HORIZON 2020

LE PROGRAMME DE RECHERCHE ET D'INNOVATION DE L'UNION EUROPÉENNE

Technologies Futures et Emergentes

Future Emerging Technologies

Le programme FET Proactive

FET

PCN - Horizon2020

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RÉPUBLIQUE FRANÇAISE

MINISTÈRE
DE L'ENSEIGNEMENT SUPÉRIEUR
ET DE LA RECHERCHE

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Technologies Futures et Emergentes

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Le programme FET

Un programme initié dans les années 90

Géré par la DG-CONNECT

Historiquement la partie « amont » du programme TIC

Ouverture à toutes les technologies avec Horizon 2020

The sower, Vincent van Gogh

''FET activities aim to create in Europe a fertile ground for responsible and dynamic multi-disciplinary collaborations on future technologies and for kick-starting new European research and innovation eco-systems around them. These will be seeds for future industrial leadership and for tackling society's grand challenges in new ways.''

➔ Objectif long-terme ➔ Recherche exploratoire

Architecture du programme

3 PRIORITÉS

EXCELLENCE SCIENTIFIQUE

- Conseil européen de la recherche (E.R.C.)
- Actions Marie Sklodowska-Curie
- Technologies futures et émergentes (FET)
- Infrastructures de recherche

PRIMAUTÉ INDUSTRIELLE

- TIC
- Technologies clés génériques (KET) :
  - microélectronique
  - photonique
  - nanotechnologies
  - matériaux avancés
  - systèmes de production
  - biotechnologies
- Espace
- Innovation dans les P.M.E.
- Accès au financement à risque

DÉFIS SOCIÉTAUX

- Santé, bien-être, vieillissement
- Sécurité alimentaire, bioéconomie...
- Energies sûres, propres, efficaces
- Transports intelligents, verts, intégrés
- Climat, environnement, matières premières
- Sociétés inclusives et novatrices et capables de réflexion
- Sociétés sûres

EURATOM

- Diffusion de l'excellence et élargissement de la participation
- Science pour et avec la société
- Institut Européen d'Innovation et Technologie (I.E.T.)
- Centre commun de recherche (Joint Research Center - J.R.C.)

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FET rejoint le pilier Excellence scientifique et s'étend à tous les champs disciplinaires

- ERC (13,1 Md€)
- Actions Marie-Curie (6,2 Md€)
- **FET (2,7 Md€)**
- Infrastructures (2,4 Md€)

24,4 Md€

Pilier EXCELLENCE SCIENTIFIQUE

(31% du budget total)

11% du budget dédié aux Technologies Futures et Emergentes

Mais programme toujours géré par la DG CNECT

(Direction Générale Réseaux et Communication, contenu et technologies; en charge de la recherche dans les TIC)

L'esprit du programme FET

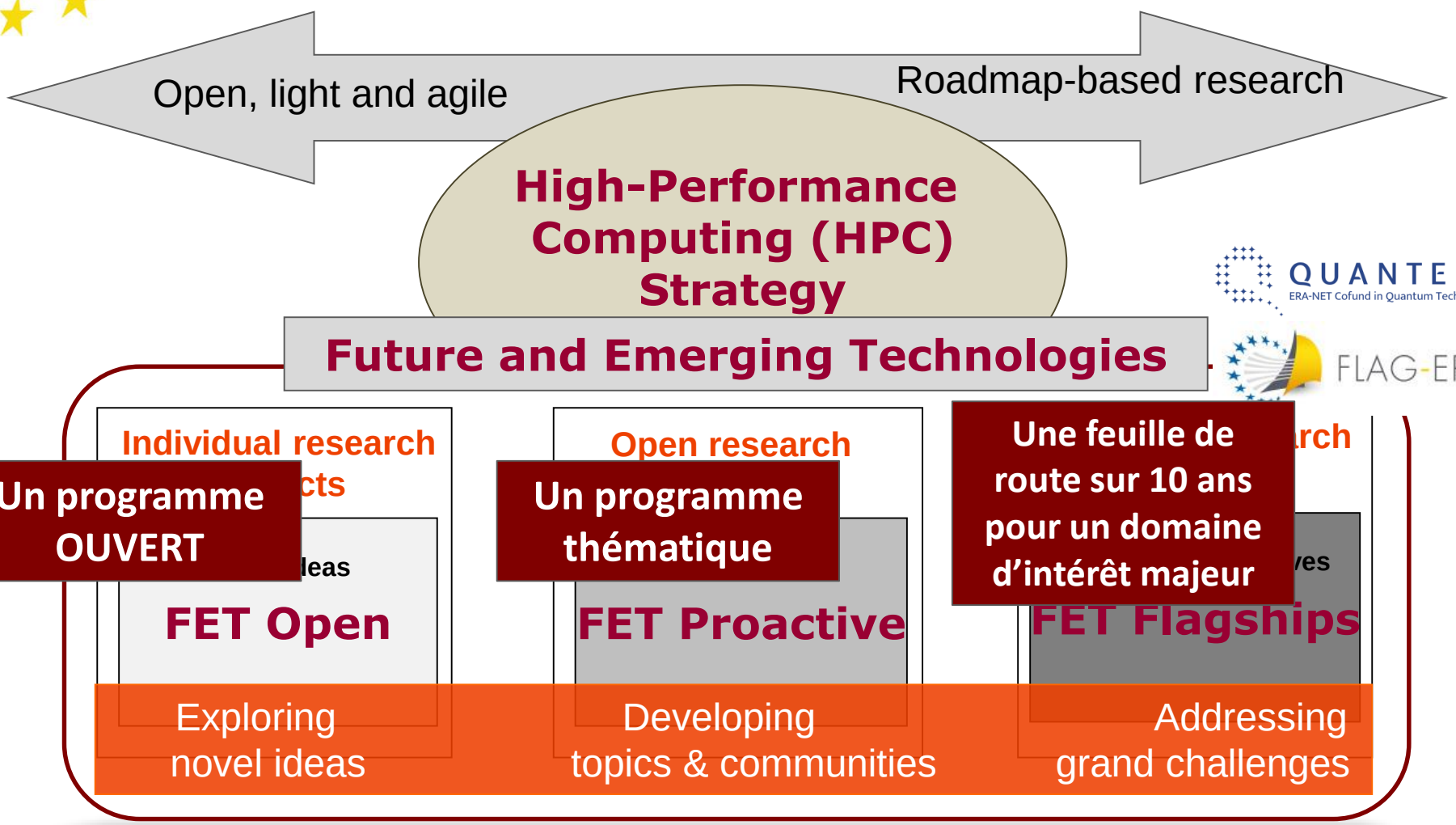
… des idées novatrices pour des technologies radicalement nouvelles

Le programme **technologies futures et émergentes** (FET) a pour ambition de transformer l'excellence scientifique de l'Europe en un avantage compétitif.

Ce programme veut promouvoir la recherche au-delà des connaissances, de ce qui est accepté et largement adopté et soutiendra les idées visionnaires et nouvelles pour ouvrir des voies prometteuses vers des technologies fortes.

La recherche financée sera interdisciplinaire et se positionnera entre défis scientifiques, défis sociétaux et compétitivité industrielle rapprochant la science et l'ingénierie.

La structure – Un programme en 3 volets



FET PROACTIVE

FET Proactive – Boosting emerging technologies

FETPROACT-01-2018: FET Proactive: emerging paradigms and communities

- **Establishing a new technological paradigm**
- **Creating a pool of European expertise**
- **Stimulating the emergence of Innovation eco-systems**
- **Targets a mix of small and large; EUR 4 to 7 million (up to 5 for Topological matter)**

6 themes selected for 2018 (from consultation, FETAG, OBSERVE)

Artificial Organs, tissues, cells and sub-cellular structures; Time; Living technologies; Socially interactive technologies; Disruptive micro-energy technologies; Topological matter

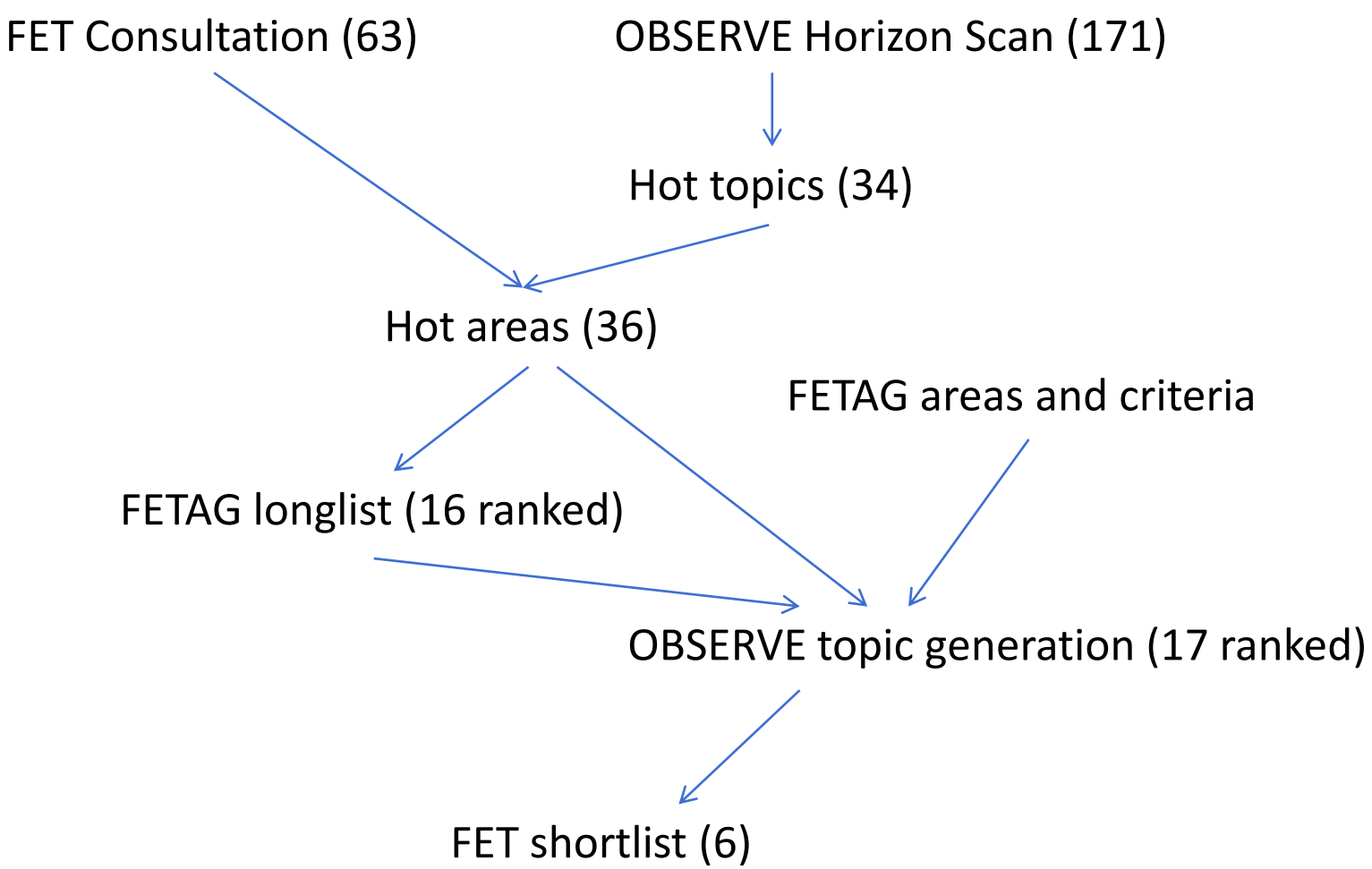
A second set of topics is to be addressed in 2020, currently left undefined

Process for topic creation/validation

- *FET Proactive consultation on D4Science platform, April/May 2016*
  - **54 distinct topics (+ 9 groups of topics from Flagship consultation)**
  - **Clustered in 16 groups – some cross-cutting themes emerging**
- *OBSERVE Horizon Scanning report and hot topics*
  - **Independent research based on a very broad range of sources, including FET portfolio and submissions.**
  - **171 'fiches', merged with consultation results and themes**
  - **36 'hot topics' identified**
- *FETAG Advisory Group workshop and report*
  - **Took OBSERVE and group's expertise for validation, gap finding and first text**
  - **Defined 5 areas to assure balanced coverage with 16 topics (prioritised)**
- *OBSERVE topic generation workshop*
  - **25 multidisciplinary scientists and creative people (2 from FETAG)**
  - **Based on OBSERVE Hot topics and 16 FETAG topics, unranked**
  - **Developed 17 (participants preferences) topics in more detail (vision, scope, illustration)**
  - **Multi-criteria analysis (~ FETAG primary criteria), ranked**

Process for topic creation/validation

Scoping Prioritising Finding



FET PROACTIVE – Résultats 2014 et 2016

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FET PROACTIVE – Thèmes 2014 et 2016

2014
35M€

2016
80M€

Thèmes	Budget
Global Systems Science	10 M€
Knowing, doing and being: cognition beyond problem solving	15 M€
Quantum Simulation	10 M€
Area 1 - Future technologies for societal change: *Being human in a technological world* *New science for a globalised world*	20M€ Max.
Area 2 - Biotech for better life: *Intra- and inter-cell bio-nano-chem technologies* *Bio-electronic medicines and therapies* *Cognitive neuro-technologies*	30M€ Max
Area 3 - Disruptive information technologies: *New computing paradigms and their technologies* *Quantum engineering* *Hybrid opto-electro-mechanical devices at the nano-scale*	30M€ Max
Area 4 - New technologies for energy and materials: *Ecosystem engineering,* *Complex bottom-up construction*	20M€ Max

FET PROACTIVE – Résultats 2014 et 2016

Thèmes	Budget	Propositions évaluées	Propositions Retenues	Taux de succès	Participations FR
Global Systems Science	10 M€	51	3	5,9%	4
Knowing, doing and being	15 M€	108	4	3,7%	3
Quantum Simulation	10 M€	17	3	17,6%	5
Future technologies for societal change	20 M€ Max.	26	1	3,8%	2
Biotech for better life:	30 M€ Max	92	5	5,4%	5
Disruptive information technologies	30 M€ Max	63	4	6,3%	6
New technologies for energy and materials	20 M€ Max	29	2	6,9%	5
Total	115	386	22	5,7%	30

FR 2ème bénéficiaire (après DE) avec 28 participations (15 projets) et 2 coordinations, pour un montant total de 16,75 Meuros

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FET Proactive 2014
Liste des 10 projets retenus (RIA)

DOLFINS	Distributed Global Financial Systems for Society	UNIVERSITAET ZUERICH	CH
CIMPLEX	Bringing CItizens, Models and Data together in Participatory, Interactive SociaL EXploratories	DEUTSCHES FORSCHUNGSZENTRUM FUER KUENSTLICHE INTELLIGENZ GMBH	DE
GRACeFUL	Global systems Rapid Assessment tools through Constraint FUnctional Languages	UNIVERSITAT POLITECNICA DE CATALUNYA	ES
socSMCs	Socialising Sensori-Motor Contingencies	UNIVERSITAETSKLINIKUM HAMBURG-EPPENDORF	DE
flora robotica	Flora Robotica: Societies of Symbiotic Robot-Plant Bio-Hybrids as Social Architectural Artifacts	UNIVERSITAET PADERBORN	DE
TIMESTORM	Mind and Time: Investigation of the Temporal Traits of Human-Machine Convergence	FOUNDATION FOR RESEARCH AND TECHNOLOGY HELLAS	EL
DREAM	Deferred Restructuring of Experience in Autonomous Machines	UNIVERSITE PIERRE ET MARIE CURIE - PARIS 6	FR
RYSQ	Rydberg Quantum Simulators	UNIVERSITAET ULM	DE
QUIC	Quantum simulations of insulators and conductors	LABORATORIO EUROPEO DI SPETTROSCOPIE NON LINEARI	IT
AQuS	Analog quantum simulators for many-body dynamics	RUPRECHT-KARLS-UNIVERSITAET HEIDELBERG	DE

FET Proactive 2016
Liste des 12 projets retenus (RIA)

OPRECOMP	Open transPREcision COMPuting	IBM RESEARCH GMBH	DE
A-LEAF	An Artificial Leaf: a photo-electro-catalytic cell from earth-abundant materials for sustainable solar production of CO2-based chemicals and fuels	FUNDACIO PRIVADA INSTITUT CATALA D'INVESTIGACIO QUIMICA	ES
HOT	Hybrid Optomechanical Technologies	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	CH
VIRUSCAN	Optomechanics for Virology	AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	ES
Neurofibres	Biofunctionalised Electroconducting Microfibres for the Treatment of Spinal Cord Injury	SERVICIO DE SALUD DE CASTILLA LA MANCHA	ES
MAGENTA	MAGnetic nanoparticle based liquid ENergy materials for Thermoelectric device Applications	CEA	FR
BrainCom	High-density cortical implants for cognitive neuroscience and rehabilitation of speech using brain-computer interfaces	FUNDACIO INSTITUT CATALA DE NANOCIENCIA I NANOTECNOLOGIA	ES
Bio4Comp	Parallel network-based biocomputation: technological baseline, scale-up and innovation ecosystem	LUNDS UNIVERSITET	SE
CResPace	Adaptive Bio-electronics for Chronic Cardiorespiratory Disease	UNIVERSITY OF BATH	UK
Mechano-Control	Mechanical control of biological function	FUNDACIO INSTITUT DE BIOENGINYERIA DE CATALUNYA	ES
Plan4Act	Predictive Neural Information for Proactive Actions: From Monkey Brain to Smart House Control	GEORG-AUGUST-UNIVERSITAET GOETTINGEN STIFTUNG OEFFENTLICHEN RECHTS	DE
ODYCCEUS	Opinion Dynamics and Cultural Conflict in European Spaces	MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V.	DE

FET PROACTIVE – Draft WP 2018-2020

FET PROACTIVE **DRAFT WP 2018 - 2020**

FETPROACT-01-2018: emerging paradigms and communities

An innovation ecosystem around a new technological paradigm

- Area 1 - **Artificial organs, tissues, cells *and sub-cellular structures* (15M€)** *Integrative biology, bio engineering, replacement, control or repair of vital organ functions, use in the development of personalized treatment, drugs or vaccine, etc..*

- Area 2 – **Time (13M€)** *New ways to represent, modulate, duplicate or differently experience and use time, thus altering our relationship with time and with impacts on quality of life*

- Area 3 - **Living technologies (20M€)** *Understanding of essential features of living systems such as physical autonomy, growth, interaction and enaction, adaptation and evolution, among others. Hybrid materials and systems* with programmable features of shape, structure, *functionality and evolvability ; Work on ethical implications must be included*

FET PROACTIVE **DRAFT WP 2018 - 2020**

- Area 4 - **Socially interactive technologies (15M€)**
  New experimental tools and paradigms, combining social sciences and humanities with neuroscience, engineering and computing. Work on ethical implications and gender must be included

- Area 5 - **Disruptive micro-energy and storage technologies (15M€)**
  New approches for embedded, local or personal use (including close to the body or within, *the use of soft or intelligent materials to generate or capture energy or bio-mimicking) and thermal management* (micro-energy *and nano-scale heat transfer, dissipation and conversion*)

- Area 6 - **Topological matter (10M€)**
  Based on topology and quantum physics

FET PROACTIVE **DRAFT WP 2018 - 2020**

FETPROACT-01-2018: FET Proactive: emerging paradigms and communities

- Budget/projet :*4 à* 7M€ *(max 5M€ pour projet sur Topological matter)* pour 5 ans max.
- Budget global : 88M€
- Deadline : 18 septembre 2018

FETPROACT-02-2018: Community building in Neuromorphic Computing Technologies

- *- CSA*
- *- Budget global: 0,5M€*
- *Deadline : 22 mars 2018*

Modalités de soumission et d’évaluation

Soumission / évaluation en 1 étape

Partie A en ligne : infos administratives

Partie B : document de (30+1) pages max

- page de couverture (1 page)
- Section 1: Excellence
- Section 2: Impact
- Section 3: Implementation

Information complémentaire

- Section 4: members of the consortium
  - E.g. entités légales, CV, sous-traitance, ...
- Section 5: éthique et sécurité

Critères d'évaluation **spécifiques**
Actions de Recherche et d'Innovation (RIA)

- ***Excellence*** weight 60%, threshold 4/5
- ***Impact*** weight 20%, threshold 3,5/5
- ***Quality and efficiency of the implementation*** weight 20%, threshold 3/5

Critères d'évaluation FETPROACTIVE 2018-2020
Actions de Recherche et d'Innovation (RIA)

***Excellence* - weight 60%, threshold 4/5**

- Clarity of long-term vision of a science-enabled technology.
- Concreteness and ambition of the proposed science-to-technology breakthrough that addresses this vision.
- Range and added value from interdisciplinarity, novelty and non-incrementality of the research proposed.
- High-risk of the research proposed and plausibility and flexibility of the approach.

Critères d'évaluation FETPROACTIVE 2018-2020
Actions de Recherche et d'Innovation (RIA)

Impact - weight 20%, threshold 3,5/5

- The extent to which the outputs of the project would contribute to the expected impacts mentioned in the work programme under the relevant FET topic.
- Effectiveness of measures and plans to disseminate and use the results (including management of IPR) and to communicate the project to different target audiences.

Expected Impact:

Scientific and technological to the foundation and consolidation of a radically new future technology

Potential for future returns in terms of societal or economic innovation or market creation.

Spreading excellence and building leading innovation capacity across Europe by involvement of key actors that can make a difference in the future, including excellent young, researchers, ambitious high-tech SMEs or first-time participants to FET under Horizon 2020.

Build-up of a goal oriented interdisciplinary community (within and beyond the consortium).

Emergence of an innovation ecosystem around a future technology in the theme addressed from outreach to and partnership with high potential actors in research and innovation, and from wider stakeholder/public engagement.

First time participation here refers to the individuals involved, not to their institution or organisation.

Critères d'évaluation FETPROACTIVE 2018-2020
Actions de Recherche et d'Innovation (RIA)

Quality and efficiency of the implementation - weight 20%, threshold 3/5

- Coherence and effectiveness of the work plan to achieve project objectives and impacts, including adequate allocation of resources to tasks and partners.
- Appropriateness of the research and innovation management structures and procedures.
- Role and complementarity of the participants and extent to which the consortium as a whole brings together the necessary expertise.

Prochaine deadline FET Proactive

Opening: 17 Apr 2018		
FETPROACT-01-2018 (RIA)	88 M€	18 Sep 2018

Analyse des rapports d’évaluation

Corpus

FET Proactive Research and Innovation Actions 2014 + 2016

→ Tous les projets retenus (main + reserve lists) : 26

→ Below available budget : projets à coordination française : 10

→ Below threshold : projets à coordination française : 17

Excellence – Points forts

Nouveauté / Ambition

"Very clear scientific and technological contributions , potential of breakthrough very clear, entirely new research in new domain, high foundational character"

« Investigates problems that until now have only been abstract ideas »

« Significant breakthrough in both basic science and translational medicine with significant implications for medical electronic market; very timely topic"

"The novelty level of the presented idea is absolute; enormous potential of achieving the desired breakthrough in the thermoelectric technologies to make them truly environmentally friendly and commercially competitive; perfect match to sub-topic; the poposal fits very well into the "ethos" of FET"

Faisabilité

« research quality of the partners is outstanding, giving confidence that the targeted breakthroughs can be achieved and ultimately translated"

"Contains the whole required chain of steps to achieve the proposal challenge"

"based on substantial preliminary work"

"ongoing projects in which partners are involved provide important background "

"feasible; well-conceived; ambitious in both science and technology aspects"

Industrie/Applications

« A WP entirely dedicated to the fabrication of prototypes - the added value comes from the strong interaction with industry (4 companies actively involved)"

"the proposed platform will be designed to have a lifetime beyond the project"

"synergy is very good between the academic researchers, however importantly the proposal also engages carefully selected SMEs and one large industrial partner relevant to the ultimate application in waste heat recovery"

"new efficient line of technology leading to new applications"

Excellence – Points forts

Interdisciplinarité

« integrates neurophysiology with robotics, computational modelling and different visions of engineering"

"encompasses mathematics, computer science, molecular biology, nanofabrication"

"certainly multidisciplinary, connecting technologists and material scientists, engineer experts in integrated circuits with biologists working with different animal models and end-users and hospital clinicians, industrial partners and a neuroethical team providing guidance on ethic issues; involves two teams of philosophers specialized in bio and neuro-ethics; participation of technology partners in fundamental research and vice-versa, and a smooth flow of neuro-research knowledge from pre-clinical and clinical groups"

« competencies from neurosciences, physical medicine, rehabilitation, nanotechnology, numerical modelling, neurosurgery, molecular physiology, and stakeholder engagement which is beyong current mainstream collaborations »

« perfect symbiosis; covers the entire knowledge/technology value chain; graphic representation of synergies among different disciplines"

"integrates neurophysiology with robotics, computational modelling and different visions of engineering;"

"engages physicists, chemists and electrochemists who will need to fully engage in exchange of ideas; the challenges and opportunities arising from interdisciplinarity are well illustrated in figure 1.3"

"integration between material science, synthetic chemistry, nanotechnology, biophysics, cell biology and oncology; close collaboration between PIs and labs withing the work packages and crosstalk between the WPs are notable"

"The proposal is definitely interdisciplinary and aspects from psychology, neurosciences, robotics, AI, movement science, and computer science are addressed"

Excellence – Points faibles

Manque de nouveauté / vision

« Not persuasive and elaborated, incremental only »
« No breakthrough, objectives are very general, no novelty or ambition »
« state of the art not well defined »
« advantages of breakthrough not well explained »

Manque de précisions / Faisabilité

« Methodology lacks details (in particular for narrowing multiple options)"
"Too ambitious; lack of explanations about overcoming some scientific bareers"
"Contribution to the science is not enough specified"
"More details of the research methods should have been provided"
"from a technical perspective important elements describing the system are missing"
"Quantitative targets or comparison with existing technologies are scarce"

Interdisciplinarité

« Limited information about cross-fertilisation »
« Moderate interdisciplinarity »
« extent and benefit from interdisciplinarity is somehow unclear"

Gestion des risques

« Risk about quality of integration of the numerous partners"

Impact – Points forts

Description de l'impact

« Convincing, significant impact on society and health »
« Good impact on medicine, impact on society and technology is convincing »
« the outcome of the project will have tranformational impact on future robotic technology"
"transformation of technology in the short term and of society in the long term"
"separation between immediate impact and potential future impact extremely detailed"

Communication

« Technology will be widely utilised; includes communication toward general public"
"The project also organizes summer schools, summer laboratories and workshops."
"use of multi-media, internet, viral campaigns and social networks"
"educational activities for the promotion of science and the social acceptance of the technology"
"Particular attention to general public: mobile phone application to attract attention of young people"

Nouveaux acteurs

« The two SMEs involved are high potential novel actors..."
"number of young researchers as well as established senior investigators; proper gender balance in the team"
good synergy of the youth and well-known scientists; role of SME clearly outlined; activities devoted to training and development of young researchers

Impact – Points forts

Diffusion/ Exploitation des résultats

« Realistic and credible strategy; priority for gold open access publications”
“database publicly available for scientific community”
“effective, high-quality dissemination measures inluding patents, conference contributions, scientific publishing, and unconventional ones as well as the website; well-structured plan to involve stakeholders, clinicians, media experts and business people; as well as to make aware the SCI community”
“demonstration and try-it-yourself opportunities in medical trade fairs”
“Good dissemination plan to involve stakeholders”
“usual and appropriate "impact measures" for such low TRL project (web page, publications..)”

Applications / Industry

« The expected impact is high… this is strengthened by including two industrial partners ; The industrial partners plan to incorporate the results of the project; The results of the project can be directly used to strenghten European market”
“commercialization opportunities (start-up and spin-offs), potential impact on EU innovation ecosystem might break the monopoly of large companies like Google and facebook, could facilitate a type of social and collaborative innovation (innovators, users, communities etc...) at a scale impossible before”

Impact – Points forts

"Perfectly fits FET PROACTIVE programme (will establish a solid baseline of knowledge and skills for future applications); potential major **societal impact**; **appropriate private entreprises** are involved ensuring commercialisation of usable products; several of the involved **university partners have experience in commercialisation**; potential significant economic impact for EU; will help the EU secure a global leading position in the healthcare industry and bioelectronics medicine; enabling the EU pharmaceutical industry to diversify from drugs into the lucrative medical device market; good strategy to engage a **broad reservoir of stakeholders** (patients, cardiovascular associations, electrical medical companies, cardiologists and heart surgeons) via a **web newsletter and news alert on the website**; preliminary inquiries about the **market potential of project results**; relevant aspects are included in the **intellectual property and exploitation management plan**"

"High application potential for TE generators; involves the **construction of prototypes**; the proposal will certainly strengthen EU leadership in this hot field; solid knowledge base in a **remarkably novel** technology; **good team of business-oriented entities** on board; can play an important role toward a sustainable energy wide-world transition; the structure of the consortium sets and example of a well-planned approach for innovative research and development; there will be inevitably **more and more end-users** queuing to try out or acquire their technology; in addition to the high-tech SMEs, the participation of end-user industry, **Fiat-Chrysler ensures the exploitation potentials**; public engagement very good; completely **gender balanced with 50% key personnel female** representation; **green open access model**"

Impact – Points faibles

Description de l'impact

"Impact is vague; no transformation of technology as it is only incremental"
"Impact overestimated and not discussed enough"
"the proponents occasionally overstate their technology/scientific impact ignoring potential competitors and state of the art"
"interdisciplinary community structuring is not convincing"
"Impact science but not technology or society"
"Narrow impact; incremental"

Communication

« Public engagement not sufficient »
« proposed outreach activities are rather standard"

Nouveaux acteurs

« Only one female PI »
"not many new actors, no new technology leaders would result from the project"

Applications

« No estimations or surveys on market potential »
« Technological advancement may be far from the involvement of industry and stakeholders"

Diffusion/ Exploitation des résultats

« dissemination measures very standard and there is no WP entirely dedicated to this activity"
"plan for exploitation not sufficiently detailed; interdisciplinary community structuring is not convincing"

Implementation – Points forts

Clarté du plan de travail

« Separating scientific work from validation is an excellent feature; quality of work plan is outstanding”
“Steering/advisory committee with 3 external internationally-recognized advisers included, with letters of support provided”
“The workplan adds very good detail to the overall vision of the proposal; the work packages follow the general "mnemonic" of figure 1.2; milestones and deliverables very clear and logically justified; proposal plan, relation between the WPs and Gantt charg are perfectly illustrated and easy to follow”
“Objectives are Specific, Measurable, Attainable, Relevant and Time-bound”
“management structure is perfectly tuned to the small size of the consortium and properly designed to handle long-term project goals and day-by-day activities”

Consortium

“very good scientific human resources”
“Publications of the consortium are very good”
“good track records of grant funding and high rank publications”
“two company members of the consortium with relevant R&D experience; participation of SMEs is critical for innovation management and dissemination activities towards industry”
“although the number of partners is quite limited, all needed technical implementation expertise are present, with a simple and effective management structure”

Allocation of resources

“very well justified allocation of resources”
“5M is outstanding value for money; detailed breakdown of costs provided together with "pie-charts" illustrating the proposal's financials”
“person-months are well-balanced and justified; table with exact numbers for equipment is provided for all participants”

Implementation – Points forts

"**Intermediate targets** are appropriate and well justified; **Risk assessment** is properly addressed; **Dependencies between tasks and WPs** are clearly identified and justified; High quality work plan with detailed scientific **description of tasks**; Sufficient time for **corrective and mitigations actions**; **Excellent scientific Advisory board**; Good **balance** of competencies; Strong partnership; They are **complementary**, without unnecessary overlap of competencies; **Experienced** in collaborative projects"

Realistic but ambitious and relevant goals; **previous experience** of large scale projects of coordinator and partners; **each partner has unique specificity and role** inside the consortium: technology, neuroscience, engineering, philosophy and consulting; combination of neuroprosthetics research with philosophy and consulting; good **balance of private and public sectors**; partners are **top experts** in their own field; **equal opportunity principle** for women and men in workplaces; half of the PIs are females

Implementation – Points faibles

Clarté du plan de travail

« Lack of risks description »
« IPR not sufficiently considered »
« Milestones only in WP1 »
« No specific WP for dissemination »
« Explanation of workflow and timing of WP3 is not sufficiently detailed"
"Some intermediate targets not sufficiently clear, confidentiality nature of some deliverables not sufficiently explained, list of milestones needs clarification."

Consortium

« redundant expertises »
« lack of industrial partner »
"Very large amount of topics, very large consortium of 14 partners, not easy to judge if all partners are necessary, could benefit from less partners, hard to justify all involvments"

Répartition/justification des ressources

« Low number of postdocs and students in comparison with the number of partners"
"only two groups have requested funds for travel to other groups"

Appel à Projets 2017 de CHIST-ERA

Thématiques de l'appel à projets 2017 de l'ERA-NET CHIST-ERA (http://www.chistera.eu)

- **Object recognition and manipulation by robots: Data sharing and experiment reproducibility**
- **Industrial big data and process modelling for smart factories**

Plus d'infos : http://www.chistera.eu/topics-keywords-chist-era-conference-2017

Ouverture de l'appel : octobre 2017

Participer à la définition de l'appel : 21-23 juin 2017 à Cracovie

Inscriptions : http://conference2017.chistera.eu

L’instrument MRSEI (ANR)

« Montage de réseaux scientifiques européens ou internationaux »

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LE PROGRAMME DE RECHERCHE ET D'INNOVATION DE L'UNION EUROPÉENNE

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RÉPUBLIQUE FRANÇAISE
MINISTÈRE
DE L'ENSEIGNEMENT SUPÉRIEUR
ET DE LA RECHERCHE

Objectifs

- Soutenir la participation des chercheurs français à Horizon 2020

- Accroître le leadership des chercheurs français dans les projets européens

HORIZON 2020
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AGENCE NATIONALE DE LA RECHERCHE
ANR

Mise en œuvre

- 30 K€ max. pour accompagner le montage d'un consortium et d'une proposition de projet à un appel H2020

- L'appel se veut agile:
  - Dossier d'au plus 12 pages
  - Evaluation et sélection en 3 mois
  - Conventionnement accéléré

- Un seul bénéficiaire, le porteur du projet MRSEI, futur coordinateur de la proposition de projet européen (organisme de recherche publique)

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Critères d'évaluation

1. Pertinence, originalité et innovation du sujet ainsi que son adéquation avec l'appel européen visé
2. Qualité et crédibilité du réseau envisagé
3. Qualification du coordinateur scientifique
4. Qualité de la planification de montage du réseau
5. Impact prévisionnel de l'aide

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En savoir plus sur les MRSEI

Le 4ème appel a été lancé le 22 mai 2017 (clôture le 19 juin) :

http://www.anr.fr/MRSEI-2017

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Les clés du succès vus par des lauréats : exemples de projets FET-Proactive

Lauréat	Institution	Projet
Franck Debarbieux	Université Aix-Marseille	NEUROFIBRES
Stéphane Doncieux	UPMC	DREAM
Vincent Agache	CEA	VIRUSCAN
Saco Nakamae	CEA	MAGENTA
Daniel Dolfi	Thales SA	HOT

Artificial organs, tissues, cells and sub-cellular structures

Merging the growing understanding of metabolism and cell behaviour with strategies for the engineering and use of biological and hybrid functional constructs is the core of this initiative. Proposals should build on recent advances in integrative biology (including modelling and simulation) and bio-engineering for engineering biological, artificial or hybrid sub-cellular systems (e.g., synapses, organelles, vesicles), highly specific cell assemblies (including microbial) and proper differentiation, tissues, organs or multi-organ systems. Examples of long-term research targets include the reproduction, replacement, control or repair of vital organ functions (e.g., following ageing, trauma or disease), their use in the development of personalised treatment, drugs or vaccines, and high-throughput organ- and body-on-chip technologies. (15MEuro)

Time

This initiative seeks new technological possibilities inspired by notions of time, not seen as a given and singular background against which things unfold, but rather as a resource that can be experienced, manipulated and used in different ways. Highly interdisciplinary research could address, for instance, subjective time awareness and distortion (e.g., contextual, emotional, pathological); modelling the role of time in processes like aging, healing, learning or evolution and how this can be influenced or changed in different 'materialities' like biological, technical, informational; or non-linear temporality in complex systems and across multiple time scales (including extreme ones). Technologies in e.g., high-speed electronics, data analytics, artificial intelligence, virtual and augmented reality, bio-engineering or neuroprosthetics could demonstrate new ways to represent, modulate, duplicate or differently experience and use time, thus altering our relationship with time (at individual and collective but differentiated level – e.g., according to gender or culture) and with impacts on quality of life, therapy, learning, productivity, social and environmental awareness. (13MEuro)

Living technologies

This initiative seeks to build on the emerging understanding from evolutionary biology, ethology, micro-, plant- and animal biology of essential features of living systems such as physical autonomy, growth, interaction and enaction, adaptation and evolution, among others. The aim is to create new functional biological, technological or hybrid artefacts, with similar capabilities of purposeful stability and change. This can also lead to hybrid materials and systems with programmable features of shape, structure, functionality and evolvability (including for their use in bio-robotics or bio-engineering), potentially constructed from naturally existing complexes, through synthetic biology, systems biology and /or chemical biology. New insights into the multi-level mathematics and complexity of living systems or the boundaries/characteristics of life may also emerge from this. Work on ethical implications must be included. (20MEuro)

Socially interactive technologies

There is a growing understanding of the changes at cognitive, neural and physiological levels from group interactions in realistic settings, from pairs to large groups and crowds. Based on this, this initiative seeks new technologies for deeper social interaction involving, for instance, context, culture, emotion, and factors of embodiment and cognition. Realistic and larger contexts require new experimental tools and paradigms, combining social sciences and humanities with neuroscience, engineering and computing. This will lead to new socially interactive media with radical improvement for building trust and understanding, social integration, engagement, collaboration, learning, creativity, entertainment, education and wellbeing, among others. Work on ethical implications and gender must be included (15MEuro)

Disruptive micro-energy technologies

The technological challenge in energy research relates to its production, distribution, storage and release. This initiative seeks radically new approaches to energy for embedded, local or personal use (including close to the body or within, the use of soft or intelligent materials to generate or capture energy or bio-mimicking) and thermal management, targeting the lower end (i.e., micro-energy and nano-scale heat transfer, dissipation and conversion). Proposals should also address aspects of sustainability and impact, as well as novel solutions for integrating with multi-scale energy systems. (15MEuro)

Topological matter

strongly based on topology and quantum physics, is a rapidly emerging area that after an initial focus on insulators now touches the whole range of material properties, providing advances in spintronics, photonics, plasmas, mechanics, superconductivity, elasticity, acoustics and their combinations, among others. Here concept development together with design, realisation and testing of topological devices are called for to unleash the promise of topological matter beyond the pure physics and mathematics aspects. The much expected robustness, wide spectral range and topologically-protected spin- and transport properties call for an engineering approach to apply the multi-physics of wave-matter interactions to novel, potentially lossless communication components and circuits. Challenges to be addressed include compact designs and fabrication technologies, setting figures of merit and benchmarks relevant to functions. (10MEuro)