

Structure

- a. What is the European Framework Programme
- b. Approach and Process of Evaluation
 - a. General monitoring
 - b. Core Question Driven Approach
 - c. Dedicated Research on Further Issues
- c. Summary

第二届数据驱动知识发现国际研讨会

A The European Framework Programme

Programme	Period	Budget (bn Euro)
FP1	1984-87	3.3
FP2	1987-91	5.4
FP3	1990-94	6.6
FP4	1994-98	13.2
FP5	1998-02	14.9
FP6	2002-06	19.3
FP7	2007-13	50.5
Horizon 2020	2014-20	74.8
Horizon Europe	2020-28	~ 100

Source: European Commission, 2018

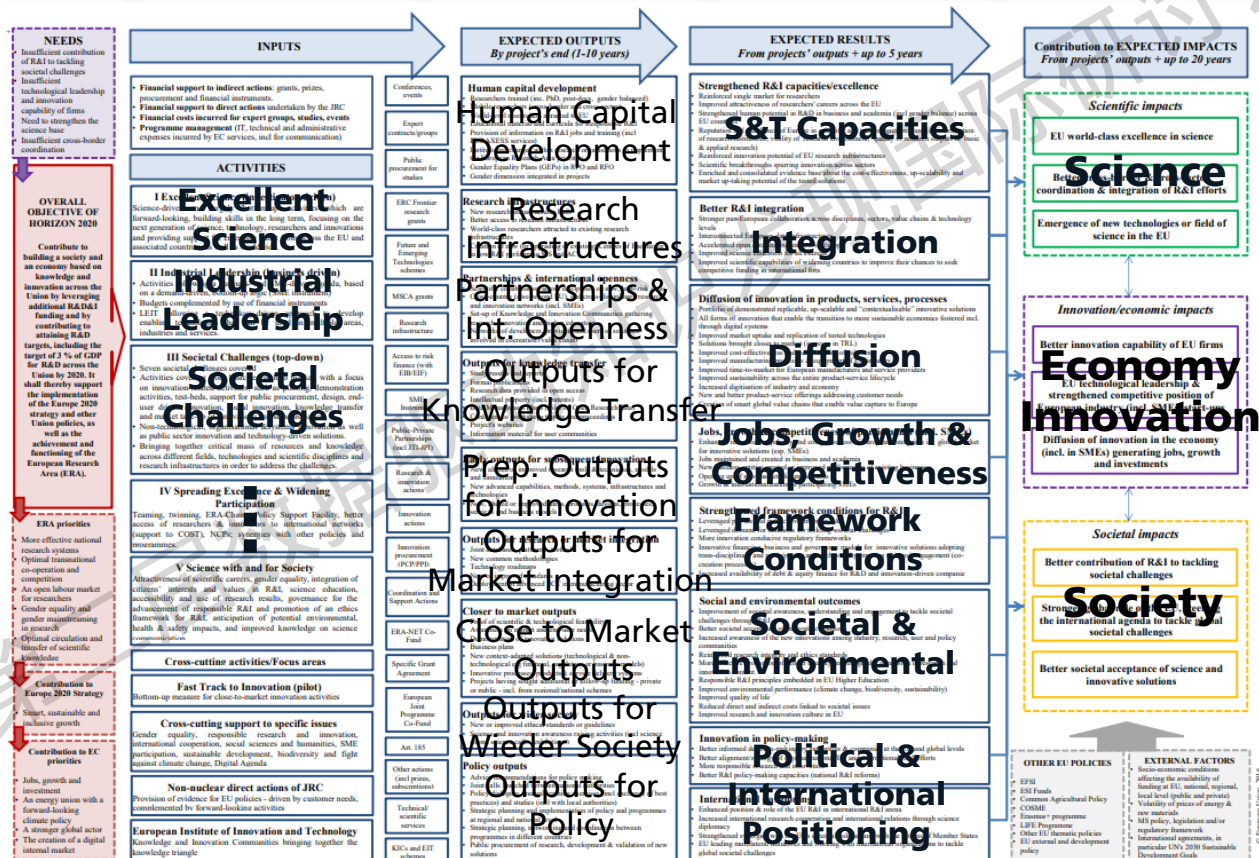
➤ relevant for close to 10% of EU Budget so requires rigorous evaluation

A The European Framework Programme

- substantial budget (close to EUR 77 billion, about **10%** of all public expenditure on R&D in the EU)
- long duration (7 years), budgetary framework stability
- broad focus: from (fundamental) research to innovation
 - strengthen the EU's science base;
 - boost private sector technological leadership and innovation capability
 - enable tackling of societal challenges through research and innovation
- diverse instruments & logics
 - grants, loans, equity, and procurement
 - top-down focus on societal challenges vs. bottom-up frontier research
 - cross-border, cross-sectoral, inter-disciplinary collaboration & mobility
- centralized data management system and funding database, simplified & standardized procedures

A The European Framework Programme

➤ overall intervention logic → logic model for evaluations



Needs coming from H2020 Impact Assessment, Overall objective of H2020 coming from Horizon 2020 establishment act Regulation (EU) No 1291/2013 (Article 10), Inputs coming from Horizon 2020 establishment act Regulation (EU) No 1291/2013 (Article 10), Activities coming from Horizon 2020 establishment act Regulation (EU) No 1291/2013 (Annex I, page 123 and following), Types of outputs, results and impacts expected supported based on Horizon 2020 establishment act Regulation (EU) No 1291/2013 (Annex I, page 123 following), Horizon 2020 Strategic and Work Programme 2014-2015 and 2014-2017

Source: European Commission, 2017

B Approach and Process of Evaluation

Core Evaluation Questions

■ Relevance

- Is Horizon 2020 tackling the right issues?
- Is Horizon 2020 responding to stakeholder needs?

■ Efficiency

- Application, Communication, Management Procedures?
- Distribution of Funding?
- Cost-Effectiveness?

■ Effectiveness

- progress towards **scientific impact**?
- progress towards **innovation & economic impact**?
- progress towards **societal impact**?

■ Coherence

- internally between programme sections?
- with other EU programmes?
- with other national and regional programmes?

■ European Added Value

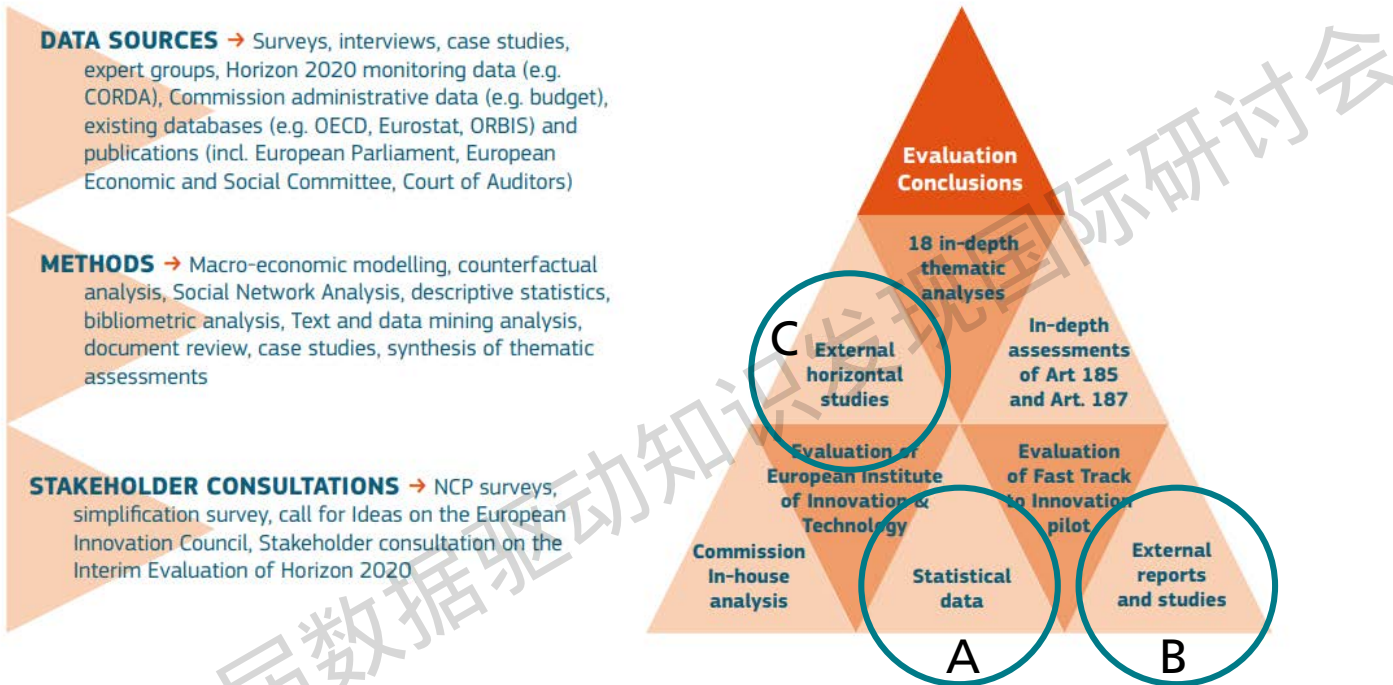


Source: European Commission, 2017

B Approach and Process of Evaluation

- coordinated by Evaluation Unit of the European Commission's Directorate-General for Research and Innovation,
- supported by Working Group and an Inter-Service Group (staffed by different DGs)
- Main levels
 - **Regular monitoring reports** based on Horizon 2020 funding data and complementary statistical data
 - **Studies focusing on key evaluation questions**
 - by responsible Commission services with the Joint Research Centre
 - by external agencies & thematic experts
 - **In-depth horizontal studies** on specific topics
 - publications and networking based on Scopus data *by Elsevier*
 - financing of participating companies (content analysis) *by CBS*
 - EU Added Value and economic impact *by PPMI*

B Approach and Process of Evaluation

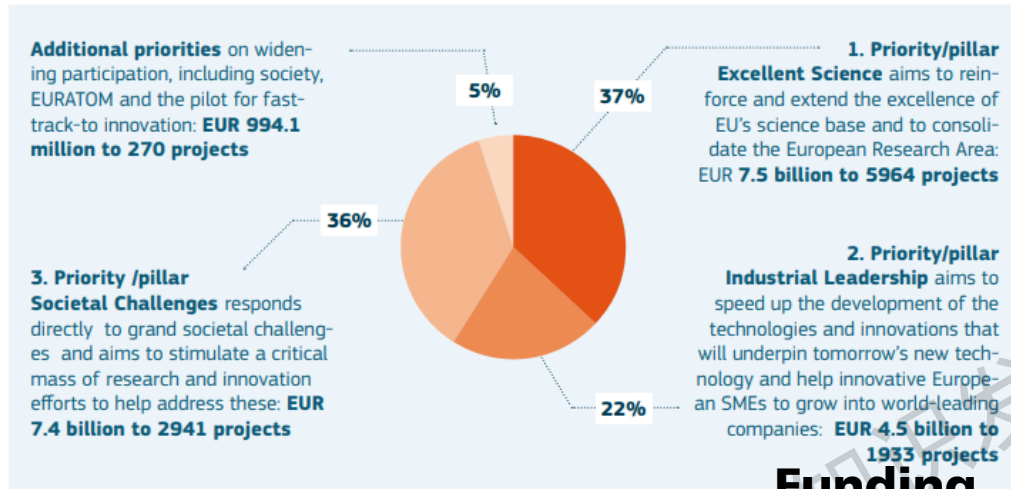


Source: European Commission, 2017

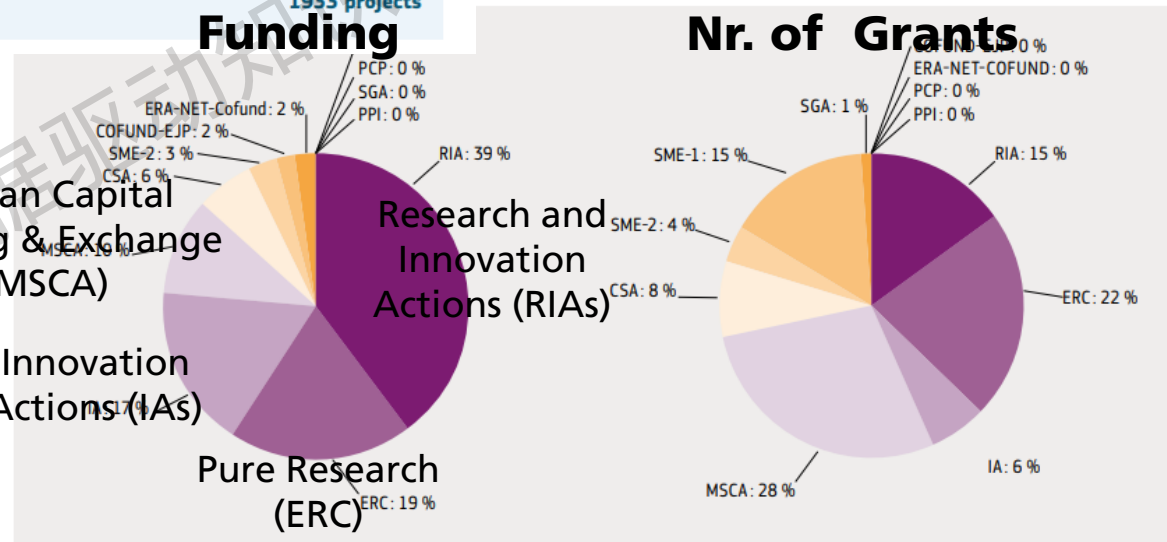
A Variety of Methods: Macro-economic modelling, counterfactual analysis, Social network analysis, Descriptive statistics, Bibliometric analysis, Text and data mining analysis, Manual analysis of documents, Case studies, Synthesis of thematic assessments

B / A General Monitoring

ALLOCATION OF HORIZON 2020 FUNDING 2014-2016



Source: European Commission, 2017



Source: Corda, calls until end of 2016, signed grants cut-off date: 1/1/2017

B / A General Monitoring

- Main Question: Are allocations in line with the overall strategy
- H2020 defines key indicators
- H2020 sets aggregate targets for allocation to certain areas
- H2020 monitors a further output indicators in comparison to previous period benchmarks

KEY INDICATORS		FP7 2007-2013, EUR 55 BILLION	HORIZON 2020 2014-2020, EUR 74.8 BILLION STATUS AS OF 01/01/2017	DIFFERENCE
Success rate	.. of projects' proposals	18.4 %	11.6 %	↓ 6.8 pps
	.. of total funding requested	19.9 %	12.7 %	↓ 7.2 pps
	.. of total applications	21.8 %	14.1 %	↓ 7.7 pps
	.. for private sector (applications)	23.3 %	13.0 %	↓ 10.3 pps
	.. for SMEs (applications)	20.2 %	12.0 %	↓ 8.2 pps
	.. of EU-13 countries (applications)	18.0 %	11.1 %	↓ 6.9 pps
	.. of Third Countries (applications)	23.8 %	18.3 %	↓ 5.5 pps
	.. of Associated Countries (applications)	21.7 %	13.4 %	↓ 8.3 pps
Proposals' evaluation	Number of proposals evaluated per year	~20 000	~33 000	↑ 65 %
	Time spent per evaluator per proposal	0.8 day	0.7 day	↓ 0.1 day

Source: European Commission, 2017

HORIZON 2020 TARGETS	CURRENT STATUS
Climate action target: 35 % of EC's financial contribution that is climate-related (Rio-Markers methodology)	27.0 %
Sustainable development target: 60 % of EC's financial contribution that is sustainability-related (RIO-Markers methodology)	53.3 %
SME target: 20 % of EC's financial contribution going to SMEs (only LEIT and societal challenges)	23.9 %
SME Instrument target: 7 % of EC's financial contribution committed through the SME instrument (only LEIT and societal challenges)	5.6 %

KEY INDICATORS	FP7 2007-2013, EUR 55 BILLION	HORIZON 2020 2014-2020, EUR 74.8 BILLION STATUS AS OF 01/01/2017
Eligible proposals submitted (number)	134 535	102 076
EC contribution requested in eligible proposals (EUR million)	216 358	172 748
High-quality proposals submitted (number)	No info	45 632
EC contribution requested in high-quality proposals (EUR million)	No info	85 006.1
Signed grants (number)	25 781	11 108
EC contribution to signed grants (EUR million)	45 452	20 400.1
Applications in proposals (number)	563 079	379 169
Open access (share of peer-reviewed publications provided in open access)	61.8 %	60.8 % to 68.7 %
Peer-reviewed publications (number)	219 620	4 043
Patent applications (number)	2 669	153
Newcomers (share of participants)	Above 70 %	52.1 %
Collaborative projects (% of total EC contribution)	72 %	76 %
Time to grant in number of days (excl. ERC)	303 days	192.2 days
Funding rate (EC contribution as % of total project costs)	70 %	70 %
Concentration of funding to top 100 beneficiaries (% of EC contribution)	34.6 %	32.9 %

Source: European Commission, 2017

B / A General Monitoring

- Key Performance Indicators are defined for some central aspects

TABLE 1: Horizon 2020 Key Performance Indicators

#	Key performance indicator ²	Definition of the indicator	Type of data required	Baseline at the start of Horizon 2020 (latest available) ³	Target at the end of Horizon 2020	
EXCELLENCE SCIENCE	1	ERC - Percentage of publications from ERC funded projects which are among the top 1 % highly cited	The index of ERC funded publications that are among the top 1% highly cited publications	Publication metadata from ERC funded projects and benchmark data on publications among top 1 %	[new approach under Horizon 2020] ⁴	1.8 ⁵
	2	FET - Publications in peer-reviewed high impact journals	The percentage of publications published in the top 10% impact ranked journals at FET level	Publications from FET funded projects (DOI: Digital Object Identifiers); Journal impact benchmark (ranking) data to be collected by commercially available bibliometric databases	[new approach under Horizon 2020]	25 publications per €10 million funding
	3	FET - Patent applications and patents awarded in Future and Emerging Technologies	Number of patent applications; Number of awarded patents at FET level	Patent application number; Awarded patent number	[new approach under Horizon 2020]	1 patent application per €10 million funding
	4	Marie Skłodowska-Curie actions - Cross-sector and cross-country circulation of researchers, including PhD candidates	Number of researchers undertaking international mobility under the Marie Skłodowska-Curie actions. Number of researchers undertaking mobility between academic and non-academic sectors	Nationality and gender of the researcher; country of origin of the researcher; country, legal status and activity type of the host organisation, legal status and activity type of the employing organisation prior to the Marie Skłodowska-Curie actions. Enrolment of a researcher in a PhD programme	50,000 researchers (2007-2013), out of which 20% PhD	65,000 researchers (out of which 25,000 PhD candidates)

EXCELLENCE SCIENCE	5	Research Infrastructures - Number of researchers who have access to research infrastructures through support from Horizon 2020	5.1 Number of researchers who have physical or remote access to research infrastructures 5.2 Number of researchers who have access to research e-infrastructures (Number of actual users divided by maximum possible number)	Nationality and gender of the researcher; country of origin of the researcher; country, legal status and activity type of the employing organisation	22,000 researchers during FP7 ⁶	20,000 additional researchers during Horizon 2020
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Source: European Commission, 2015

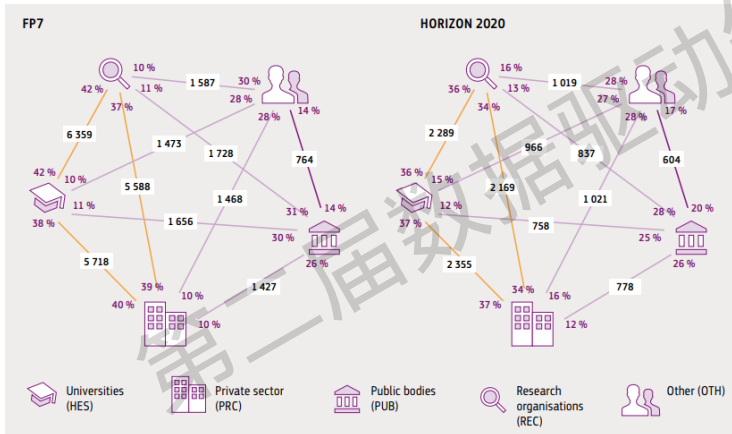
B / B Core Question Driven Approach

Efficiency

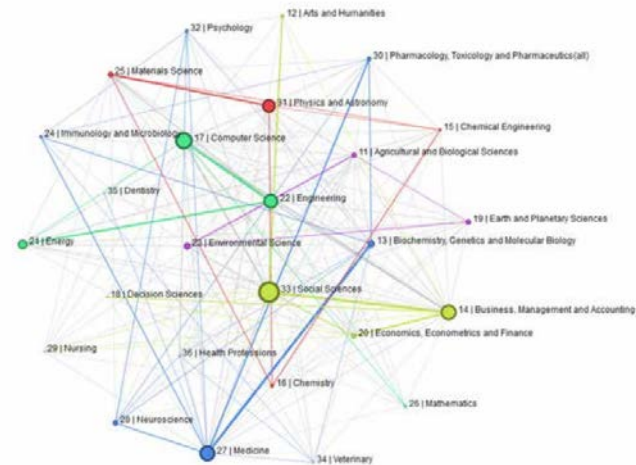
- Macro-economic cost-effectiveness (internal rate of return of 30%).
- Efficiency in Programme Implementation
 - decreases in the time to grant (110 days less than under FP7).
 - administrative expenditures below the target of 5%
 - however, no significant change in funding rates (EC contribution ~70%)
- Efficiency in Allocation
 - large-scale oversubscription (success rate of 11.6%), larger than FP7 to fund all 21% high quality proposals would require € 62.4 billion more
- Efficiency in Outreach
 - Participants from over 130 countries
 - Newcomers represent 52% of all organisations (almost half are SMEs)
 - More newcomers from EU-13 (31.2%) than EU-15 (19.7%)
 - high level of SME participation (21-22%)

B / B Core Question Driven Approach

- more advanced descriptive analysis are needed
- here: network analysis of
 - international collaboration
 - interdisciplinarity
 - collaboration by types of institutions



Source: European Commission, 2017



B / B Core Question Driven Approach

Effectiveness: **Scientific Impact**

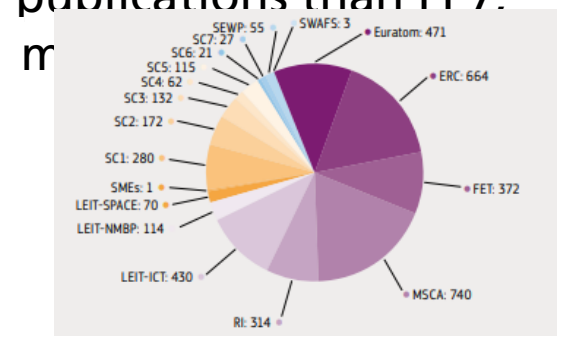
- Horizon 2020 has generated a large number of scientific publications and data (more than 4,000 peer-reviewed publications)
- Most scientific publications resulting from Horizon 2020 are world class – cited more than twice the world average
- contribution to fundamental breakthroughs - at least 17 Nobel Prizes received support from Horizon 2020 (prior or after award)
- More than 1 in 5 publications is based on academia/private sector collaboration. Co-publications with non-EU country authors are cited more than three times the world average.
- Horizon 2020 already has more interdisciplinary publications than FP7.

FIGURE 53: FP7 yearly peer-reviewed publications – total output 2007-2016



Source: Scopus (study by Elsevier)

Source: European Commission, 2017



B / B Core Question Driven Approach

Effectiveness: Scientific Impact

- here: positional analysis of specialisation vs. scientific impact

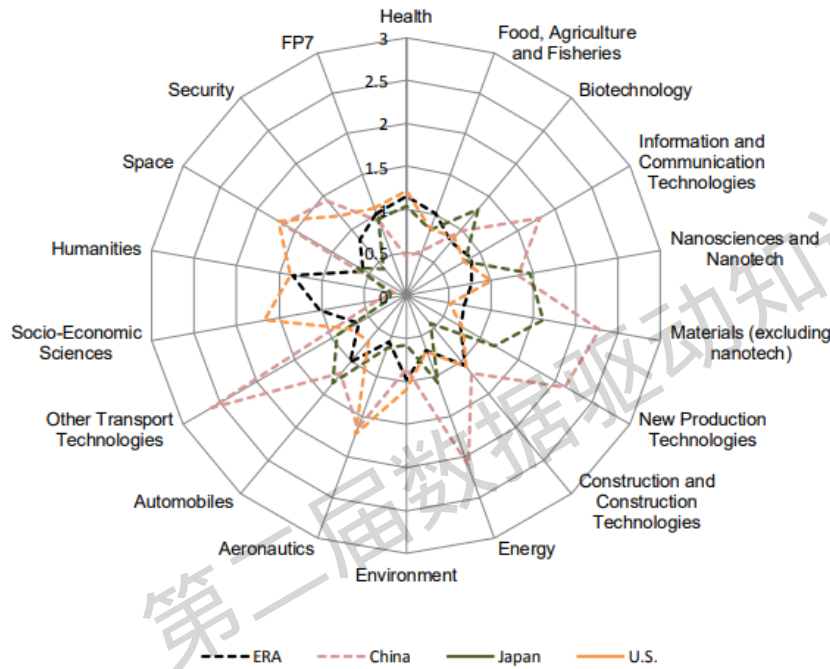
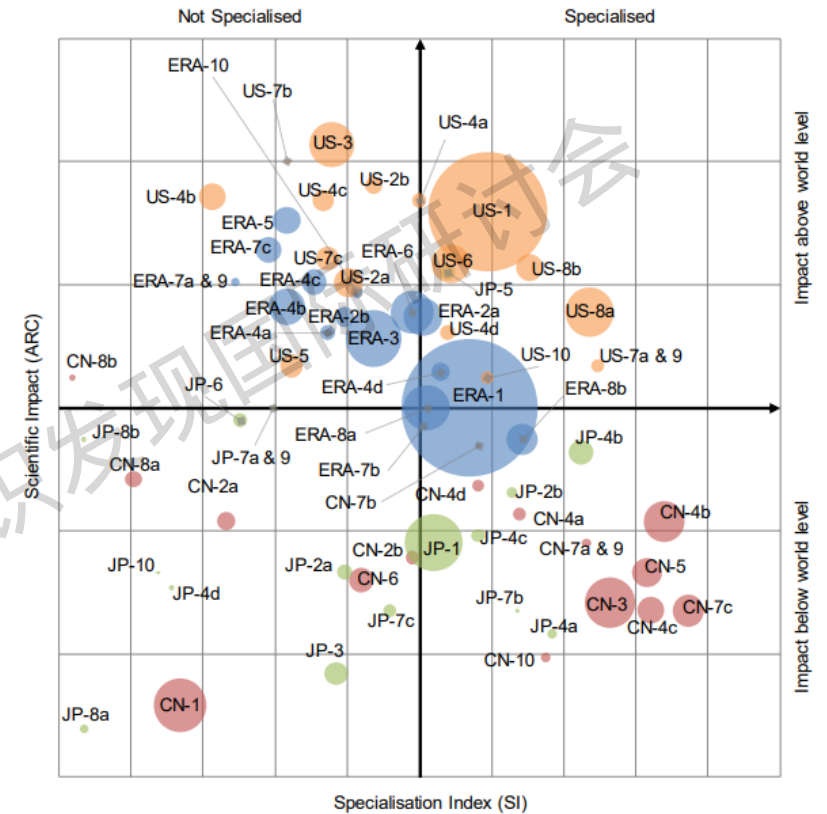


Figure 1 Specialisation index in the 17 FP7 thematic priorities for the ERA, China, Japan and the US, 2000–2011

Source: European Commission, JRC, 2013a



Legend: FP7 thematic priorities

1 = Health	4a = Nanosciences and Nanotechnologies	5 = Energy	7c = Other Transport Technologies
2a = Food, Agriculture and Fisheries	4b = Materials (excluding nanotech)	6 = Environment (with climate change)	8a = Socio-Economic Sciences
2b = Biotechnology	4c = New Production Technologies	7a & 9 = Aeronautics & Space	8b = Humanities
3 = Information and Communications Tech	4d = Construction and Construction Tech	7b = Automobiles	10 = Security

Figure 2 Positional analysis (radar graph) of the ERA, China, Japan and the US in the 17 FP7 thematic priorities, 2000–2011

Source: European Commission, JRC, 2013a

B / B Key Evaluation Questions: Effectiveness

- here: comparative analysis of newly created scientific networks

EU 2013: Scientific Output and Collaboration of European Universities

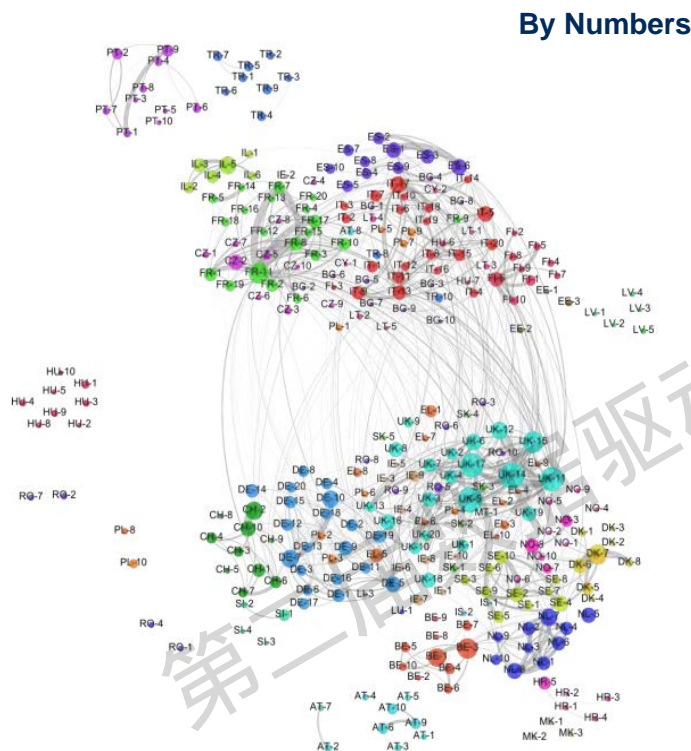


Figure 1 Mapping of the scientific output (fractional counting) of organisations within the collaboration network of the 303 selected ERA universities in Scopus (2007–2011)

Source: European Commission, JRC, 2013b

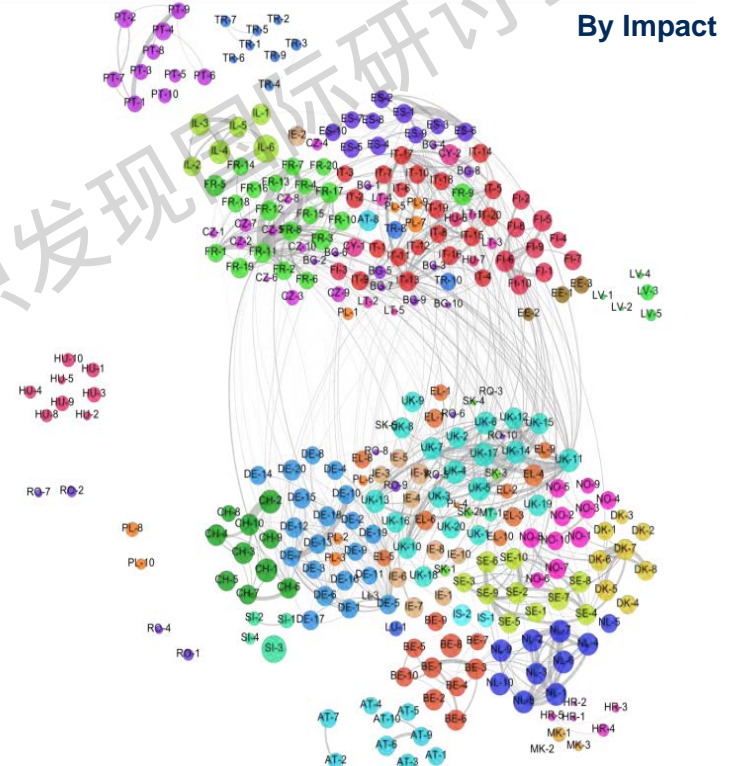


Figure 2 Mapping of the scientific impact (ARIF) of organisations within the collaboration network of the 303 selected ERA universities in Scopus (2007–2011)

Source: European Commission, JRC, 2013b

B / B Core Question Driven Approach

Effectiveness: **Innovation Impact**

- large numbers of commercially valuable patents and other IPR, mainly from the SME Instrument and the ERC Proof-of-Concept: 153 patent applications (39 awarded), 24 trademarks awarded
- Horizon 2020 generates proofs of concept and demonstrators: 229 prototypes, 801 testing activities, 81 clinical trials
- Horizon 2020 projects generate innovation outputs:
563 firms introducing innovations new to the market
471 firms introducing innovations new to the company

Survey Based

	REVENUE GENERATED FROM THE MAIN INNOVATION IN 2015 (EUR)			EXPECTED REVENUE DURING THE NEXT 3 YEARS (EUR)
	SHARE OF PROJECTS WHOSE MAIN INNOVATION HAS THIS REVENUE	TOTAL REVENUE GENERATED (EUR)	OF WHICH: EXPORTS	EXPECTED REVENUE IN THE NEXT THREE YEARS
No revenue	81 %	n/a	n/a	n/a
Up to EUR 100k revenue/value	6.5 %	1.37 billion	0.59 billion	14.8 billion
Between EUR 100k and EUR 0.5 M revenue/value	6.1 %	1.28 billion	0.47 billion	17.2 billion
More than EUR 0.5 M revenue/value	6.6 %	1.39 billion	0.73 billion	24.8 billion
Total	100 %	4 billion	1.78 billion	57 billion

Source: European Commission, 2017

B / B Core Question Driven Approach

Effectiveness: **Economic Impact**

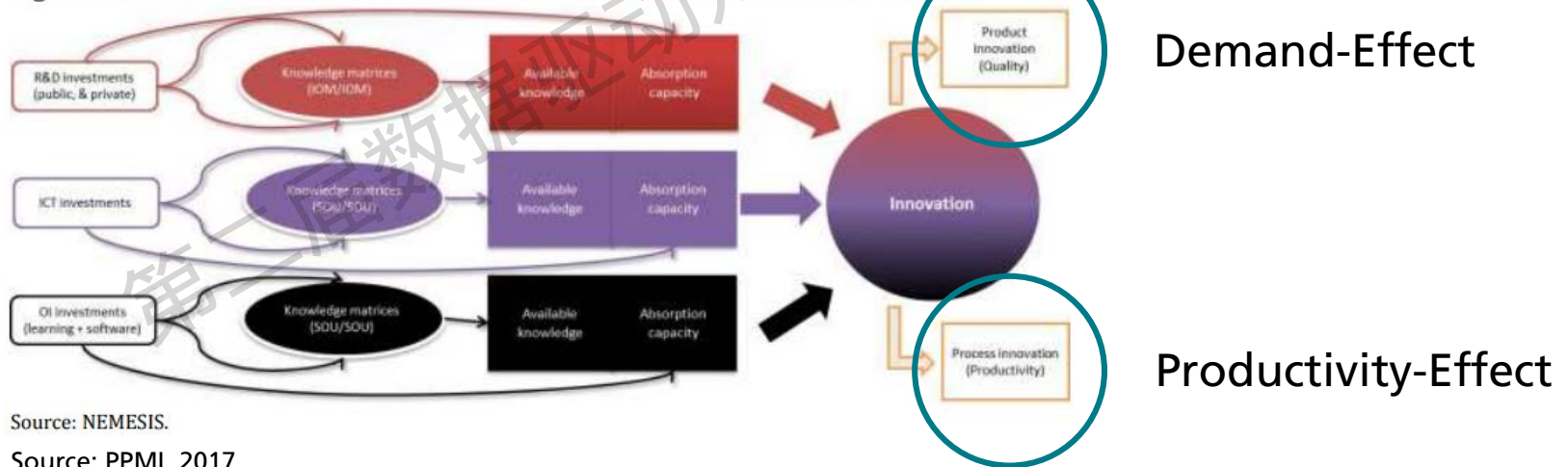
- **Micro-level analysis**, where the performance of high quality research units was analysed using counterfactual logic based on survey, bibliometric and patent data
- **Meso-level analysis**, in-depth analysis of European Added Value in eight selected areas and simulation of the economic effects of FP7 and H2020 funding in 30 economic sectors
- **NEMESIS** a system of economic models devoted to study issues linking economic development, competitiveness, employment and public accounts to economic policies, in particular R&D public funding.

NEMESIS

Effectiveness: **Economic Impact**

- In NEMESIS, economic performance of innovation is mediated through:
 - a Total Factor Productivity (TFP) effect (process innovations), and
 - a demand effect (product innovations inducing monopoly power)
- 'reference scenario' vs. programme scenario with three stages maturation, innovation, obsolescence
- incorporates prior research on leverage/additionality and spillovers and the (above-average) economic performance of EU funded knowledge

Figure 45. Illustrative scheme of the innovation mechanisms in the NEMESIS model



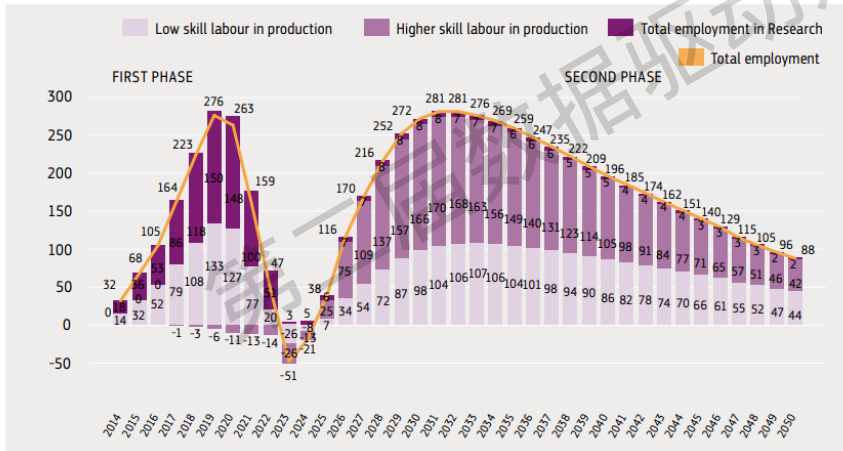
Source: NEMESIS.

Source: PPMI, 2017

B / B Core Question Driven Approach

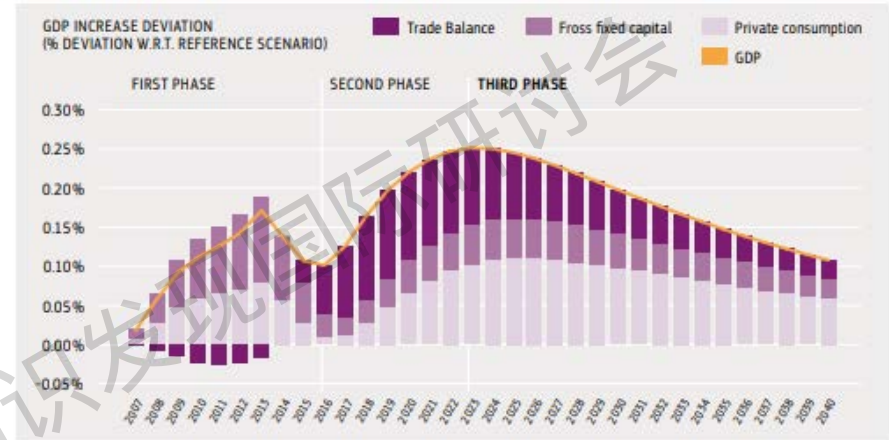
- here: NEMESIS based extrapolation of overall effects
- Every euro invested under Horizon 2020 brings a GDP increase of 6 to 8.5 euros (EUR 400-600 billion by 2030)

FIGURE 81: Impact of Horizon 2020 on total employment in thousands (difference from reference scenario)



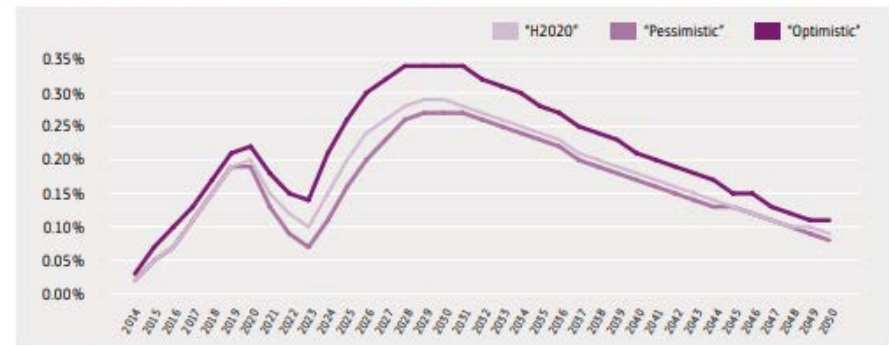
Source: European Commission, 2017

FIGURE 79: The economic impact of Horizon 2020 funding for research on EU-28 GDP (in % deviation from reference scenario)



Source: PPMI based on NEMESIS model results

FIGURE 80: Sensitivity analysis of EU GDP gains from Horizon 2020 (in % deviation from reference scenario)



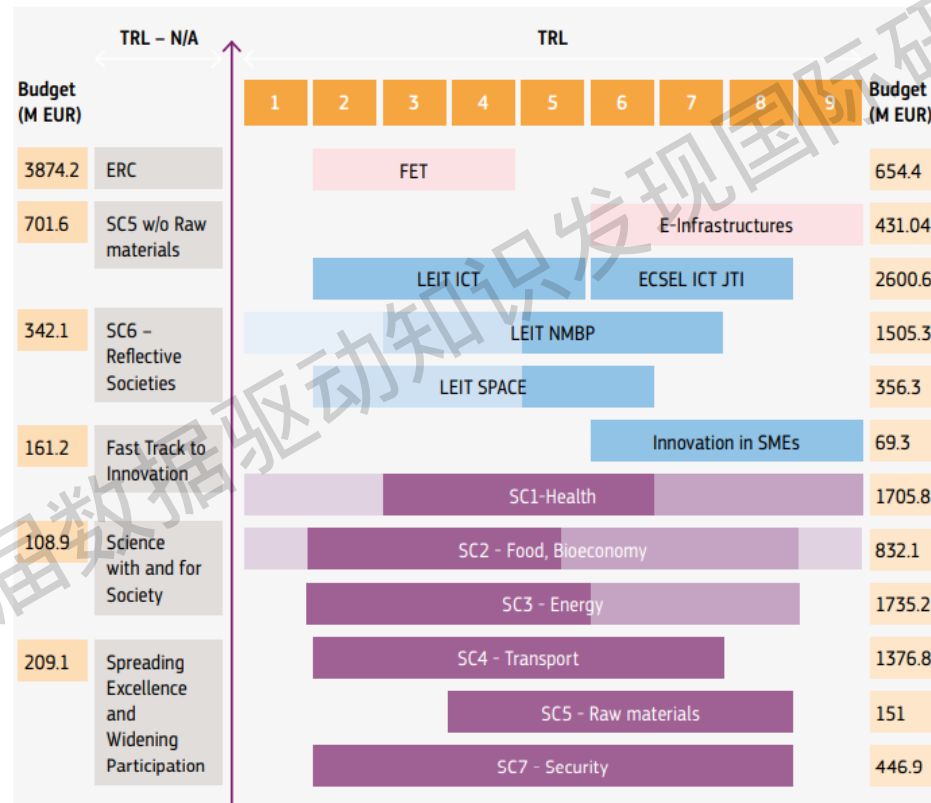
Source: PPMI based on NEMESIS model results

Source: European Commission, 2017

B / B Core Question Driven Approach

Coherence: Analysis of funding data regarding TRL positioning

FIGURE 90: Overview of TRL supported across different Horizon 2020 programme parts based on non-comparable assessment methodologies

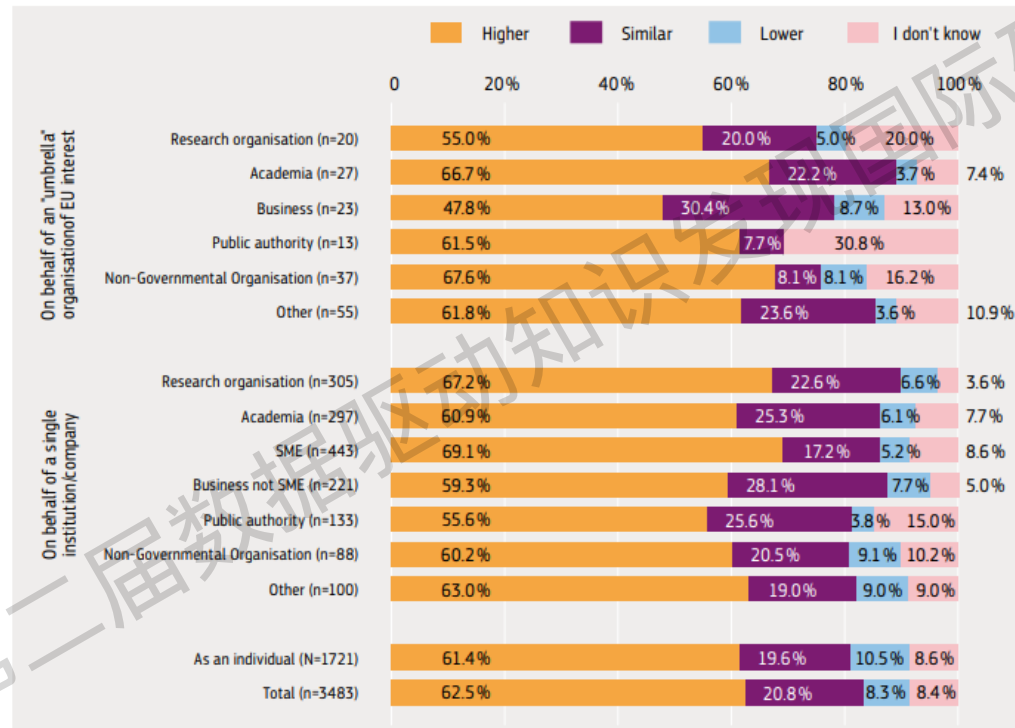


Source: European Commission, 2018

B / B Core Question Driven Approach

European Added Value: Survey based approach

FIGURE 102: How do you rate the overall added value of Horizon 2020 compared to national and/or regional-level R&I programmes in EU Member States?



Source: Replies to stakeholder consultation questionnaire launched in the framework of the Interim Evaluation of Horizon 2020, October 2016-January 2017, N=3483

Source: European Commission, 2017

B / C Dedicated Research on Further Issues

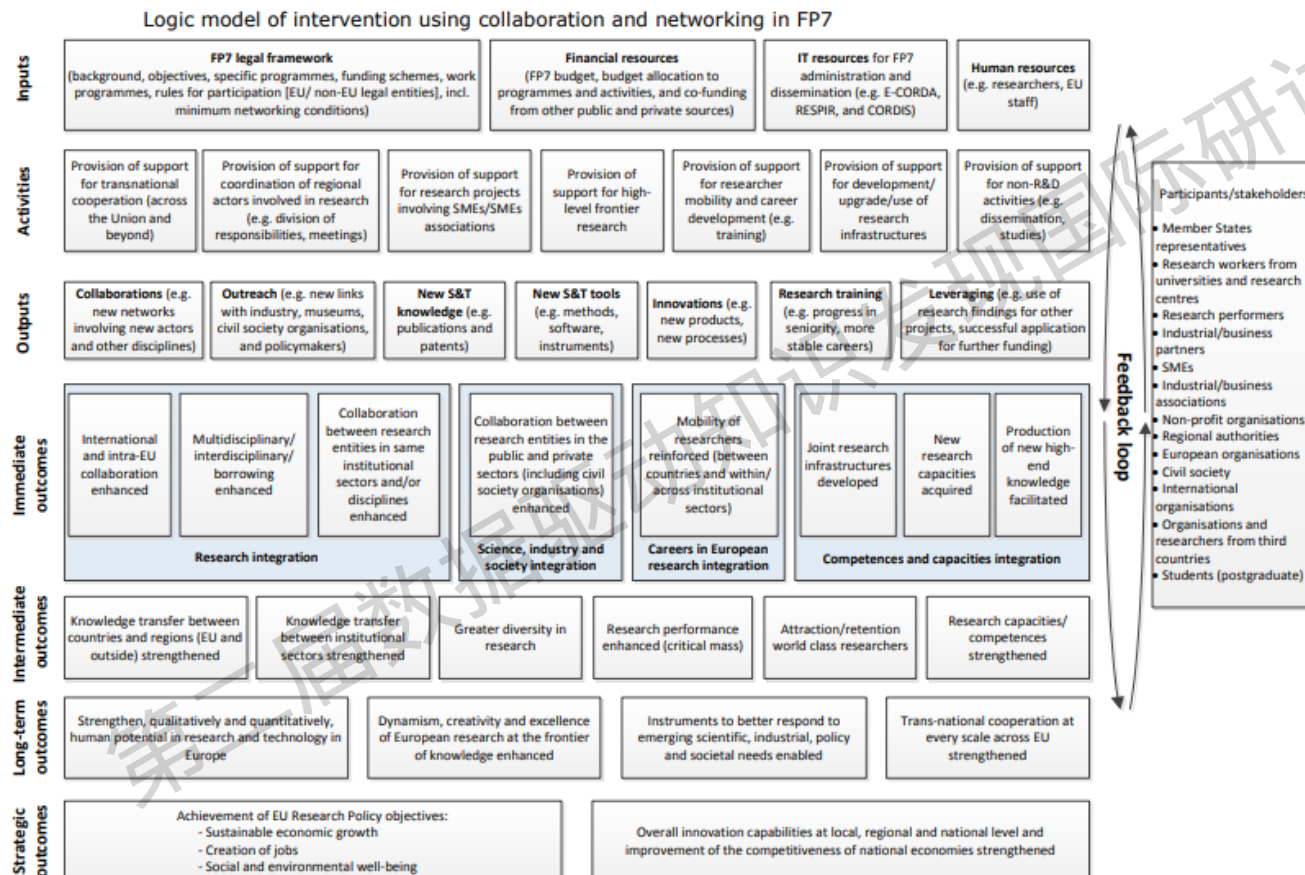
Example: 2015 Study on Network Analysis of the 7th Framework Programme Participation

- Social network analysis using CORDA and bibliometric data
- Survey of FP7 participants to fill gaps in the SNA
Sample of around 8,000 respondents, 25.4% completion rate
- Case studies including interviews
- Workshop with representative stakeholders
- driven by complex hypotheses: e.g.
 - High diversity of linked knowledge increases the probability of the emergence of innovation
 - By identifying and bridging structural holes ERA will be more integrated and EU research more competitive.
 - Chaining project funding and scientific activity across subsequent Framework programmes is advantageous.

Source: EU, 2015: Study on Network Analysis of the 7th Framework Programme Participation

B / C Dedicated Research on Further Issues

Bespoke / question-specific intervention model



Source: EU, 2015: Study on Network Analysis of the 7th Framework Programme Participation

B / C Dedicated Research on Further Issues

Regression Analysis with multiple controls

Explanatory Variables	Effects on careers	Breadth of knowledge	Breadth of tools	Transfer of research results	Innovations triggered
No. of Partners	-0.132 <i>-(0.152)</i>	0.067 <i>-(0.201)</i>	0.163 * <i>-(0.089)</i>	0.003 <i>-(0.145)</i>	-0.019 <i>-(0.277)</i>
Proportion of new partners	0.065 <i>-(0.147)</i>	0.361 * <i>-(0.195)</i>	0.006 <i>-(0.084)</i>	0.059 <i>-(0.141)</i>	0.611 ** <i>-(0.281)</i>
<i>All other independent and control variables</i>					
R-sq-adj	0.165	0.183	0.091	0.12	[Pseudo] 0.116
N	732	732	681	732	732

Note: *: $p \leq 0.10$; **: $p \leq 0.05$.

Source: Computed by Science-Metrix and Fraunhofer ISI using CORDA (European Commission), WoS (Thomson Reuters) and survey data

Explanatory Variables	No. of papers	Avg. of Rel. Impact Factors (ARIF)	Avg. trans-disciplinarity	Avg. no. of ERA countries per paper	Avg. no. of non-ERA countries per paper
Multidisciplinarity	-0.148 *** <i>(0.056)</i>	0.028 <i>(0.087)</i>	0.071 *** <i>(0.017)</i>	-0.040 <i>(0.053)</i>	0.072 <i>(0.052)</i>
<i>All other independent and control variables</i>					
R-sq-adj	0.692	0.401	0.828	0.445	0.534
N	732	250	248	708	708

Note: Excerpt from the multiple regression model only for the explanatory variables discussed above. All models are statistically significant at $p \leq 0.01$. *: $p \leq 0.10$; **: $p \leq 0.05$; ***: $p \leq 0.01$.

Source: Computed by Science-Metrix using CORDA (European Commission) data

Source: EU, 2015: Study on Network Analysis of the 7th Framework Programme Participation

B / C Dedicated Research on Further Issues

Regression Analysis with multiple controls

Explanatory Variables	No. of papers	Avg. of Rel. Impact Factors (ARIF)	Avg. trans-disciplinarity	Avg. no. of ERA countries per paper	Avg. no. of non-ERA countries per paper
SQ5_a	0.015 (0.009)	0.004 (0.014)	0.001 (0.003)	-0.004 (0.008)	0.003 (0.008)
SQ5_b	0.258 *** (0.038)	0.298 ** (0.139)	0.037 (0.024)	0.049 (0.036)	0.080 ** (0.035)
SQ5_c	0.200 *** (0.026)	-0.000 (0.037)	-0.001 (0.007)	0.004 (0.024)	-0.046 ** (0.023)
<i>All other independent and control variables</i>					
R-sq-adj	0.692	0.401	0.828	0.445	0.534
N	732	250	248	708	708

Explanatory Variables	Breadth of knowledge	Breadth of tools	Transfer of research results	Effects on careers	Innovations triggered
SQ5_a	0.093 *** (0.036)	0.133 *** (0.047)	0.041 ** (0.021)	0.063 * (0.034)	-0.003 (0.065)
SQ5_b	-0.111 (0.147)	0.051 (0.195)	-0.036 (0.085)	-0.299 ** (0.141)	-0.055 (0.272)
SQ5_c	0.165 * (0.100)	0.137 (0.132)	0.149 ** (0.058)	0.119 (0.095)	0.144 (0.183)
<i>All other independent and control variables</i>					
R-sq-adj	0.165	0.183	0.091	0.12 [Pseudo]	0.116
N	732	732	681	732	732

SQ5_a To what degree did your project draw on findings FP6?

SQ5_b share of citations to FP6-supported papers per FP7-supported papers

SQ5_c share of FP7-supported papers acknowledging both FP6 and FP7

Source: EU, 2015: Study on Network Analysis of the 7th Framework Programme Participation

B / C Dedicated Research on Further Issues

Regression Analysis with multiple controls

Explanatory Variables	Breadth Knowledge	Breadth Tools	Transfer of Research Results	Effects on Careers	Innovations triggered
Extent of intersectorial linkages	-0.100 * (0.059)	-0.168 ** (0.078)	-0.083 ** (0.034)	-0.048 (0.057)	-0.341 *** (0.109)
<i>All other independent and control variables</i>					
R-sq-adj	0.165	0.183	0.091	0.12 [Pseudo]	0.116
N	732	732	681	732	732

Explanatory Variables	No. of papers	Avg. of Rel. Impact Factors (ARIF)	Avg. trans-disciplinarity	Avg. no. of ERA countries per paper	Avg. no. of non-ERA countries per paper
No. of ERA Countries per project	0.116*** (0.042)	0.009 (0.071)	0.030** (0.013)	0.202*** (0.038)	0.021 (0.037)
Project Budget	0.104*** (0.019)	-0.02 (0.032)	-0.010** (0.006)	-0.042** (0.017)	-0.004 (0.017)
<i>All other independent and control variables</i>					
R-sq-adj	0.684	0.401	0.832	0.460	0.534
N	732	250	248	708	708

Explanatory Variables	No. of papers	Avg. of Rel. Impact Factors (ARIF)	Avg. trans-disciplinarity	Avg. no. of ERA countries per paper	Avg. no. of non-ERA countries per paper
No. of NUTS 3 regions per project	0.189*** (0.040)	0.006 (0.066)	0.025** (0.012)	0.138*** (0.037)	0.029 (0.036)
<i>All other independent and control variables</i>					
R-sq-adj	0.691	0.401	0.831	0.449	0.534
N	732	250	248	708	708

Source: EU, 2015: Study on Network Analysis of the 7th Framework Programme Participation

C Summary

- The Evaluation of the European Unions Framework Programme cover a broad range of activities and, consequently, has to be diverse in approaches and method
- However, the evaluation is coherently governed by central coordination and a analytically framed by a pre-defined set of core questions
- There is a well-developed and reliable centralised database that can serve to answer many fundamental questions
=> typically, related analysis are conducted by the European Commission research departments themselves
- However, the core questions not only require the deployment of advanced analytical methods, but also expertise with other datasets
=> these analysis are typically outsourced to external experts or organisations responsible for the data as such
- In-depth studies on further issues beyond the core questions are common and fulfil high scientific standards

References

■ **Horizon 2020 Evaluation**

Results of the interim evaluation of Horizon 2020, input studies and evaluation methods

<https://ec.europa.eu/research/evaluations/index.cfm?pg=h2020evaluation>

https://ec.europa.eu/research/evaluations/pdf/book_interim_evaluation_horizon_2020.pdf

■ **Horizon 2020 Indicators**

<https://ec.europa.eu/programmes/horizon2020/en/news/horizon-2020-indicators-assessing-results-and-impact-horizon>

[horizon-2020-indicators-assessing-results-and-impact-horizon](https://ec.europa.eu/programmes/horizon2020/en/news/horizon-2020-indicators-assessing-results-and-impact-horizon)

■ **Country and Regional Scientific Production Profiles**

<https://ec.europa.eu/research/innovation-union/pdf/scientific-production-profiles.pdf>

■ **Scientific Output & Collaboration of European Public Research Organisations**

<https://ec.europa.eu/research/innovation-union/pdf/scientific-output-and-collaboration-european-rpos.pdf>

■ **Assessment of the Union Added Value and the Economic Impact of the EU Framework Programmes**

http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/assessment_of_the_union_added_value_and_the_economic_impact_of_the_eu_framework_programmes.pdf

[assessment_of_the_union_added_value_and_the_economic_impact_of_the_eu_framework_programmes.pdf](http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/assessment_of_the_union_added_value_and_the_economic_impact_of_the_eu_framework_programmes.pdf)

■ **Study on Network Analysis of the 7th Framework Programme Participation**

https://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/network_analysis_of_fp7_participation_final_report.pdf

[network_analysis_of_fp7_participation_final_report.pdf](https://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/network_analysis_of_fp7_participation_final_report.pdf)

Thank you for your attention !

Henning Kroll

Competence Center Policy – Industry – Innovation
Fraunhofer Institute for Systems and Innovation Research ISI

Breslauer Strasse 48 – 76139 Karlsruhe – Germany

henning.kroll@isi.fraunhofer.de

+49 – 721 – 6809 – 181