Il gruppo di esperti della delegazione italiana al Comitato di Programma ERC, MSCA, FET I Pillar H2020.

Verso il Work Programme FET 2016-2017.

Maria Rosaria Masullo

Firenze, 7-8 luglio 2015

CUG dell'INFN
Componente del gruppo di esperti della delegata italiana, Daniela Corda, al Comitato di Programma ERC,MSCA,FET del Pilastro 1 di Horizon2020, Sezione di Napoli

H2020 Budget: 77B€ (current prices)

OTHERS: 5,8B€ (Spreading excellence & widening participation, Science & Society, JRC, EIT)

Spazio Europeo della Ricerca (ERA)

http://ec.europa.eu/research/era/pdf/era_progress_report2014/era_progress_report_2014_communication.pdf

Ruolo fondamentale della ricerca quale elemento trainante per lo sviluppo socio-economico EU e per il recupero della competitività.

La Commissione persegue l'obiettivo della costituzione di uno **Spazio Europeo della Ricerca**: "*uno spazio di ricerca unificato aperto al mondo e fondato sul mercato interno, nella quale i ricercatori, le conoscenze scientifiche e le tecnologie circolano liberamente e grazie al quale l'Unione e gli SM rafforzeranno le loro basi scientifiche e tecnologiche, nonché la loro competitività e la loro capacità di affrontare collegialmente le grandi sfi*de"

Il SER è al centro della strategia "**Europa 2020**" e dell'iniziativa faro "L'unione dell'innovazione":lo stesso Programma Quadro, H2020, concorre in maniera determinante, a realizzare le priorità del SER.

Altri strumenti comunitari gestiti dalla CE che si collocano nell'ambito della strategia sono
COSME (Programma per la competitività delle imprese e delle PMI),
Erasmus +,
Europa Creativa (1,46 miliardi per settore culturale e creativo),
Europa per i cittadini, LIFE (ambiente) ,
Terzo Programma di azione in materia di salute e
i fondi ad accesso indiretto: Fondi Strutturali (FESR, FSE, fondo di coesione).

WP:SCHEMA DEL PROCESSO DI CREAZIONE DEL BANDO

Strategic Programme	**Novità di H2020: definisce ogni 3 anni le priorità strategiche per la ricerca e l'innovazione nell'UE**
Consultazione Comitati di Programma H2020	Comitati di Programma composti dai **Delegati Nazionali** (14 commissioni, una per ogni WP)
Consultazione della comunità R&I e Advisory Groups	Advisory Groups: **gruppi di esperti convocati** per fornire consulenza tempestiva e di qualità per la preparazione delle call di H2020
Preparazione del draft del WP	Draft del WP biennale preparato sulla base del Programma Strategico finalizzato
Consultazioni	Comitati di Programma devono approvare i WP prima della pubblicazione
Adozione dei WP	Pubblicazione delle call

Finalità della Delegazione

- Ogni Commissione è formata dai delegati di ognuno dei paesi della EU (14 commissioni, una per WP). I delegati hanno esperienze internazionali pregresse nelle tematiche dei propri WP, vengono nominati dai singoli governi (per Italia dal MIUR)

- Aumentare la **competitività della Nazione** e quindi l'acquisizione di fondi europei per una maggiore crescita (riportare l'8% del FP7 all'atteso 14%, per eguagliare almeno il contributo versato)

- Rendere più visibili e pressanti gli **interessi della Nazione** così che abbiano il giusto rilievo nei vari WPs.

- Strumento per tale fine è la presenza attiva alle riunioni dei **National Expert Groups** (NEG) dove i WPs vengono discussi, modificati, riscritti secondo le richieste dei vari Stati Membri.

- Propedeutico a tutto ciò è l'incontro con il MIUR, gli **esperti, gli stakeholders**, così da definire al meglio la politica e gli interessi nazionali.

Finalità della Delegazione

I delegati

- lavorano in connessione con i **National Contact Point (NP)**, mantengono i contatti con la comunità scientifica di base, lavorando con una propria squadra di esperti
- si **confrontano con i delegati delle altre nazioni**
- **I Delegati** contribuiscono poi a **livello nazionale alla definizione** di un programma nazionale della ricerca (PNR) che sia in linea con il lavoro dei NEG e con le finalità ed argomenti del FP H2020 (MIUR)
- a **promuovere iniziative utili** che facciano emergere le criticità della comunità scientifica e delle imprese, per facilitare quindi la collaborazione e **l'attuazione di programmi innovativi** che rendano la **Nazione più competitiva** e di successo

ERC-MSCA-FET: la delegata e la squadra

I 14 delegati formano un gruppo coordinato da un rappresentante MIUR (Fulvio Esposito)

La delegata: Daniela Corda (Direttrice Ist. Biochimica delle Proteine, CNR, Napoli)

La squadra (di nomina MIUR): gruppo di esperti con competenze complementari alla delegata

- Diana Boraschi (CNR)
- Luca Scorrano (UniPD)
- Giuseppe Martini (CNR)
- Francesco Pavone (UniFI-Lens)
- Antonio Bartoloni (MISE)
- Maria Rosaria Masullo (INFN)

Collaborare nella correzione, nella scrittura, per suggerimenti da introdurre nei documenti/ report della Commissione.

Partecipare alle riunioni specifiche a Brussels se richiesto.

Collaborare con la delegata nel raccogliere suggerimenti, problematiche relative ai bandi per migliorare i successivi e per sostenere gli interessi della ricerca italiana…..stimolando le rispettive comunità

Innovation enhancements within excellent science components

ERC – Proof of concept

FET – SME measures, open, fast-track calls, Flagships (critical mass)

MSCA – Cross-sectoral exchanges and training with strong involvement of businesses

RIs – Fostering innovation potential and human capital

http://www.apre.it/ricerca-europea/horizon-2020/ncp/

NCP

Gli NCP in APRE offrono un servizio, a titolo gratuito, di informazione e assistenza su ogni aspetto di Horizon 2020:

Tematica o programma di Horizon 2020
Strumenti finanziari disponibili
Procedure amministrative
Assistenza per la preparazione della proposta (incluso il pre-screening)
Ricerca dei partner

Excellence in Science

European Research Council	**Ferraro Marco ferraro@apre.it APRE** **D'Agostino Angelo dagostino@apre.it APRE** **Di Maggio Diassina dimaggio@apre.it APRE** **Borgna Serena borgna@apre.it APRE**	
Future & Emerging Technologies	Di Bello Gianluigi dibello@apre.it Di Maggio Diassina dimaggio@apre.it Calderaro Marta calderaro@apre.it	APRE APRE APRE
Marie Sklodowska Curie Action	D'Agostino Angelo dagostino@apre.it Ferraro Marco ferraro@apre.it	APRE APRE
Research Infrastructures	Monique Bossi bossi@apre.it Daniela Mercurio mercurio@apre.it	APRE APRE

Industrial Leadership

Innovation in SMES	**Antonio Carbone carbone@apre.it** **Elena Giglio giglio@apre.it** **Rocio Escolano escolano@apre.it** **Valentina Fioroni fioroni@apre.it**	**APRE** **APRE** **APRE** **APRE**

FutureEmergingTechnologies – schema

FET OPEN	FET PROACTIVE	FET FLAGSHIPS
Incoraggiare nuove idee(bottom-up) per nuove tecnologie . Sostengono lo stadio iniziale della ricerca collaborativa scientifica-tecnologica esplorando le basi per tecnologie future radicalmente nuove.	Favorire nuovi temi e comunità emergenti Sviluppo di nuovi temi e consolidamento di tecnologie che possano essere adottate dalla società e dalle industrie Cluster di progetti di ricerca	Iniziative di ricerca scientifica di partenariato a larga scala incentrate su grandi sfide interdisciplinari sociali e tecnologiche.

Strumento aperto,leggero, agile

Ricerca basata su roadmap a larga scala

FET mission in H2020

- Leverage Europe's excellent scientific expertise to create new technologies
  - Help Europe's best scientists to create technology to meet societal challenges
- Contribute to innovation including boosting jobs, growth and investment
  - Support development of radically new technology
  - Enable researcher training in new science and technology domains
  - Facilitate international cooperation between disparate research domains
- Concentrate on areas not covered by other parts of H2020
  - Special emphasis on novel forms of multi-disciplinary research
- No restriction on the type of technologies addressed

Ales Fiala
Head of Unit
Future and Emerging Technologies
Excellence in Science
DG CONNECT

FET in WP2014-15

- **FET-Open**
  - Fully Open (and seems to work – 640 proposals received with diversity)
  - New Process (tested in proactive – on going in FET Open)
  - Externalisation to REA
  - FET CSA call – 30 proposals
- **FET Proactive**
  - Global System Science, Knowing Doing Being, Quantum Simulation success (though oversubscription is an issue for KDB in particular)
  - HPC First set of priorities from ETP4HPC SRA (closes in November)
- **FET Flagships**
  - FPA for each of the flagships
  - SGAs for each to come
  - SWD lays down the implementation mode for the flagships

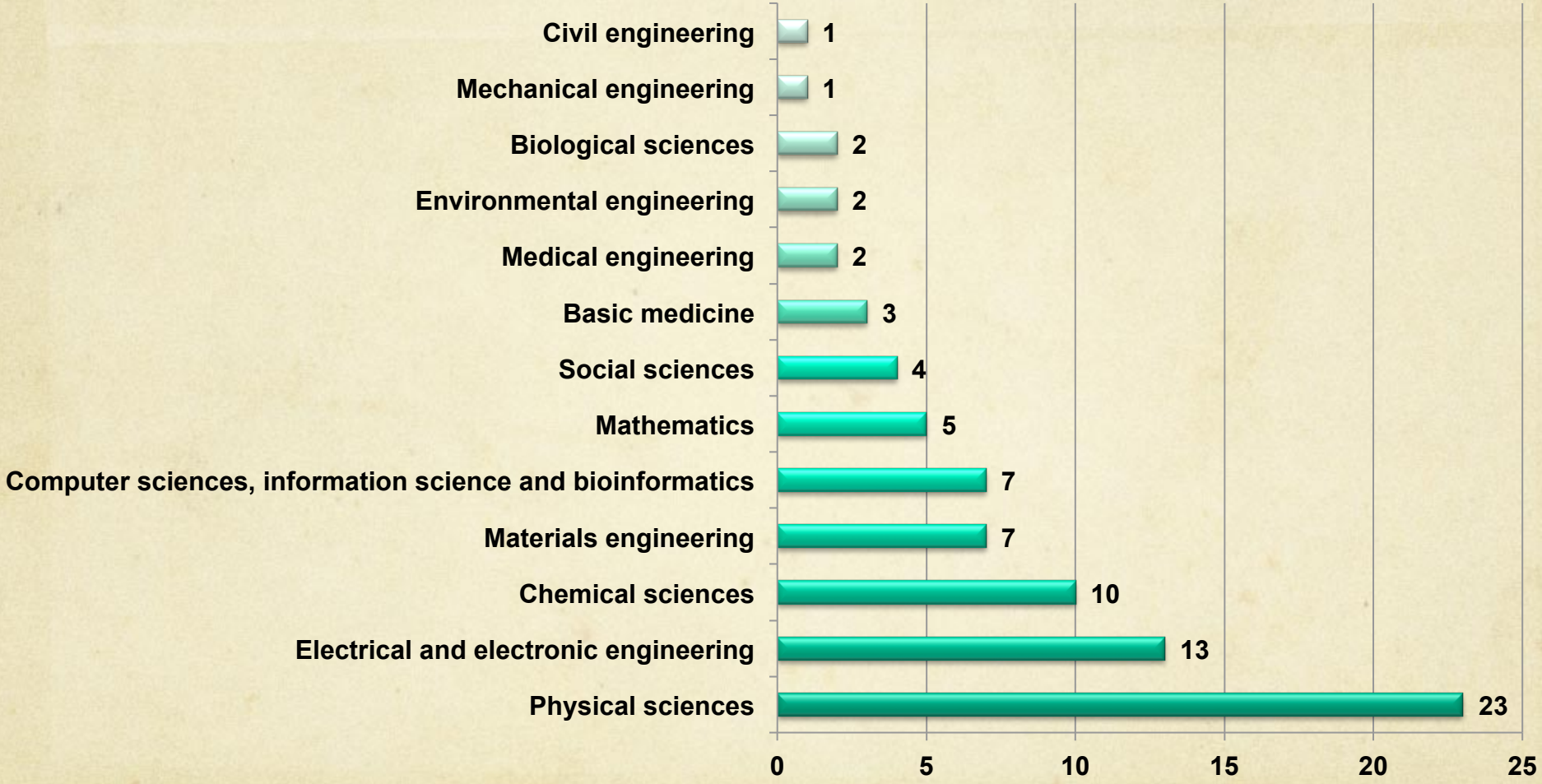
Division of RESEARCH AND INNOVATION ACTION (RIA) proposals into 4 clusters

- Cluster A : proposals mainly from Electronics, ICT, Systems and Communication Engineering.
- Cluster B: proposals mainly from Chemistry, Materials, Energy and Environment.
- Cluster C: mainly Physics, but also few proposals from Mathematics, Sociology and Economics,
- Cluster D - proposals mainly from Life Sciences.

All FET Open proposals are interdisciplinary, therefore you will find also applications from a very wide range of disciplines.

IMPORTANT: FETOPEN RIA evaluation has only 1 panel, 1 budget and hence 1 ranking list. Split into clusters is done only to facilitate the management of evaluation process.

Suddivisione per discipline dei progetti RIA 2014 passati sopra soglia



I fisici ci sono e tanti!!! (Marta ci ha già mostrato questo……è uninvito a pensare)

Proposte selezionate nella prima tornata 2015..da leggere con calma…a casa!

- **DEDALE** The proposal seeks to address a recent emergence of novel data analysis methods by proposing a new modelling framework, allowing for a better preservation of the intrinsic physical properties of real data that generally live on intricate spaces. The aim is to introduce new models and methods to analyse and restore complex, multivariate, manifold-based signals by building efficient numerical data processing algorithms in large-scale settings.

- **InnoSMART** The proposal proposes a novel idea that deals with the development of an innovative result; a ground breaking coating from shaped memory alloys that could change the life span of engineering structures in various sectors and in everyday life, for example bridges, airplanes, etc. This novel coating will be able to contribute to the stiffness and rigidity of an elastic metallic structure, to withstand the expected loading conditions safely, to enhance the integrity of a damaged structure and at the same time to protect it from corrosion. Such a coating can bring multiple breakthroughs from the design level to the maintenance and repair level of the structure. Finally, the outcome of the project will be to accomplish progress breakthroughs for various scientific and technological areas such as transport (surface, naval and aerospace), materials, and infrastructures engineering.

- **VOXEL** The proposal seeks to prototype new cameras that will combine the X-ray penetration and nanometre spatial resolution, easiness to use and no needed rotation of the source or the sample for a maximum impact on biology and medicine. The ultimate goal is to provide an alternative to tomography with a disruptive technology enabling 3D X-ray imaging at very low dose.

- **ULTRAQCL** The proposal proposes a new technology for generation of ultrafast and intense light pulses across the electromagnetic spectrum enabling the study of fundamental light-matter interactions, as well as industrial exploitation in a plethora of applications across the physical, chemical and biological sciences. The aim is to breakthrough the current technological gap by using THz quantum cascade lasers (QCLs) as a foundational semiconductor device for generating intense and short THz pulses.

- **DIACAT** DIACAT proposes the development of a completely new technology for the direct photocatalytic conversion of CO2 into fine chemicals and fuels using visible light. The approach utilises the unique property of man-made diamond, now widely available at low economic cost, to generate solvated electrons upon light irradiation in solutions (e.g. in water and ionic liquids). The approach lays the foundation for the removal and transformation of carbon dioxide and at the same time a chemical route to store and transport energy from renewable sources. This will have a transformational impact on society as whole by bringing new opportunities for sustainable production and growth.

- **CHROMAVISION** The proposal aims to develop a pioneering chromosome imaging and manipulation platform that will fuel the next decades of structural chromosome research. The aim is to develop the Super-Resolution Correlative Tweezers Fluorescence Microscope that will for the first time enable 3D, super-resolution, real-time metaphase chromosome observation and manipulation studies under near-physiological conditions.

- **MRG-Grammar** MRG-GRammar will leverage Synthetic Biology with cutting-edge DNA synthesis technologies and high-throughput analysis to generate new types of biological datasets that systematically explore all possible regulatory landscapes rather than just the naturally occurring regulatory sequences. The extensive and unbiased nature of these unique datasets will allow the project to build new models explaining different aspects of regulatory activity, which will be tested in second-generation libraries, designed based on model predictions. Consequently, through such an iterative process, the expectation is to make a significant breakthrough in deciphering and evolving the regulatory code.

- **CompInnova** The ultimate objective of the CompInnova project is to deliver a novel automated prompt for non-destructive approach capable for the first time to detect, evaluate and repair damages on either metallic or composite aircraft components. As inadequate inspection of aircraft can lead to loss of life and profit, the CompInnova project proposes an innovative approach to this problem through the development of a multitask inspection tool and in response to the urgency of improving maintenance quality, while reducing the cost and time for a heavy aircraft inspection. The project aims to provide a new technological solution to the aerospace industry that would meet airworthiness at a relatively modest cost and duration. Safe flights at affordable value will benefit society positively.

- **SYMBIOTIC** The proposal seeks to develop an autonomous electrochemical biosensor that is lightweight, disposable and of low cost by using an outstanding innovative approach: hosting synergistically the bioreceptor element inside a passive direct methanol fuel cell (DMFC). The proposed electrochemical biosensor will be completely autonomous operating at room temperature and using the oxygen present in the air, thereby allowing diagnosis everywhere.

- **NANOSMELL** The proposal seeks to develop controlled (reversible) odour emissions and to solve the combinatorial code of olfaction. The project aims to propose an odour-emitting component in devices such as televisions, phones, computers and more. The approach is based on DNA-based "artificial odorants" being tagged with a nanoparticle changing their conformation in response to an external electromagnetic field.

- **LINABIOFLUID** The proposal seeks to employ advanced laser-processing strategies based on self-organization, to mimic the specific topography and the excellent wetting properties of the integument of bark bugs and moisture harvesting lizards resulting from adaptations to their environment. The outcome of this innovative biomimetic exploitation of wetting effects is expected to lead to a radically new technological approach of laser-generated surface textures on micro- and nanometre scale. The project addresses an innovative and sustainable approach to reduction of CO2 emission.

- **RECORD-IT** The proposal seeks to develop an intelligent biocompatible sensing device which detects complex behavioural changes in ion concentrations. The high sensitivity of the device will be achieved by ensuring a strong coupling between the environment and the device. The sensor will use wet NOMFETs, coated Si nanowires, self-conjugated polymers, arrays of photocells, flow of lipids. The proposed approach will be based on reservoir computing.

- **IBSEN** IBSEN will build a repertoire of human behaviour in large (1000+ persons) structured groups using controlled experiments. To that end, the project will develop a novel setup for large groups of people that will provide an experimental protocol, the necessary software and analytical tools to allow us to deal with thousands of people at the same time. The project will apply this setup to specific research questions, focusing on novel phenomenology that may arise in large systems as compared to typical smaller ones, to find the rules that govern human behaviour in those cases, including the influence of social context and individual identity on them.

- **MAGicSky** Skyrmions were discovered in magnetic crystals only a few years ago and there is a possibility to use them in nanoscale devices that can be made compatible with conventional integrated circuit technology. Skyrmions are magnetic solitons that carry information, and are remarkably robust against defects that can trap or destroy them due LIMITED: Only for use within the EU institutions, bodies and agencies and for the members of the programme committee to the topology of their magnetic texture. MAGicSky will create the first proof-of-concept room temperature spintronic devices based on magnetic skyrmions.

- **NEMF21** The proposal seeks to overcome information bottleneck due to wired connections on integrated printed circuit boards and will lead the semiconductor industry into a new More-Than-Moore era. The aim is to develop wireless Chip-to-Chip (C2C) communication and wireless links between printed circuit boards operating as Multiple Input Multiple Output devices. The project will deliver the breakthroughs necessary to enable this future emerging wireless C2C technology by creating a revolutionary electromagnetic field simulation toolbox.

- **nuClock** Atomic clocks are the backbone of our modern communication and navigation technology, e.g. through the global positioning system (GPS). We propose to develop a novel type of clock, based on a unique nuclear transition in Thorium-229. This nuclear clock will be fundamentally different from existing atomic clocks, which are based on transitions in the electron shell. It will be largely inert to perturbations, simpler by design, and holds the potential to outperform existing atomic clocks in terms of precision.

- **ABIOMATER** ABIOMATER will deliver a new class of metamaterials whose functionality can be controlled by external magnetic fields. The materials consist of micromotors, comprising an anisotropically “hard” and “soft” ferromagnetic particle pair embedded in a polymer matrix, and promise wide-ranging technological applications. The team will develop methods for incorporating the motors into elastic membranes (MEMs). These novel properties will then be used to produce prototype devices:• Pumps for fluids and tuneable filters for dissolved solutes, operating down to microscopic length scales and based on magnetically driven membrane deformation and changes in internal pore structure.• Tuneable optical devices such as lenses and filters based on magnetic strain-induced changes in the optical and photonic properties of the constructs.• Substrates for biotechnology, tissue engineering and regenerative medicine. These devices will be based on our ability to apply to cells in culture the patterns of temporally and spatially varying strain fields to which they are exposed in vivo and which maintain their phenotype and metabolic activity.The prototypes will find immediate applications in expanding areas of technology ranging from lab-on-a-chip systems to biomedical implants. They will also help the team to develop a thorough understanding of the novel emergent properties of the MEMs leading, in turn to many other applications.

- **QCUMbER** Ultrafast quantum pulses feature an inherent non-classical pulse-mode or supermode structure, which is imprinted onto the states in the generation process and is closely related to the entanglement properties between different frequency constituents of the quantum pulses. Harnessing this structure will dramatically enhance quantum channel capacities per signal state, enable precision time-frequency measurements beyond classical boundaries and open new avenues to scalable quantum information processing.

- **PHOENIX** The project will investigate a new line of technology that will enable the exploration of difficult-to-access environments exploiting a risky, highly-novel approach. PHOENIX will accomplish the exploration of inaccessible environments with physical agents that are extremely limited in size and resources, and can operate without direct control over software and hardware. The project's main objectives are: the development of a co-evolutionary framework, the design of versatile agent technology and the development of a dedicated human interface. LIMITED: Only for use within the EU institutions, bodies and agencies and for the members of the programme committee

- **ZOTERAC** The proposal proposes a disruptive approach based on ZnO-based nano-engineered semiconductors in order to realize THz emitters operating at room-temperature with milliWatt output power capability as well as THz quantum detectors with unprecedented large operating temperatures. This spectral domain is currently intensively explored in view of its huge potential for medical diagnostics, security screening, trace molecule sensing, astronomical detection, space-borne imaging, non-invasive quality control or wireless communications.

- **HELENIC-REF**The targeted breakthrough of the HELENIC-REF project aims at the future emerging technology in renewable fuels: water. Gaining excess of hydrogen out of water and immediate use of it either in thermal machines or in fuel cells, as well as hydrocarbons out of carbon dioxide and water mixture, can offer the solution to the society and the planet in terms of electric and thermal energy demands. The project refers to the establishment of a new sustainable methodology for the water thermolysis at temperatures below 300oC and the immediate corresponding production of energy or fuels. Finally, the future key players-actors are to be involved and develop devices for different applications in energy and transport, following the principal method and idea under development.

- **2D-INK** 2D-INK is targeted at developing inks of novel 2D semiconducting materials for low-cost large-area fabrication processes on insulating substrates through a new methodology, which will exceed the properties of state-of-the-art graphene- and graphene oxide based inks. Achieving this would represent an important step forward in the processing of 2D semiconducting materials and will provide the key parameters for fabricating the next generation of ultrathin electronic appliances.The efficient dispersion and formulation of 2D semiconducting materials into inks enables the applications of 2D semiconducting materials over different scientific and technological disciplines, such as electronics, sensing, photonics, energy storage and conversion, spintronics, etc.

- **Microflusa** In the field of colloidal science, much progress has been done on the synthesis of complex building blocks mimicking molecular structures with the hope of elaborating innovative materials. However, in the present state of the art, the rates at which these building blocks are obtained are exceedingly small. As a consequence, even though theoretically, revolutionary materials can be imagined, throughputs are far too low to approach industrial applications. We propose to unlock this bottleneck with microfluidic technology. LIMITED: Only for use within the EU institutions, bodies and agencies and for the members of the programme committee . The starting point is the discovery of a new hydrodynamic mechanism that reorganizes droplets clusters into well-defined configurations during their transport in microchannels. The monodisperse production, at high rates, of a variety of anisotropic clusters (triangles, tetrahedrons etc.), has been demonstrated. The objective is to deepen and harness this mechanism by transforming, under high throughput conditions, such clusters into solid and stable building blocks that self-assemble into functional materials. Rates of production of one million of building blocks per second are feasible. This would open new avenues in the field of material sciences and pave the way towards an industrial production of revolutionary colloidal materials.

- **CONQUER** Molecular imaging (MI) plays a pivotal role in diagnosis, understanding of disease and in the development of effective treatments in particular for the ageing population. CONQUER will explore a fundamentally new contrast mechanism with the potential to push magnetic resonance imaging (MRI) far beyond its limits towards a powerful MI modality. This will be achieved by exploiting the cross relaxation between 1H and large quadrupolar nuclei (QN) for contrast agent (CA) design. The main objective is to synthesize bio-compatible QN compounds and nano-particles (NPs), high efficiency and manifold degrees of freedom in the design of smart properties, such as the ability to switch the contrast on and off by changing the magnetic field or chemical binding (e.g. targeting). The NPs will be tailored based on quantum-mechanical simulations. Sensitivity and contrast switching will be demonstrated with MRI in cell cultures. These results will be actively transferred to academia and industry as well in order to strengthen European competitiveness. The combination of a so far unexploited quantum-mechanical phenomenon and cutting-edge imaging technologies has the potential to create MI solutions with significant impact

FET WP2016-17, structure

- FET-Open – novel ideas for radically new technologies
  - FET-Open RIA 2016-2017
  - FET Open CSA 2016
  - FET Open CSA 2017
  - FET-Innovation Launchpad 2016-2017
- FET Proactive – boosting emerging technologies
  - FET-Proactive emerging themes and communities
  - FET ERANET Cofund CHIST-ERA (2016)
  - FET ERANET Cofund in Quantum Technologies (2017)
- FET Proactive – High Performance Computing
  - Co-design of HPC systems and applications
  - Transition to Exascale Computing
  - Exasale HPC ecosystem development
- FET Flagships – tackling grand interdisciplinary science and technology challenges
  - Partnering environment for FET Flagships
- Other Actions
  - FET Flagship Core Projects (within FPAs)

GENDER AND RESPONSIBLE RESEARCH AND INNOVATION (RRI)

- **LEGGERE BENE il bando. Ogni punto è importante, ogni punto è stato oggetto di discussione. Tutto ciò che la commissione vuole è scritto nel bando.**
- Questi punti sono ora discussi nell'introduzione
- Sia nelle Open, che nelle Proactive vengono esplicitamente menzionati (**alle voci Scopo e Impatto**) alcuni aspetti di cui tener conto che erano già presenti in precedenza ma ora diventano più importanti: genere, ricaduta sul pubblico.
- Un riscontro sulle questioni di genere o meglio sull'approccio di genere (anche presentazione dei dati statistici in modalità disaggregrata) è in discussione come parametro trasversale di cui tener conto.
- Questioni etiche sempre più importanti, attenzione alle collaborazioni con paesi non europei

- Saltato meeting di luglio, il bando sarà discusso a settembre e dopo la seconda metà uscirà il bando reale on le relative aperture di call.

FET: punti importanti

- L'innovazione è il punto principale : lavorare sulle idee e sulle impostazioni. Implementazione delle idee attraverso nuovi sviluppi tecnologici.
- Flessibilità in coloro che sono coinvolti (coinvolgere le aziende dall'inizio, come stakeholder, come coloro che faranno ricerca con noi per capire le applicazioni possibili ed i mercati)
- Si cercherà di avere 150 progetti eleggibili per ogni deadline (due date).
- Open data : obbligatorio pubblicare su riviste open dopo 6 mesi . Se la proposta viene approvata si accettano i termini delle pubblicazioni "open ".
- Concerning FET Open, increase in the budget of 40%. An increase of funding is foreseen in 2018, 2019 and 2020. The increase of FET Open budget has already started in 2016-2017.
- Concerning FET Proactive, the budget is more than doubled.

2016FET Proactive :ERANET and High Performance Computing

- ERANET : Proposals should coordinate national and regional programmes for research in the area of quantum technologies by implementing a transnational call with EU cofounding resulting in grants to third parties.
- HPC: Achieve world-class extreme scale, power-efficient and highly resilient HPC platforms through a strong co-design approach driven by ambitious applications and in close cooperation with the scientific disciplines and stakeholders concerned;

Proactive positioning – sizing and orientation

- *Size 4 to 10MEuro, 30 page proposals to further differentiate from FET-Open (and possibly reduce resubmission).*
- *It is in the nature of proactive that some topics are called again, in order to allow for gradual (re-)orientation and an evolving level of maturity. This also reflects a shifting stakeholder involvement (e.g., from only academia to also industry involvement)*
- *Scope descriptions focused, and adjusted to reflect RRI (new)*
- *Most ideas from the consultation are reflected in the 10 topics. They have all been considerably refined and focused.*

FET online consultation

Initial 10 topics Grouped into 4 clusters by FET AG

1. Collective technologies for societal challenges
   - Being human in a technological world
   - New science for a globalised world
2. Biotech and computing for better life
   - Intra- and inter-cell bio-nano-chem technologies
   - Bio-electronic medicines and therapies
   - Cognitive neuro-technologies
3. Alternative technologies for smart devices
   - New computing paradigms and their technologies
   - Quantum technologies
   - Nano-optomechanical and electronic devices
4. New technologies for Energy and Materials
   - Ecosystem engineering
   - Complex bottom-up construction

NCP

Gli NCP sono il primo punto di contatto per i proponenti e devono quindi essere ben addestrati per meglio capire cosa fare in pratica.

- *We have support for FET NCPs within the structure of the ICT NCP network*
- *We will organise the same trainings for FET NCP as we do for ICT NCP. They will also be invited to ICT 2015 in Lisbon*
- *Project Idealist will also cover the ICT part of FET within the limit of the resources allocated to the project.*
- *Other emerging non-ICT part of FET should be covered by the thematic societal challenges NCP networks*

Budget 624,5M

FET-Open	259,5M
FET-Open RIA (RIA) 2016-2017	252M
FET-Open CSA (CSA) 2016	3M
FET-Open CSA (CSA) 2017	1,5M
FET Innovation Launchpad (CSA) 2016-2017	3M
FET-Proactive – boosting emerging technologies	**95M**
Emerging themes and communities (RIA) 2016	80M
FET ERANET Cofund CHIST-ERA 2017	5M
FET ERANET Cofund on quantum technologies (ERANET) 2016	10M
FET Proactive – High Performance Computing	**85M**
Co-design of HPC systems and applications (RIA) 2016	41M
Transition to Exascale Computing (RIA) 2017	40M
Exascale HPC ecosystem development (CSA) 2017	4M
FET-Flagships	**185M**
Partnering environment for FET Flagships 2016	
- ERA-NET Cofund action (ERANET)	8M
- Coordination and Support Action (CSA)	1M
Core project funding (through 'Other Actions') (RIA) 2017	176M

Come confrontarsi con un programma FET ?

Innovazione , rischio nell'idea, chiarezza, gender, impatto, nuovi attori coinvolti, comunicazione ?????

FET: Criteri di valutazione

Excellence	Impact	Quality & efficiency of the Implementation
• Clarity of targeted breakthrough and its specific science and technology contributions towards a long-term vision. • Novelty, level of ambition and foundational character. • Range and added value from interdisciplinarity. • Appropriateness of the research methods.	•Importance of the new technological outcome with regards to its transformational impact on technology and/or society. •Quality of measures for achieving impact on science, technology and/or society. • Impact from empowerment of new and high potential actors towards future technological leadership	•Quality of the workplan and clarity of intermediate targets. •Relevant expertise in the consortium. •Appropriate allocation and justification of resources (person-months, equipment, budget)
• Soglia 4/5 • Peso 60%	• Soglia 3,5/5 • Peso 20%	• Soglia 3/5 • Peso 20%

2. *NOTA SULL'IMPATTO: i punti relativi a questa voce vanno considerati tenendo conto delle ricadute dei risultati sia a livello europeo, che internazionale. PER IMPATTO si intende sia lo sviluppo, che la diffusione, che l'utilizzo dei risultati.*

Ancora sulla valutazione

Priority order for proposals with the same score

- (i) Proposals that address topics not otherwise covered by more highly ranked proposals, will be considered to have the highest priority.
- (ii) These proposals will themselves be prioritised according to the scores they have been awarded for the criterion excellence. When these scores are equal, priority will be based on scores for the criterion **impact.**
- If necessary, any further prioritisation will be based on the following factors, in order: size of budget allocated to SMEs; gender balance among the personnel named in the proposal who will be primarily responsible for carrying out the research and /or innovation activities

Cosa cerco? Cosa voglio ?

- Nelle FET si chiede di mettere a frutto le competenze dei ricercatori/trici per applicarle ad altro rispetto alla ricerca che si è abituati a svolgere

Come in un film di Hitchcock o un quadro di Hopper…..

Guardiamoci da fuori ……

Competenze INFN

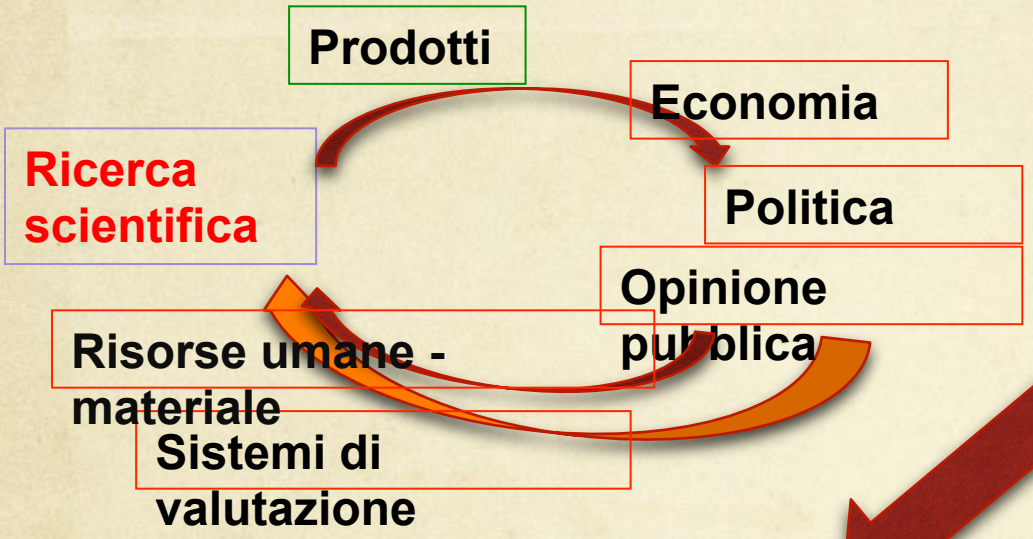
rivelatori, elettronica, acceleratori, data handling, modellizzazione (metodi montecarlo), robotica, cyber-physical systems

GENDER & Science

Come l'analisi di genere può contribuire alla ricerca : nelle FET

- Attenzione al GENERE ! "Gendered Innovations" employs methods of sex and gender analysis to create new knowledge.
- come modalità di pensare la propria ricerca in maniera diversa poiché possono cambiare gli utenti;
- perché includere il genere significa includere qualsiasi altra "differenza"…ampliare gli ambiti di applicazione

Perché abbiamo bisogno di un cambiamento strutturale ?
A Gender Based Resource Strategy



- **La Commissione Europea afferma che :**
- sprechiamo risorse umane
- stiamo perdendo delle ricerche innovative
- c'è sfiducia da parte della società verso la ricerca

- **Il sistema ricerca** non può più svilupparsi senza tener conto delle persone

E' necessario creare un sistema di lavoro inclusivo, nel quale le capacità individuali vengano favorite (v. Human Resource Strategy for Researcher)

Integrare la dimensione di genere *nella ricerca, oltre che una richiesta esplicita di più donne,* è un processo che si riflette sui contenuti, sui metodi e sulle scelte punta anche a rendere la scienza un "luogo" più vivibile per le donne per tutte le persone, migliorando *la qualità della ricerca stessa e il suo rapporto con la società.*

GENDER & Science

EDUCATION and TRAINING...within H2020 projects

A novelty of Horizon 2020 is the inclusion of **gender training among the eligible costs** of an action. The aim is to help researchers to further develop and share gender expertise in relation to the funded project.

The annex of the Work Programme explicitly refers to the possibility of including gender training as an activity in proposals as well as to the type of costs that would actually be eligible

Ricordiamo gli Advisory Board: donne, giovani, PMI …con l'idea di inserire diversi punti di vista. Rafforziamo il valore dell'AB!

GENDERED Innovations: case studies
http://ec.europa.eu/research/science-society/gendered-innovations/index_en.cfm

Proviamo a fare qualche esercizio

Il perchè della proposta(FET /ERC)

- Che problema vuoi risolvere ?
- È la tua ricerca una priorità europea? Puoi risolvere il problema a livello nazionale ?
- Perchè ora?
- Perche tu?

Come controllare l'impatto

- Cosa ti attendi dal tuo progetto?
- Chi necessita i risultati della ricerca?
- Perché vogliono utilizzare i risultati?
- Come pensi di comunicare agli interessati i risultati?
- Quale disseminazione pensi di fare ?
- Quali sviluppi ulteriori ti attendi ?

Punti fondamentali nella proposta

- Distribuzione geografica dei partecipanti
- Fattibilità della proposta, dal punto di vista scientifico e tecnologico, anche se progetto visionario
- Efficacia del work-plan
- Piano di back-up
- Work package strutturati con forte complementarietà, interdisciplinarietà
- Pubblicazioni su importanti riviste scientifiche
- Programmare in modo chiaro la diffusione dei risultati e il loro impiego futuro (non solo articoli, ma ..dissemination)

Peer Review Evaluation Process of Marie Curie Actions under EU's Seventh Framework Programme for Research

David G. Pina1, Darko Hren2, Ana Marušić3*, Published: June 30, 2015

"Therefore, Horizon 2020, the new EU Framework Programme for Research and Innovation for the period 2014– 2020, is perceived by many as the main instrument to fund competitive research at the European level. As a consequence of that, Horizon 2020 funding schemes may face oversubscription, with a possible increase in the number of applications for grants over the years. This means that the current evaluation process will struggle to be both financially and logistically sustainable, as more proposals submitted imply more experts, more time-consuming review processes, and more constraints from the logistical point of view (e.g. space and facilities to organize the consensus meetings)."

Conclusioni

- Quale messaggio ho tratto da questo corso ?
- Dubbi, commenti, ne parliamo insieme più spesso .....?
- Quali servizi INFN posso già usare e come migliorare l'interazione con loro
- Suggerimenti ....bottom-up ..cercasi

GRAZIE PER L'ATTENZIONE