Overall Structure

January 2014

What is Horizon 2020?

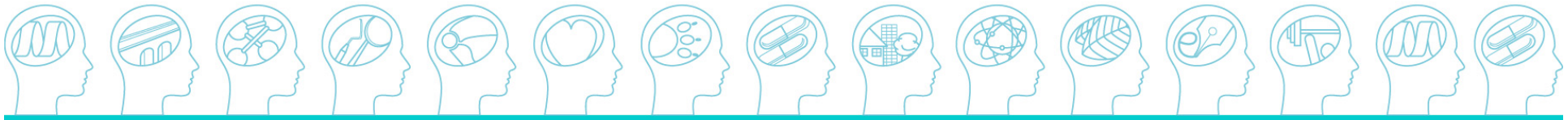
Research and Innovation Services

80 billion euro research and innovation funding programme (2014-2020)

Responding to the economic crisis to invest in future jobs and growth

Addressing people's concerns about their livelihoods, safety and environment

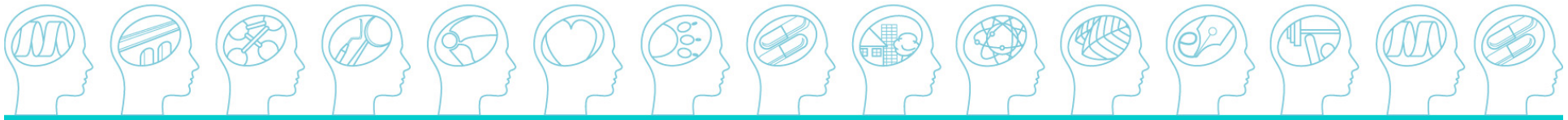
Strengthening the EU's global position in research, innovation and technology



Horizon 2020 – What is new?

Research and Innovation Services

- **A single programme** bringing together three separate programmes
- **Coupling research to innovation**– from research to retail, all forms of innovation
- **Focus on societal challenges** facing EU society, e.g. health, clean energy and security
- **Simplified access,** for **all companies**, universities, institutes in all EU countries and beyond.
- **New simplified financial model** - 100% of eligible costs, Flat rate 25% for overheads
- **Stronger industry and innovation focus**



Horizon 2020 – Structure

Research and Innovation Services

Excellent Science

- European Research Council (ERC)
- Marie Sklodowska Curie Actions (MSCA)
- Future and Emerging Technologies
- Research Infrastructures

Industrial Leadership

- Leadership in Enabling and Industrial Technologies (LEIT) – ICT, KETs, Space
- Access to risk finance
- Innovation in SMEs
  Bottom up

Societal Challenges

- Health and Wellbeing
- Food Security
- Transport
- Energy
- Climate Action
- Societies
- Security

Bottom Up

Open to all areas of science and technology

Research career focus

Top Down

Bridging the valley of death

Industry and innovation focus

PPPs/JUs/JTIs

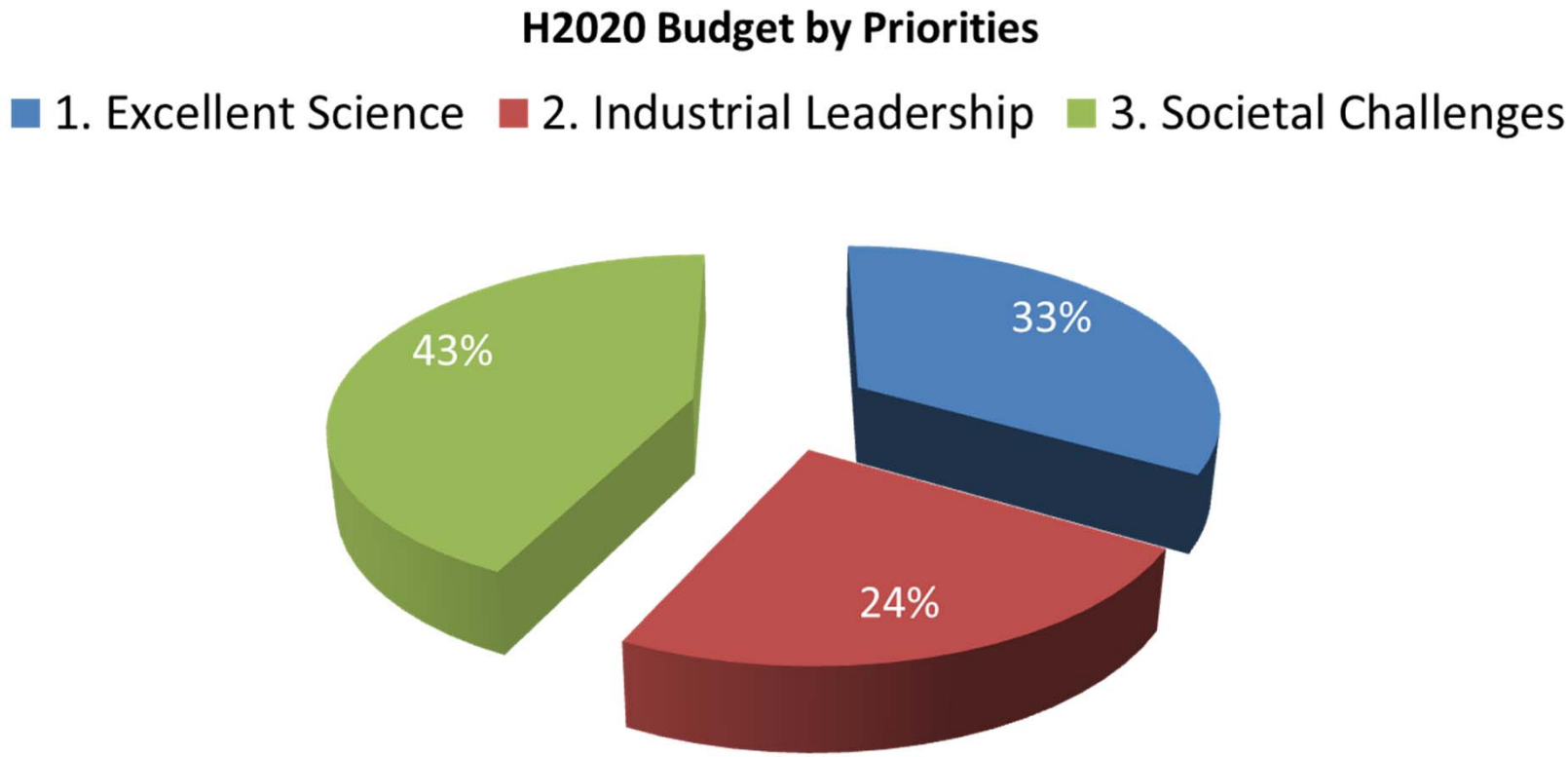
Top Down

Addressing EU concerns

Research priorities

Horizon 2020 – Structure

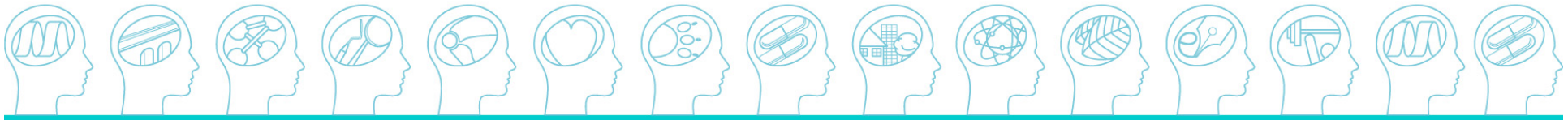
Research and Innovation Services



Excellent Science

- European Research Council (ERC)
- Marie Sklodowska Curie Actions (MSCA)
- Future and Emerging Technologies
- Research Infrastructures

- Mostly unchanged from FP7
- The European Research Council (ERC) provides funding for excellent researchers at different stages of their career.
  - Starting Grants
  - Consolidator Grants
  - Advanced Investigator Grants
  - ERC Proof of Concept



Horizon 2020 – Excellent Science
Marie Sklodowska Curie Actions

Research and Innovation Services

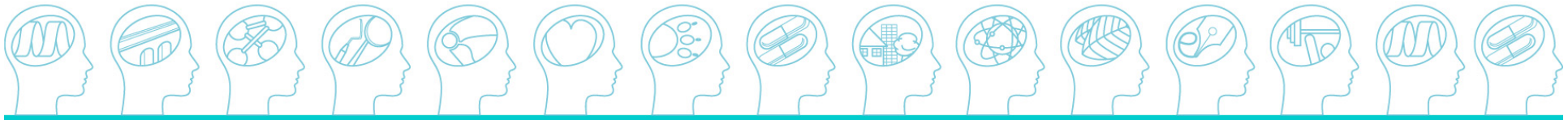
UNIVERSITY OF DUNDEE

Excellent Science

- European Research Council (ERC)
- Marie Sklodowska Curie Actions (MSCA)
- Future and Emerging Technologies
- Research Infrastructures

MSCA fund mobility, training and career development in academia, industry and other non-academic sectors through individual mobility grants and projects.

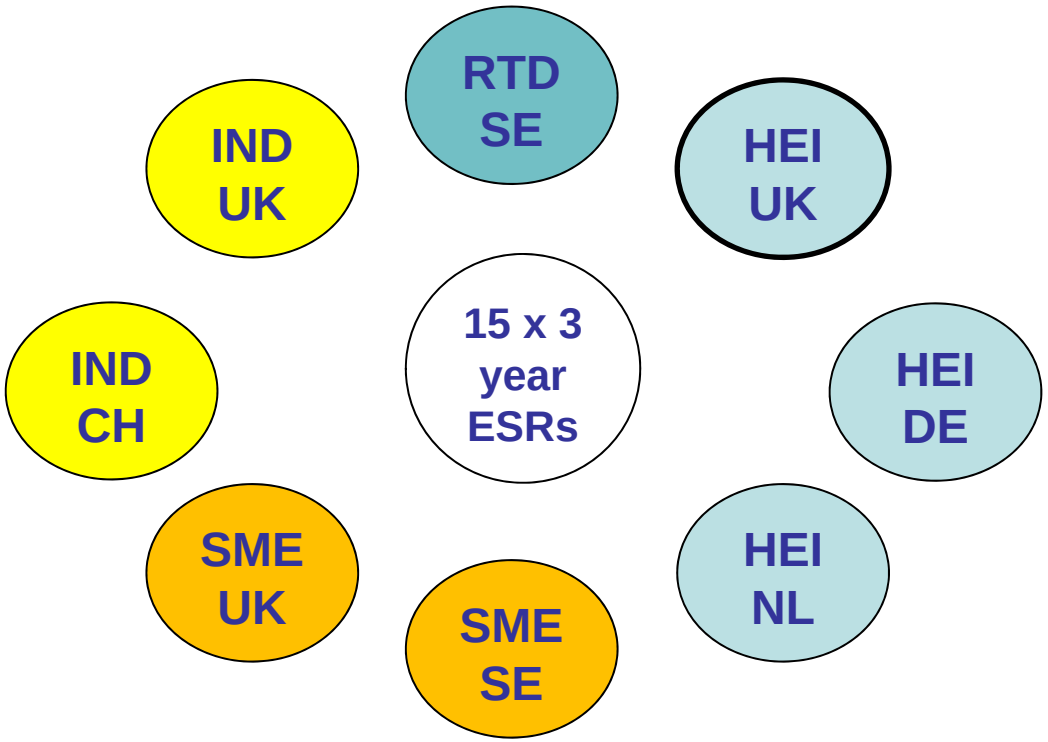
- Innovative Training Networks (ITNs)
  - European Training Networks (ETN)
  - European Industrial Doctorates (EID)
  - Joint Doctorates (EJD)
  - 1st deadline April 2014
- Individual Fellowships (IF)
  - 1st deadline April 2014
- Co-funding (COFUND)
  - 1st deadline Nov 2014



Excellent Science

- European Research Council (ERC)
- Marie Sklodowska Curie Actions (MSCA)
- Future and Emerging Technologies
- Research Infrastructures

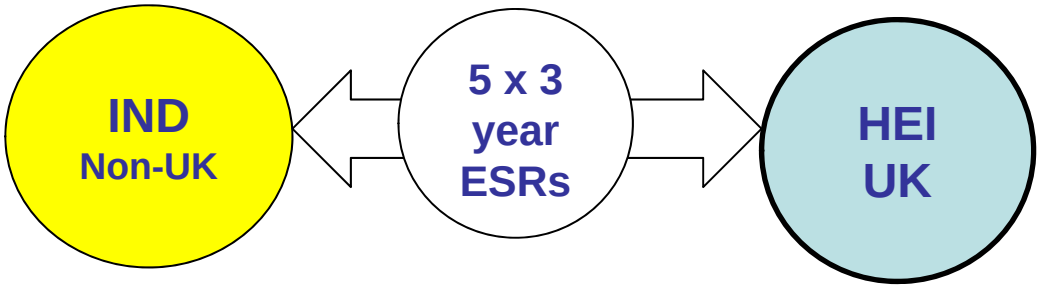
European Training Networks (ETN)



Excellent Science

- European Research Council (ERC)
- Marie Sklodowska Curie Actions (MSCA)
- Future and Emerging Technologies
- Research Infrastructures

European Industrial Doctorates (EID)

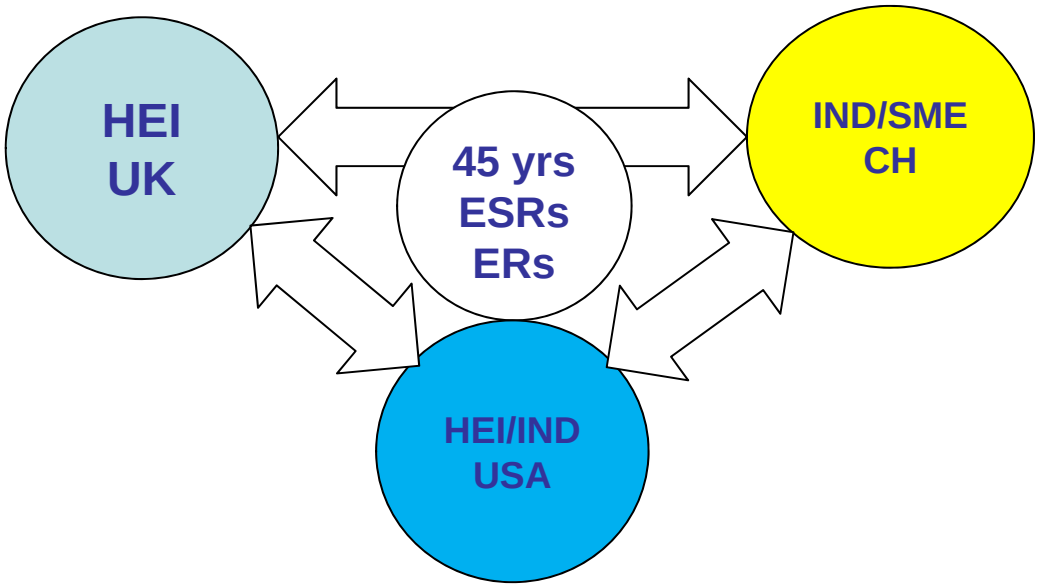


Researchers in EID shall spend at least 50% of their time in the non-academic sector

Excellent Science

- European Research Council (ERC)
- Marie Sklodowska Curie Actions (MSCA)
- Future and Emerging Technologies
- Research Infrastructures

Research and Innovation Staff Exchange (RISE)



The RISE scheme will promote international and inter-sector collaboration through research and innovation staff exchanges.

Horizon 2020 – Excellent Science
Future and Emerging Technologies

Research and Innovation Services

UNIVERSITY OF DUNDEE

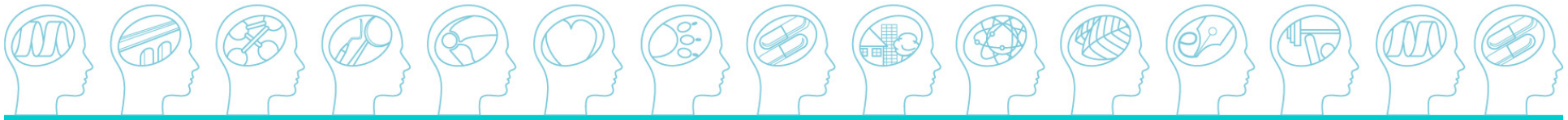
Excellent Science

- European Research Council (ERC)
- Marie Sklodowska Curie Actions (MSCA)
- **Future and Emerging Technologies**
- Research Infrastructures

NEW for H2020 Future and Emerging Technologies (FET) aims for **radically new technologies** by exploring **novel and high risk ideas** building on scientific foundations.

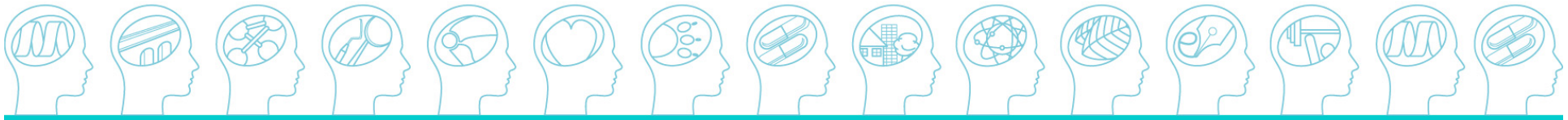
Driven by excellence and extends to exploring pre-competitive ideas for shaping the future of technology, enabling society to benefit from **multi-disciplinary research collaboration** that needs to be engaged at European level by making the **link between research driven by science and research driven by societal challenges or by industrial competitiveness**.

It promotes **research beyond what is known**, accepted or widely adopted and fosters **novel and visionary thinking** to open promising paths towards powerful new technologies which could develop into technological and intellectual paradigms for the decades ahead.



Three schemes:

- **FET Open**
  - Supports embryonic science and technology research exploring new foundations for radically new future technologies by challenging current paradigm's and venturing into unknown areas. A **bottom-up selection process widely open to any research ideas** shall build up a diverse portfolio of targeted projects. Early detection of promising new areas, developments and trends, along with **attracting new and high-potential research and innovation players**, will be key.
- **FET Proactive**
  - Nurture emerging themes and communities by addressing a number of **promising exploratory research themes** with the **potential to generate a critical mass of inter-related projects** that, together, make up a broad and multifaceted exploration of the themes and building a European pool of knowledge.
- **FET Flagships**
  - Supports **ambitious large-scale, science-driven research** aimed at grand interdisciplinary S&T challenges. Such activities will benefit from the alignment of European and national agendas, and provide a strong and broad basis for future technological innovation and economic application in a variety of areas, as well as novel benefits for society.



Horizon 2020 – Excellent Science
Research Infrastructures

Research and Innovation Services

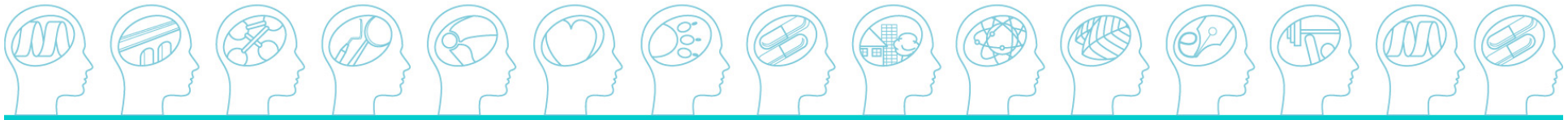
UNIVERSITY OF DUNDEE

Excellent Science

- European Research Council (ERC)
- Marie Sklodowska Curie Actions (MSCA)
- Future and Emerging Technologies
- **Research Infrastructures**

An increased budget, from around €1.7 billion (FP7) to €2.5 billion (Horizon 2020)

- New activities to support the implementation and operation of world-class infrastructures such as ESFRI infrastructures
- Continuation of the successful FP7 Integrating Activities
- Reinforcement of the support to e-infrastructures
- New objective of better exploiting the innovation potential and human capital of infrastructures



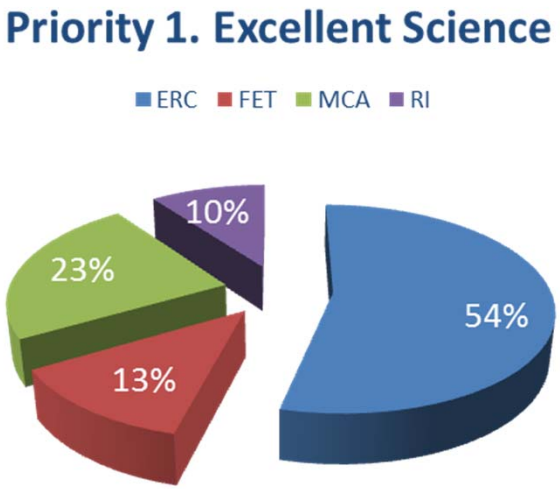
Horizon 2020 – Excellent Science
Excellent Science Programme Budgets

Research and Innovation Services

UNIVERSITY OF DUNDEE

Excellent Science

- European Research Council (ERC)
- Marie Sklodowska Curie Actions (MSCA)
- Future and Emerging Technologies
- Research Infrastructures



Horizon 2020 - Priority 1 Excellent science (28 Billion Euro)		% of H2020
ERC – Frontier Research by the best individual teams	€ 13,268	16%
Future and Emerging Technologies	€ 3,100	4%
Marie Curie Actions	€ 5,752	7%
Research Infrastructures	€ 2,478	3%
OTHER	€ 3,402	4%
Priority 1 total	€ 28,000	33%

Horizon 2020 – Societal Challenges

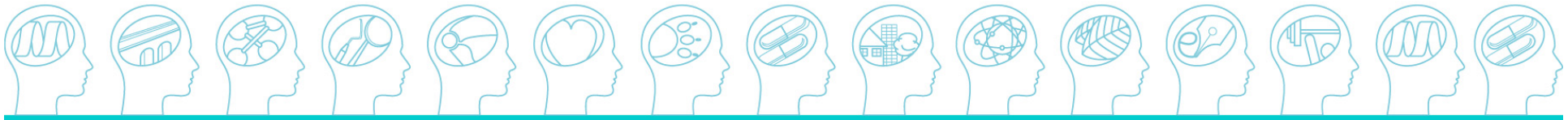
Research and Innovation Services

UNIVERSITY OF DUNDEE

Societal Challenges

- Health and Wellbeing
- Food Security
- Transport
- Energy
- Climate Action
- Societies
- Security

- Funding under this priority is predominantly for collaborative projects, following a top-down approach with two-year work programmes of defined, challenge-based topics.
- A minimum of three legal entities from three EU Member States participate in these projects.
- Given that the overall aim of this priority is to tackle Societal Challenges, most projects will require a broader approach in terms of disciplines and likely to require the inclusion of different stakeholders.
- All challenges will identify areas where input from SSH is relevant.

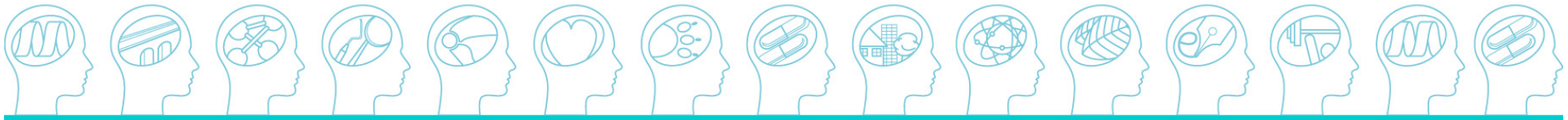


Societal Challenges

- Health and Wellbeing
- Food Security
- Transport
- Energy
- Climate Action
- Societies
- Security

Secure societies challenge

1. Fight against crime and terrorism
2. Disaster Resilient Societies
3. Border Security
4. Digital Security



Societal Challenges

- Health and Wellbeing
- Food Security
- Transport
- Energy
- Climate Action
- Societies
- Security

1. Fight against crime and terrorism

The ambition of this call is both to avoid an incident and to mitigate its potential consequences. This requires new technologies and capabilities for fighting and preventing crime (including cyber-crime), illegal trafficking and terrorism (including cyber-terrorism), including understanding and tackling terrorist ideas and beliefs to also avoid aviation related threats.

This call is divided in four parts:

1. Forensics
2. Law enforcement capabilities
3. Urban security
4. Ethical/societal dimension

Societal Challenges

- Health and Wellbeing
- Food Security
- Transport
- Energy
- Climate Action
- Societies
- Security

2. Disaster Resilient Societies

The objective of this call is to reduce the loss of human life, environmental, economic and material damage from natural and man-made disasters, including from extreme weather events, crime and terrorism threats.

This area will therefore focus on developing technologies and running large-scale demonstration with a view to:

1. Crisis Management and Civil protection
2. Disaster Resilience and Climate Change
3. Critical Infrastructure Protection (cyber crime, cyber terrorism)
4. Communication Interoperability facilitating disaster management
5. Ethical/Societal Dimension.

Societal Challenges

- Health and Wellbeing
- Food Security
- Transport
- Energy
- Climate Action
- Societies
- Security

3. Border Security

This call targets the development of technologies and capabilities which are required to enhance systems, equipment, tools, processes, and methods for rapid identification to improve border security.

This call also focuses on new technologies, capabilities and solutions which are required to support the Union's external security policies in civilian tasks, ranging from civil protection to humanitarian relief, border management or peace-keeping and post-crisis stabilisation, including conflict prevention, peace-building and mediation.

Societal Challenges

- Health and Wellbeing
- Food Security
- Transport
- Energy
- Climate Action
- Societies
- Security

3. Border Security

This call is divided in the following parts:

- Maritime Border Security
- Border Crossing Points
- Supply Chain Security
- Information Management in the context of External Security
- Conflict Prevention and Peace Building
- Ethical/Societal Dimension.

Societal Challenges

- Health and Wellbeing
- Food Security
- Transport
- Energy
- Climate Action
- Societies
- Security

4. Digital Security

This Call will focus on demonstrating the viability and maturity of state-of-the-art security solutions that have been tested in a laboratory environment. The intention is that after this validation phase they will find a wide up take in the market. Proving that the security concepts, processes and solutions work in a real life environment, in large scale demonstrators and directly involving end users who would ultimately benefit the most from the outcome, should increase the prospects for an ICT security market and demonstrate the validity and effectiveness of security. This in turn will reduce the risks of a negative economic impact due to a cyber-incident.

Horizon 2020 – Societal Challenges
Security

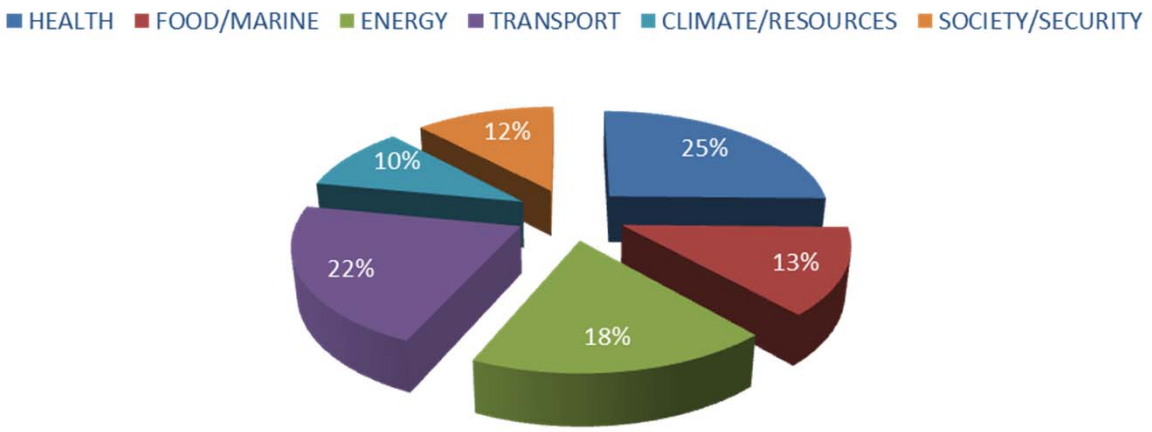
Research and Innovation Services

UNIVERSITY OF DUNDEE

Societal Challenges

- Health and Wellbeing
- Food Security
- Transport
- Energy
- Climate Action
- Societies
- Security

Priority 3. Societal Challenges



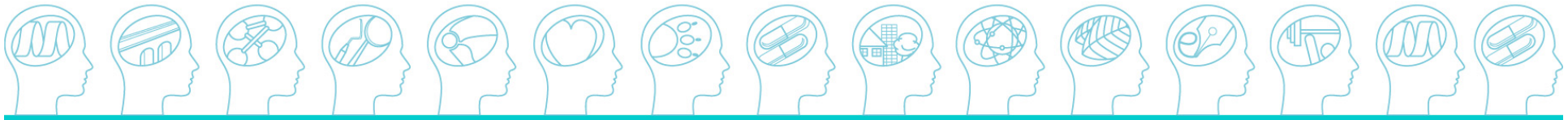
Horizon 2020 - Priority 3 Societal challenges (36 Billion Euro)		% of H2020
Health, demographic change and wellbeing	€ 8,033	10%
Food security, sustainable agriculture, marine and maritime research & bioeconomy	€ 4,152	5%
Secure, clean efficient energy	€ 5,782	7%
Smart, green integrated transport	€ 6,802	8%
Climate action, resource efficiency and raw materials	€ 3,160	4%
Inclusive, innovative and secure societies	€ 3,819	5%

1st H2020 Calls published 11/12/2013

Research and Innovation Services

UNIVERSITY OF DUNDEE

- New user friendly Participant Portal
- https://ec.europa.eu/research/participants/portal/desktop/en/home.html
  - Register and check now
  - Easy browsing through call topics
  - Security calls open 25-03-14



1st H2020 Calls published 11/12/2013

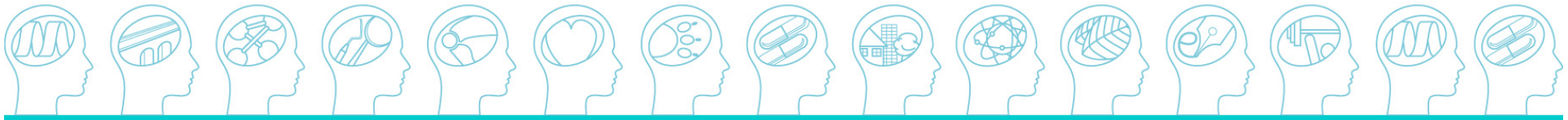
Research and Innovation Services

FCT-5-2014: Law enforcement capabilities topic 1: Develop novel monitoring systems and miniaturised sensors that improve Law Enforcement Agencies' evidence- gathering abilities (28th August 2014)

FCT-10-2014: Urban security topic 1: Innovative solutions to counter security challenges connected with large urban environment (28th August 2014)

FCT-11-2014: Urban security topic 2: Countering the terrorist use of an explosive threat, across the timeline of a plot, including the detection of explosives in a flow (28th August 2014)

FCT-12-2014 Urban security topic 3: Minimum intrusion tools for de-escalation during mass gatherings improving citizens' protection (28th August 2014)



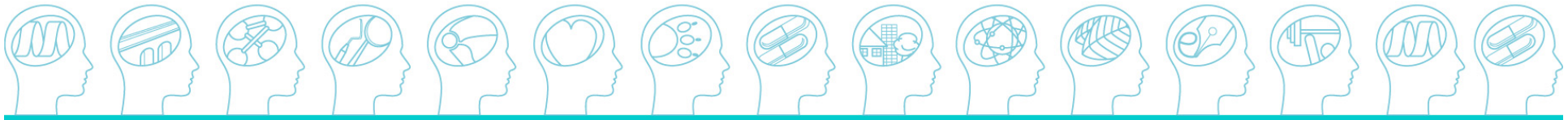
1st H2020 Calls published 11/12/2013

Research and Innovation Services

FCT-14-2014: Ethical/Societal Dimension Topic 2: Enhancing cooperation between law enforcement agencies and citizens - Community policing (28th August 2014)

FCT-1-2015: Forensics topic 1: Tools and infrastructure for the fusion, exchange and analysis of big data including cyber-offenses generated data for forensic investigation (27th August 2015)

FCT-6-2015: Law Enforcement capabilities 2: Detection and analysis of terrorist-related content on the Internet (27th August 2015)



Horizon 2020 – Structure

Research and Innovation Services

Excellent Science

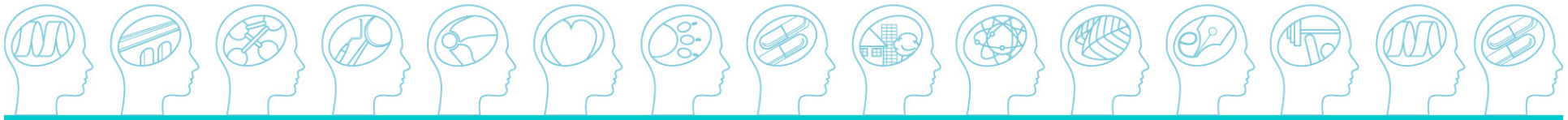
- European Research Council (ERC)
- Marie Sklodowska Curie Actions (MSCA)
- Future and Emerging Technologies
- Research Infrastructures

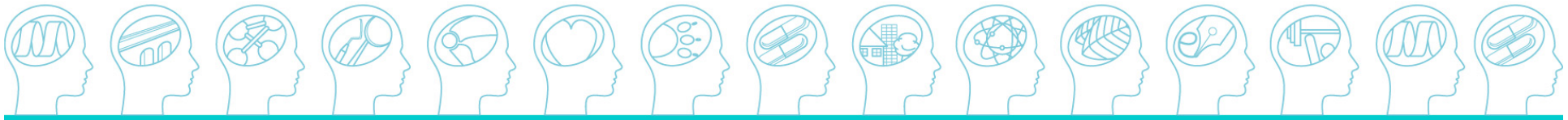
Industrial Leadership

- Leadership in Enabling and Industrial Technologies (LEIT) – ICT, KETs, Space
- Access to risk finance
- Innovation in SMEs

Societal Challenges

- Health and Wellbeing
- Food Security
- Transport
- Energy
- Climate Action
- Societies
- Security



END

Q&A