Horizon Europe, Brexit and the effect in Niedersachsen

Donal Murphy-Bokern

REPORT

ON THE

ORGANISATION

OF THE

PERMANENT CIVIL SERVICE

Agricultural research – one of Europe's long-standing common endeavours

Photo: Rothamsted Research

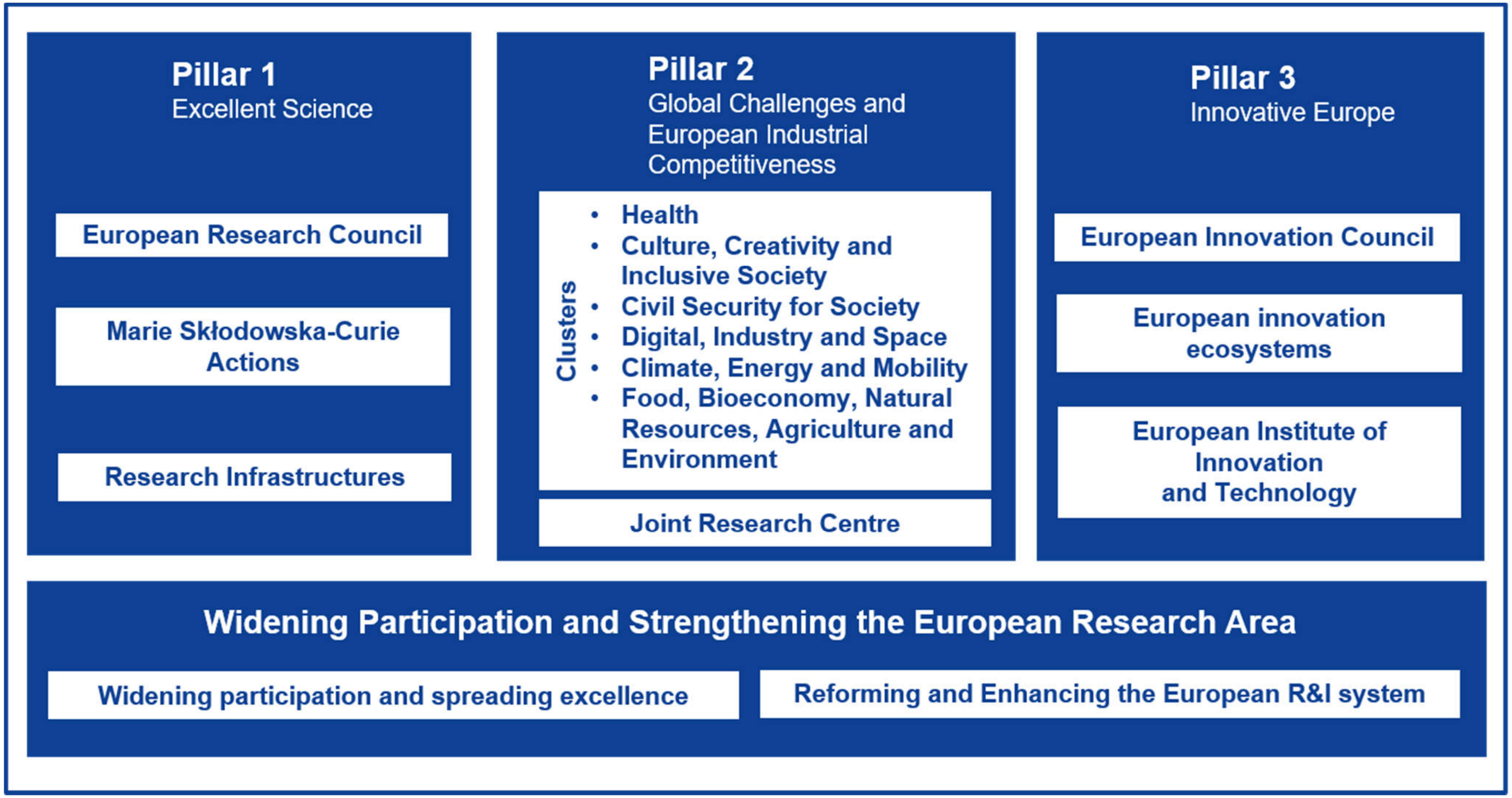
The scale of ‘agricultural’ research in Framework Programmes

Framework programme	Areas covered	Budget – million Euros
FP4 (FAIR) 1994-1998	Agriculture, fisheries, forestry and food	647
FP5 1998-2002	Agriculture, fisheries and forestry	ca. 520
FP6 2002 – 2006	Food quality and safety, policy support	ca. 928
FP7 (KBBE) 2007- 2013	Food, agriculture, fisheries and biotechnologies	ca. 1,900
Horizon 2020 2014-2020	Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy	ca. 3,860
Horizon Europe	Agri-food and the wider bioeconomy	ca. 10,000


Towards a long-term
strategy for European
agricultural research
and innovation by 2020
and beyond

European Commission

Horizon Europe


Pillar 1
Excellent Science
European Research Council
Marie Skłodowska-Curie Actions
Research Infrastructures
Pillar 2
Global Challenges and European Industrial Competitiveness
Clusters
• Health
• Culture, Creativity and Inclusive Society
• Civil Security for Society
• Digital, Industry and Space
• Climate, Energy and Mobility
• Food, Bioeconomy, Natural Resources, Agriculture and Environment
Joint Research Centre
Pillar 3
Innovative Europe
European Innovation Council
European innovation ecosystems
European Institute of Innovation and Technology
Widening Participation and Strengthening the European Research Area
Widening participation and spreading excellence
Reforming and Enhancing the European R&I system

Commission proposal for budget: €100 billion* (2021-2027)

* This envelope includes EUR 3.5 billion allocated under the InvestEU Fund.

European Commission

“We choose to go to the Moon…”

President John F. Kennedy
speaks at Rice University

Mariana Mazzucato Carlos Moedas

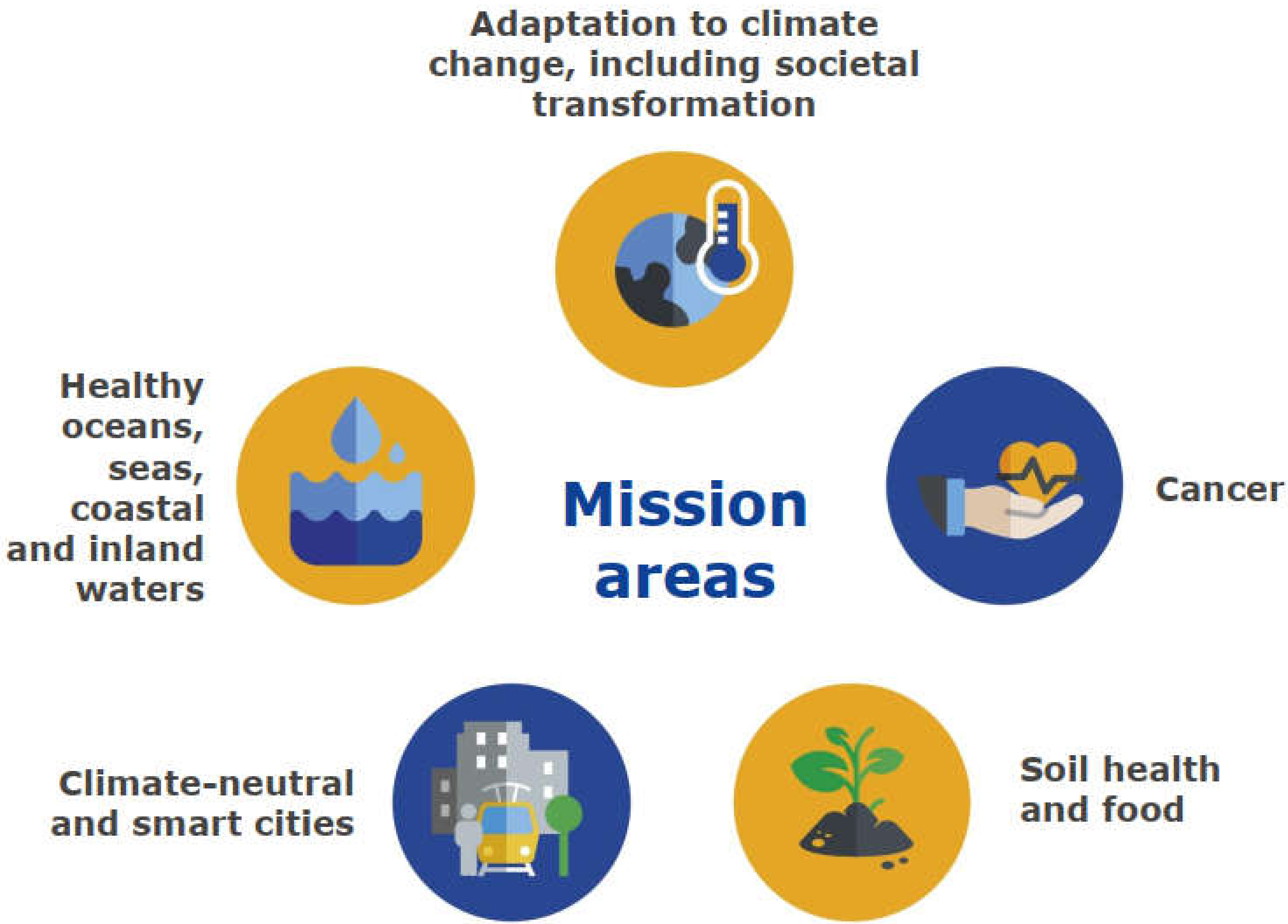
Photo: European Commission

R&I Missions

R&I Missions — **Relating EU's research and innovation better to society and citizens' needs; with strong visibility and impact**

A mission is a portfolio of actions across disciplines intended to achieve a **bold and inspirational and measurable goal** within a set timeframe, with **impact** for society and policy making as well as relevance for a significant part of the European population and wide range of European citizens.

Horizon Europe defines mission characteristics and elements of governance, and 5 missions areas.
Specific missions will be programmed within the Global Challenges and European Industrial Competitiveness pillar (drawing on inputs from other pillars)

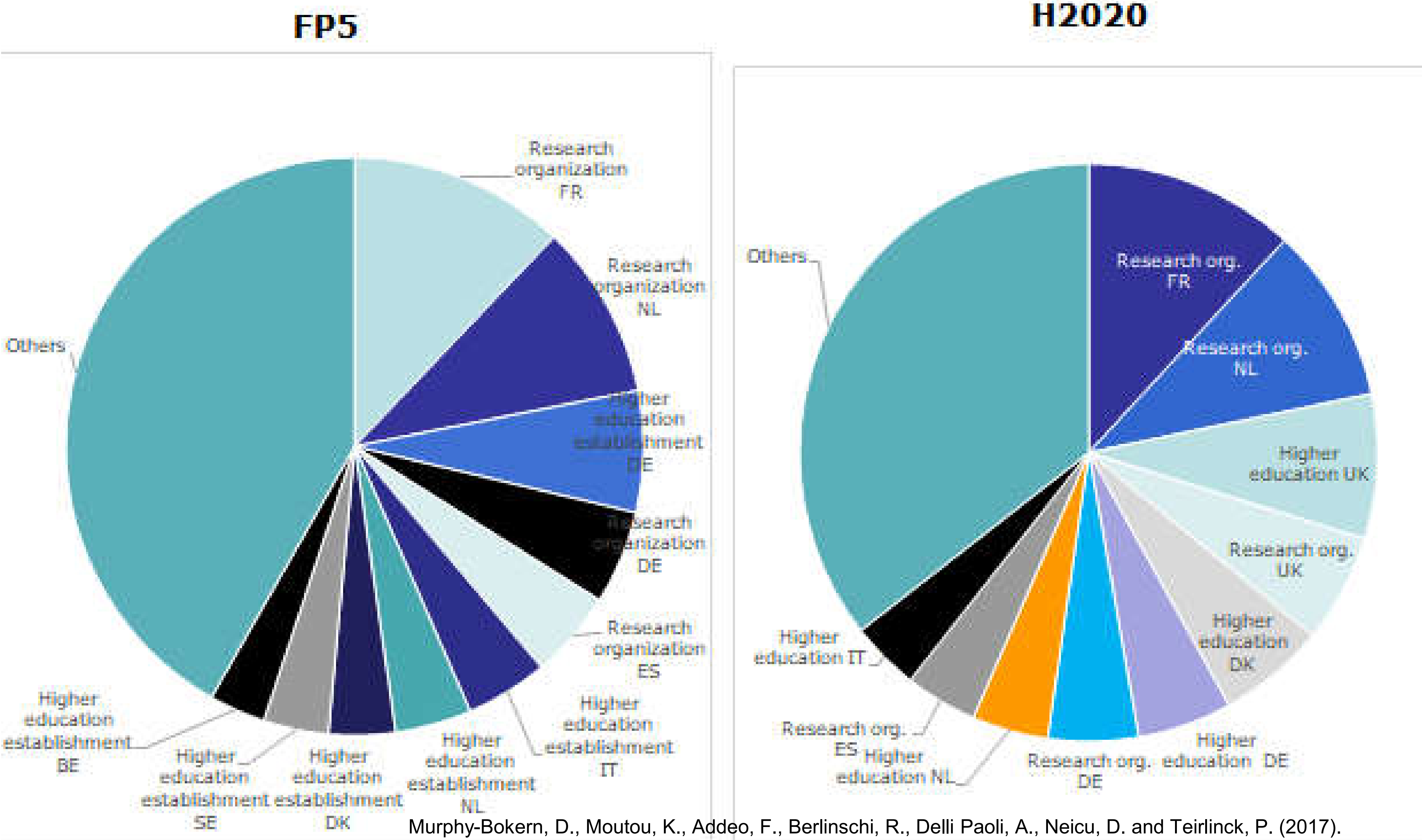


European Commission

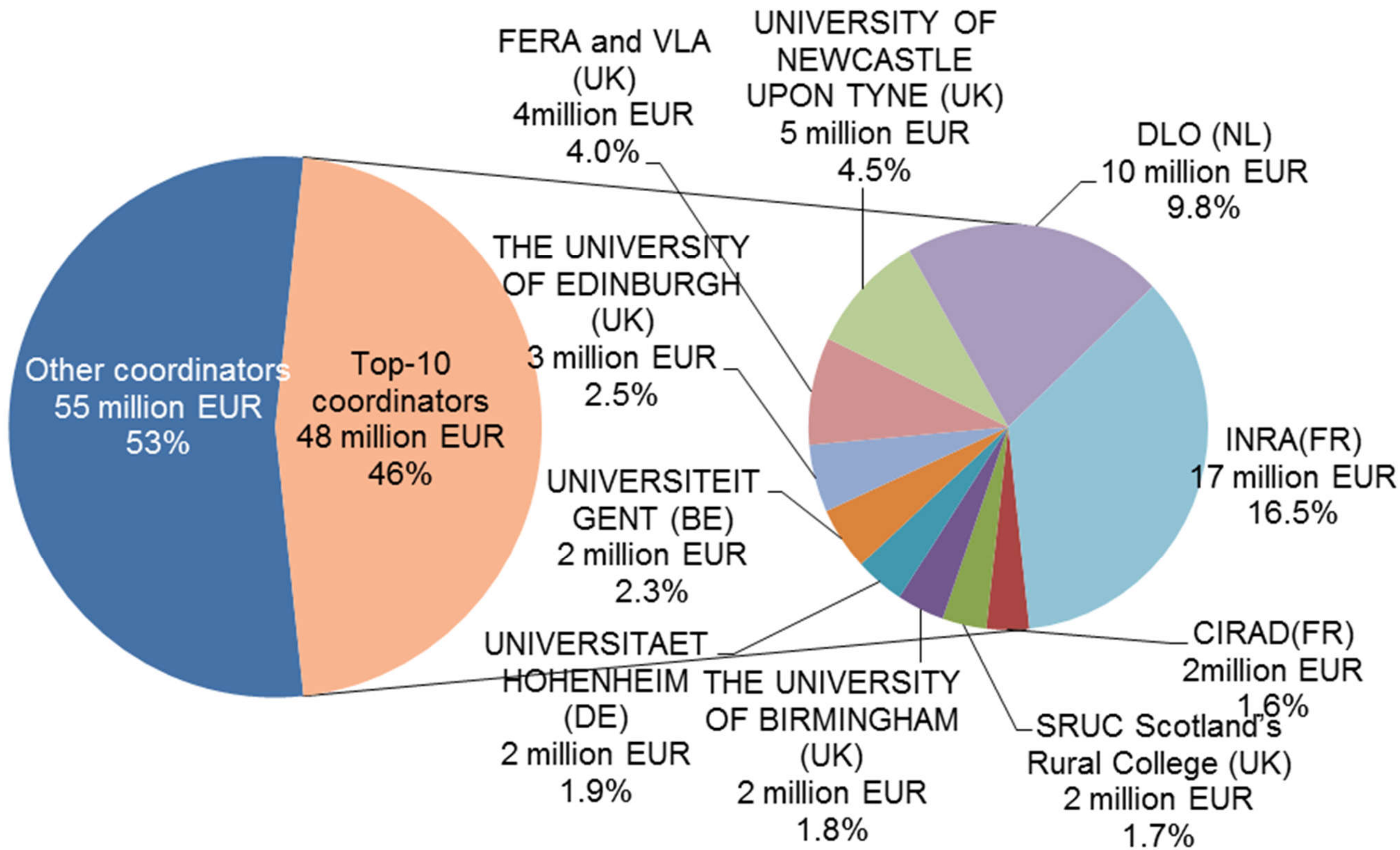
Who is setting the agenda?

Is there evidence of concentration or incumbency?

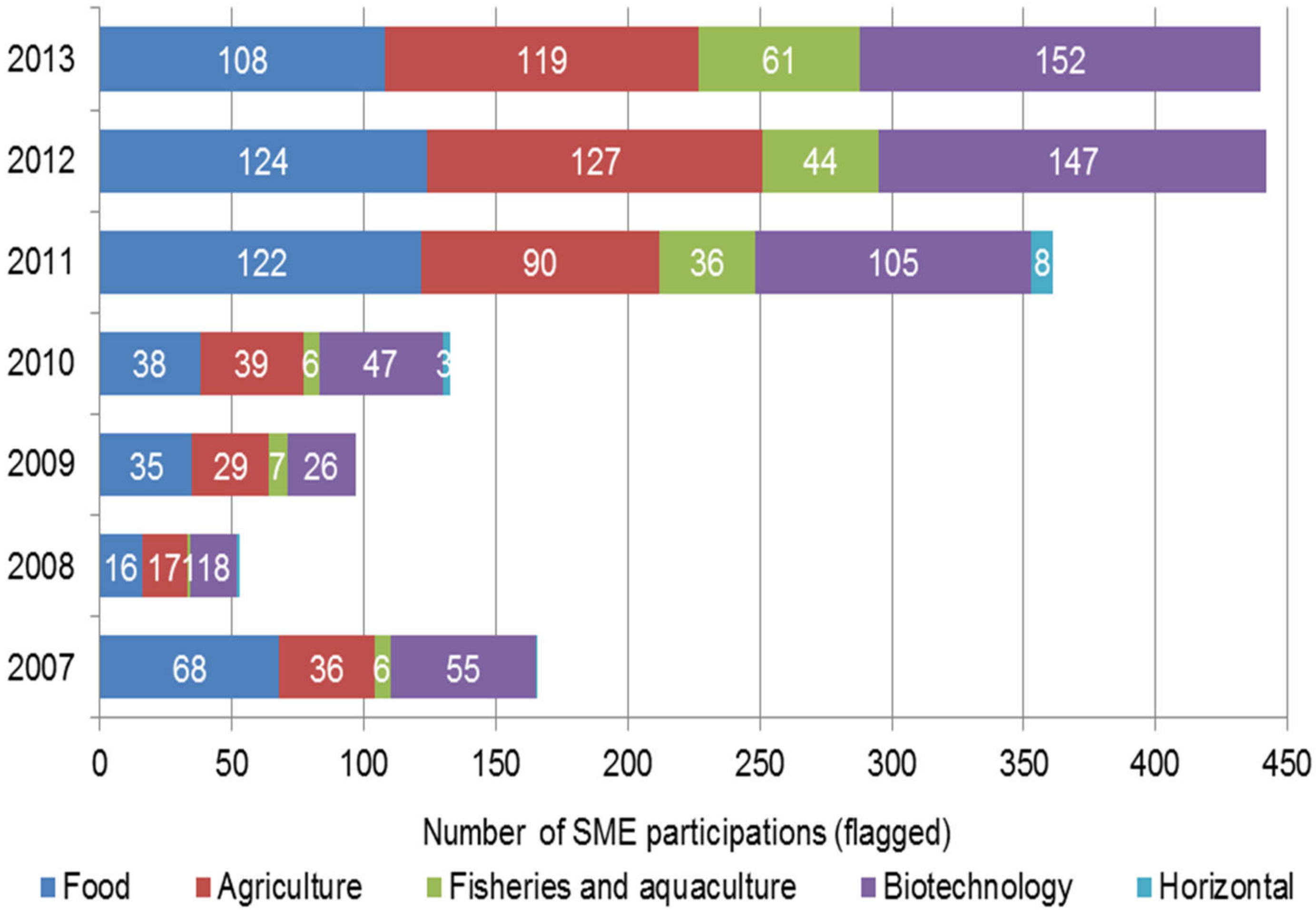
Distribution of funding for coordination in terms of organisation type and country combinations In FP7 and H2020 excl. SME and BBI projects



Murphy-Bokern, D., Moutou, K., Addeo, F., Berlinschi, R., Delli Paoli, A., Neicu, D. and Teirlinck, P. (2017). Meeting Societal Challenge 2. Expert Group Report. Published by the European Commission. (www.murphy-bokern.com/images/Meeting_SC2_-_Final_report_DMB_website.pdf)



Other coordinators
55 million EUR
53%
Top-10
coordinators
48 million EUR
46%
FERA and VLA
(UK)
4million EUR
4.0%
UNIVERSITY OF
NEWCASTLE
UPON TYNE (UK)
5 million EUR
4.5%
DLO (NL)
10 million EUR
9.8%
THE UNIVERSITY
OF EDINBURGH
(UK)
3 million EUR
2.5%
INRA(FR)
17 million EUR
16.5%
UNIVERSITEIT
GENT (BE)
2 million EUR
2.3%
CIRAD(FR)
2million EUR
1.6%
UNIVERSITAET
HOHENHEIM
(DE)
2 million EUR
1.9%
THE UNIVERSITY
OF BIRMINGHAM
(UK)
2 million EUR
1.8%
SRUC Scotland's
Rural College (UK)
2 million EUR
1.7%



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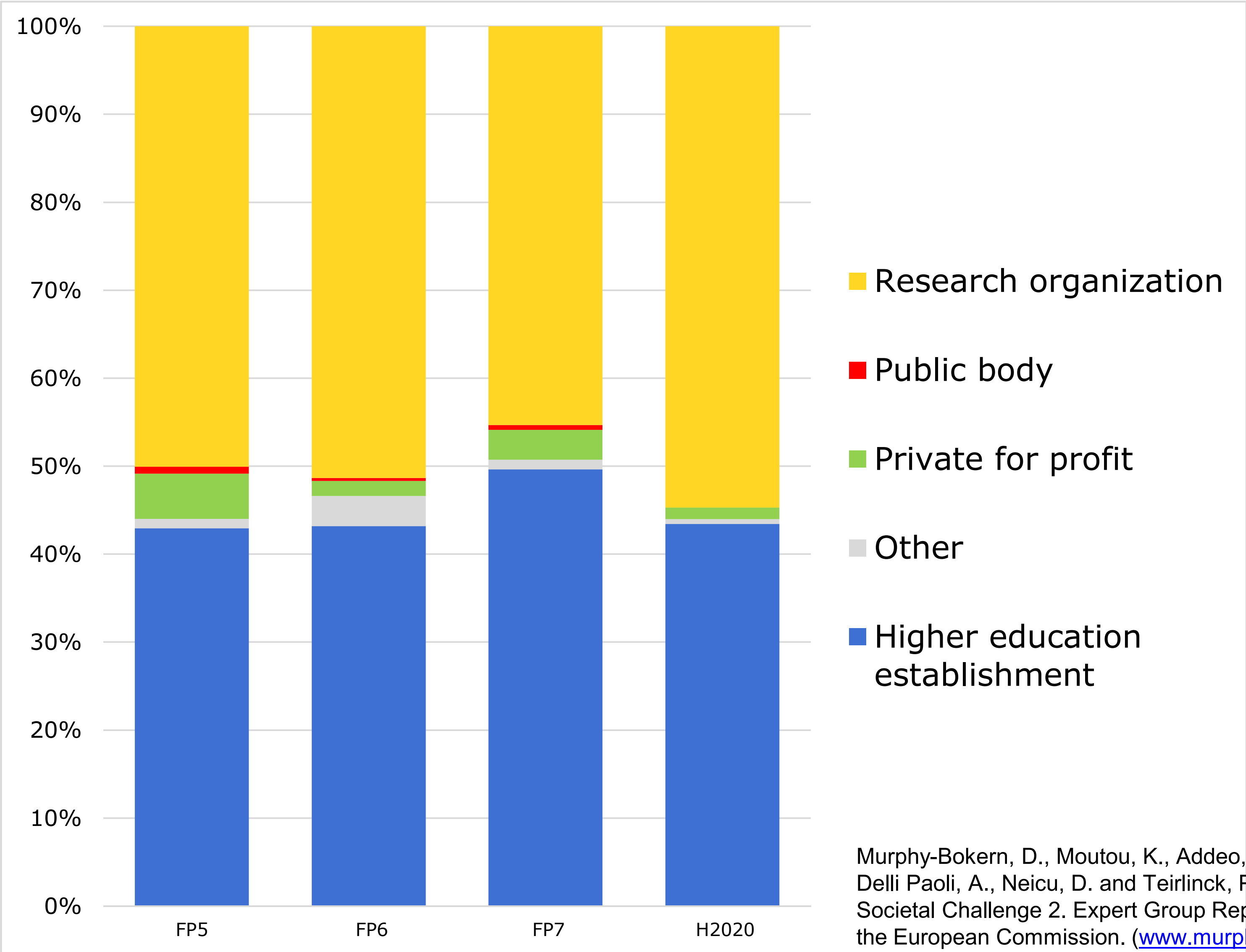
Who is coordinating research and technological development projects?



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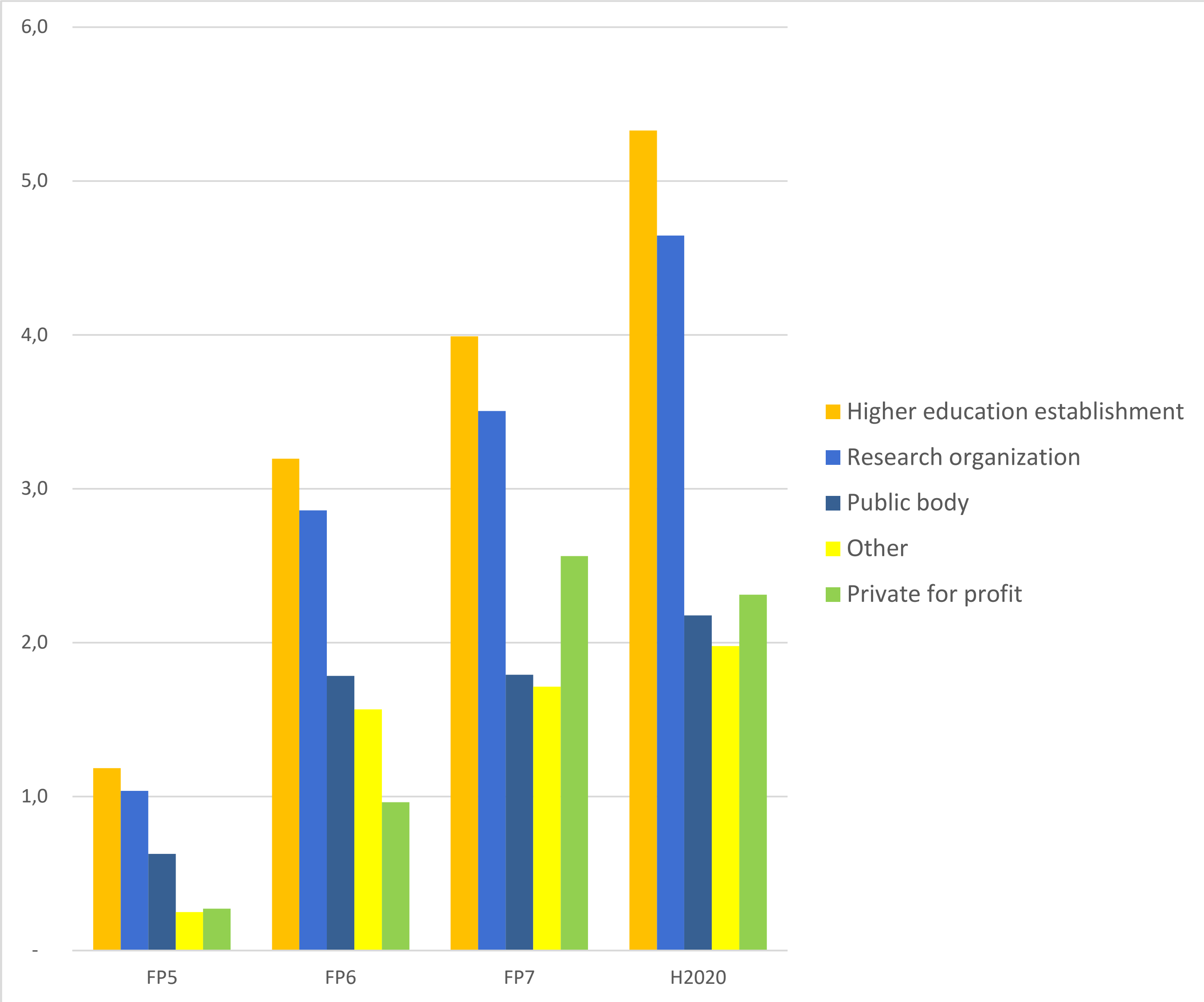
Average EU contribution to projects with different types of coordinators



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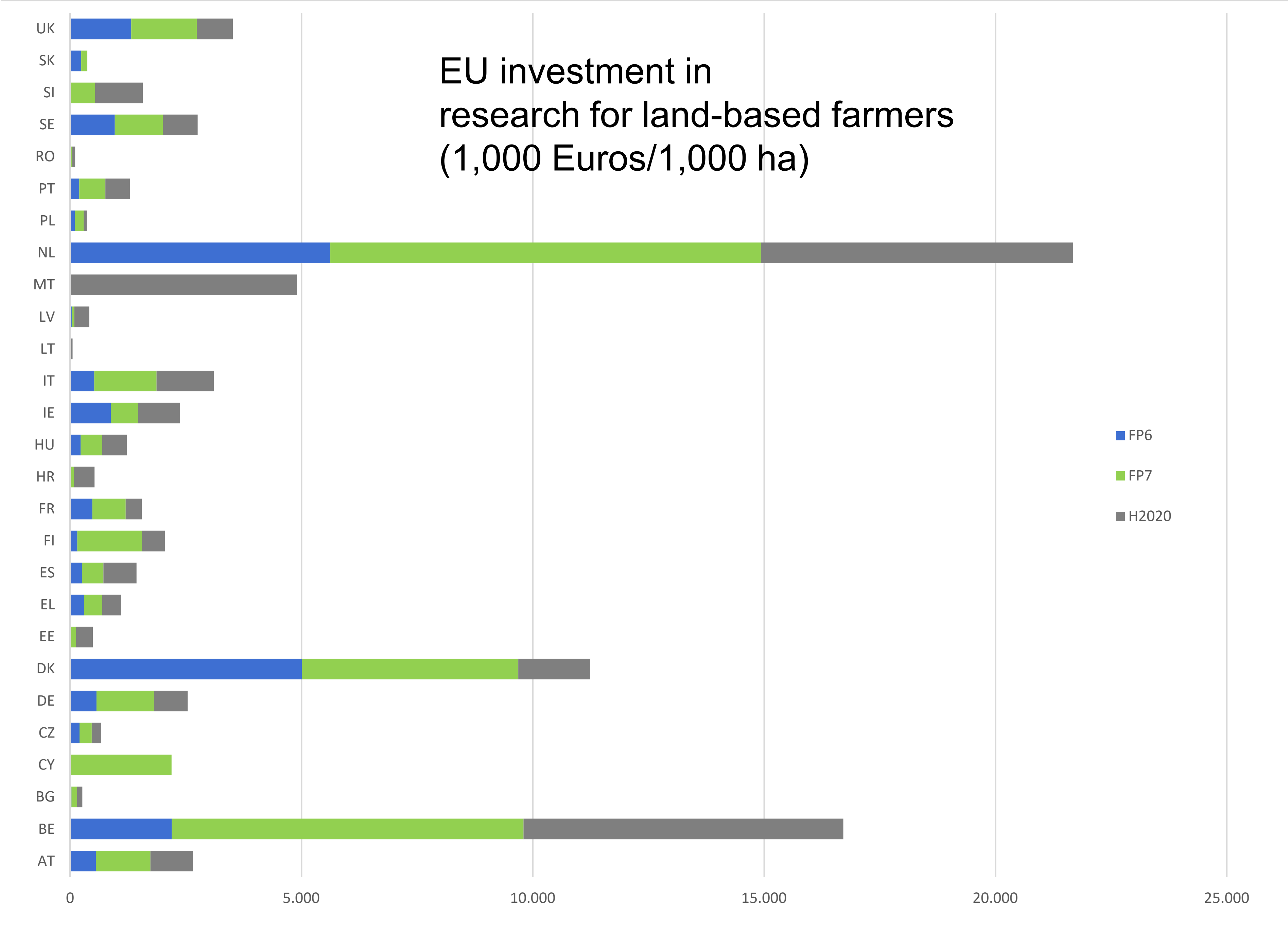
EU investment in
research for land-based farmers
(1,000 Euros/1,000 ha)
UK
SK
SI
SE
RO
PT
PL
NL
MT
LV
LT
IT
IE
HU
HR
FR
FI
ES
EL
EE
DK
DE
CZ
CY
BG
BE
AT
0
5.000
10.000
15.000
20.000
25.000
FP6
FP7
H2020

What happens in Framework Programmes?

Academic ambition meets societal challenges

Academic ecosystems meet organisation

Natural sciences meet the humanities

Knowledge reporting meets communication

management (SCM) and industrial organisation (IO) will also be used to validate information on opportunities for technical and economic improvement along selected value chains.[29,30]

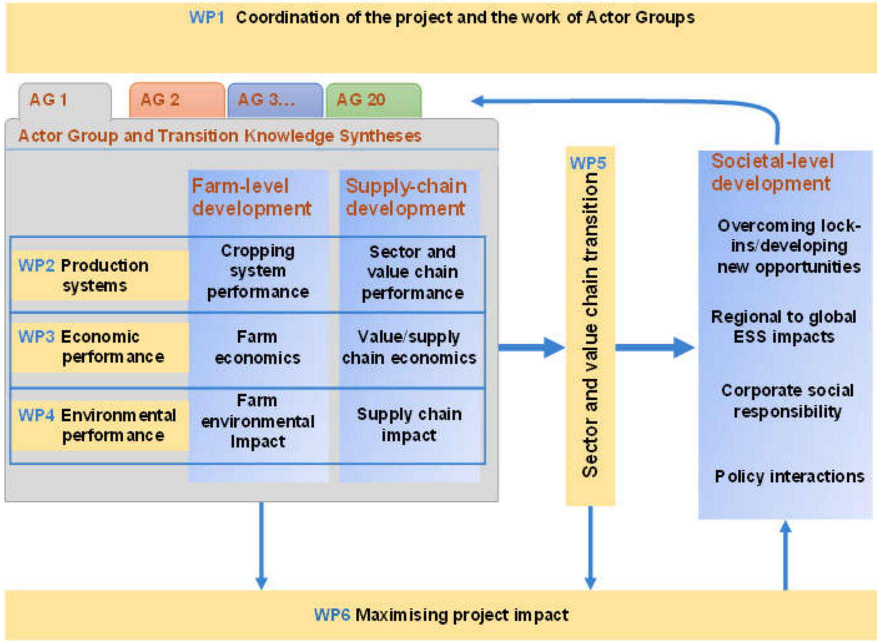

Figure 1.4 The interactions between WPs in Actor Groups' work in relation to three development levels (farm, value-chain, and societal).

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[28] Kanellopoulos et al. (2014).Assessing climate change and associated socio-economic scenarios for arable farming in the Netherlands: An application of benchmarking and bio-economic farm modelling. Eur. J. of Agronomy, 52, pp. 69-80.
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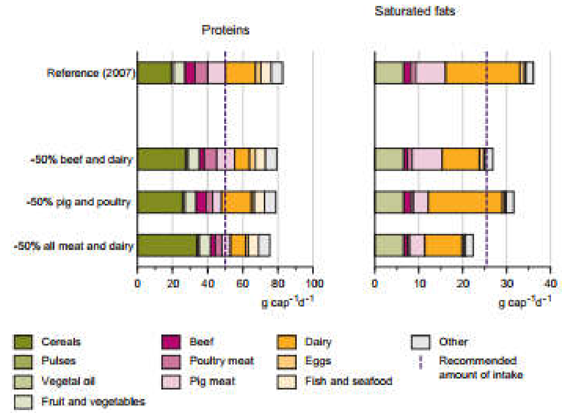


Fig. 1. Effects of dietary changes on the average daily per-capita intake of proteins and saturated fats. (a) Population average daily protein intake in the EU27, in g day^{-1}, for the various food commodity groups, under the reference (2007) scenario and in case of the six alternative diets in which meat and dairy consumption is reduced step by step. (b) Idem, for saturated fats.

As the demand for animal feed declines, land currently used in feed production will become available for alternative purposes. In the *high prices* land-use scenario, with a 50% reduction in all meat and dairy production, 9.2 million hectares of mainly intensively managed permanent grassland and 14.5 million hectares of arable land are no longer required for feeding European livestock (Table 3, S4, Fig. S4). This land, instead, will be used for additional cereal production, leading to an increase in EU cereal acreage from 60 to 84 million hectares and in the net export of cereals from 3 to 174 million tonnes (Fig. S5). In the *greening* land-use scenario, around 14.5 million hectares are used in the cultivation of perennial energy crops.

The demand for food cereals will increase when the consumption of meat and dairy is reduced. Feed demand, however, would decrease by more (Fig. 2). In combination with the increased availability of land, domestic cereal production would become much larger than domestic demand, leading to an increase in cereal exports. As a consequence of the dietary changes, the average amount of cropland used within the EU for domestic food production would be reduced from 0.23 to 0.17 hectares per EU citizen.

3.3. *Effects on reactive nitrogen emissions*

A reduction in livestock production would lead to a significant decrease in the reactive nitrogen input and losses across Europe (Fig. 3, Table S5). In the *greening* scenario, under a 50% reduction in all meat and dairy consumption, fertiliser input is reduced from 11.3 to 8.0 million tonnes N yr^{-1}, while emissions of nitrates to groundwater and surface water and ammonia (NH_3) to air both are reduced by 40%, compared with the reference situation. The level of nitrogen use efficiency in the EU food system as a whole would improve, from 22% in the reference situation to 41% under the *greening* scenario and to 47% under the *high prices* scenario. The nitrogen use efficiency here is defined as the N output in food crops and livestock products as a percentage of total N input (Oenema et al., 2009).

Results indicate that at the current level of livestock production, changes in the emission of reactive nitrogen from European agriculture on an EU scale closely relate to relative changes in the magnitude of livestock production. Reducing N emissions through dietary change would lead to a cascade of positive effects (Galloway et al., 2008). Reductions in nitrate leaching and ammonia emissions and deposition would be the highest in regions with intensive livestock production. Under the 50% reduction diet, average NH_3 emissions and NH_x deposition in the EU would be reduced by about 40%, resulting in a reduction in the exceedance of critical load thresholds for adverse reactive nitrogen effects on ecosystems (Fig. 4). Reduced nitrogen emissions will lead to an improvement in water quality and to lower risks of eutrophication. The total N load to rivers and seas for the EU27 in 2005 was estimated at 4.6 million tonnes, 55% of which

Science meets Transition

AND

Policy

Fame meets collaboration

Impact and innovation

requires

innovators

with

enterprise

who are trusted

TRUST

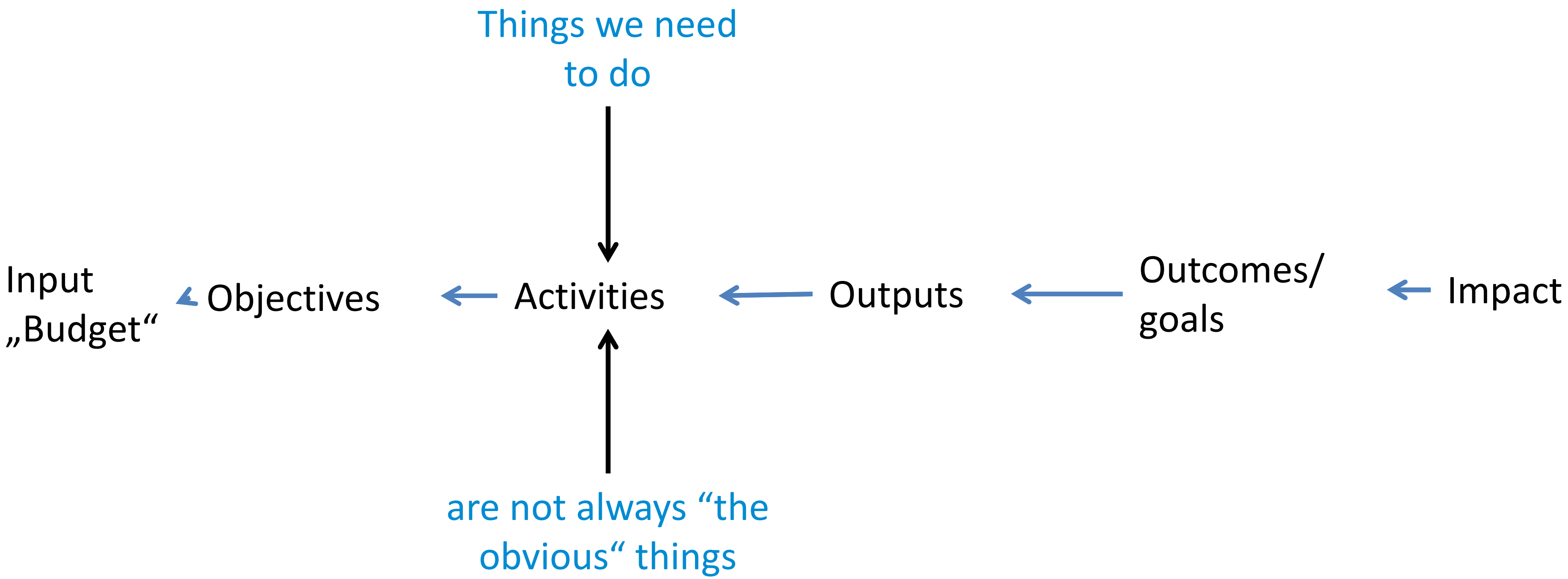
Planning a Framework Programme project

Things we can or want to do

↓

Budget → Objectives → Activities → Outputs → Impact

Planning a Framework Programme project



European Commission

HORIZON 2020 PROPOSAL EVALUATION

THE EVALUATION PROCEDURE IN PRACTICE

We must all tell more of our European stories

We must build a **kind of United States of Europe**. In this way only will hundreds of millions of toilers be able to regain the simple joys and hopes which make life worth living.