

Bio-ICT in the FP7 ICT Theme

Future and Emerging Technologies

Julian Ellis
DG INFSO, F1

FET Bio ICT workshop 16-01-2007



European Commission
Information Society and Media

Outline of talk



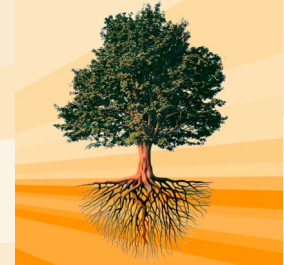
- FET and Call 1 in FP7
- FP7 practicalities
- What's new in FP7
- Bio-ICT in FET after 2008

Future and Emerging Technologies



- Long-term, high-risk, but purpose-driven
- Addressing roadblocks in evolutionary roadmaps
- Opening new directions for ICT of tomorrow
- Interdisciplinary exploration of alternative approaches
 - **FET-Open**: new directions and opportunities
 - **Not incremental research**
 - **FET Proactive**: Pathfinder; building excellence in identified areas.
- Industrial/SME participation welcome, not mandatory.

Future and Emerging Technologies in 2007/2008



- **Call 1 (FET Proactive)**

Pre-proposal check (until April 10)

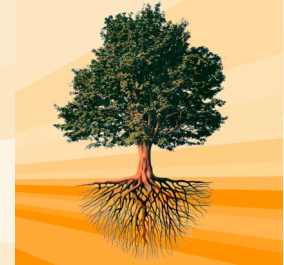
3.8.1.1 Nano-scale ICT devices and systems

3.8.1.2 Pervasive Adaptation

3.8.1.3 Bio-ICT Convergence

- **Later calls**

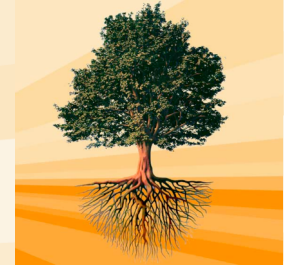
FET/ Bio ICT Convergence



AIMS OF THE INITIATIVE:

- **Consolidate emerging multidisciplinary Bio-ICT research community**
 - Train next generation researchers in both biological and engineering disciplines
 - Provide opportunities for existing researchers to work in the EU
- **Find new solutions to ICT problems by leveraging knowledge in biology**
 - Adapt solutions found in nature to solve engineering problems
 - Create more bio-compatible ICT devices (less training needed, rejection)
- **Encourage sustainable interdisciplinary research collaboration**
 - Could include progress in biological disciplines through use of ICT techniques

FET/ Bio ICT Convergence

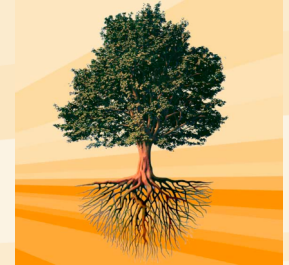


Projects should involve one or a combination of:

- **Novel computing paradigms** based on natural information processing in cells etc.
- **Biomimetic artefacts:** H/W systems for information capture, processing or output that mimic techniques used in nature
- **Bidirectional interfaces:** development of H/W that connects to individual neurons for information to be transferred in both directions in a natural way. NB: Non-Invasive Brain-Computer Interfaces are covered in 3.7.2.1.
- **Biohybrid artefacts:** development of H/W with combinations of tightly coupled biological and engineered components (eg neuroprosthetics)

FET/ Bio ICT Convergence

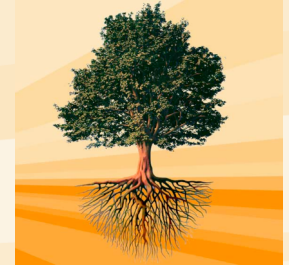
Ideas from FP5 projects



- Mirror neuron control systems
- Spiking neural networks
- Neural interfaces/hybrid bionics
- Self organising and self configuring systems
- Bio-inspired artificial sensor and vision systems
- Representations of information and architectures
- Intelligent artefacts

and the ideas in the Neuro-IT.net roadmap (later)

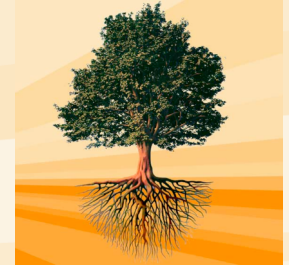
FET/ Bio ICT Convergence Beyond the Horizon (2005/6)



Ideas from the “Bio ICT Synergies” Thematic group:

- New Computational Modelling Paradigms
 - Standards and frameworks for pulling together heterogeneous models and data
- Bio-inspired Strategies of Growth, Development and Evolution
 - Make use of recent advances in biology in the Genetic and Evolutionary Computation domain
- Bio-ICT Artefacts
 - ICT-biological signalling

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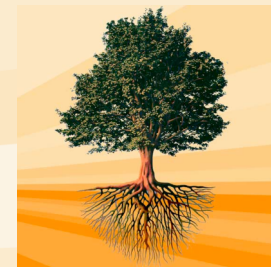
This Initiative has an “open” character, but successful proposals must have:

- potential for **significant impact** on information processing
 - Provide solutions to currently unsolved ICT problems, or
 - Demonstrate substantial advantages over existing ICT techniques
- a **convincing approach**
 - No “missing links” in the methodology
 - Integrate all required expertise and other resources in the consortium

and must

- **meet ethical requirements**, in particular regarding use of any
 - Animal experiments
 - Volunteers, especially children
 - ICT implants

FET/ Bio ICT Convergence



Useful links:

Call information:

http://cordis.europa.eu/fp7/dc/index.cfm?fuseaction=UserSite.CooperationDetailsCallPage&call_id=11

Beyond the Horizon (TG4 report):

<http://www.beyond-the-horizon.net/>

Ethics (FP6):

http://ec.europa.eu/research/science-society/page_en.cfm?id=3205

Total indicative budget:

CAs: ~ 1 M€ to support consolidation of community

STREPs: limited scope BUT multidisciplinary

IPs: for integrating fragmented research domain

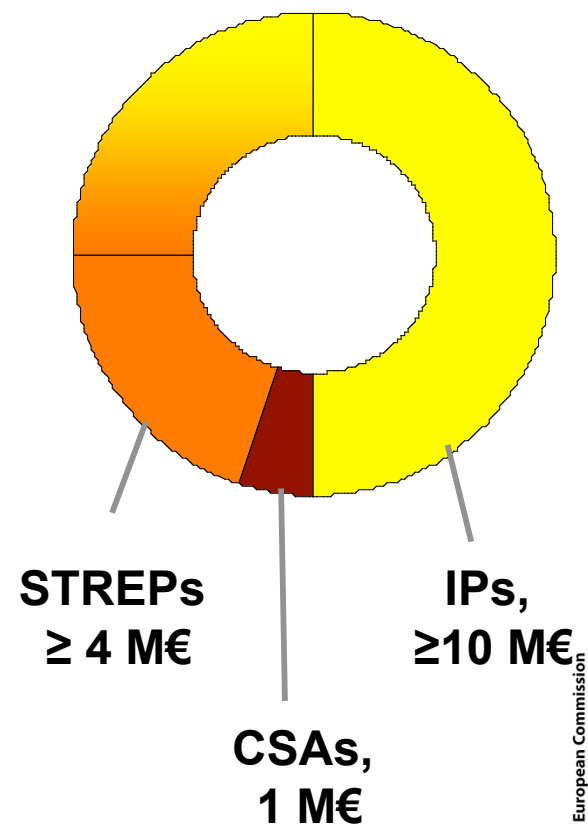
Overall Indicative budget ~ 17/20 M€

CONTACT POINTS:

Julian.Ellis@ec.europa.eu

Pekka.Karp@ec.europa.eu

Total: ~17/20 M€



FET: Later Calls



- **Call 3 (FET Proactive) 2008**

3.8.3.1 Science of complex systems for socially intelligent ICT

3.8.3.2 Embodied Intelligence

3.8.3.3 ICT Forever Yours

- **Later calls (FET Proactive) for 2009/10 could include**

Massive ICT Systems

Human-Computer Confluence

QIPC and other quantum technologies

Meetings planned for Bio-ICT in Call 1



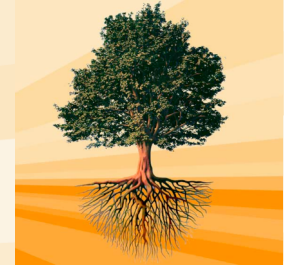
- January 24th, Brussels, FET specific, Call 1:
<http://cordis.europa.eu/ist/fet/ie-jan07.htm>
- February 1st, Köln for all ICT Call 1:
http://ec.europa.eu/information_society/events/koln_2007/index_en.htm

Outline of talk



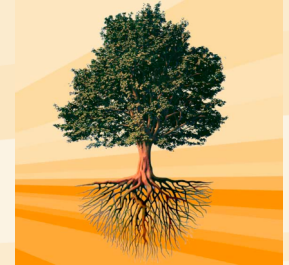
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Proposal submission



- Electronic submission (EPSS) **only**
- Submissions possible from ~March
- Strict deadline:
5pm (Brussels time) 8th May
- Separate “Guide for Applicants” (GfA) for STREP, IP, CA

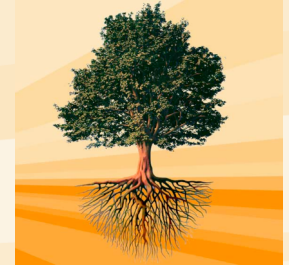
Guide for Applicants



- Use the latest, correct version of the GfA (IP, Strep or CA)
- GfA contains information on:
 - Proposal format (sections, length)
 - How to submit a proposal
 - Pre-proposal checks for FET
 - ... and much else

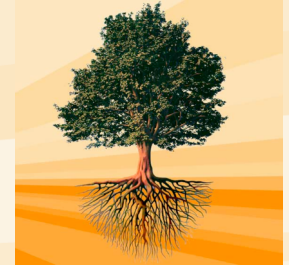
Essential reading before submitting a proposal!

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Changes in FP7



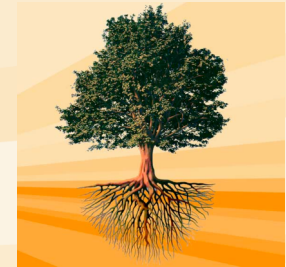
- AC cost model (100% funding) discontinued
- Up to 75% funding of RTD available for:
 - Non-profit public bodies
 - Secondary and higher education establishments
 - Research organisations
 - SMEs
- Flat rate **overheads** for these organisations:
 - 60% up to 2010
 - At least 40% afterwards
- New evaluation criteria (see GfA)

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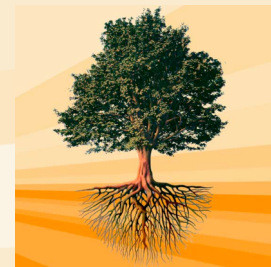


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Future plans



- **Update of Workprogramme planned for 2009/2010**
- **Changes will take account of:**
 - **Results of Call 1**
 - **Discussions with the research community and Programme Committee about future topics/funding.**
 - **Today's discussions**
- **Further meetings/workshops will take place later this year**
 - **Advertised through Cordis and project web pages (eg Neuro-IT.net, Nisis, Once-Cs)**



- Thank you for your attention!