

HORIZON 2020

› The Framework Programme for Research and Innovation (2014-2020)

- › Aarhus University
- › AU Research and Support Office

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WHAT IS HORIZON 2020?

- › New concept – The Framework Programme for Research and Innovation
- › Implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness
- › Focus on societal challenges - Finding solutions to European/global problems

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CHANGES TO FP7



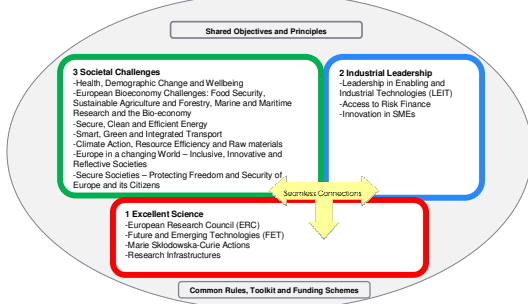
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HORIZON 2020 STRUCTURE

- › 3 Pillars!
- › A new structure with similar rules for all programmes
- › Focus on industry, innovation and linking research to deployment, market application and impact
- › Focus on interdisciplinarity

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HORIZON 2020 STRUCTURE



Adapted from UCL's European Research and Development Office

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HORIZON 2020 STRUCTURE

- › 3-year Strategic Programmes
- › Biannual Work Programmes with annual calls

2014	2015	2016	2017	2018	2019	2020
Strategic programme						
Work programme 1		Strategic programme				
		Work programme 2		Strategic programme		
				Work programme 3		

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HORIZON 2020 STRUCTURE

Strategic programmes

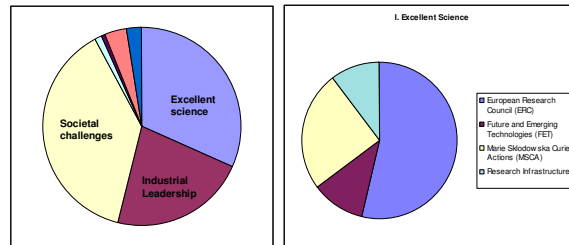
› Focus areas: Exiting the current economic crisis

- Personalising health and care
- Sustainable food security
- Blue growth: unlocking the potential of the oceans
- Smart cities and communities
- Competitive low-carbon energy
- Energy efficiency
- Mobility for growth
- Waste: a resource to recycle, reuse and recover raw materials
- Water innovation: boosting its value for Europe
- Overcoming the crisis: new ideas, strategies and governance structures for Europe
- Disaster-resilience: safeguarding & securing society, incl. adapting to climate change
- Digital security

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HORIZON 2020 BUDGET (MIO. EUR)

INDICATIVE BREAKDOWN

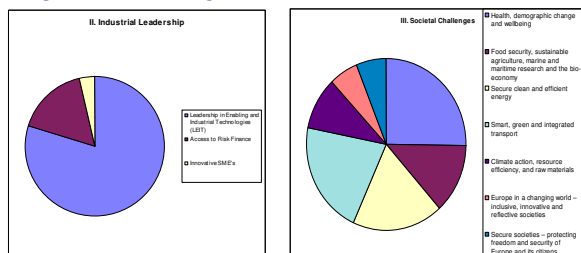


currently expected overall budget – around €70billion
= approximately 12% cut compared to EC proposal

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HORIZON 2020 BUDGET (MIO. EUR)

INDICATIVE BREAKDOWN



currently expected overall budget – around €70billion
= approximately 12% cut compared to EC proposal

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INSTRUMENTS

INSTRUMENTS

Rules for Participation for H2020

(European Council of Ministers 10 October 2012)

- › One set of rules for all programmes and participants
- › **Grants**, prizes, procurement and financial instruments
- › Special rules for
 - ERC
 - Marie Skłodowska-Curie actions
 - SME actions

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INSTRUMENTS

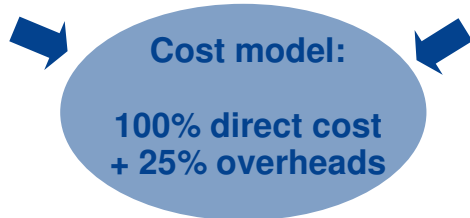
Grants

- › A single funding rate
- › Cost model: **100% direct cost + 25% flat rate for overheads**

Close to Market/ Innovation Projects and CoFund
70% reimbursement for commercial organisations
100% for non-profit organisations/ public research participants

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INSTRUMENTS



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INSTRUMENTS

Grants

- › Minimum 3 partners for collaborative projects
- › Evaluation criteria
 - Excellence
 - Impact (higher priority for close-to-market actions)
 - Quality and efficiency of the implementation

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Type of actions

Research and Innovation Action [R&I actions]	Basic and applied research, technology development and integration, testing and validation on a small scale prototype in a laboratory or simulated environment
Innovation Action [IA]	Prototyping, testing, demonstrating, piloting, large-scale product validation and market replication
Coordination and Support Action [CSA]	Accompanying measures – no research
SME instrument	3 phases. Minor possibilities of subcontracted work to researchers in phase 2.

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WP 2014-15 overview

- › 16 work programmes
- › Approx. 55+ calls
- › Each call with 1-42 activities

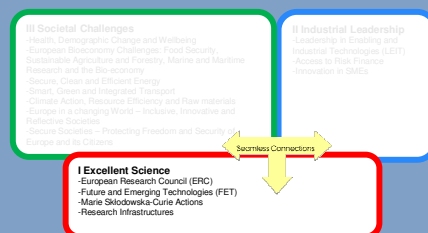
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H2020 - Portfolio Instrument

Excellent Science	ERC	ERC-SG	ERC-StG
	FET	FET-OPEN	FET-PRODIGE
	MSCA	MSCA-IF	MSCA-ITN
	Research Infrastructures	RI-MSCA	RI-ERC
Industrial Leadership	LDT	LDT-IMP	LDT-IMP
	Access to the Market	Access to the Market	Access to the Market
Societal Challenges	SC1	SC1-HEALTH	SC1-HEALTH
	SC2	SC2-ADG	SC2-ADG
	SC3	SC3-ENERGY	SC3-ENERGY
	SC4	SC4-TRANS	SC4-TRANS
	SC5	SC5-CLIMATE	SC5-CLIMATE
	SC6	SC6-SOCIETY	SC6-SOCIETY
	SC7	SC7-SECURITY	SC7-SECURITY

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PRIORITY 1



PRIORITY 1-EXCELLENT SCIENCE

- **European Research Council (ERC)**
Frontier research by the best individual teams
- **Future and Emerging Technologies (FET)**
Catalytic role in stimulating new thinking, new practices and new collaboration
- **Marie Skłodowska-Curie actions**
Fellowships, training networks and inter-sectoral actions
- **Research Infrastructures**
Developing new infrastructures and integrating existing facilities

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PRIORITY 1-EXCELLENT SCIENCE

- European Research Council (ERC)**
- › Frontier research by the best individual
 - › Independent Scientific Council
 - › Sole criterion of excellence
 - › "Investigator-driven" approach
- Starting grants
Consolidator grants
Advanced grants
Proof of concept



European Research Council
Established by the European Commission

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PRIORITY 1-EXCELLENT SCIENCE

Future and Emerging Technologies (FET)

- › Collaborative research to open new fields of innovation
- › Bring together actors from science, technology and innovation, where appropriate including users
- › Catalytic role in stimulating new thinking, new practices and new collaborations

FET Open FET Proactive FET Flagships

- fostering novel ideas
- nurturing emerging themes/communities
- pursuing grand interdisciplinary science and technology challenges

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PRIORITY 1-EXCELLENT SCIENCE

Future and Emerging Technologies (FET)

- **FET open**
 - › Call FET-Open – novel ideas for radically new technologies (FET OPEN 1-3)
- **FET proactive**
 - › Call FET Proactive – emerging themes and communities (FETPROACT 1-3)
 - › Call FET-Proactive - towards exascale high performance computing (FETHPC 1-2)
- **FET flagships**
 - › Call FET-Flagships - tackling grand interdisciplinary science and technology challenges (FETFLAG 1-2)

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PRIORITY 1-EXCELLENT SCIENCE

Future and Emerging Technologies (FET)

FETPROACT 1 - 2014: Global Systems Science (GSS)

Specific challenge: The ambition is to improve the way scientific knowledge can help inform and evaluate policy and societal responses to global challenges like climate change, global financial crises, global pandemics, and growth of cities – urbanisation and migration patterns. These challenges entangle actions across different sectors of policy and society and must be addressed by radically novel ideas and thinking for producing, delivering, and embedding scientific evidence into the policy and societal processes.

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PRIORITY 1-EXCELLENT SCIENCE

Marie Skłodowska-Curie actions

Opportunities for training and career development

Innovative Training Networks (ITN)

Fostering new skills by means of excellent initial training of researchers

Collaborative European Training Networks (ETN)

- the best early stage researchers from any country

European Industrial Doctorates (EID)

- to foster innovative spirit among researchers
- to create closer links between industry & academia

European Joint Doctorates (EJD)

- single institutions



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PRIORITY 1-EXCELLENT SCIENCE

Marie Skłodowska-Curie actions

Opportunities for training and career development

Marie Skłodowska-Curie Individual Fellowships (IF)

Nurturing excellence by means of cross-border and cross-sector mobility
Trans-national or international mobility experience

Optional secondments to non-academic sector

3 types:

- European Fellowship
- Global Fellowship

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PRIORITY 1-EXCELLENT SCIENCE

Marie Skłodowska-Curie actions

Opportunities for training and career development

Increasing structural impact by co-funding activities (COFUND)

Stimulating programmes to foster excellence in researchers' training, mobility and career development

European Researchers' Night (NIGHT)

Increase public awareness of research and innovation
Encouraging young people to embark on scientific careers

Research and Innovation Staff Exchange (RISE)

Exchanges of research and innovation staff within partnerships of all socio-economic actors

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PRIORITY 1-EXCELLENT SCIENCE

Research Infrastructures

- › Ensuring access to world-class facilities

Developing the European research infrastructures for 2020 and beyond

- › Facilities, resources and services that are used by the research communities to conduct research and foster innovation
- › Including major scientific equipment (or sets of instruments), but also knowledge-based resources such as collections, archives or scientific data, e-infrastructures, such as data and computing systems and communication networks, and any other infrastructure of a unique nature essential to achieve excellence
- › Single-sited, virtual or distributed

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PRIORITY 1-EXCELLENT SCIENCE

Research Infrastructures

- › Call 1 - Developing new world-class research infrastructures (INFRADEV 1-4)
- › Call 2 - Integrating and opening research infrastructures of European interest (INFRAIA 1)
- › Call 3 - e-Infrastructures (EINFRA 1-9)
- › Call 4- Support to Innovation, Human resources, Policy and International cooperation (INFRA SUPP 1-8)

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PRIORITY 1-EXCELLENT SCIENCE

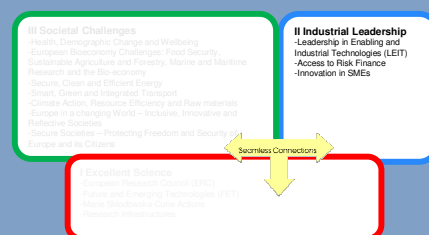
Research Infrastructures

INFRAIA 1-2014/2015: Integrating and opening existing national and regional research infrastructures of European interest
› 41 different suggestions/area e.g.

- › Distributed multidisciplinary European infrastructure on Big Data and social data mining
- › Large-scale testing facilities for engineering applications
- › European facilities for electrochemical energy storage testing
- › European smart grids research infrastructures
- › Research infrastructures for terrestrial research in the Arctic

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PRIORITY 2 - INDUSTRIAL LEADERSHIP



PRIORITY 2 - INDUSTRIAL LEADERSHIP

Strategic investments in
Key Enabling Technologies (KETs)
underpin innovation across existing and emerging sectors

- › Strong private sector involvement - public private partnerships
 - **Information and communication technologies**
 - **Nanotechnologies**
 - **Advanced materials**
 - **Biotechnology**
 - **Advanced manufacturing and processing**
 - **Space**

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PRIORITY 2 - INDUSTRIAL LEADERSHIP

LEIT, Leadership in Enabling and Industrial Technologies
Information and Communication Technologies ICT

- Information and Communication Technologies Calls**
- › A new generation of components and systems (ICT 1-3)
 - › Advanced Computing (ICT 4)
 - › Future Internet (ICT 5-14)
 - › Content technologies and information management (ICT 15-22)
 - › Robotics (ICT 23-24)
 - › Micro- and nano-electronic technologies, Photonics (ICT 25-29)
 - › ICT Cross-Cutting Activities (ICT 30-33)
 - › Horizontal ICT Innovation actions (ICT 34-37)
 - › International Cooperation actions (ICT 38-39)

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PRIORITY 2 - INDUSTRIAL LEADERSHIP

LEIT, Leadership in Enabling and Industrial Technologies
Information and Communication Technologies ICT

- › **ICT 7: Advanced Cloud Infrastructures and Services**
- › **Specific Challenge:** Cloud computing is being transformed by new requirements such as heterogeneity of resources and devices, software-defined data centres and cloud networking, security, and the rising demands for better quality of user experience.
- › Cloud computing research will be oriented towards new computational and data management models (at both infrastructure and services levels) that respond to the advent of faster and more efficient machines, rising heterogeneity of access modes and devices, demand for low energy solutions, widespread use of big data, federated clouds and secure multi-actor environments including public administrations.

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PRIORITY 2 - INDUSTRIAL LEADERSHIP

LEIT, Leadership in Enabling and Industrial Technologies
Information and Communication Technologies ICT

EU-Brazil Research and Development Cooperation in Advanced Cyber Infrastructure (EUB 1-3)

EU-Japan Research and Development Cooperation in Net Futures (EUJ 1-4)

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PRIORITY 2 - INDUSTRIAL LEADERSHIP

LEIT, Leadership in Enabling and Industrial Technologies
Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing

- Call for Nanotechnologies, Advanced Materials and Production (NMP 1-39)**
- Bridging the gap between nanotechnology research and markets (NMP 1-7)
 - Nanotechnology and Advanced Materials for more effective Healthcare (NMP 8-12)
 - Nanotechnology and Advanced Materials for low-carbon energy technologies and Energy Efficiency (NMP 13-17)
 - Exploiting the cross-sector potential of Nanotechnologies and Advanced materials to drive competitiveness and sustainability (NMP 18-25)
 - Safety of nanotechnology-based applications and support for the development of regulation (NMP 26-30)
 - Addressing generic needs in support of governance, standards, models and structuring in nanotechnology, advanced materials and advanced manufacturing and processing (NMP 31-39)

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PRIORITY 2 - INDUSTRIAL LEADERSHIP

LEIT, Leadership in Enabling and Industrial Technologies
Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing

- › **NMP 6: Novel nanomaterials and nanocapsules**
- › **Specific challenge:** Encapsulation technologies have been widely used for a long time in the pharmaceutical industry for drug delivery applications. The emergence of nanotechnology and the availability of novel tools have paved the way for a new type of nanomaterials and nanocapsules, which can be used for targeted delivery and can carry payloads for localised action in many application fields.

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PRIORITY 2 - INDUSTRIAL LEADERSHIP

LEIT, Leadership in Enabling and Industrial Technologies
Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing

KET adv. manufacturing, adv. materials, nanotechnologies, biotechnology

Call for Biotechnologies (BIOTEC 1-6)

- Cutting-edge biotechnologies as future innovation drivers (BIOTEC 1-2)
- Biotechnology-based industrial processes driving competitiveness and sustainability (BIOTEC 3-5)
- Innovative and competitive platform technologies (BIOTEC 6)

Call for FoF - Factories of the Future (FoF 1-14)

Call for EeB – Energy-efficient Buildings (EeB 1-8)

Call for SPIRE – Sustainable Process Industries (SPIRE 1-8)

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PRIORITY 2 - INDUSTRIAL LEADERSHIP

LEIT, Leadership in Enabling and Industrial Technologies
Space

- › Applications in Satellite Navigation – Galileo (GALILEO1-4)
- › Earth Observations (EO 1-3,1-3)
- › Protection of European assets in and from space (PROTEC 1-2, 1)
- › Competitiveness of the European Space Sector (COMPET 1-11, 1-6)

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PRIORITY 2 - INDUSTRIAL LEADERSHIP

› Access to risk finance

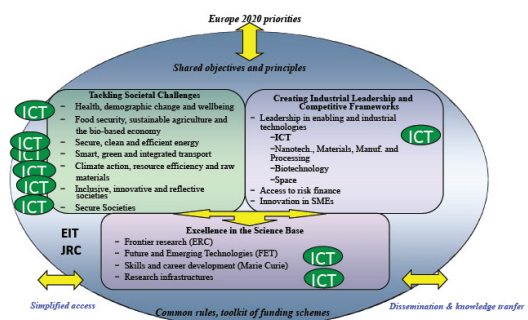
Debt facility - loans and guarantees

Equity facility - early-stage venture capital

› Innovative small and medium-sized enterprises

Call: Enhancing SME innovation capacity by providing better innovation (INNOSUP 1-9)

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HORIZON 2020



PRIORITY 3 - SOCIETAL CHALLENGES

III Societal Challenges

Health, Demographic Change and Wellbeing
European Bioeconomy Challenges: Food Security, Sustainable Agriculture and Forestry, Marine and Maritime Research and the Bio-economy
Secure, Clean and Efficient Energy
Smart, Green and Integrated Transport
Climate Action, Resource Efficiency and Raw materials
Europe in a changing World – Inclusive, Innovative and Reflective Societies
Secure Societies – Protecting Freedom and Security of Europe and its Citizens

II Industrial Leadership

Leadership in Enabling and Industrial Technologies (LEIT)
Access to Risk Finance
Innovation in SMEs

Seamless Connections

I Excellent Science
European Research Council (ERC)
Future and Emerging Technologies (FET)
Marie Skłodowska-Curie Actions
Research Infrastructures

PRIORITY 3 - SOCIETAL CHALLENGES

1. Health, Demographic Change and Wellbeing
2. Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research
3. Secure, Clean and Efficient Energy
4. Smart, Green and Integrated Transport
5. Climate Action, Resource Efficiency and Raw materials
6. Europe in a changing World – Inclusive, Innovative and Reflective Societies
7. Secure Societies – Protecting Freedom and Security of Europe and its Citizens

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PRIORITY 3 - SOCIETAL CHALLENGES

1. Health, Demographic Change and Wellbeing

Call for personalising health and care (PHC 1-34)
Call – Co-ordination activities (HCO 1-16)

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PRIORITY 3 - SOCIETAL CHALLENGES

1. Health, Demographic Change and Wellbeing

Call for personalising health and care (PHC 1-34)

- › Understanding health, ageing and disease (PHC 1-3)
- › Effective health promotion, disease prevention, preparedness and screening (PHC 4-9)
- › Improving diagnosis (PHC 10-12)
- › Innovative treatments and technologies (PHC 13-18)
- › Advancing active and healthy ageing (PHC 19-22)
- › Integrated, sustainable, citizen-centred care (PHC 23-29)
- › Improving health information, data exploitation and providing an evidence base for health policies and regulation (PHC 30-34)

Call – Co-ordination activities (HCO 1-16)

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1. Health, Demographic Change and Wellbeing

- › **PHC 7 - 2014: Improving the control of infectious epidemics and foodborne outbreaks through rapid identification of pathogens**
- › **Specific challenge:** Human and animal health worldwide is increasingly threatened by potential epidemics caused by existing, new and emerging infectious diseases (including from antimicrobial resistant pathogens), placing a burden on health and veterinary systems, reducing consumer confidence in food, and negatively affecting trade, food chain sustainability and food security.
- › The increasing incidence and more rapid spread of such diseases are facilitated by modern demographic, environmental, technological and societal conditions. Many of these infections are zoonoses, necessitating an integrated, cross-border, "one health" approach to research and public health measures in the human and veterinary field, including the food chain.

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PRIORITY 3 - SOCIETAL CHALLENGES

2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

Call for Sustainable Food Security (SFS 1-20)
Call for Blue Growth: Unlocking the potential of the Oceans (BG 1-16)
Call for an Innovative, Sustainable and Inclusive Bioeconomy (ISIB 1-12)

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PRIORITY 3 - SOCIETAL CHALLENGES

2. Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research and the bioeconomy

Call for Sustainable Food Security (SFS 1-20)

- › Sustainable food productions systems (SFS 1-11)
- › Safe food and healthy diets and sustainable consumptions (SFS 12-17)
- › Global drivers of food security (SFS 18-20)

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PRIORITY 3 - SOCIETAL CHALLENGES

2. Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research and the bioeconomy

SFS 15 – Proteins of the future

Specific challenge: The growing demand for meat and other protein-rich food sources, in many parts of the world, is of increasing concern in the light of growing population figures, environmental sustainability issues and land-use and food security concerns. Questions related to optimal production and processing methods, location (EU or other), health effects, environmental impact, and legal issues remain unanswered. Consumer acceptance of new and/or improved sustainable protein sources, as well as other factors related to market uptake, require further clarification if global food security together with environmental and socio-economic sustainability is to be ensured.

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PRIORITY 3 - SOCIETAL CHALLENGES

2. Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research and the bioeconomy

Call for Blue Growth: Unlocking the potential of the Oceans (BG 1-16)

- ›Sustainably exploiting the diversity of marine life (BG 1-4)
- ›New offshore challenges (BG 5-7)
- ›Ocean observation technologies/Systems (BG 8-9)
- ›Horizontal aspects, socio-economic sciences, innovation, engagement with society and ocean governance across the blue growth focus area (BG 10-16)

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PRIORITY 3 - SOCIETAL CHALLENGES

2. Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research and the bioeconomy

BG 3 - Novel marine derived biomolecules and industrial biomaterials

Specific Challenge: Due to the rich biodiversity and the specific physical and chemical conditions of the marine ecosystems, especially in the extreme environments, seas and oceans possess the capacity to produce a variety of molecules with unique features, unmatched biochemical diversity and structural complexity. This explains the increased recognition of marine organisms as a source of bioactive compounds and biomaterials with biotechnological, pharmaceutical or other industrial application. However, while an increasing number of marine -derived products are becoming commercialized, increasing the efficiency of the marine biodiscovery pipelines and developing sustainable technologies using marine sources in an environmentally responsible manner are still important challenges to be addressed.

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PRIORITY 3 - SOCIETAL CHALLENGES

2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

Call for an Innovative, Sustainable and Inclusive Bioeconomy (ISIB 1-12)

- ›Sustainable Agriculture and Forestry (ISIB 1-4)
- ›Sustainable and competitive biobased industries (ISIB 5-7)
- ›Cross-cutting actions covering all activities (ISIB 8 – 12)

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PRIORITY 3 - SOCIETAL CHALLENGES

3. Secure, clean and efficient energy

Call for Energy Efficiency (EE 1-21)

Call for Competitive Low-Carbon Energy (LCE 1-22)

Call for Smart Cities and Communities (SCC 1-5)

Call for SMEs and fast tract to innovation for energy (SIE 1-2)

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PRIORITY 3 - SOCIETAL CHALLENGES

3. Secure, clean and efficient energy

Call for Energy Efficiency (EE 1-21)

- ›Buildings and consumers (EE 1-12)
- ›Heating and cooling (EE 13-14)
- ›Industry and products (EE 15-18)
- ›Finance for sustainable energy (EE 19-21)

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PRIORITY 3 - SOCIETAL CHALLENGES

3. Secure, clean and efficient energy

Call for Competitive Low-Carbon Energy (LCE 1-23)

- ›Renewable electricity and heating/cooling (LCE 2-4)
- ›Modernising the European electricity grid (LCE 5-7)
- ›Providing the energy system with flexibility through enhanced energy storage technologies (LCE 8-10)
- ›Sustainable biofuels and alternative fuels for the European transport fuel mix (LCE 11-14)
- ›Enabling the decarbonation of the use of fossil fuels during the transition to a low-carbon economy (LCE 15-17)
- ›Supporting the development of a European research area in the field of energy (LCE 18-19)
- ›Social, environmental and economic aspects of the energy system (LCE 20-21)
- ›Cross-cutting issues (LCE 22-23)

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PRIORITY 3 - SOCIETAL CHALLENGES

3. Secure, clean and efficient energy

LCE 2: Developing the next generation technologies of renewable electricity and heating/cooling

Specific challenge: Complementing the global challenges outlined above, the following technology-specific challenges have to be addressed in 2014:

- a. Photovoltaics: Developing next generation high performance PV cells and modules
- b. Concentrated Solar Power (CSP): Making CSP plants more cost competitive
- c. Wind energy: Develop control strategies and innovative substructure concepts
- d. Ocean energy: Develop emerging designs and components
- e. Hydro power: Boosting peak power through sustainable hydropower
- f. Deep geothermal energy: Development of new drilling technologies and concepts for geothermal energy
- g. Renewable Heating and Cooling: (i. Solar cooling systems & ii. Improving efficiency of biomass heating and CHP systems)

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PRIORITY 3 - SOCIETAL CHALLENGES

3. Secure, clean and efficient energy

Call for Smart Cities and Communities (SCC 1-5)

- › Smart Cities and Communities solutions integrating energy, transport, ICT sectors through lighthouse projects (SCC 1)
- › Enhancing the roll-out of Smart Cities and Communities solutions by stimulating the market demand (SCC 2-5)

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PRIORITY 3 - SOCIETAL CHALLENGES

3. Secure, clean and efficient energy

› Call for SMEs and fast track to innovation for energy (SIE 1-2)

- › SIE 1: Stimulating the innovation potential of SMEs for a low carbon and efficient energy system (2014/2015)
- › SIE 2: Fast track to Innovation Topic – Pilot (2015)

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PRIORITY 3 - SOCIETAL CHALLENGES

4. Smart, Green and Integrated Transport

Call for Mobility for Growth (MG)

Call Green Vehicles (GV)

Call Small Business and Fast Track Innovation for Transport' (IT)

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PRIORITY 3 - SOCIETAL CHALLENGES

4. Smart, Green and Integrated Transport

Call for Mobility for Growth (MG)

- › Aviation
- › Rail
- › Road
- › Waterborne
- › Urban mobility
- › Logistics
- › Intelligent transport systems
- › Infrastructure
- › Socio-economic and behavioural research and forward looking activities for policy making

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PRIORITY 3 - SOCIETAL CHALLENGES

4. Smart, Green and Integrated Transport

MG.7.1-2014

Connectivity and information sharing for intelligent mobility.

Specific challenge: The complexity of the travel experience for individuals, including the difficulties associated with analysing and negotiating multiple available options/services, accessing the right information at the right time, and tackling the different needs of logistics services and operations, has increased significantly over the past years becoming ever more challenging and stressful.

The challenge is to come up with new, efficient, affordable and accessible solutions taking advantage of the ever growing connectivity of people and objects, the availability of European GNSS based location, the advances in cloud computing, big, linked and open data and the propagation of Internet and social media, that will help solve the mobility problems European citizens and businesses are facing today.

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PRIORITY 3 - SOCIETAL CHALLENGES

5. Climate action, environment, resource efficiency and raw materials

Call – Waste: A resource to recycle, reuse and recover raw materials (WASTE 1-7)

Call – Water innovation: Boosting its value for Europe (WATER 1-5)

Call: Growing a low carbon, resource efficient economy with a sustainable supply of raw materials (SC5 1-20)

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PRIORITY 3 - SOCIETAL CHALLENGES

5. Climate action, environment, resource efficiency and raw materials

Call – Waste: A resource to recycle, reuse and recover raw materials (WASTE 1-7)

Call – Water innovation: Boosting its value for Europe (WATER 1-5)

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PRIORITY 3 - SOCIETAL CHALLENGES

5. Climate action, environment, resource efficiency and raw materials

WASTE 2: A systems approach for the reduction, recycling and reuse of food waste

Specific challenge: Food waste has taken on disquieting proportions worldwide in all steps of the food production and supply chain but especially at consumer level. Before defining measures to reduce such waste at all stages it is necessary to develop a better understanding of business and consumer behaviour in relation to waste generation, handling, re-use and by-product valorisation. Technologies for the collection, sorting/grading, stabilisation and valorisation of food waste, by-products and packaging material need improvement or development. The aim is to optimise the performance of the whole food system, including packaging and catering, and achieve a secure and sustainable food supply, also for the poor.

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PRIORITY 3 - SOCIETAL CHALLENGES

5. Climate action, environment, resource efficiency and raw materials

WATER 2: Integrated approaches to water and climate change

Specific challenge: The rising demands of a growing world population for food, water, materials and energy will put increasing pressures on land use, water resources and ecosystems [...]

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PRIORITY 3 - SOCIETAL CHALLENGES

5. Climate action, environment, resource efficiency and raw materials

Call: Growing a low carbon, resource efficient economy with a sustainable supply of raw materials (SC 1-20)

- › Fighting and adapting to climate change (SC 1-5)
- › Protecting the environment, sustainable managing natural resources, water, biodiversity and ecosystems (SC 6-10)
- › Ensuring the sustainable supply of non-energy and non-agriculture raw materials (SC 11-13)
- › Enabling the transition towards a green economy through eco-innovation (SC 14)
- › Developing comprehensive and sustained global environmental observation and information systems (SC 15-18)
- › Cross-challenge coordination and support (SC 19-20)

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PRIORITY 3 - SOCIETAL CHALLENGES

6. Europe in a changing world: inclusive, innovative and reflective societies

Call: Overcoming the Crisis: New Ideas, Strategies and Governance Structures for Europe (EURO 1-6)

Call: The Young Generation in an Innovative, Inclusive and Sustainable Europe (YOUNG 1-5)

Call: Reflective Societies: Cultural Heritage and European Identities (REFLECTIVE 1-10)

Call: Europe as a Global Actor (INT 1-12)

Call: New Forms of Innovation (INSO 1-10)

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PRIORITY 3 - SOCIETAL CHALLENGES

7. Secure societies – Protecting freedom and security of Europe and its citizens

Call - Disaster-resilience: safeguarding and securing society, including adapting to climate Change (DRS 1-22)
Call – Fight against crime and Terrorism (FCT 1-17)
Call – Border Security and External Security (BES 1-14)
Call – Digital Security: Cybersecurity, Privacy and Trust (DS 1-5)

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PRIORITY 3 - SOCIETAL CHALLENGES

7. Secure societies – Protecting freedom and security of Europe and its citizens

Call - Disaster-resilience: safeguarding and securing society, including adapting to climate Change (DRS 1-22)
 ›Crisis management (DRS 1-8)
 ›Disaster resilience & climate change (DRS 9-11)
 ›Critical infrastructure protection (DRS 12-17)
 ›Communication technologies and interoperability (DRS 18-19)
 ›Ethical/Societal dimension (DRS 20-22)

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PRIORITY 3 - SOCIETAL CHALLENGES

7. Secure societies – Protecting freedom and security of Europe and its citizens

DRS 9 – Disaster Resilience & Climate Change

Specific challenge: As the EU, the Member States, Associated Countries and the EU Overseas Countries and Territories (OCTs) progress towards the development of appropriate responses for adapting to climate change, there is a pressing need for developing a coherent research and innovation agendas, to provide:

b) Research and innovation actions to
 › Develop standardised methods to assess climate change impacts, vulnerabilities, and risks, and to identify and assess the performance of adaptation measures (technological and non-technological options). ... Provide state-of-the-art decision support tools tailored to facilitate decision-making by different end-users (e.g. individuals, businesses, local authorities and planners, governments), while developing adaptation plans and measures.

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PRIORITY 3 - SOCIETAL CHALLENGES

7. Secure societies – Protecting freedom and security of Europe and its citizens

Call – Fight against crime and Terrorism (FCT 1-17)
Call – Border Security and External Security (BES 1-14)
Call – Digital Security: Cybersecurity, Privacy and Trust (DS 1-5)

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PRIORITY 3 - SOCIETAL CHALLENGES

7. Secure societies – Protecting freedom and security of Europe and its citizens

Call – Fight against crime and Terrorism (FCT 1-17)

›Forensics (FCT 1-4)
 ›Law enforcement capabilities (FCT 5-9)
 ›Urban security (FCT 10-12)
 ›Ethical/Societal dimension (FCT 13-17)

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PRIORITY 3 - SOCIETAL CHALLENGES

7. Secure societies – Protecting freedom and security of Europe and its citizens

Call – Border Security and External Security (BES 1-14)

›Maritime border security (BES 1-4)
 ›Border crossing points (BES 5-7)
 ›Supply chain security (BES 8-9)
 ›External security (BES 10-13)
 ›Ethical/Societal dimension (BES 14)

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PRIORITY 3 - SOCIETAL CHALLENGES

7. Secure societies – Protecting freedom and security of Europe and its citizens

Call – Digital Security: Cybersecurity, Privacy and Trust (DS 1-5)

DS-3-2015 The role of ICT in Critical Infrastructure Protection

Scope: Proposals should investigate the dependencies on communication networks and ICT components (including SCADA and IACS systems) of critical infrastructures, analyze and propose mitigation strategies and methodologies for assessing criticalities of services and detecting anomalies, developing tools and processes to simulate or monitor cascading effects due to ICT incidents, and develop self-healing mechanisms. ICT should be protected or re-designed at the software level, but also at the physical level, leading to more robust, resilient and survivable ICT infrastructure.

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Preparation for H2020

AU INTERNAL LOBBYING STRUCTURE



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REFERENCE GROUPS/ADVISORY GROUPS

AU members of Danish reference groups:

- › ICT: Kaj Grønbaek and Ole Lehmann Madsen
- › Health: Ole Steen Nielsen, Torben Ørntoft, Henrik Toft Sørensen, Lotte Meinert
- › Bio-economy: Erik Steen Kristensen
- › Energy: Ib Johannsen
- › Climate/raw materials: Jørgen E. Olesen
- › Europe in a changing world: Anne Marie Pahuus and Christoffer Green-Pedersen
- › Nano, materials and processing: Peter Thøstrup
- › Secure Societies: Ivan Damgård and Lotte Meinert

AU members of EC advisory and expert groups :

- › ICT: Ole Lehmann Madsen
- › Bio-based products: Erik Steen Kristensen
- › Biotechnology & Bioeconomy: Niels Halberg

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Your next steps – urgent action

› Prepare to participate

- Identify possible 'issues to solve' with your research
- Build consortia

› Lobby

- Help to shape workprogrammes
- AU internal support mechanisms
 - Contact the AU Research and Talent Strategy Team
 - AU Horizon 2020 Expert Groups
 - one per Societal Challenge
 - AU representatives on relevant committees
- Get onto relevant advisory or lobbying committees or put colleagues forward
- Professional bodies in your field

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NEXT STEPS

- › Consolidate your general research network
- › Make early warnings among core partners as soon as you see an interesting call text
- › Establish or consider cooperation with private enterprises
- › Widen your stakeholder analysis. Include end-users, companies and political actors etc.
- › Consider innovation potential – include the entire product chain in your project
- › Consider how to include different disciplines
- › Consider the societal or industrial or other kinds of impact

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Information

Keep updated at
<http://ec.europa.eu/research/participants/portal>

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Research and Innovation Participant Portal



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Research and Innovation Participant Portal



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CONTACT - AU RESEARCH AND TALENT

- Prepare for Horizon 2020 → Proposal Development
- Manage Horizon 2020 projects → Project Management
- Influence future priorities in Horizon 2020 working programmes → Strategy

www.au.dk/fse

medarbejdere.au.dk/en/administration/researchandtalent/research-support-office/contact/

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