

H2020 Thematic Oriented Training

"Secure, Clean and Efficient Energy"

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Project "Turkey in Horizon 2020"

Dr. Thies Wittig

- PhD in Computer Science
- 12 years in industrial research department (signal processing, artificial intelligence)
- In 1995 creation of own company IT Consult GmbH, Germany
- Since 1986 involved in international collaborative research projects, as researcher, manager, coordinator ...
- Long experience as EC proposal evaluator and project reviewer
- Until today involved in around 25 projects in Europe, Middle East, Far East and Balkan countries

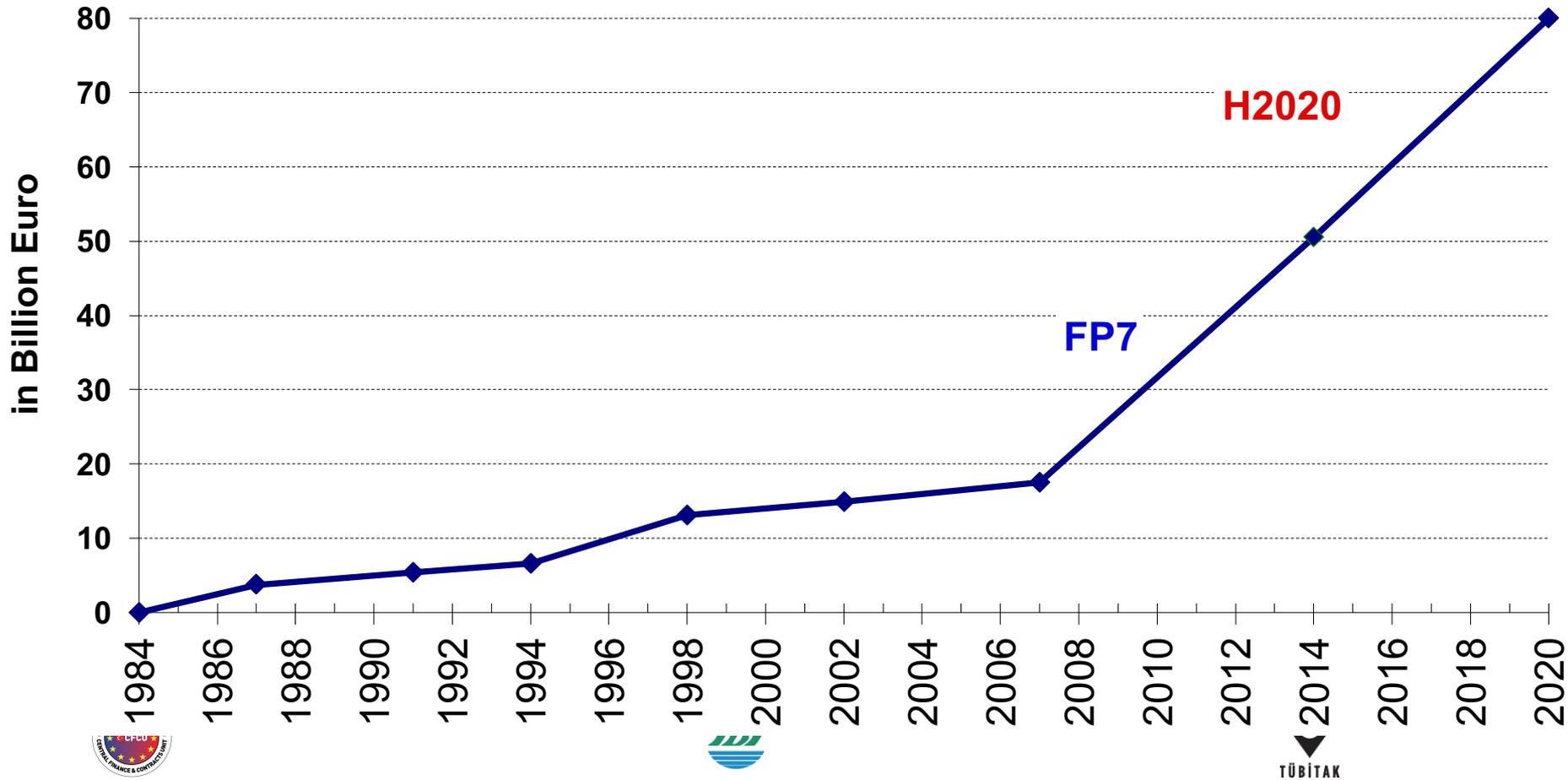
THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

HORIZON 2020

**The EU Funding Programme for
Research and Innovation**

FP Budget Development

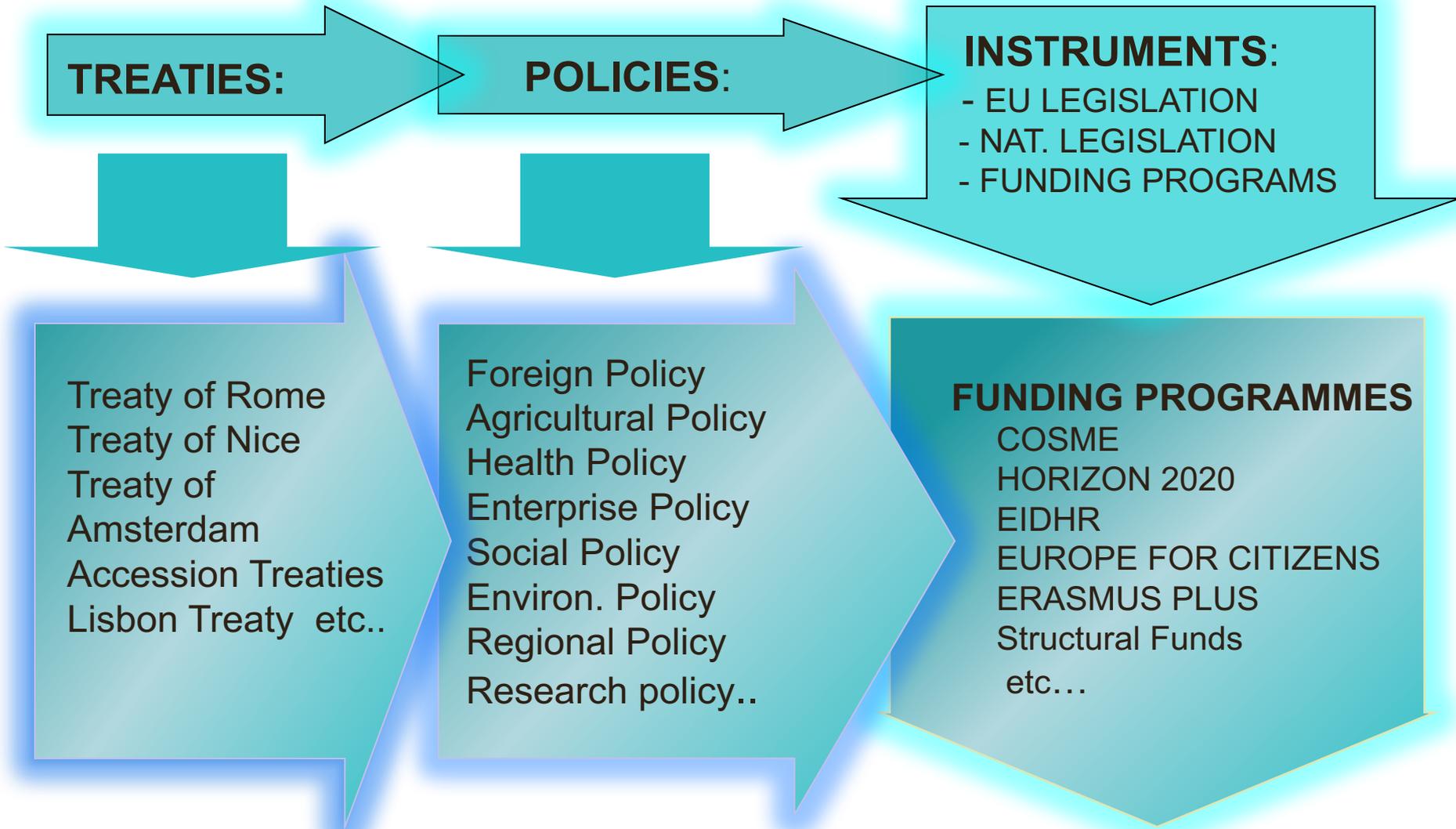
- Horizon 2020 has nearly €80 billion Euro of funding available over 7 years (2014 to 2020).



Principles of EU R&D&I Activities

- Transnational collaboration (min. 3 partners/3 countries from MS or AC)
- Open to all: Industry, SMEs, Universities,...)
- Based on strategic objectives - programme oriented
- Consortia are selected by Calls for Proposals
- Innovative, based on science & technology excellence
- Competitive - competition of the best teams in EU
- Project results are the property of the participants

The logic of EU funding programmes



THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

HORIZON 2020



What it is about

What is HORIZON 2020

Horizon 2020 focuses on Research and Innovation.

It does not cover, for example, Education or Arts.

It addresses 3 main areas ("Pillars"):

- Technologies to strengthen Industrial Leadership.
- Excellent Science to make European research and innovation system more competitive.
- Societal Challenges, responding to the priorities of the EU2020 Strategy.



The H2020 Structure – 3 Pillars

24%

Leadership in Enabling and Industrial Technologies – LEIT

ICT
Nanotechnologies
Advanced materials
Biotechnology
Advanced Manufacturing & Processing
Space
The SME Instrument

33%

Excellent Science

ERC
FET
Marie Curie
Research Infrastructures

43%

Societal Challenges

Health and wellbeing
Food
Energy
Transport
Environment
Reflective societies
Secure societies

Spreading excellence and widening participation

Science with and for society

Remember: H2020 is called

Framework Programme
for
Research and **Innovation**



What is Innovation ?

What is INNOVATION and why is it so important?

- New ideas ?
- New knowledge ?
- New research results ?
- New methodologies ?

Of course, but ...

What is Innovation ?

- Innovation = Invention (research) + **exploitation**
- A new way of doing things, which is commercialized.
- Schumpeter said “an idea that finds its way to the market”

Innovation relates to **Products, Processes,**
or **Business Models**

... or as Steve Jobs said:

"One of the ways that I believe people express their appreciation to the rest of humanity is to make something wonderful and put it out there."

INNOVATION

- Innovation is **not improvement**, it is doing something **different**
- Innovation results in a **significant impact**
- Innovation is **invention applied**
- Innovation can be **disruptive**

Let's look at some examples ...

INNOVATION



**Is this idea from
1956 Innovation?**

No!

**It never went past
this first stage.**

INNOVATION



1979

Was this SONY walkman an Innovation?

Yes!

A completely new concept that was highly successful on all markets!

Was it a Disruptive Innovation?

No!

There was nothing comparable to it before.

INNOVATION



Are MP3 players an Innovation?

Yes!

A new concept (small, light, no moving parts) that is highly successful on all markets!

Was it a Disruptive Innovation?

YES!

It killed the tape-based walkman!

INNOVATION

What is next?



Streaming to mobile devices!

**Disruptive?
At least a serious
threat to MP3 players
but also to CDs.**

The Innovation Chain

Research & development

Covered by H2020

Prototyping,
'plans' for new
products

Market
development

Market
replication

Research and Innovation

Calls in **Industrial Technologies** and **Societal Challenges** either address

- Research and Innovation (RIA),
- Innovation (IA), or
- Coordination and Support (CSA)

For Innovation calls, the research part has been done previously and some prototype of a certain matureness must exist.

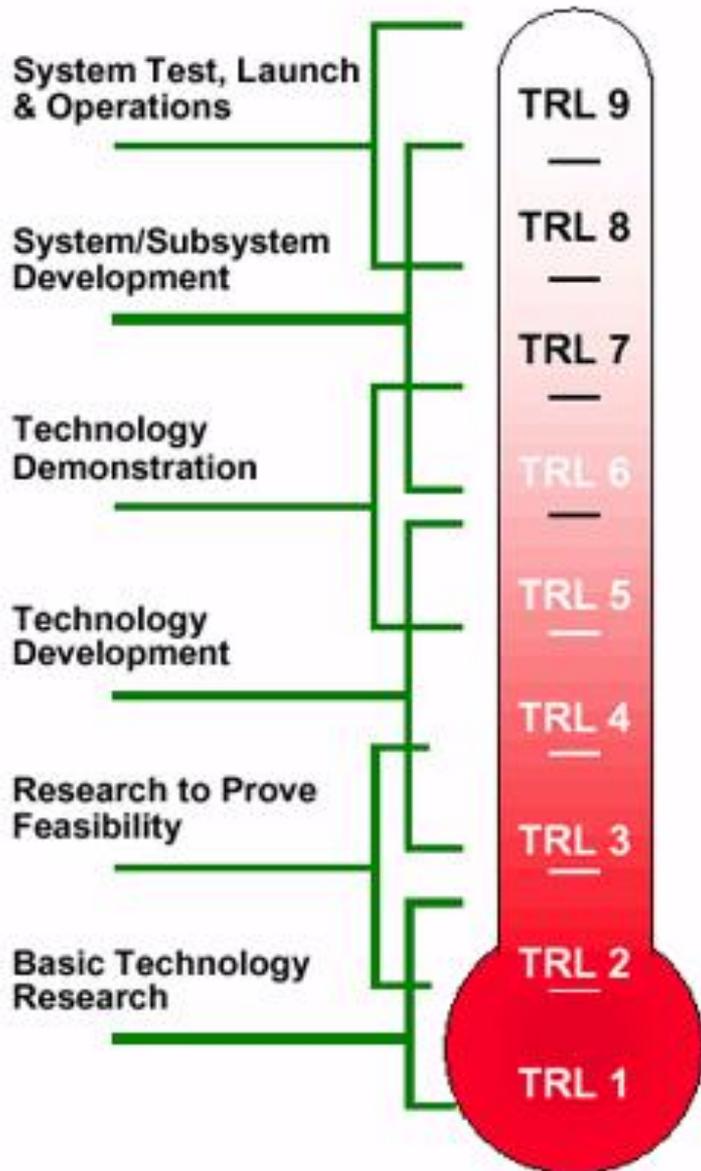
How can we measure such maturity?

Measuring Technology Maturity

Technology Readiness Levels (TRLs)

- The use of TRLs as a measurement of the maturity level of particular technologies is a new development in Horizon 2020.
- TRLs provide a common understanding of a technology development status
- Many of the call topics have a defined TRL at which the implementation of the proposal is intended to start. For example a project has to start at TRL 3 and end at TRL 5.

A measurement of the maturity level of technologies: a new development in H2020



TRL9 – actual system proven in operational environment

TRL8 – system complete and qualified

TRL7 – system prototype demonstration in operational environment

TRL6 – technology demonstrated in relevant environment

TRL5 - technology validated in relevant environment

TRL4 – technology validated in LAB

TRL3 – experimental proof of concept

TRL2 – Technology concept formulated

TRL1 - Basic principles observed

Innovation and the Private Sector

To ensure that innovation is happening in H2020

SME participation become obligatory in most projects. Around 20% of the total budget for Societal Challenges and LEITs must go to SMEs.

This is good news for SMEs, of course !

It is also an important message for universities: purely academic consortia in these 2 areas are out !



THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

HORIZON 2020

The background features a large, glowing blue globe with a smaller globe in the center. The smaller globe is positioned over the letter 'O' in 'HORIZON'. The entire scene is set against a dark blue background with light rays emanating from the center, creating a sense of depth and focus.

The practical side

Types of actions supported by grants

- **Research and Innovation Actions**
- **Innovation Actions**
- **Coordination and Support Actions**
- **SME instrument**
- ERANET Co-fund
- Pre-commercial procurement Co-fund
- Public procurement of innovative solutions Co-fund

Research and innovation actions

- Actions primarily consisting of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution.
- For this purpose they may include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment.

Innovation actions

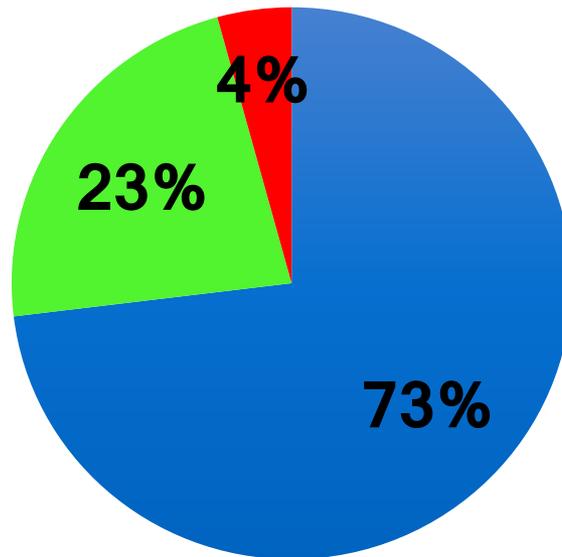
- Actions primarily consisting of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services. Often specific TRL levels are required as a starting point.
- For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.

Coordination and support actions

Actions consisting primarily of **accompanying measures** such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies, including design studies for new infrastructure and may also include complementary activities of networking and coordination between programmes in different countries.

Specific opportunities for SMEs

A specific SME instrument comes under the H2020 objective of 'smart, sustainable and inclusive growth', however with a small budget!



- LEIT & S.C. without SMEs
- LEIT & S.C. SMEs only
- SME Instrument

SME Instrument: The Three Project Phases

Around € 3 billion funding



The SME Instrument

Phase 1

Concept & Feasibility Assessment



- €50 000 lump sum for feasibility study
- Initial 10 page business proposal to be drafted
- 6 months in duration
- High competition (around 6% success rate)

The SME Instrument

Phase 2

Innovation Project



- Between €0.5 million and €2.5 million in EU funding (70%)
- Develop project through innovation strategy
- Draft a more developed, 30 page business plan
- 1-2 years in duration

The SME Instrument



Phase 3 – Commercialisation

- No direct funding
- Extensive support and coaching
- Facilitate access to risk finance
- Additional support and networking opportunities (EEN)

The SME Instrument

Business coaching

Coaches will drive the performance of the organisation

Coaches suggested by EEN, and selected by the SME

Voluntary business coaching:

- o Phase 1: 3 days
- o Phase 2: 12 days



SMEinst-2016-2017

Stimulating the innovation potential of SMEs for a low carbon and efficient energy system

- Reducing energy consumption and carbon footprint by smart and sustainable use (including energy-efficient products and services as well as ‘Smart Cities and Communities’),
- Low-cost, low-carbon electricity supply (including renewable energy as well as CCS and re-use),
- Alternative fuels and mobile energy sources,
- A single, smart European electricity grid,
- New knowledge and technologies, and
- Robust decision making and public engagement.

SME-1 SME instrument phase 1

Cut-off dates: 03 May 2017
06 September 2017
08 November 2017

SME-2 SME instrument phase 2

Cut-off dates: 06 April 2017
01 June 2017
18 October 2017

Example: Project "TAG" H2020-SMEINST-2-2015



Example: Project "TAG" H2020-SMEINST-2-2015

Coordinator: LOJIKA BILGI TEKNOLOJILERI VE
SERVISLERI TICARET AS

**Crowd-Sourcing technology to change how people
and cars move in cities (from 1/10/15 to 31/3/17)**

"TAG is revolutionizing carpooling for Smart Cities. We are following the disruptive market success of the likes of Airbnb regarding room bookings and Waze in terms of navigation, reaching valuations of tens of billions of Euros. However, well-documented technological problems and bad user experiences have prevented such success in carpooling."

1,745,362 Euro funding



Work Programmes

What are these Work Programmes and what do they contain?

The Participants Portal:

Where to find them:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/>



HOME

FUNDING OPPORTUNITIES

HOW TO PARTICIPATE

EXPERTS

SUPPORT ▾

Search PP

EU Programmes 2014-2020

Search Topics

Call Updates



Calls



H2020

Research Fund for Coal & Steel

COSME

3rd Health Programme

Consumer Programme

Calls for Proposals



Horizon 2020

- Future and Emerging Technologies (FET)
- Marie-Sklodowska-Curie Actions
- Research Infrastructures
- Industrial Leadership**
 - Leadership in enabling and industrial technologies (LEIT)
 - Information and Communication Technologies
 - Nanotechnologies
 - Advanced materials
 - Biotechnology

http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference_docs.html

- Legal basis ⓘ
 - Framework programmes (EC-Euratom)
 - Rules for participation
 - Specific programme
 - European institute of Innovation and Technology (EIT)
- Grant agreements, contracts and rules of contest
 - Model grant agreements
 - Rules of contest of prizes
 - Contracts for experts
- Guidance
 - Section on beneficiary registration, validation and financial viability check
 - Section on proposal submission and evaluation
 - Annotated Model Grant Agreement
- Specific guidelines
 - ERC rules for submission and evaluation
- Work Programmes
 - 2014-15
 - 2016-17
 - Main WP
 - 1. Introduction 2016-17_v.2.0 >
 - 2. Future and Emerging Technologies (FETs) 2016-17_v.2.0 >
 - 3. Marie Skłodowska-Curie actions (MSCA) 2016-17_v.2.0 >
 - 4. Research infrastructures (including e-Infrastructures) 2016-17_v.2.0 >
 - 5. Introduction to Leadership in enabling and industrial technologies (LEITs) 2016-17_v.2.0 >
 - 5i. Information and communication technologies (ICT) 2016-17_v.2.0 >
 - 5ii. Nanotechnologies, advanced materials, advanced manufacturing and processing, biotechnology 2016-17_v.2.0 >
 - 5iii. Space 2016-17_v.2.0 >
 - 6. Access to risk finance 2016-17_v.2.0 >
 - 7. Innovation in SMEs 2016-17_v.2.0 >

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- 5iii. Space 2016-17_v.2.0
6. Access to risk finance 2016-17_v.2.0
7. Innovation in SMEs 2016-17_v.2.0
8. Health, demographic change and wellbeing 2016-17_v.2.0
9. Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy 2016-17_v.2.0
10. Secure, clean and efficient energy 2016-17_v.2.0
11. Smart, green and integrated transport 2016-17_v.2.0
- ...



EN

Horizon 2020

Work Programme 2016 - 2017

10. 'Secure, Clean and Efficient Energy'

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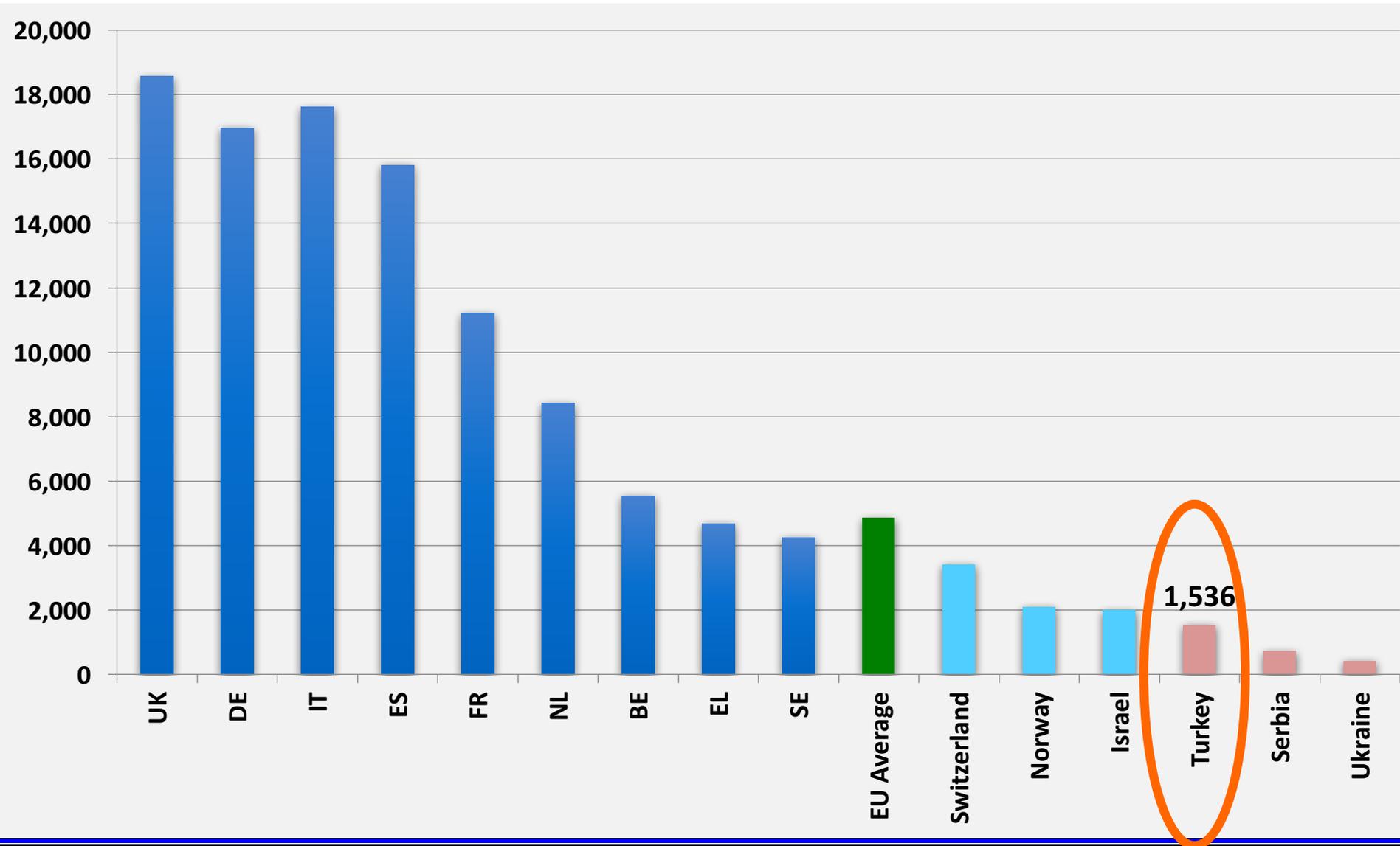
The first two years

KEY FACTS AND FIGURES

- Over **76,400 proposals** were submitted in the first two years, requesting a total contribution of €125.4bn.
- Around **9,200 proposals** were retained for funding. The overall success rate was **11.8%**.
- Over **9,000 grant agreements** were signed by 1/9/16, with a budget allocation of over **€15.9bn** funding.



Proposals submitted in the first Two Years

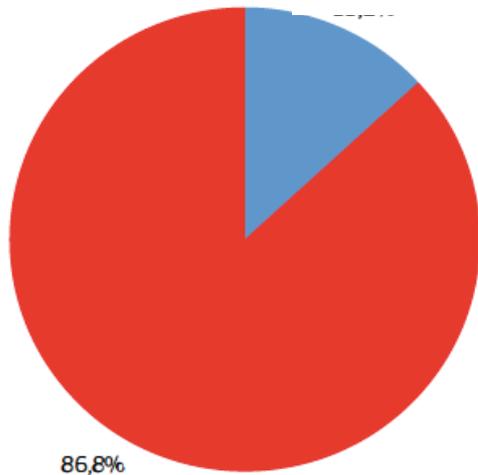


Success Rates

Share of proposals receiving funding

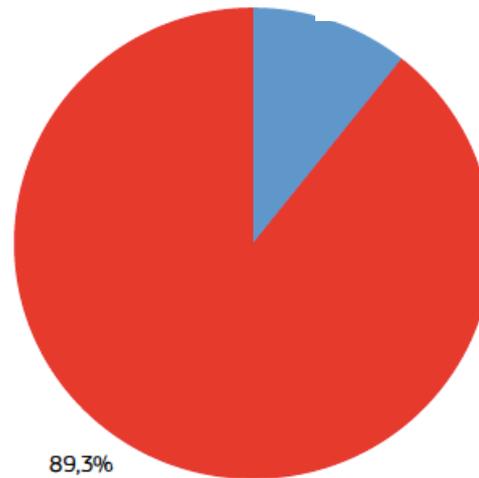
2014

13.2%



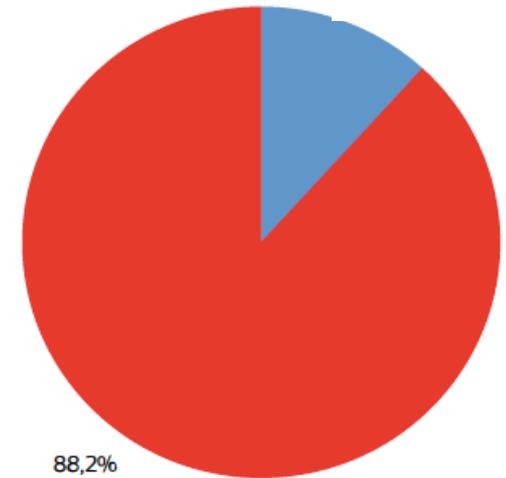
2015

10.7%

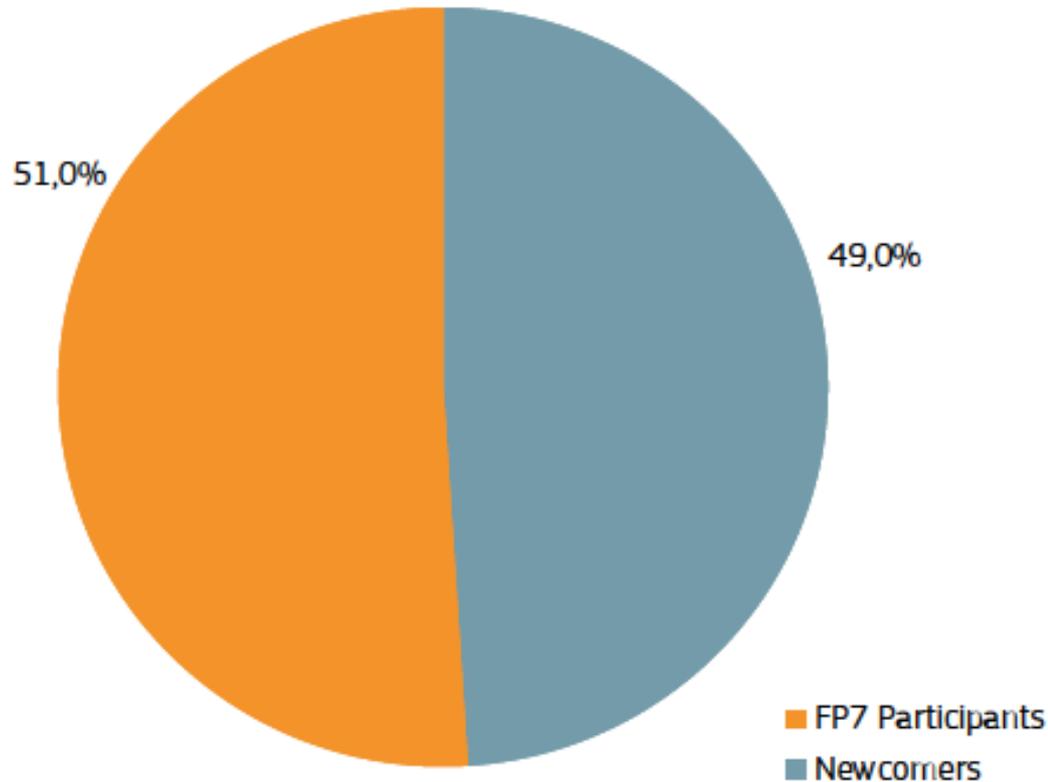


Total for 2014 and 2015

11.8%

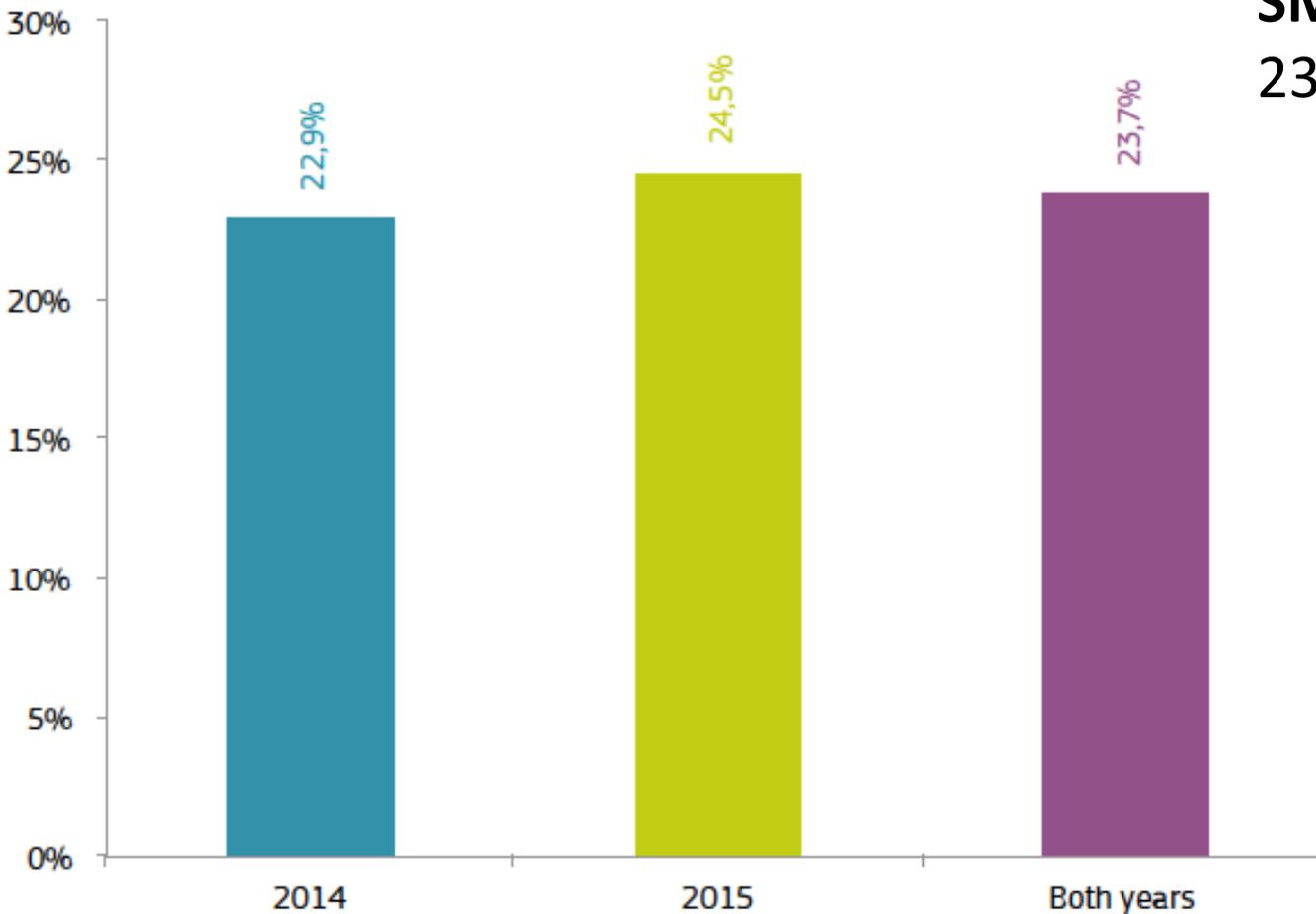


Newcomers in H2020



Around **49%** of the participants in Horizon 2020 are newcomers.

EU financial contribution share to SMEs in LEIT* and Societal Challenge Pillar



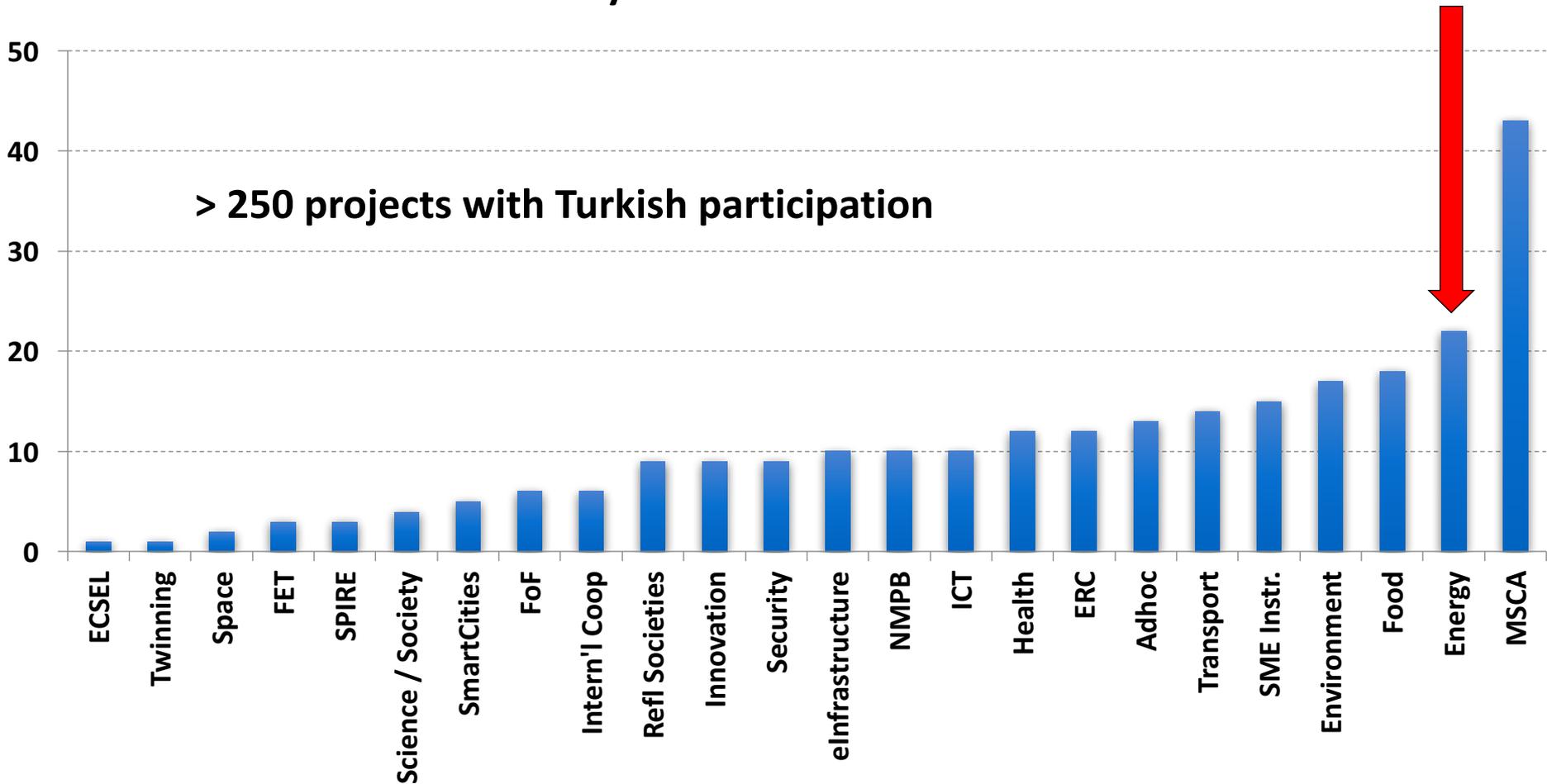
The **20%** budget target for the funding of **SMEs** was achieved: **23.7%**

How about Turkey?



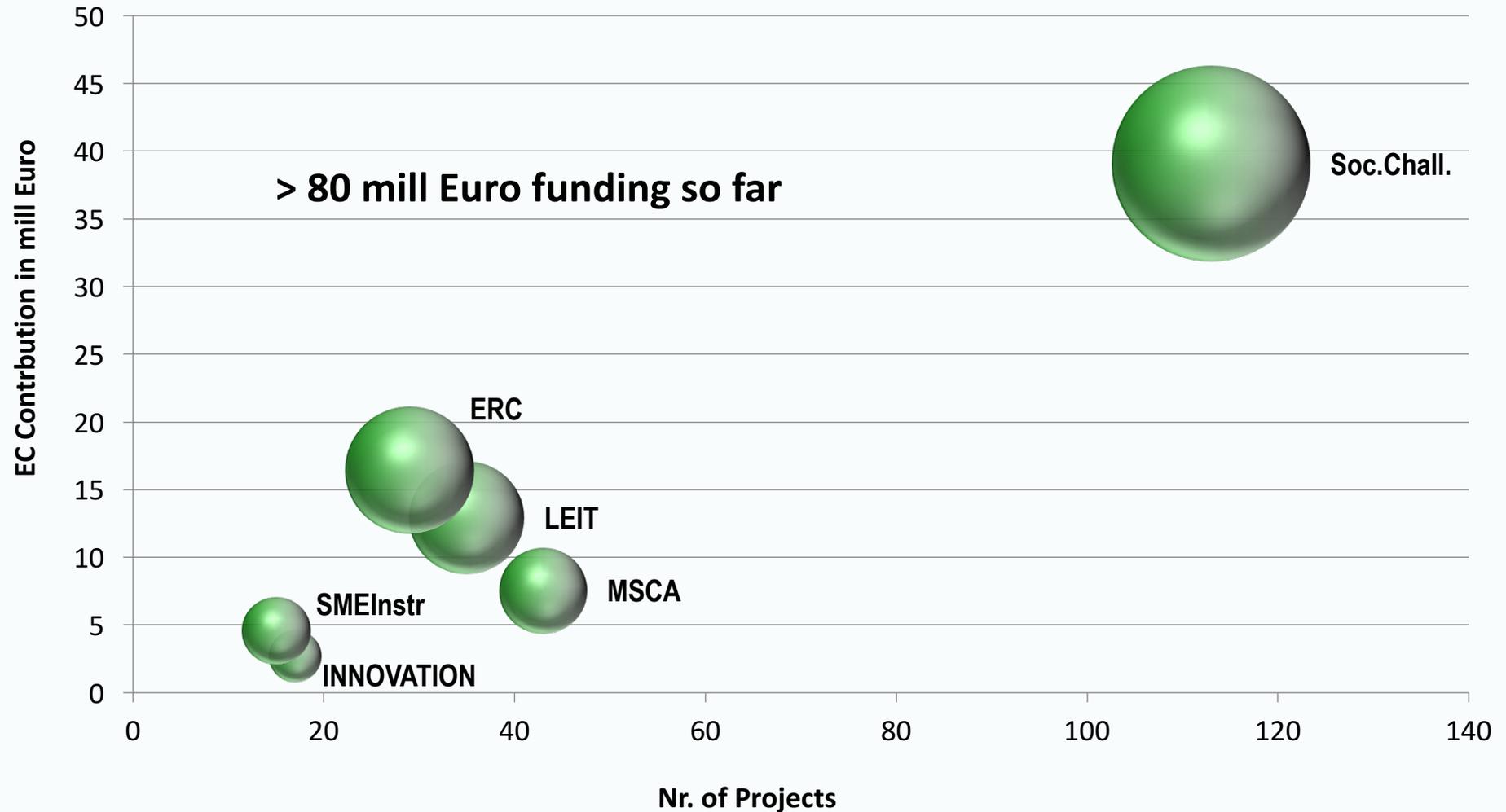
Turkey in H2020

Turkey in H2020: 2014-16



Turkey in H2020

Turkey in H2020: 2014-16



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Some formal points

Rules of Participation

Minimum conditions

- For standard collaborative actions
 - At least, 3 legal entities, each established in different MS/AC
- For SME Instrument, programme co-fund, CSA
 - 1 legal entity established in a MS/AC

Additional conditions

- To be set out in the Work Programme (i.e. number of participants, type of participants, etc.)

Simplified Funding Model

One reimbursement rate by action

The same rate for all beneficiaries and all activities:

- Up to 100% for Research and Innovation actions
- Up to 70% for innovation (non-profit entities up to 100%)
- Up to 70% for PCP co-fund, 33% for ERANET co-fund, 20% for PPI co-fund

Simplified Funding Model

A single method for calculation of indirect costs:

- Flat rate of 25% of total direct costs, excluding subcontracting, costs of third parties and financial support to third parties

Eligible costs

Main cost categories:

- Personnel costs
- Costs of subcontracting
- Other direct costs
 - Travel costs and subsistence allowances
 - Depreciation costs of equipment
 - Costs of other goods and services (including non-deductible VAT)

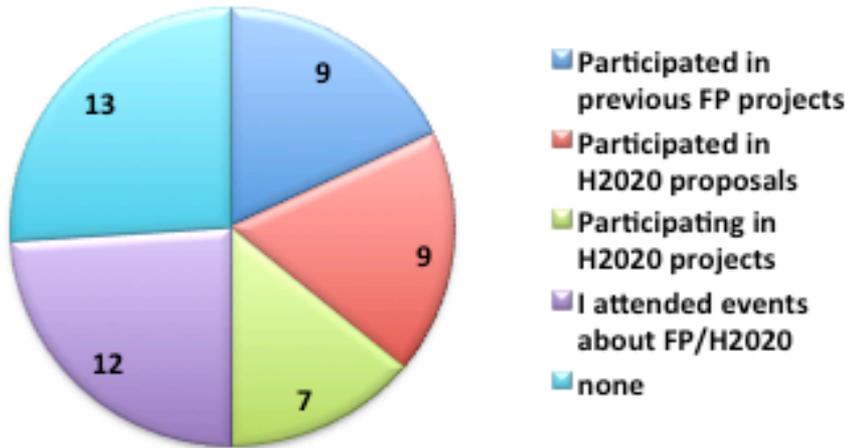
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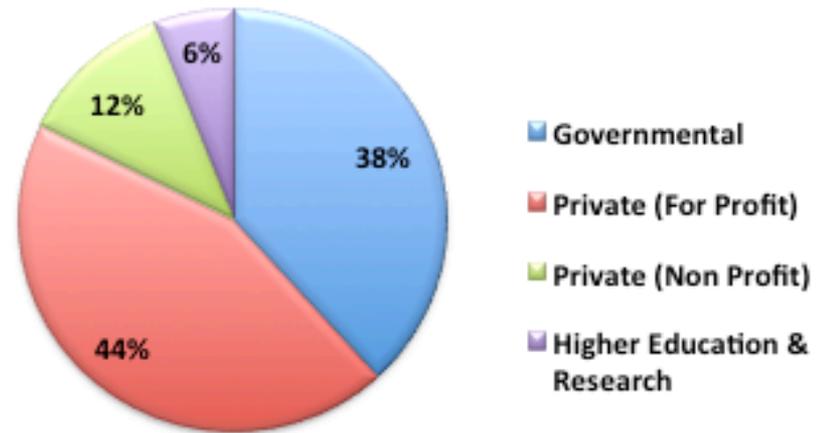


Our Event today:
Secure, Clean and Efficient Energy

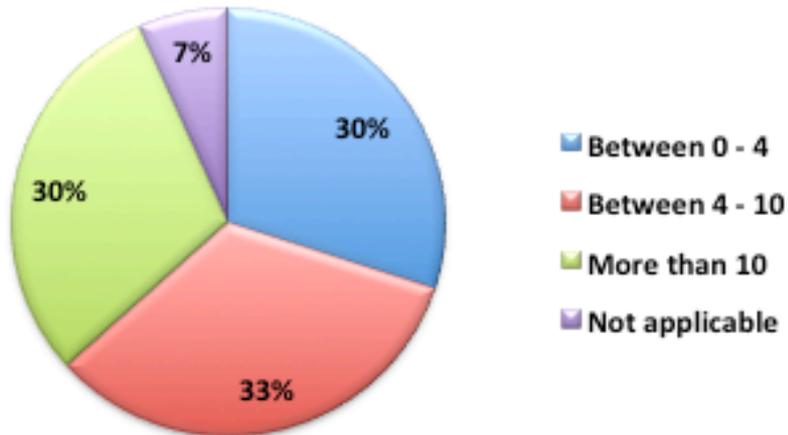
Participation in FP/H2020



Type of Organisation



For how many years have you been a researcher?



Focus of research

