Eternals will involve both academic and industrial researchers in elaborating a roadmap of future research in this domain.

<https://www.eternals.eu/>

CA	549,980 €	03/2010	36 months
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HATS

Current approaches to reusability and maintenance of Software systems are inadequate to cope with the dynamics and longevity of future software applications and infrastructures. One of the major challenges facing software construction in the next decades is high adaptability combined with trustworthiness. HATS will take an empirically successful, yet informal software development paradigm and put it on a formal basis, turning software product family development into a rigorous approach.

<http://www.cse.chalmers.se/research/hats/>

IP	5,270,000 €	03/2009	48 months
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LIVING KNOWLEDGE

Knowledge is strongly influenced by diversity in, e.g., cultural backgrounds, schools of thought, geographical contexts. Time and evolution add a further dimension making diversity an intrinsic and unavoidable property of knowledge. The vision inspiring LivingKnowledge is to consider diversity an asset and to make it traceable, understandable and exploitable, with the goal to improve navigation and search in very large multimodal datasets.

<http://livingknowledge-project.eu/>

IP	4,810,000 €	02/2009	36 months
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SECURECHANGE

There is growing demand for intensive software systems to meet changing business needs, new regulations and policies, novel technologies and computing infrastructures. The main objective of SecureChange is to develop techniques and tools that ensure continuing compliance to security, privacy and dependability requirements for long-lived evolving software systems. The project involves research in security software engineering, formal methods, model-based testing and autonomic and adaptive software.

<http://www.securechange.eu/k>

IP	5,100,000 €	02/2009	36 months
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7. Concurrent Tera-Device Computing

http://cordis.europa.eu/fp7/ict/fet-proactive/teracom_en.html

PROJECT ACRONYM & SUMMARY

EURETILE

EURETILE aims to apply brain-inspired techniques to the system architecture of massively parallel, tiled computer architectures and the corresponding programming paradigm. The execution target is a many-tile HW platform, equipped with a many-tile simulator. The proposal promises a major contribution towards a long-term vision of massively parallel computing systems and a 15+ year HW road-map of low-power and fault-tolerant excellence.

<http://www.euretile.eu>

TYPE	EC FUNDING	START DATE	DURATION
IP	4,600,000 €	01/2010	42 months

S(O)OS

The S(o)OS project is developing a new OS architecture model that can deal with future system environments that integrate thousands of billions of heterogeneous devices. It aims at a modular, minimal OS architecture which decouples the OS from the underlying infrastructure, making execution across an almost unlimited number of varying devices possible.

<http://www.soos-project.eu/>

STREP	2,249,998 €	02/2010	36 months
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TERAFLUX

While parallel systems have been around for many years, they were usually programmed and tuned by experts. In the future large scale systems will be widely available and therefore exploiting efficiently the available parallelism will have to be easy enough to be accessible by the common user. TERAFLUX proposes to combine multithreading with dataflow to efficiently handle the parallelism and have an easy and powerful execution model. The multithreading dataflow model is expected to perform well for a number of classes of applications.

<http://teraflux.eu/>

IP	5,700,000 €	01/2010	48 months
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TRAMS

TRAMS is researching solutions to the device reliability and variability problems that are expected to occur as the feature size in CMOS technology is reduced to 16nm and below. The project is investigating new design alternatives and paradigms which will enable reliable memory systems to be built from highly unreliable nanodevices.

<http://trams-project.eu/>

STREP	2,449,974 €	01/2010	36 months
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8. Quantum Information Foundations and Technologies

http://cordis.europa.eu/fp7/ict/fet-proactive/qift_en.html

PROJECT ACRONYM & SUMMARY

AQUTE

AQUTE develops quantum technologies based on atomic, molecular and optical (AMO) systems for scalable quantum computation and entanglement-enabled technologies like metrology and sensing. It will also strive to realize hybrid systems combining atomic with solid state systems and improve connections between quantum information technologies and nanosciences and information sciences in general.

<http://qurope.eu/projects/aqute>

TYPE	EC FUNDING	START DATE	DURATION
IP	5,300,000 €	02/2010	36 months

Q-ESSENCE

Q-ESSENCE will investigate quantum entanglement to provide new solutions for the area of trust, privacy protection, and security, for novel ICT devices and for new reference standards, sensing, and metrology. It will deliver 1) New entanglement-enabled ICT devices like atomic clocks, quantum sensors, and quantum random-number generators; 2) Novel physical-layer architectures for long-distance quantum communication; 3) Distributed quantum information protocols that provide solutions to multiuser trust, privacy-protection and security scenarios based on multipartite entanglement.

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

STREP	4,700,000 €	02/2010	36 months
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QUIE2T

The Coordination Action QUIE2T (QUantum Information Entanglement-Enabled Technologies) aims at strengthening and advancing the European scientific and technological excellence in the field of Quantum Information Foundations and Technologies.

<http://qurope.eu/quiezt>

CA	650,000 €	02/2010	36 months
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SOLID

The SOLID concept is to develop small solid-state hybrid systems capable of performing elementary processing and communication of quantum information. This involves design, fabrication and investigation of combinations of qubits, oscillators, cavities, and transmission lines, creating hybrid devices interfacing different types of qubits for quantum data storage, qubit interconversion, and communication (e.g. solid-state quantum-coherent registers with 3-8 qubits).

<http://qurope.eu/projects/solid>

IP	4,999,999 €	02/2010	36 months
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9. Bio-Chemistry-Based Information Technology

http://cordis.europa.eu/fp7/ict/fet-proactive/chemit_en.html

PROJECT ACRONYM & SUMMARY

BACTOCOM

The main objective of BACTOCOM is to build a simple computer, using bacteria rather than silicon. Microbes may be thought of as biological “micro-machines” that process information about their own state and the world around them. They can communicate with other bacteria, by leaving chemical trails, or by directly exchanging genetic information. BACTOCOM aims to evolve new functional structures based on the latter mechanism, in order to gain insight into biological systems. This, in turn, may suggest new methods for silicon-based computing, in the way that both evolution and the brain have already done.

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

TYPE	EC FUNDING	START DATE	DURATION
STREP	1.949.997 €	02/2010	36 months

COBRA

COBRA is a coordination action to help organize the international Bio-chemistry based Information Technology (CHEM-IT) community towards the next major science and technology revolution, involving the integration of information processing with production during deployment. The EU-sponsored CHEM-IT projects are spearheading the development and exploration of the first simple systems integrating production and information processing. This is done at the nano-bio-info interface, involving cellular engineering, protocells, artificial neurons and programmable information chemistry.

<http://www.cobra-project.eu/>

CA	484,635 €	12/2010	36 months
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MATCHIT

The project is to achieve ‘programmable information chemistry’. It will introduce an addressable chemical container production system, which will be interfaced with electronic computers via MEMS technology and regulated by feedback loops. The research will promote a deeper understanding of the computational power of coupled production and information processes.

<http://fp7-matchit.eu/>

STREP	2,770,000 €	02/2010	36 months
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NEUNEU

NEUNEU will study the information processing capabilities of networks of lipid-coated water droplets (inspired on biological cells) that transmit information using chemical signals. The goal is not to replace conventional silicon-based computers, but rather to enable computation in new environments where current ICT does not provide suitable solutions.

<http://www.neu-n.eu>

STREP	1,780,000 €	02/2010	36 months
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10. Human-Computer Confluence

http://cordis.europa.eu/fp7/ict/fet-proactive/hcco_en.html

PROJECT ACRONYM & SUMMARY

CEEDS

The CEEDS project is researching ways that people can understand massive amounts of data such as is often produced during research. A key to this is the discovery of patterns in the data, and CEEDS will build an immersive system in which a person can interact with the data using non-verbal behaviour and bio-signal interfaces to aid this discovery.

<http://ceeds-project.eu/>

TYPE	EC FUNDING	START DATE	DURATION
IP	6,499,982 €	09/2010	48 months

HC²

The HC² coordination action works with the projects in the Human Computer Confluence proactive initiative to stimulate, structure and support the research community, consolidate research agendas and establish guidelines for the definition of new educational curricula.

<http://hcsquared.eu/>

CA	490,000 €	10/2010	36 months
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VERE

Research will be carried out research on the “fusion” of the human body with virtual or physical surrogates; i.e. human participants will operate under the illusion that the virtual body is their own, or that they are actually in the physical space of the real world in a robotic body that they perceive as their own. An exemplary application concerns impaired people, such as tetraplegics, who would gain the ability to operate again in the physical world through their surrogate.

<http://vereproject.eu/>

IP	8,500,000 €	06/2010	60 months
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11. Self-Awareness in Autonomic Systems

http://cordis.europa.eu/fp7/ict/fet-proactive/aware_en.html

PROJECT ACRONYM & SUMMARY

ASCENS

Future software-intensive systems will generally exhibit a number of characteristic features such as massive numbers of nodes, nodes with complex behavior, operation in open and non-deterministic environments and need for changing environments and requirements. We call this future generation of software-intensive systems ensembles. The goal of the ASCENS project is to develop such a method and to demonstrate its feasibility in three important application domains: robot swarms, cloud computing and e-mobility.

<http://www.ascens-ist.eu>

TYPE	EC FUNDING	START DATE	DURATION
IP	5,300,000 €	10/2010	48 months

AWARE

The main aim of the AWARE Coordination Action is to provide a focal point for the wide range of research domains potentially addressed by the FET Proactive Initiative in AWARENESS. Self-awareness in autonomic systems can include ideas and concepts from artificial intelligence, network performance, distributed systems, machine learning, and artificial consciousness. This CA seeks to provide a common forum for cross-disciplinary interactions, by facilitating the exchange of ideas and personnel and timely dissemination of research within the community and to a broader scientific and technological audience.

<http://www.aware-project.eu/>

CA	724,996 €	10/2010	36 months
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EPICS

EPiCS will lay the foundation for engineering a novel class of proprioceptive computing systems. Proprioceptive computing systems collect and maintain information about their state and progress, which enables self-awareness, by reasoning about their behaviour, and self-expression, by effectively and autonomously adapting their behaviour to changing conditions.

<http://www.epics-project.eu>

IP	4,995,379 €	09/2010	48 months
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RECOGNITION

RECOGNITION aims at the concept of cognitive self-awareness at the device, at the artefact and at the system level, as a fundamental property of future ICT systems. Functional models of the core cognitive processes will be developed that allow humans to assert relevance and achieve knowledge from information through mechanisms such as inference, belief, similarity and trust and translate them to the ICT domain by the development of flexible algorithms for self-aware autonomic nodes.

<http://www.recognition-project.eu>

STREP	2,400,000 €	10/2010	36 months
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SAPERE

SAPERE will develop a highly-innovative theoretical and practical framework for the decentralized deployment and execution of self-aware and adaptive services for future and emerging pervasive network scenarios. It will enforce self-awareness and autonomic behaviours as inherent properties of the ecosystem of services, rather than as peculiar characteristics of its individuals only.

<http://www.sapere-project.eu>

STREP	2,300,000 €	10/2010	36 months
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12. Towards Zero-Power ICT

http://cordis.europa.eu/fp7/ict/fet-proactive/2zerop_en.html

PROJECT ACRONYM & SUMMARY

GREEN SILICON

The primary objective of this project is to demonstrate integrated on-chip thermoelectric energy harvesting using micro-/nano-fabricated Si/SiGe nanostructures with improved efficiencies through the use of band-structure and phonon engineering. Our approach is to engineer thermoelectric materials which enhance the electrical conductivity while simultaneously blocking the transport of thermal energy through the devices. The final optimised thermoelectric generator will be integrated with a capacitor energy store on a mm-sized single silicon chip to demonstrate a power source for an autonomous system. This will be used to power a micropower CMOS sensor to demonstrate its use as an energy harvesting system.

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

TYPE	EC FUNDING	START DATE	DURATION
STREP	1,660,000 €	08/2010	36 months

NANOPOWER

NANOPOWER proposes fundamental research on new directions for energy-harvesting technologies at the nanometre and molecular scale. It will investigate the suitability of “nanomechanical nonlinear oscillators”, “phonon rectifiers” and “quantum harvesters” as novel ways to harvest energy. To show their potential, these technologies, based on Silicon and/or III-V semiconductors, will be integrated into an autonomous nano-scale device.

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

STREP	2,629,277 €	08/2010	36 months
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SINAPS

The aim of the SiNAPS project is to develop standalone “dust”-sized chemical sensing platforms that harvest energy from ambient electromagnetic radiation (light) and will enable miniaturisation below the current mm3 barrier. Systems like this are of great interest in the areas of energy supply, energy use in ICT, smart(er) buildings, medical diagnostics and e-health.

<http://www.sinaps-fet.eu/>

STREP	2,369,999	08/2010	36 months
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ZEROPOWER

ZEROPOWER is a coordination activity among consortia involved in “Toward Zero-Power ICT” research projects and communities of scientists interested in energy harvesting and low power, energy efficient ICT. This activity is aimed at increasing the visibility of ICT-Energy related initiatives to the scientific community, targeted industries and to the public. ZEROPOWER activities will inspire more research projects in this emerging area. It will develop a strategic research agenda in low power, energy efficient ICT and will make it happen.

<http://www.zero-power.eu/>

CA	550,000 €	01/2011	36 months
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13. Molecular Scale Devices and Systems

http://cordis.europa.eu/fp7/ict/fet-proactive/amolit_en.html

PROJECT ACRONYM & SUMMARY

ATMOL

ATMOL will establish a comprehensive process flow for fabricating a molecular chip, i.e. a molecular processing unit comprising a single molecule connected to external mesoscopic electrodes with atomic scale precision and preserving the integrity of the gates down to the atomic level after the encapsulation. AtMol will explore and demonstrate how the combination of classical and quantum information inside the same atomic scale circuit increases the computing power of the final logic circuit.

<http://www.atmol.eu>

TYPE	EC FUNDING	START DATE	DURATION
IP	6,899,849 €	01/2011	48 months

DIAMANT

The DIAMANT project will develop new technologies to enable placement of exactly one atom at a time into a selected location in the diamond lattice with nanometre precision. Control of magnetic and optical interactions between single dopants will enable engineering of artificial molecules with radically new applications in the fields of sensing and imaging at the nanoscale, novel data storage and information processing.

http://cordis.europa.eu/fetch?CALLER=PROJ_ICT&ACTION=D&CAT=PROJ&RCN=97110

STREP	2,500,000 €	01/2011	36 months
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ELFOS

The aim of this proposal is to take single-molecule electronics to the next level in which molecule functionality will be exploited, with an emphasis on the spin degrees of freedom and how to exploit them in device configurations. The experiments on controlling molecular magnetism by electric fields should provide an answer to key questions such as: "Can individual magnetic molecules be addressed electrically as bits or qubits?" and "How can they function as switches?" The proposed study establishes a new strategy towards in-situ control of molecular magnetism by bringing together six European expert groups in chemistry, experimental physics and theoretical physics.

http://cordis.europa.eu/fetch?CALLER=PROJ_ICT&ACTION=D&CAT=PROJ&RCN=97049

STREP	2,700,000 €	1/2011	36 months
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FOCUS

FOCUS will build biologically inspired molecular devices (MDs) based on new photonic tools enabling focused light spots with a diameter around 10 nm. New light sensitive molecules will be selectively activated by these photonic tools. With unprecedented resolution activation of single light sensitive molecules will be controlled and molecular computation in a biological environment be investigated. New MDs for amplification and information processing will be designed.

http://cordis.europa.eu/fetch?CALLER=PROJ_ICT&ACTION=D&CAT=PROJ&RCN=97574

STREP	2,899,299 €	01/2011	36 months
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14. Brain-Inspired ICT

http://cordis.europa.eu/fp7/ict/fet-proactive/brainict_en.html

PROJECT ACRONYM & SUMMARY

BRAINSCALES

BrainScales is studying how the mammalian brain processes information at various temporal and spatial scales, with the aim of simulating the operation of parts of the brain on petaflop supercomputers. The project is exploiting the knowledge gained from this to develop novel computing systems using non-von Neumann architecture based on neuromorphic hardware, and plans to test potential uses of this for more general applications outside the domain of brain-science.

<http://www.brainscales.eu>

TYPE	EC FUNDING	START DATE	DURATION
IP	8,500,000 €	01/2011	48 months

CSN

The CSN coordination action works with projects in the Bio-ICT convergence and Brain-Inspired ICT proactive initiatives to advance the understanding and engineering of biomimetic and hybrid biological and artificial systems. The project's activities include roadmapping events, workshops and summer schools.

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

CA	520,000 €	03/2010	36 months
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CORONET

CORONET develops Brain-Computer-Interface technologies based on current theories of brain function (attractor dynamics) and biomimetic hardware components to be integrated seamlessly with functioning brain systems. The project will develop the capability for "gentle steering" cortical neurons cultured on multi-electrode arrays, but in parallel, it will investigate the possibility to "steer" activity dynamics in sensory neocortex of awake rats, to guide performance in sensory choice tasks.

http://cordis.europa.eu/fetch?CALLER=PROJ_ICT&ACTION=D&CAT=PROJ&RCN=97109

STREP	2,665,000 €	01/2011	48 months
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REALNET

REALNET is investigating a theoretical basis of computation in a network of spiking neurons, using the cerebellar circuit as a benchmark. Using its network architecture based on realistic neurons, REALNET will develop a real-time model of the cerebellum and test it on robotic systems.

http://cordis.europa.eu/fetch?CALLER=PROJ_ICT&ACTION=D&CAT=PROJ&RCN=97465

STREP	2,390,000 €	02/2011	36 months
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SEEBETTER

SEEBETTER is developing a neuromorphic vision sensor with high quantum efficiency which mimics the biological retina's information processing capability. This will give rise to fast, low power sensors with biology's superior spatiotemporal processing and local gain control for sensing scenes with a high dynamic range.

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

STREP	2,100,000 €	02/2011	36 months
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15 Coordination & Support Actions

http://cordis.europa.eu/fp7/ict/fet-proactive/csa_en.html

15.a COORDINATION AND SUPPORT ACTIONS LINKED TO SPECIFIC TOPICS & PROACTIVE INITIATIVES

PROJECT ACRONYM & SUMMARY			
ASSYST See Proactive Initiative: Science of Complex Systems for Socially Intelligent ICT http://www.assystcomplexity.eu/			
TYPE	EC FUNDING	START DATE	DURATION
CA	900,000 €	01/2009	38 months

AWARE See also Proactive Initiative: Self-Awareness in Autonomic Systems http://www.aware-project.eu/			
CA	724,996 €	10/2010	36 months

COBRA See Proactive Initiative: Bio-Chemistry-Based Information Technology: Computing with chemicals and cells http://www.cobra-project.eu/			
CA	484,635 €	12/2010	36 months

CSN See Proactive Initiatives: Bio-ICT Convergence & Brain Inspired ICT http://www.csnetwork.eu/			
CA	520,000 €	03/2010	36 months

ETERNALS See Proactive Initiative: ICT Forever Yours https://www.eternals.eu/			
CA	549,980 €	03/2010	36 months

HC² See Proactive Initiative: Human Computer Confluence http://hcsquared.eu/			
CA	490,000 €	10/2010	36 months

NANOICT See Proactive Initiative: Nano-scale ICT devices and systems http://www.nanoict.org/			
CA	950,000 €	01/2008	48 months

PERADA See Proactive Initiative: Pervasive Adaptation http://www.perada.eu/			
TYPE	EC FUNDING	START DATE	DURATION
CA	999,999 €	02/2008	40 months

QUIE2T See Proactive Initiative: Quantum Information Foundations and Technologies http://quope.eu/quiezt			
CA	650,000 €	02/2010	36 months

ZEROPOWER See Proactive Initiative: Towards Zero-Power ICT http://www.zero-power.eu/			
CA	550,000 €	01/2011	36 months

15.b COORDINATION ACTIONS THAT PLAY A SPECIAL AND WIDE ROLE AND HAVE AN IMPACT ACROSS THE DIFFERENT FET COMMUNITIES

PROJECT ACRONYM & SUMMARY			
CHIST-ERA CHIST-ERA is a Consortium of nine national funding organizations, each running a national programme supporting its research community in long term Information and communication science and technologies (ICST). Its principal objectives are to reinforce the transnational collaboration between Member States in challenging multidisciplinary research in the area of future and emerging information and communication technologies and to integrate the related national research communities in Europe through the funding of transnational research projects. http://www.chistera.eu/			
TYPE	EC FUNDING	START DATE	DURATION
CA	1,500,000 €	12/2009	24 months

FET¹¹ The FET ¹¹ CA has the strategic objective to coordinate the organisation and related communications of the European Future and Emerging Technologies Conference and Exhibition 2011 (fet ¹¹), promoting the development of a FET community across diverse stakeholders. FET ¹¹ will deliver a sustained promotional and dissemination activity structured around an efficiently organised conference at the service of the FET research community. http://www.fet11.eu/			
CA	625,000 €	06/2010	11 months

15.c COORDINATION AND SUPPORT ACTIONS THAT PERFORM IN-DEPTH ANALYSES OF EMERGING GLOBAL TRENDS IN MULTIDISCIPLINARY SCIENCE AND TECHNOLOGY FIELDS THAT CONTRIBUTE TO THE FUTURE OF ICT

PROJECT ACRONYM & SUMMARY

COMPLEXENERGY

COMPLEXENERGY will bridge the ICT, Energy and Complex Systems research communities in order to build the foundations for a new, EC-scale, interdisciplinary research community able to identify the strategic areas, research challenges and approaches to energy system modelling, design and governance at the junction of ICT, Energy and Complex Systems.

<http://complexenergy.innaxis.org/index.html>

TYPE	EC FUNDING	START DATE	DURATION
SA	170,500 €	11/2009	16 months

EVOBODY

EVOBODY will facilitate the identification and formulation of novel research topics on the field of unbound developmental and self-developmental evolutionary processes, embodied in different real systems. It targets evolutionary and related multi-disciplinary communities, such as bio-inspired, adaptive, bio-synthetic ones, which use mechanisms of evolutionary computation.

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

SA	166,000 €	06/2010	12 months
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INBIOSA

Living systems have fundamentally different notions of self-organization from those in engineering sciences. INBIOSA therefore proposes to investigate the imperatives of computation in a cardinal new way by comprehending the fundamental principles of emergence, development and evolution in biology. INBIOSA will prepare the floor for a long-term fundamental research programme in mathematics, systems biology and computation that we call Integral Biomathics.

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

SA	150,000 €	01/2011	12 months
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ITSY

The primary goal of the proposed effort is to generate a set of innovative research topics on the notion of simplicity as a driving paradigm in ICT development, maintenance and use. Simplicity is foundational, its essence fundamental to many desired characteristics of ICT systems such as reliability, usability and trust and yet poorly understood, and rarely systematically applied. The results of this effort will propose topics, initiatives and modalities for future-directed foundational research and its transformation for benefitting Europe's citizens, businesses, industry and governments.

<http://www.cs.uni-potsdam.de/sse/ITSy/>

SA	117,000 €	06/2010	12 months
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MULT.EU.SIM

European Multiscale Simulation for the Computational Era MULT.EU.SIM aims to gather the simulation research community in Europe to establish a joint vision of multiscale modelling and simulation, and a European research agenda for implementing that vision. This European vision will serve as the foundation for a joint effort with emphasis toward multiscale unified codes and standardized interfaces & workflows in a field that is currently very fragmented.

http://cordis.europa.eu/fetch?CALLER=PROJ_ICT&ACTION=D&CAT=PROJ&RCN=97573

TYPE	EC FUNDING	START DATE	DURATION
SA	160,000 €	02/2011	12 months

VISIONEER

VISIONEER's purpose is to develop the concept of a Social Knowledge Collider, thereby creating optimal conditions to unleash the potential of real multi-disciplinary projects where complementary special knowledge would collide and create new kinds of concepts, as particle super-colliders create new kinds of particles.

<http://www.visioneer.ethz.ch>

SA	105,500 €	10/2009	12 months
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VPH-FET

The Virtual Physiological Human (VPH) is an initiative to create a computational framework to facilitate the understanding of the integrative function of molecules, cells, tissues, and organisms and, by this, to construct a multiscale in silico model of the human physiology. By providing a focus on identifying and characterising the foundational issues underlying the whole of the VPH Programme it is anticipated that the VPH-FET road-mapping exercise will act as a catalyst for rapid advances in this area.

http://cordis.europa.eu/fetch?CALLER=PROJ_ICT&ACTION=D&CAT=PROJ&RCN=94966

SA	149,000 €	09/2010	12 months
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2. FET Open Scheme

Introduction

FET-Open is a light, topic-agnostic and deadline free scheme specifically designed to be open and continuously responsive to novel and fragile ideas that challenge current thinking, whenever they arise and wherever they come from. It aims at foundational breakthroughs that can open radically new directions for information and communication technologies in the future.

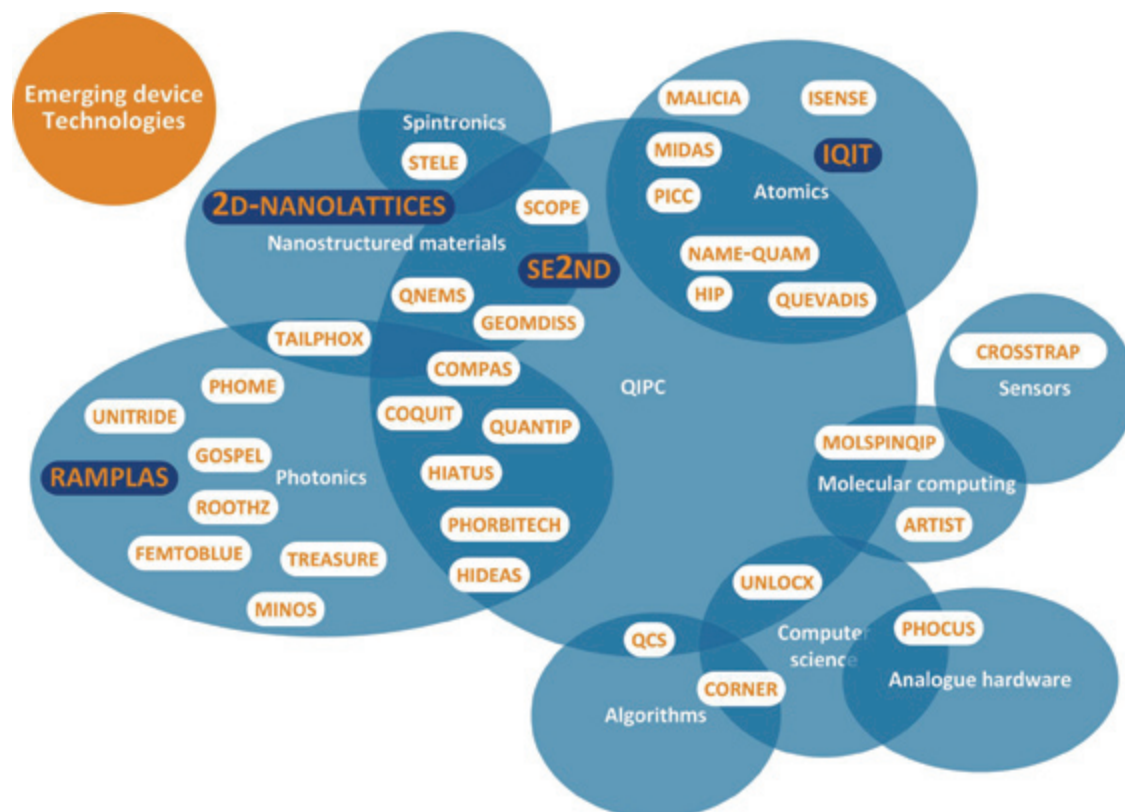
In FP7 so far (2007-2011), FET-Open has launched a total of 75 targeted research projects (STREP) and 8 coordination and support actions (CSA) requesting a total amount of funding of just over 140 m euros. In this brochure, you will find the description of each of these projects.

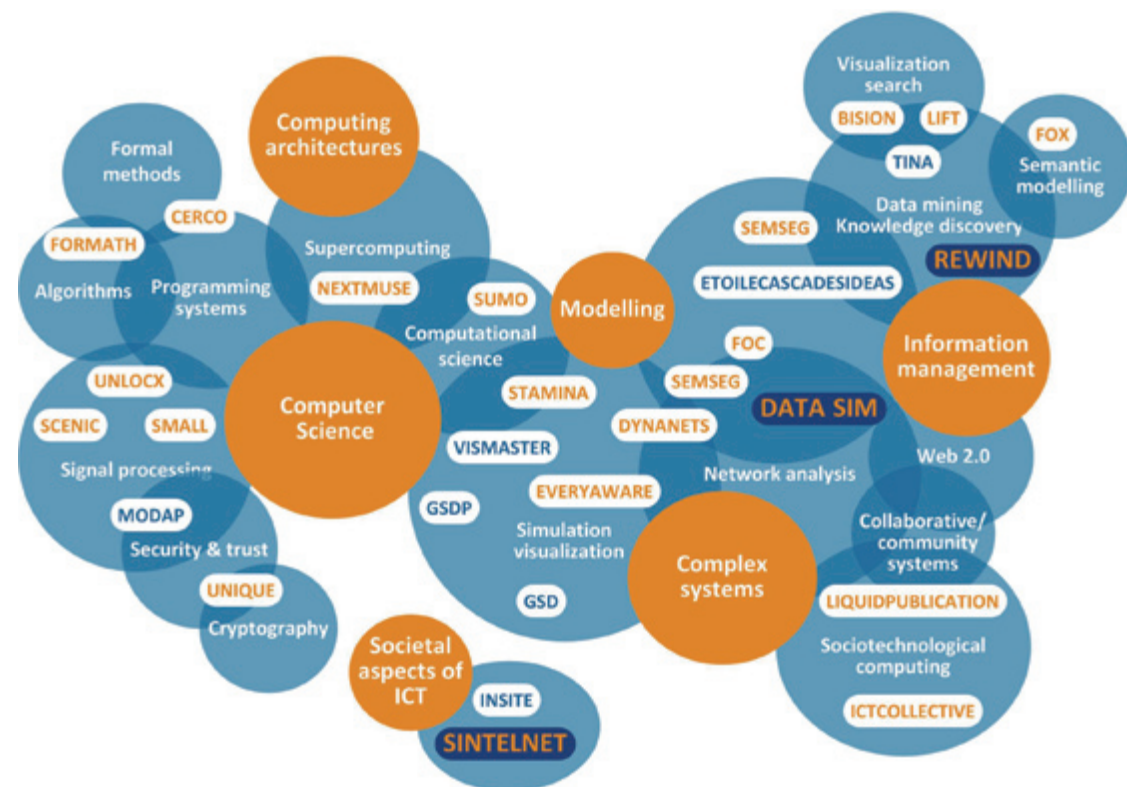
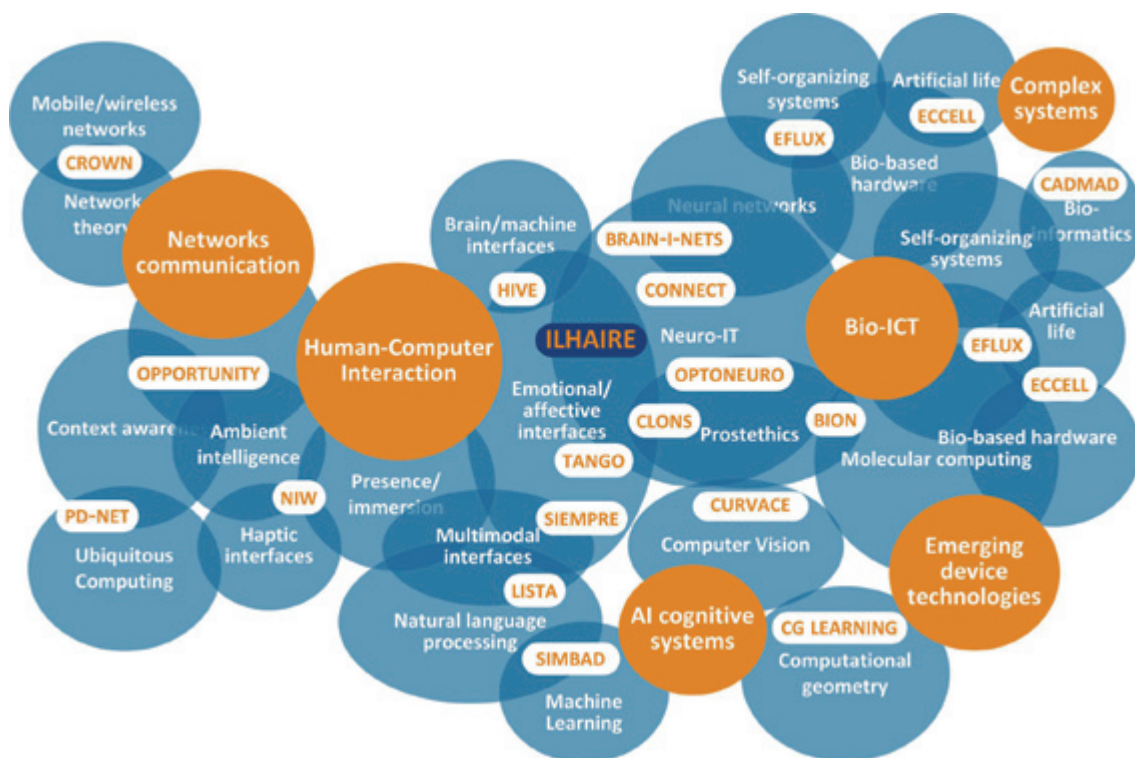
Looking to the future, the current work programme introduces two new objectives specifically aimed at giving leadership to young researchers and high-tech research-intensive SMEs. As young researchers will be the future leaders in science, technology and innovation, FET aims to empower them to jointly explore radical directions that may not fit within current academic research agendas. Likewise, high-tech, research-intensive SMEs are instrumental for pushing forward alternative visions and for turning novel research results into a competitive advantage for creating new markets. FET aims to increase their role in cooperative research to further enhance their disruptive innovation potential and to unlock longer-term scientific and industrial leadership. The current work programme devotes a currently small part of the FET budget to support collaborative projects empowering young researchers and high-tech, research-intensive SMEs.



Graphical overview of projects

A description of the 75 targeted research (STREP) and 6 coordination and support action (CSA) projects currently funded by the scheme can be seen below.





FET Open Project Portfolio

LISTED IN ALPHABETICAL ORDER

1. FET Open targeted-research projects

PROJECT ACRONYM & SUMMARY

ARTIST

ARTIST explores the limits of computer miniaturization. One question that the researchers ask themselves is how we could process information with molecules? Much of the research is about bridging the world of molecules with that of microelectronics. The researchers work on solutions for optical and electrical addressing of molecules, efficient intermolecular communication and data storage. The efforts could lead to completely new nanoscale information processing technology such as future memory chips with super high capacity.

<http://www.artist.cemes.fr/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	1,999,248 €	02/2010	36 months

BION

BION develops technology for making molecular machines (functional assemblies) that perform learning and decision making tasks. Inspiration is taken from careful observations of neurobiology. Biology will serve as a guide for the fabrication of artificial and partially non-deterministic polymer networks with adaptive properties. The polymer network is made using molecular deposition and self assembly techniques in two and three dimensions.

<http://www.fp7-bion.eu/>

STREP	1,303,000 €	04/2008	36 months
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BISON

BISON examines creative and associative thought processes in an effort to develop software for discovering useful facts across boundaries of multiple information resources. Bison aims to bring about a paradigm shift in the way we learn and gain knowledge to help us build a better information society. The researchers examine massively connected networks with associations between pieces of content. They will use graph analysis and visual exploration tools to reach their goals.

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

STREP	1,815,997 €	06/2008	36 months
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BRAIN-I-NETS

BRAIN-I-NETS examines how the brain modifies itself during learning. The project sets out to find rules for synaptic plasticity and neural network reorganization that describe the adaptive processes of a learning brain. New experimental techniques in neurobiology (such as 2-photon laser-scanning microscopy, optogenetic cell activation, and dynamic clamp techniques) make it possible to record the changes that take place in the brain during learning. The goal is to use the new understanding of how the brain works in neuromorphic hardware.

<http://brain-i-nets.kip.uni-heidelberg.de/>

STREP	1,998,408 €	01/2010	36 months
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CADMAD

CADMAD's vision is to replace the labour-intensive DNA processing, carried out today by tens of thousands of skilled wet-lab workers around the world, by high-throughput computer-aided design and manufacturing of DNA which would be fundamentally more efficient than plain de novo DNA synthesis by effectively reusing existing DNA

TYPE	EC FUNDING	START DATE	DURATION
STREP	3,056,308 €	02/2011	36 months

CERCO

CerCo explores how to ensure that programs written in higher level languages can be compiled to machine code without making the underlying logic more complex. The project will construct a complexity preserving compiler from C to microcontroller assembly (of the kind traditionally used in embedded systems). The work involves the definition of cost models for the input and target languages, and the machine-checked proof of preservation of complexity (concrete, not asymptotic). The compiler will be open source, and all proofs will be public domain.

<http://cerco.cs.unibo.it/>

STREP	1,164,533 €	02/2010	36 months
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CG LEARNING

CG Learning addresses the challenge of higher dimensionality in computational geometry with novel algorithms and software packages. To lay the foundation of a new field (computational geometric learning) an approach integrating both theoretical and practical developments is being followed, the latter in the form of the construction of a high quality software library and application software.

<http://www.cglearning.eu>

STREP	2,444,728 €	11/2010	36 months
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CLONS

CLONS will develop circuits that connect to and stimulate neurons inside the ear to increase the quality of life for people with vestibular disorders. Two sensory neural prostheses will be developed and tested: CLONS₁ for restoring vestibular information by stimulating the semicircular canals and CLONS₂ for helping people affected by Ménière's Disease (experienced vertigo, dizziness and imbalance). Clinical trials will be carried out at the end of the project to assess the effectiveness of the CLONS demonstrators.

<http://www.clons-project.eu/>

STREP	3,329,699 €	01/2009	48 months
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COMPAS

COMPAS works on constructing a small scale quantum information processor. The researchers are trying a new approach to storing and manipulating data called continuous variables. This approach is a promising alternative to traditional quantum bit-based approaches. The project is broad and addresses all steps on the way to quantum processors. The work includes design of the physical implementation of non-Gaussian operations on light and atoms exploiting the measurement-induced or actual nonlinearities between light and atoms, the engineering of non-Gaussian photonic and atomic states, continuous variables computing with cat states, error correction, entanglement distillation, and quantum repeaters.

<http://www.compas-ict.eu/>

STREP	1,591,996 €	04/2008	36 months
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CONNECT

CONNECT will make maps of how neurons are connected in the brain. These atlases of the brain's connectivity will show maps of brains from different ages. The work will serve as a long-lasting reference for the neuroscience and medical community. In the last two decades there have been impressive advances in understanding brain functions using new neuroimaging methods. However to understand brain function it is also important to characterize its structure and connections. By developing new methods for characterizing micro-structural tissue properties and macro-structural connectivity, the goal is to use refined scanning techniques based on diffusion MRI instead of making biopsies. The team thinks of this as virtual biopsy.

<http://connect-forever.eu/presentation.html>

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,402,067 €	12/2009	24 months

COQUIT

COQUIT could make quantum computers a reality. A key idea is to work with many quantum particles at once (cold atoms in optical lattices or other multi-atom ensembles, which can be manipulated collectively but not individually). Earlier work has concentrated on information processing with single particles. Working with many particles could be more practical and allow us to tap into the power of quantum computers at an unprecedented level.

<http://coquit.isi.it/COQUITWiki>

STREP	1,155,000 €	05/2009	24 months
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CORNER

CORNER tackles noise (disturbances) in quantum information processing systems. Being able to handle quantum noise will be crucial for implementing large scale, fast quantum communications and processors. The project has three components: I. Development of a general theory of memory channels. II. Study of concrete noisy channel models and their capacities. III. Experimental proof-of-principle realizations of communication in the presence of memory effects both for classical and quantum information for public and private use of the channel.

<http://corner.fizyka.umk.pl/?site=22>

STREP	2,086,997 €	07/2008	36 months
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CROSS TRAP

CROSS TRAP works on optical sensing of chemicals in the air. The work could lead to radically improved detection of pollutants such as biochemicals, bacterial threats and explosive materials. The researchers use so called vibrational Raman spectral signatures – a laser based technique. The core idea is to enable a free-space scheme for coherent anti-Stokes Raman scattering (CARS) in the direction exactly reversed with respect to an outgoing laser excitation, so that the probe beam can be arbitrarily pointed in any unobstructed direction and an enhanced backward propagating signal detected at the laser source using a LIDAR-type apparatus. The radical advantage, as compared to incoherent light probing techniques, lies in coherent enhancement, which implies that light fields are phase-matched, so that the signal propagation is confined to a narrow solid angle and the signal magnitude scales quadratically with interaction length and the concentration of the resonantly vibrationally excited molecules.

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

STREP	2,227,529 €	02/2010	36 months
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CROWN

CROWN pushes wireless communications limits to see just how fast data can be transmitted. Europe is undergoing a data communications revolution facilitated by advances such as wireless internet. Recent studies have indicated that many licensed frequency bands remain unused up to 90% of the time. To maximize network throughput, regulation authorities recently allowed dynamic spectrum use. In light of this, CROWN uses cognitive radio techniques to solve problems of 1) distributed interference awareness and 2) communicating over as many as possible concurrent channels in the same communication spectrum with a minimal mutual interference, enabled by smart antenna systems.

<http://www.cs.qub.ac.uk/fp7-crown/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,190,134 €	05/2009	36 months

CURVACE

CURVACE experiments with artificial, insect-like, compound eyes - a new and radical approach to digital imagery and computer vision. Imagine digital cameras with a much larger field of view and a clearer picture in a package weighing less. CURVACE could help make such cameras a reality by developing artificial eyes with many lenses. These artificial eyes could be arranged on curved and flexible surfaces. They could be integrated with adaptive photoreceptors and processed by neuromorphic vision filters. They would also be able to rapidly extract motion-related information. Curved versions of the artificial compound eyes will offer space within the convexity for embedding processing units, battery, or rate gyroscopes useful for motion-related computations.

<http://www.curvace.net/>

STREP	2,090,085 €	10/2009	41 months
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DATA SIM

DATA SIM aims to develop a novel integrated simulation environment to study the electrification of road transport and human activity patterns, using innovative ideas and new technologies for agent-based simulation, high-performance data mining and social and complex network analyses. The goal is to take into account the interactions that will arise between mobility and the power distribution network as a result of the massive demand generated by the introduction of Electric Vehicles.

STREP	Under negotiation		
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DYNANETS

DYNANETS studies complex networks that reproduce the way nature processes information. The research is on the underlying processes of nature, economy, and society and could lead to a new computing paradigm. One challenge is to investigate the dynamics of the HIV and influenza epidemics from molecules all the way up to the human population. The team hopes to facilitate prediction, prevention, and taking optimal measures such as optimal drug administration in combating the virus.

<http://www.dynanets.org/>

STREP	2,761,296 €	06/2009	36 months
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ECCELL

ECCELL will develop the first programmable artificial cell. Imagine a future in which computing is done with cells that work like biological ones. We can think of biological cells as information processing computers when they replicate, interact with the environment and use resources. Could we build artificial cells with this information processing power? The artificial cells that ECCELL envisions combine self-replication, self-containment and self-regulation of resources (metabolism). Will these be able to process information? Will they qualify as alive? The research aims to establish artificial cellular computing as a new programming paradigm.

<http://homepage.ruhr-uni-bochum.de/john.mccaskill/ECCell/>

STREP	1,999,999 €	09/2008	36 months
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EFLUX

EFLUX builds electronics that can reproduce itself like living matter. The project is inspired by evolutionary biology and builds on ideas from microfluidics. Microfluidics is the field that studies very small amounts of liquids and how they behave at the microscale. Some of the aims are: (1) To develop IT-controlled microfluidics for the manipulation of artificial and natural cells. (2) To demonstrate by experiments how bio-complexity can increase by evolutionary modification. (3) To better understand the principles of information and evolution in natural and artificial bio (mimetic) IT systems (4) Build an “evolution machine” by the development of a (semi-) automated serial-transfer protocol using micro- or mini-fluidics.

<http://www.parmenides-foundation.org/research/projects/e-flux/project-summary/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,300,000 €	02/2009	36 months

EVERYWARE

EVERYWARE aims at enhancing the environmental awareness of the population using current ICT tools to collect data coming from both sensors and subjective human opinions, in order to analyse and synthesize it. The results of the data analysis, presented in real-time to users and institutions, could trigger a positive change in the behaviour of individuals.

STREP	2,066,245 €	02/2011	36 months
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FEMTOBLUE

FEMTOBLUE works on a new laser with extremely fast pulsing. One possible application of this laser is quantum communication. The consortium aims to create a technological base for laser diode devices producing femtosecond (10⁻¹⁵ seconds or one quadrillionth of a second) optical pulses in the blue and violet spectral range. FEMTOBLUE is set on laying the foundation for portable femtosecond lasers to support developments in the fields of ultra-fast optical spectroscopy, high-resolution lithography, quantum optics, optical comb frequency standards, fluorescence decay analysis and biomedical diagnostics.

<http://femtoblue.epfl.ch/>

STREP	1,998,751 €	09/2009	36 months
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FOC

FOC is an interdisciplinary consortium of computer scientists, physicists, economists and policy makers which deals with the problem of understanding and forecasting systemic risk and global financial instabilities based on novel modelling and data analysis techniques. Thanks to FOC II, Experts will be able to evaluate algorithms and models to forecast financial crises as well as visualise interactively possible future scenarios.

<http://www.focproject.net/>

STREP	1,888,909 €	09/2010	36 months
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FORMATH

FORMATH changes how mathematicians exploit computer-based calculations for research. A key idea is to make formal proof verification available to new areas. Mathematics is playing a crucial role in the design of sophisticated systems that are used daily in geometrical modeling, robotics, etc. This use of mathematics will increase, making correctness and reliable specification even more important. The research work involves developing libraries of formalized mathematics: linear algebra, real number computation, and algebraic topology.

<http://wiki.portal.chalmers.se/cse/pmwiki.php/ForMath/ForMath>

STREP	1,811,426 €	03/2010	36 months
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FOX

FOX seeks safe and efficient processing foundations for internet data. Having all the information in the world does not solve any problems without intelligent access to available data. The goal is to establish a model of web-based XML data for content, structure, distribution, evolution, and incompleteness. The consortium is set on understanding the dynamic and data-oriented features of the web, and developing algorithms for organizing, transforming, and querying web content.

<http://fox7.eu/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,032,888 €	05/2009	36 months

GEOMDISS

GEOMDISS approaches quantum information processing technologies by investigating environmental disturbances. The team wants to see under what conditions of change functioning can be maintained. More specifically, this involves analyzing how dissipation (irreversible loss of energy) influences the geometric phases and geometric pumping in quantum solid-state devices. The project is attempting to understand how the geometric effects are modified and whether they are still useful.

<http://www.tkm.uni-karlsruhe.de/~shnirman/GEOMDISS/>

STREP	2,045,034 €	09/2009	36 months
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GOSPEL

GOSPEL redefines the meaning of photonics. The researchers are examining how to change the speed of light within media of photonic devices. Speed control will make it possible to construct an important and useful time delay/phase shift for broadband ICT systems. Such a time delay/phase shift could lead to more reliable broadband solutions. The research will make advances in semiconductor physics, quantum dots, photonic crystal design as well as fiber technology. It will represent a significant advancement across many sectors of ICT.

<http://www.gospel-project.eu/Web/index.php>

STREP	2,193,076 €	09/2008	36 months
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HIATUS

HIATUS Advance communication techniques enabled by the massive increases in processing power over the last few decades have enabled a progressive rise in the link spectral efficiency. This seems to be approaching its limits. The emerging approach of Interference Alignment (IA) has cast new light on the spectral efficiency prospects of wireless networks it allows for more parallel transmissions to take place within the same spectrum.

STREP	2,645,846 €	03/2011	36 months
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HIDEAS

HIDEAS works on high capacity quantum communication technology. The researchers explore quantum communication and information representation with many possible photon properties. Light can play a fundamental role as the natural carrier of information over large distances and between logic elements within a processor, and exploring photonic properties could be the key to successful quantum broadband and information processing technology.

<http://hideas.dfm.uninsubria.it/>

STREP	2,000,000 €	10/2008	36 months
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HIP

HIP combines photons and atoms for quantum information processing. This radical approach is geared to producing experimental atom-photon integrated devices. The main efforts are dedicated to theoretical study and experimental realization of integrated atom chips. The researchers hope to use these chips for optimized conversions between atomic and photonic qubits and storage of quantum information. A foreseen advantage is the controllability of the process against noise, imperfections and decoherence.

<http://www.dmi.unisa.it/HIP/about.htm>

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,009,000 €	11/2008	36 months

HIVE

HIVE probes the limits of non-invasive computer-to-brain interfaces. One of the goals is to try to produce perceptions through stimulating the brain. What would it be like to have these perceptions? Will it someday be possible to watch movies through directly stimulating the brain? In the next 50 years we will witness the coming of age of technologies for fluent brain-computer and computer-mediated brain-to-brain interaction. While recent research has delivered breakthroughs in brain-to-computer transmission, little has been achieved in the other direction – computer-controlled brain stimulation. HIVE is a 3-year project which will research new electromagnetic non-invasive stimulation paradigms to design and implement more powerful and controllable brain stimulation technologies. Based on electromagnetic modeling and experimentation using EEG and fMRI and single site stimulation, the project will develop advanced multi-site transcranial current stimulation targeting different applications and implementing real time monitoring.

<http://hive-eu.org/>

STREP	2,299,998 €	09/2008	48 months
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ICTECOLLECTIVE

ICTECOLLECTIVE investigates societal change as new forms of communication appear. The research will model ICT as entangled with social structures. Individuals, society, and ICT are deeply intertwined in a dynamic feedback process, where individuals adopt new communication channels to form and join groups that change in identity and size, and restructure the whole society. A fundamental challenge is to gain useful understanding of driving forces and mechanisms of social ICT. The interdisciplinary project team aims to produce results that can be used to inform policy-making and industry.

<http://www.becs.tkk.fi/ictcollective/>

STREP	1,948,464 €	10/2009	36 months
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ILHAIRE

ILHAIRE lays the foundations for multimodal, multicultural laughter-enabled man-machine interactions. It aims to create a multicultural and multimodal database of laughter, annotated with meta-data on the triggering conditions, and perceptual interpretations, and classifications of laughs depending on their types and meaning. It also aims to create generative models of laughter and characterise temporal features of laughter and of the relationship between multimodal signals (e.g. breathing and inhalation; motion of thorax). A system capable of laughing in real interactive situations will be developed and used to investigate when to trigger machine laughter in human-machine dialogues.

STREP	Under negotiation		
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IQIT

IQIT develops novel routes towards scaling up physical devices for quantum information science (QIS) by integrating successful solid-state and atom-optical devices. This proposed scheme simultaneously exploits superconducting qubits for fast and scalable computational tasks, and trapped ions for storage and processing of information with long coherence times. The long-term vision is an integrated scalable device for QIS.

STREP	Under negotiation		
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ISENSE

ISENSE takes cold atom sensor ICT to commercially exploitable levels. The ISENSE team work on a science and technology platform for commercial development of cold atom devices. Instead of spending years to set up a lab for working with cold atoms, researchers and developers could use this platform. The long term vision is a modular, scalable and portable quantum technology family based on cold atoms, adaptable to a wide variety of applications.

<http://www.isense-gravimeter.com/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,451,999 €	07/2010	48 months

LIFT

LIFT is building large-scale distributed data-stream analysis systems. The key inside is that, for a wide range of distributed data analysis tasks, it is possible to employ novel geometric techniques for intelligently decomposing complex holistic conditions into local constraints. LIFT investigates real-life scenarios from network health monitoring, large-scale analysis of human mobility and traffic phenomena, internet-scale distributed querying, and monitoring sensor networks.

<http://www.lift-project.eu/homepage.asp>

STREP	1,891,268 €	10/2010	36 months
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LIQUIDPUB

LIQUIDPUB envisions a new breed of evolutionary, collaborative and dynamic publications. How could ICT enable a transition from the traditional scientific paper – a knowledge crystallization in time – to a liquid publication? The work builds on lessons from the social web (facebook, myspace, twitter and others) to provide a paradigm shift in how scientific knowledge is created, evaluated and maintained. The research could transform scientific research communities and the world around them, including publishers who, in a liquid world, develop new services and business models.

<http://project.liquidpub.org/>

STREP	1,769,628 €	05/2008	36 months
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LISTA

LISTA develops spoken language technologies based on human communication strategies. Current speech technologies lack an essential element of human interaction – the ability to listen while talking. By listening while talking, speakers can indicate understanding, agreement and a range of other signals that make natural dialogues fluid and dynamic. The LISTA team will capture such listening strategies for use in artificial and live speech. LISTA can have impact on all situations where synthetic speech is embedded in devices such as computers, PDAs, phones and information kiosks. The ability to increase intelligibility has an immediate value, not only in terms of message comprehension but also in reducing time-of-interaction, noise pollution and exposure.

<http://listening-talker.org/>

STREP	1,791,000 €	05/2010	36 months
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MALICIA

MALICIA aims at the creation of robust and scalable quantum interfaces between different platforms for the implementation of Quantum Technologies to much further towards technologically scalable quantum devices. The aim is to realize quantum devices and interfaces based on Rydberg blockaded gases, quantum gases, and room temperature gases in micro-fabricated structures as well as the full theoretical framework for their description.

STREP	2,259,860 €	02/2011	36 months
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MIDAS

MIDAS lays foundations for a quantum-technological base. Quantum physics has been fundamental to our understanding of nature and central to physics research for 80 years. Yet, only recently have we begun to grasp its potential for technological applications. MIDAS' response to the challenge of expanding the range of quantum technologies is to capitalize on analogies that have emerged between two classes of quantum systems with potentially fascinating applications: ultracold atom degenerate gases and solid-state superconductors. These analogies stem from the notion of macroscopic quantum-coherent transport known as Josephson supercurrent, common to both fields.

<http://www.weizmann.ac.il/chemphys/gershon/midas/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,137,731 €	04/2008	41 months

MINOS

MINOS develops devices where light rays interact with mechanical components. For this to work, the mechanical components must be manufactured at near nanoscale. Downsizing mechanics to micro- and nanomechanical systems means entering a world where mechanical properties can directly be manipulated by light and vice versa.

<http://www.minos-fp7.eu/>

STREP	2,267,412 €	10/2008	36 months
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MOLSPINQIP

MolSPINQIP engineers molecules and designs computational schemes demonstrating that molecular spin clusters are viable components for quantum information processing architectures. Background: in the last fifteen years work in molecular magnetism have demonstrated that some molecules are promising candidates for storing magnetic information at nanometer scale. Work in supramolecular chemistry allows engineering scalable molecular aggregates. A challenge is to exploit the spin dynamics of molecular magnets in order to implement quantum algorithms. MolSpinQIP puts these concepts together on a realistic path to quantum information processing.

<http://www.molspinqip.org/>

STREP	2,007,999 €	04/2008	36 months
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NAME-QUAM

NAME-QUAM investigates ultracold atoms technology for quantum information processing. The work involves research on atoms/molecules confined in periodic (repeating) nanostructures. Investigations of multi-particle entanglement, topological (spatial) structures and nano-optical engineering may lead to new directions and alternative approaches to scalable and miniaturizable quantum information processing.

<http://namequam.df.unipi.it/index.html>

STREP	2,440,755 €	01/2009	39 months
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NEXTMUSE

NEXTMUSE develops an immersive simulation technology. It is going to be robust and accurate enough to deal with the most challenging simulations. Scenarios involving complex unsteady phenomena (air entrapment, jets and sprays, formation of vapor bubbles, erosion, fluid-structure interactions, etc.) are envisioned. Concrete examples include the survivability of a damaged ship in steep waves, a full multi-nozzle Pelton turbine, and a prosthetic heart valve implanted in the human circulatory system. The technology will be transparent to the users who can develop competitive technologies for applications such as transport, energy, and healthcare.

<http://nextmuse.cscs.ch/>

STREP	1,800,100 €	04/2009	36 months
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NIW

NIW investigates haptic and auditory feedback in floor-based interfaces and applications. One example are shoes that give you a sensation of walking on snow. If you wear them you will feel as if you are walking on snow even though you are walking indoors. As you walk, the shoes make crackling noises and vibrate to accomplish this illusion. NIW will also expose walkers to interactive virtual scenes with sensors, haptic feedback and sound. Vision will play an integrative role. The project will study the ecology of their interactive scenarios, investigating also perceptual processes.

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

TYPE	EC FUNDING	START DATE	DURATION
STREP	1,174,382 €	10/2008	36 months

OPPORTUNITY

OPPORTUNITY develops mobile systems for recognizing human activity. The team thinks of them as opportunistic – they take advantage of sensing possibilities that happen to be available, rather than relying on specific, application dependent sensor systems. The work is grounded in collectively ambient intelligence. The vision of ambient intelligence is that of a pervasive and transparent technology that naturally provides appropriate information, assistance and support at the right moments. The key is recognizing user activities and contexts from body-worn and ambient sensor-enabled devices, and inferring when, how, and through which modality to support the user.

<http://www.opportunity-project.eu/>

STREP	1,508,768 €	02/2009	36 months
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OPTONEURO

OPTONEURO is working on a technology that could, amongst other things, give limited visual perception to the blind. The work is on producing light sensitive neurons through genetic engineering. The researchers also aim to develop an array of ultra bright electronically controlled microLEDs for neural stimulation. The project is working towards the construction of a neuroprosthetics that can stimulate thousands of neurons in the retina known as ganglion cells. These cells normally support the light sensitive cells (rods and cones). The researchers are hoping that the stimulation of the ganglion cells will allow for a new kind of visual perception as they are connected through the optic nerve to the brain's visual areas. What would this kind of seeing be like? Could it provide blind people with the ability to navigate and walk around without relying on sound or touch?

<http://www.optoneuro.eu/index.htm>

STREP	2,190,000 €	10/2010	36 months
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PD-NET

PD-NET works on large scale networks of pervasive public displays and associated sensors that are open to applications and content from many sources. The internet with mechanisms for communication between computers on different networks is a robust, scalable, distributed and open platform that transformed our lives with applications such as email, the web, e-commerce and social networking. Researchers in PD-NET has in mind an analogous breakthrough with the creation of the display equivalent of Internet mechanisms – addressing the scientific challenges necessary to create a robust, secure, scalable, distributed and open platform that enables the formation of large-scale networks of interactive displays and associated sensors.

<http://pd-net.org/about/>

STREP	1,446,029 €	05/2010	29 months
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PHOCUS

PHOCUS works on a brain inspired photonics realization of a liquid state machine (like a neural network). Could understanding how the brain processes information help us build better photonic systems with dramatically enhanced information processing power? The team has identified delay-coupled optical systems as ideal candidates for their liquid state machines. Using dynamical systems with time delay (to realize adequate dimensionality for liquid state machines) will give high computational performance with only a small number of photonics components.

<http://ifisc.uib-csic.es/phocus/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	1,808,566 €	01/2010	36 months

PHOME

PHOME will develop photonic metamaterials for manipulating electromagnetic waves. Metamaterials are composed of sub-wavelength metallic building blocks. Photonic metamaterials are interesting as they could be integrated into current optical technologies. Such integration could lead to revolutionary applications with unique information processing capabilities. The PHOME team investigates photonic metamaterials from novel design/fabrication to fundamental physics and devices. The project could have deep impact on optical technologies, such as nanophotonics, optical communications, optical imaging and optical circuitry.

<http://esperia.iesl.forth.gr/~ppm/PHOME/>

STREP	1,431,480 €	06/2008	36 months
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PHORBITECH

PHORBITECH is working on the development of an optical toolbox of highly innovative optical components and devices for the full control of orbital angular momentum, including its generation, manipulation, transmission and detection. The results will have future applications in quantum information technology, high density optical data storage, and materials probing.

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

STREP	2,087,100 €	10/2010	36 months
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PICC

PICC works on controlling quantum systems with increasing size and complexity to realize new information processing technologies. PICC will develop strategies for implementing quantum dynamics of Coulomb crystals (magnetically trapped laser-cooled ions) and explore the capability of them as quantum simulators. The targeted breakthrough is a ten fold increase in the number of entangled ions available for quantum operations.

<http://qphys.uni-saarland.de/index.php/picc>

STREP	2,298,999 €	06/2010	36 months
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QCS

QCS proposes systematic methods for finding new quantum algorithms in a strong interdisciplinary collaboration between computer scientists and physicists. It will provide a new model of computation that is both physically feasible and more powerful than conventional computing. Computer science is used to solve problems in quantum information science and the ideas from quantum information, while physics can solve problems in classical computer science.

STREP	1,679,870 €	09/2010	36 months
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QNEMS

QNEMS starts with the idea that quantum mechanics defines the ultimate limits of nanoelectromechanical based sensors, to envision a new breed of sensors: Quantum mechanical nanoelectromechanical system devices (QNEMS). Such QNEMS will be radically different from conventional sensors as the integration of mechanical elements on the nanometer scale allows for super sensitive detection. The project will also demonstrate how QNEMS allows for quantum manipulation with mechanical objects and potential quantum information processing applications.

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

TYPE	EC FUNDING	START DATE	DURATION
STREP	2,449,218 €	09/2009	36 months

QUANTIP

QUANTIP develops tools, components and concepts for future large-scale, integrated quantum photonic circuits. Such circuits could in turn be used for constructing quantum information processing systems. QUANTIP will develop discrete quantum photonic components to form proof-of-principle demonstrators where the major components are integrated on a single chip. The team aims to establish a new research direction in Europe for quantum information science using this technology platform.

<http://qurope.eu/projects/quantip>

STREP	2,159,187 €	02/2010	36 months
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QUEVADIS

QUEVADIS tries to achieve quantum information processing by capitalizing on what has been seen as its prime obstacles: dissipation or decoherence. Dissipation and decoherence are environmental disturbances to quantum systems. The starting point is a remarkable result showing that if quantum system-environment interaction is engineered in certain ways, then quantum computation can be achieved simply by letting the system decohere.

<http://www.quevadis.at/home/>

STREP	1,000,000 €	06/2009	36 months
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RAMPLAS

RAMPLAS aims to utilise light as a new means of information storage in order to enable high-speed memory technologies and to develop a range of silicon-integrated optical RAM chips capable of operating at 100Gb/s and to exploit these chips to demonstrate a series of functional, ultra-fast all-optical circuits, including a random sequence generator, a Content Addressable Memory system, a routing look-up table, and a scheduler for 100Gb/s small-size data packets.

STREP	Under negotiation		
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REWIND

With the rapid proliferation of inexpensive acquisition and storage devices multimedia objects can be easily created, stored, transmitted, modified and tampered with by anyone. Rather than aiming at the prevention of artefacts introduced by these processes, the proposal aims to develop innovative tools to reverse this perspective and use the characteristic footprints left by such processes as a source of information about the history of the object, which can be leveraged to reconstruct the processing chain applied to it.

STREP	Under negotiation		
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ROOTHZ

ROOTHz works on terahertz technology, an emerging field with many potential ICT applications. The terahertz range is an intermediate range of wavelengths which will open a new area of phononic and electronic systems. The researchers hope to demonstrate the feasibility of room temperature terahertz systems to be used in telecommunications, health, security and aeronautics applications.

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

TYPE	EC FUNDING	START DATE	DURATION
STREP	1,567,109 €	01/2010	36 months

SCENIC

SCENIC looks to the environment as an asset in sound processing applications. While the environment is usually seen as a liability, the team believes that it should be seen as an asset – a source of additional information. Turning the acoustic response from a liability into an asset requires listening to how the environment renders controlled sound emissions, as long as such emission exhibits a temporal as well as a spatial structure. Nature has taught us that information provided by environmental acoustic interaction can enable for example complex navigational tasks. SCENIC builds acoustic systems that are aware of their own as well as their environmental characteristics. Advanced space-time processing solutions take advantage of the additional information provided by the environment's acoustic response.

<http://www-dsp.elet.polimi.it/isp/SCENIC/>

STREP	1,559,461 €	01/2009	36 months
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SCOPE

SCOPE tackles fundamental quantum ICT challenges. The researchers capitalize on the recent advances made in the field of superconducting qubits, applying them toward a new type of quantum ICT which they call Single Cooper Pair Electronics (SCOPE). Building on the recent advances in superconducting quantum bit circuits, SCOPE will model, design, fabricate and measure a specific set of quantum circuits which probe the little-explored regime of equally strong Josephson and charging energies, yet well isolated from dissipation so as to achieve strong quantum behavior of the phase or charge.

<http://www.nanophys.kth.se/nanophys/collaborations/SCOPE/>

STREP	1,995,209 €	10/2008	36 months
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SEMSEG

SemSeg works on scientific visualization of complex flows of gases and liquids. The work has many potential applications such as building aerodynamic cars, weather forecasting, blood flow analysis and understanding indoor fire scenarios. Scientific visualization has provided a variety of techniques for experts to visually analyze large and complex flow data sets. Among them, so called vector topology based methods have been important. The researchers try a new approach with the elegance and specificity of vector field topology, but which is more accurate for unsteady flows.

<http://www.semseg.org/>

STREP	1,260,631 €	06/2009	36 months
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SE2ND

SE2ND aims to develop a highly efficient and continuous source of spatially separated spin-entangled electron pairs by combining high-quality low-dimensional materials (semiconducting nanowires and carbon nanotubes) with nanostructured superconducting and ferromagnetic materials, thus creating hybrid nanodevices.

STREP	Under negotiation		
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SIEMPRE

SIEMPRE aims at developing frameworks, computational methods and algorithms for the analysis of creative small social group dynamics. A key challenge is to understand emotional synchronization in human cooperation. The work includes exploring cooperation in musical performances between quartet musicians. The team will extract social features based on the analysis of synchronization processes underlying expressive movements, audio and biometric signals during interpersonal creative communication.

<http://www.infomus.org/siempre/>

TYPE	EC FUNDING	START DATE	DURATION
STREP	1,991,000 €	05/2010	36 months

SIMBAD

SIMBAD develops computational methods for self improving artificial systems that learn from examples. The orthodox view of machine learning is based on so called feature detection. This means that the system learns by analyzing features detected in input data. The data can for example be visual and the task be that of recognizing human faces. However, in many applications a feasible feature-based description of objects might be difficult to obtain or inefficient. In these cases we need an approach that breaks with orthodoxy. The answer from SIMBAD is to work on measures of (dis)similarity of the objects to be classified, to make the problem more viable.

<http://simbad-fp7.eu/>

STREP	1,647,980 €	04/2008	36 months
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STAMINA

STAMINA uses statistical physics techniques to build a systematic framework for energy efficient network control and optimization. The network will consist of computationally simple and distributed algorithms that achieve optimal resource utilization even in regimes where other methods fail.

STREP	2,004,239 €	01/2011	36 months
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SMALL

SMALL pioneers a new model of something at the core of our digital world – signal processing. The approach is based on sparse representations – models for representing information at the heart of modern digital coding standards (JPEG, MPEG, and MP3). The principle is to describe data as a combination of a few prototype signals (atoms) selected from a dictionary. The use of a good signal dictionary is a key. However, choosing a dictionary to model data is an art, using expert knowledge and experience rather than effective procedures. The SMALL project works out rational methods and tools for dictionary design. Using these methods and tools, the project could help us to tackle our current information explosion by allowing for remarkably efficient processing of very large and complicated data sets.

<http://small-project.eu/>

STREP	1,919,167 €	02/2009	36 months
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STELE

STELE builds nanoscale electronics. The heat generated is a fundamental obstacle for nanosizing electronics. But, STELE turns the problem around. The idea is to use controlled local heating of nanocircuits to enable new information processing functionality. Emphasis will be put on investigating and technologically evaluating the interplay of spin, charge, and heat in magnetic structures.

<http://spin.nanophys.kth.se/STELE/>

STREP	1,741,000 €	01/2009	36 months
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SUMO

SUMO is working on a next generation of climate models. This is achieved by consensus formation among models in a connectionist framework for fusing different models of the Earth's climate system which give different predictions regarding the details of climate change. The super-modelling concept has the potential to provide improved estimates of global and regional climate change, so as to motivate and inform policy decisions. The approach is applicable in other situations where a small number of alternative models exist of the same real-world complex system, as in economy, ecology or biology.

TYPE	EC FUNDING	START DATE	DURATION
STREP	1,402,881 €	10/2010	36 months

TAILPHOX

TAILPHOX explores the possibilities of using light (photons) and sound (phonons) for information processing. The team will work on design and implementation of silicon crystal structures for controlling photonic and phononic waves. By merging photonics and phononics within the same platform, novel unprecedented control of light and sound in very small regions will be achieved. The goal is to bring optical devices to a new level of information processing performance.

<http://www.tailphox.org/>

STREP	2,111,088 €	05/2009	36 months
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TANGO

TANGO envisions new social forms of human-computer interaction using virtual humans. These characters are to be endowed with both social skills and emotional engagement. The focus is on adopting features from bodily interaction (body language) and affect in real life to realistic virtual settings. The research includes work in affective neuroscience to develop and validate theoretical models of social, emotional and non-verbal interaction. The team aims to lay the foundations for a new generation of affective ICT where social interaction is key.

<http://spitswww.uvt.nl/tango/index.html>

STREP	2,784,999 €	04/2010	36 months
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TREASURE

TREASURE develops room temperature terahertz (THz) technology suitable for future sensors, communications and many other applications. Terahertz radiation has several interesting features. One of them is that it does not seem to be harmful to humans and could be used for new forms of medical imaging. The project will demonstrate a radically new continuous-wave, electrically pumped emitter. This THz emitter combines features that are not simultaneously available in any existing source: compact size, room-temperature operation, output power above 1 μ W, custom emission frequency from 2.4 to 6 THz, spectral purity, feasibility of multispectral array of emitters, and coherent detection schemes.

<http://www.treasure-project.eu/>

STREP	1,706,000 €	05/2010	36 months
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UNIQUE

UNIQUE seeks to solve the serious problem of counterfeiting, reverse engineering, cloning and tampering with integrated circuits. These problems are at the core of modern electronics products and IT systems. The project tackles them through an innovative combination of hardware-based cryptography and security components, architectures, protocols, algorithms along with design and evaluation principles. The proposed methodologies and tools will support development of new counterfeit-resistant products in a variety of areas such as consumer electronics, and the automotive, avionic and pharmaceutical industries.

<http://www.unique-security.eu/>

STREP	2,954,221 €	09/2009	36 months
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UNITRIDE

UNITRIDE designs microelectronics technology for high-performance photonic devices operating in the near infrared spectrum. The plan is to use nitride semiconductors to engineer electronic quantum confinement (a way of restricting and focusing photon travel) at the nanometer scale to realize unipolar devices relying on intersubband (ISB) transitions. The proposal will have significant impact on broadband communications and sensor applications.

<http://pages.ief.u-psud.fr/unitride/Unitride/Welcome.html>

TYPE	EC FUNDING	START DATE	DURATION
STREP	1,408,076 €	05/2009	36 months

UNIOLOCX

UNIOLOCX is developing a framework for constructing problem-adapted, ultra-efficient algorithms for (de-)coding and analysing/synthesizing signals/images and apply them to complex applications in life sciences and precise audio signal processing which presently cannot be solved appropriately with existing algorithms on existing computers.

STREP	1,958,971 €	09/2010	36 months
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2D-NANOLATTICES

2D-NANOLATTICES Graphite-like 2D nanolattices with enhanced anisotropic electronic properties are important for future nanoelectronic devices. Studies of graphene, the most well-known of these materials, have overshadowed research on other potential materials with totally unexplored physical properties. This proposal aims to find ways to induce and stabilise other potential lattice materials, silicene (Si) and germanene (Ge), to investigate their suitability as gate insulators which are necessary for charge and current control in the 2D semiconductors.

STREP	Under negotiation		
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2. FET Open coordination and support actions

PROJECT ACRONYM & SUMMARY

ETOILECASCADIDESIDEAS

EtoileCascadesIdeas is a pioneering initiative to develop and test techniques for scalable self-organizing education in the context of the web. It aims to help the coordination and support of research in emerging areas of science and technology where training new students and experts is especially difficult.

TYPE	EC FUNDING	START DATE	DURATION
CSA	599,480 €	02/2011	36 months

GSD

GSD takes on global and dynamic societal challenges – climate change, sustainable cities, social problems, energy security and the spread of diseases. These challenges involve resources which no single group in society controls, but which affect all people. Our global systems are changing rapidly and issues such as the prediction and confirmation of anthropogenic climate change and the appearance and widespread diffusion of HIV have come as a shock. There is a need for establishing an efficient and accessible network for scientists and policymakers who are collaborating on our global challenges. GSD initiates such a network and reviews how complex systems analysis can be applied to policy decisions.

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

CSA	617,000 €	05/2008	26 months
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GSDP

GSDP gathers support for a key challenge of the emerging Information age: to effectively use the wealth of information. On the one hand, the appropriate use of available information volumes offers large potential to realize technological progress and business success. On the other hand, there exists the severe danger that users and analysts easily get lost in irrelevant, or inappropriately processed or presented information. The coordination action seeks to tackle these challenges by stimulating research in visual analytics, an emerging research discipline developing technology to make the best possible use of large information loads in a wide variety of settings. GSDP is working on developing a research program for the study of global systems in an on-going dialogue with decision makers. GSDP will operate as an open network evolving through workshops, working papers, publications, and open conferences. It will consolidate an international community of researchers engaged in dialogues with decision-makers, and will generate a variety of research and consultancy projects in Europe and elsewhere.

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

CSA	1,315,000 €	10/2010	36 months
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INSITE

INSITE aims to build a research community around the multi-disciplinary exploration of ICT innovation considered in a very broad sense. It aims to give European society better insight into the nature of the ICT innovation process, which often leads to unintended consequences.

CSA	963,172 €	03/2011	36 months
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MODAP

MODAP works towards increased awareness of the risks and opportunities presented by location data. Location and movements of people can be tracked in many ways. For example your cell phone informs your phone company about your movements and banks have logs of the location of your credit card transactions. With exploding use of GPS enabled devices and other positioning systems, mobility data of individuals can be captured in new ways. One scenario is that a car insurance company decides to issue policies with respect to driving behavior captured through GPS devices. Your vacation photos may also contain GPS coordinates. With the realization of the future internet, more mobility data sources will be enabled which will flood data warehouses with geo-referenced mobility.

<http://www.modap.org/>

TYPE	EC FUNDING	START DATE	DURATION
CSA	975,266 €	09/2009	36 months

SINTELNET

SINTELNET aims to support activities to foster the interplay of ICT and philosophy, humanities, and social sciences. For this purpose, a number of working groups will be installed. The actions consist in conferences, workshops, exchange of researchers and web site.

CSA	Under negotiation		
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TINA

TINA applies new tools from scientometrics, network analysis and information visualization to portfolio analysis of proposals and science monitoring. Science managers are facing a real challenge when coping with the increasingly changing nature of science. First the millions of papers published every year makes it impossible for anybody to have an exhaustive knowledge of all the important breakthroughs in every field. Second, science frontiers are changing faster and getting blurred as fields and sub-fields are cross-fertilizing, growing or dying. The tools developed will help to identify emerging research trends and provide useful overviews.

<http://tina.csregistry.org/tiki-index.php>

CSA	330,000 €	10/2009	17 months
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VISMASTER

VISMASTER gathers support for a key challenge of the emerging Information age: to effectively use the wealth of information. On the one hand, the appropriate use of available information volumes offers large potential to realize technological progress and business success. On the other hand, there exists the severe danger that users and analysts easily get lost in irrelevant, or inappropriately processed or presented information. The coordination action seeks to tackle these challenges by stimulating research in visual analytics, an emerging research discipline developing technology to make the best possible use of large information loads in a wide variety of settings. The basic idea is to combine the strengths of intelligent automatic data analysis with the visual perception and analysis capabilities of the human user.

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

CSA	535,303 €	08/2008	24 months
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3. FET in numbers

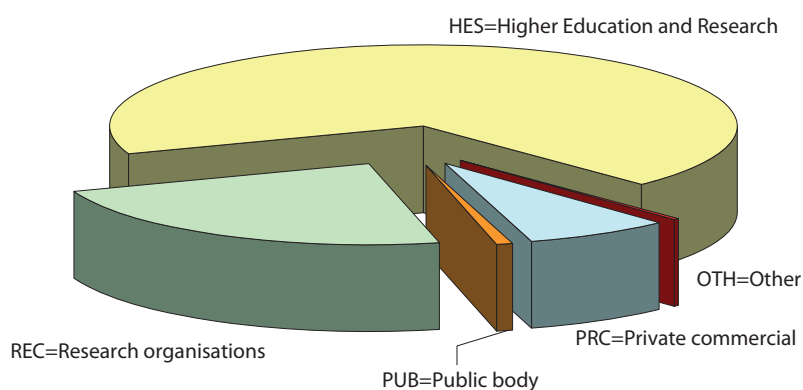
Number of FET projects by type and total funding

	IP	STREP	CSA	EC FUNDING
FP7 Fet Proactive *	23	39	19	230 €
FP7 Fet Open **	-----	68 (75)	7 (8)	140 €
Total	23	107 (114)	26 (27)	370 €

* FP7 Call 1-6 included

** figures in brackets include 7 STREP and 1 CSA projects currently under negotiation

Organisation type in FET FP7 funded projects (by number of participants)



■ HES=Higher Education and Research	824
■ OTH=Other	4
■ PRC=Private commercial	92
■ PUB=Public body	10
■ REC=Research organisations	278

Country participation in FET FP7 funded projects (by number of participants)

AUSTRIA	42
AUSTRALIA	7
BELGIUM	27
CANADA	2
SWITZERLAND	84
CHINA	2
CYPRUS	2
CZECH REPUBLIC	3
GERMANY	210
DENMARK	20
ESTONIA	5
SPAIN	75
FINLAND	12
FRANCE	163
GREECE	21
HUNGARY	11
IRELAND	11
ISRAEL	39
INDIA	1
ITALY	162
JAPAN	1
KOREA	1

LITHUANIA	3
LUXEMBOURG	1
LATVIA	2
THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA	1
MALTA	1
NETHERLANDS	64
NORWAY	6
POLAND	19
PORTUGAL	10
ROMANIA	1
SERBIA	1
RUSSIA	3
SWEDEN	33
SINGAPORE	2
SLOVENIA	4
SLOVAKIA	3
TURKEY	4
UKRAINE	1
UNITED KINGDOM	141
UNITED STATES	5
URUGUAY	2



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For further information:

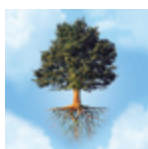
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