EU research & innovation funding schemes
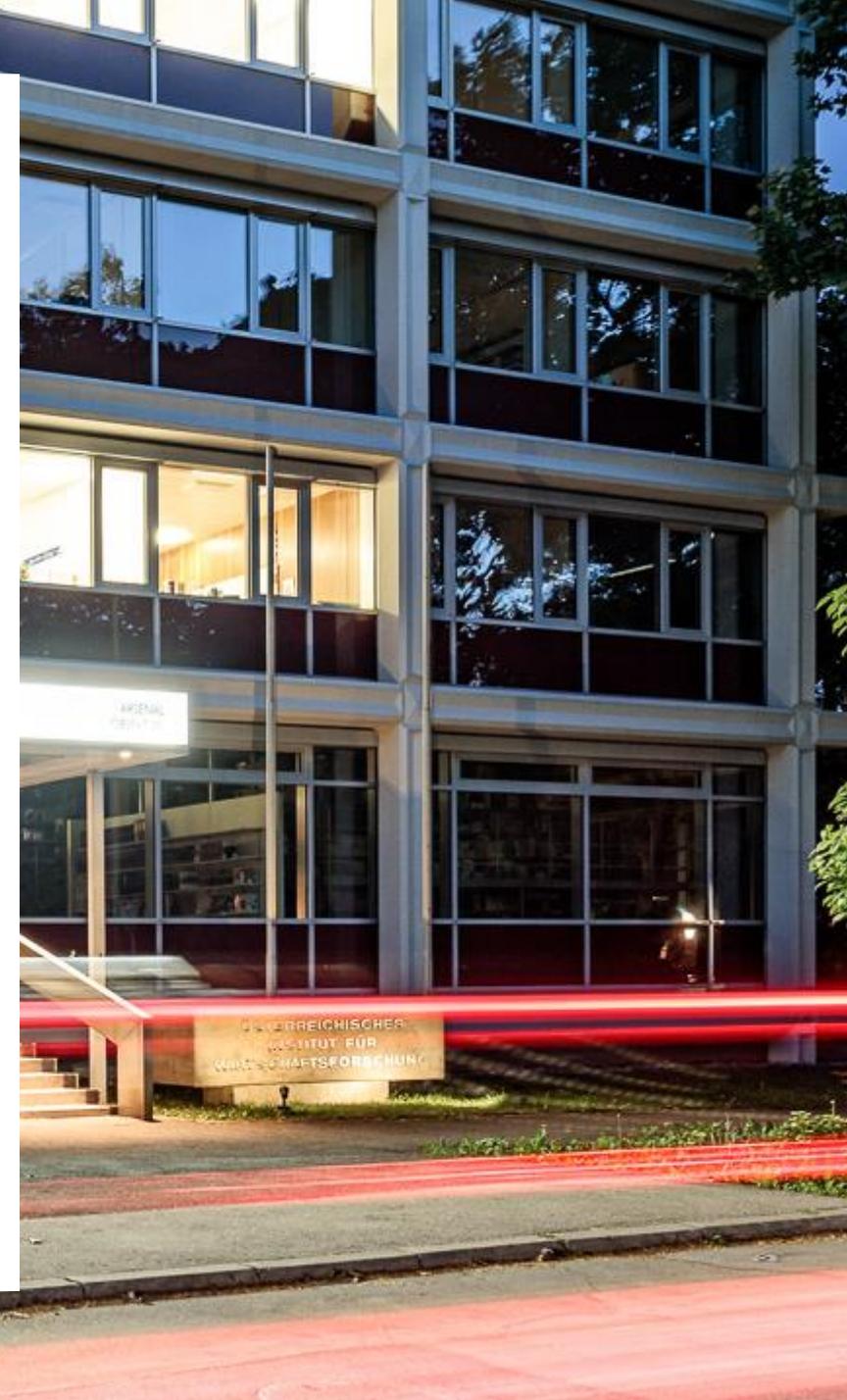
Using project-level data for monitoring & evaluation

Julia Bachtrögler-Unger

EVIDENCE-BASED POLICY MAKING

A collaborative event of WIFO, IHS and CEU

27 May 2021

Why project-level data?
... for the analysis of EU (R&I) policies

- Transparency

- Exploring heterogeneous regional effects by „zooming in"

- Insights on policy implementation in terms of projects and beneficiaries in multi-annual financial frameworks 2007-13 and 2014-20

- Small-scale analysis
    - e.g. link with remote sensing data

- Micro-level analysis
    - Effects on performance of supported firms

- Detailed thematic information at project level
    - e.g. helpful for evaluation of the implementation of smart specialization strategies

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Main EU funding instruments for R&I in the MFF 2014-2020

- Horizon 2020: € 80 bn

- European Structural and Investment Funds (ESIF): € 43 bn (9.4% of ESIF)

Budget by Fund

95.1%

■ EAFRD ■ ERDF

European Regional Development Fund (ERDF): € 41bn
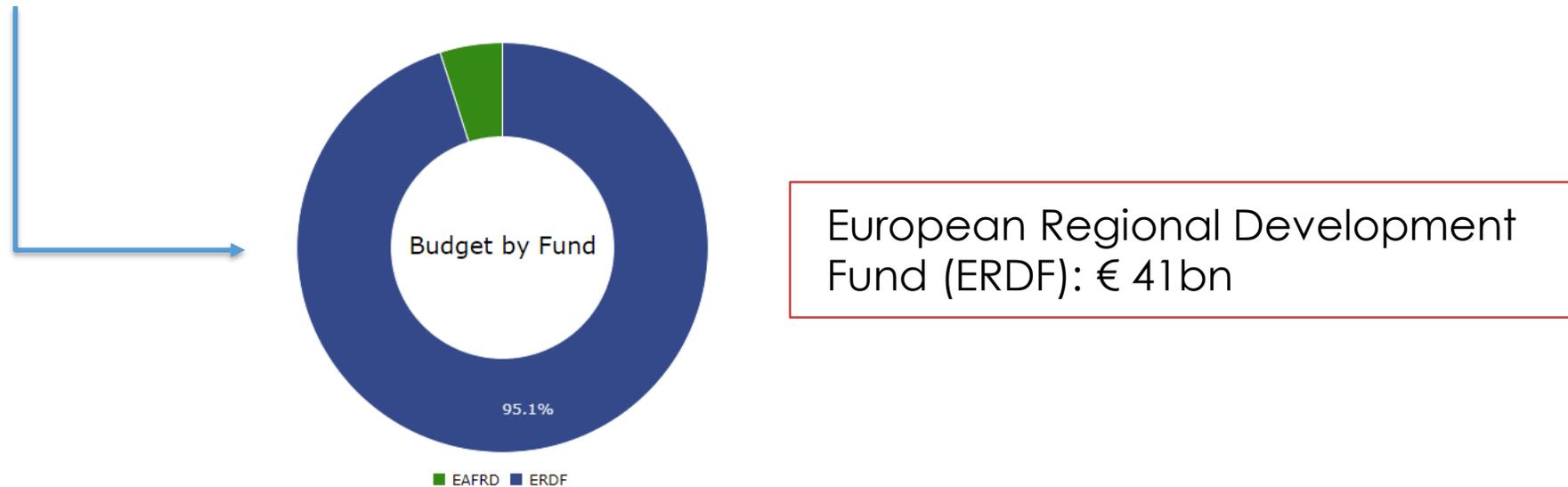
- Further R&I funding e.g. from R&I programmes within Euratom Treaty, Galileo, Copernicus, ...

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Funding principles of main R&I funding schemes

- Horizon 2020:
  - **Excellence-based**: competitive tenders
  - **Not place-based**, international cooperation as an asset
  - **Centralised selection procedure and administration** (European Commission, national contact points)
  - **Central monitoring** (CORDIS)
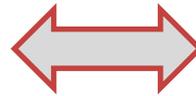
- ERDF:
  - ESIF aims at **smart, sustainable and inclusive growth** in European regions
  - **Place-based**: project selection local strengths and structural characteristics (RIS3!), mostly non-competitive tenders
  - Administration and project selection (mostly) at the **regional level**
  - **No central database** of projects available

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Combination of R&I funding schemes

- EC encourages regions to combine different funding schemes, e.g. JRC's Stairway to Excellence (S2E) project
    - **Critical mass of funding** in specific industries (and related industries), technological or policy areas (in line with RIS3)

- Prerequisite to investigate combination of R&I funding in EU regions:

    DETAILED DATA ON DISTRIBUTION OF FUNDS

- Ways to link Horizon 2020 and ERDF funding data:
    - Beneficiary
    - Thematic area

ISSUE #1: No central database of ERDF beneficiaries

ISSUE #2: Different thematic classification systems

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New dataset of R&I-related ERDF projects

- Design of a database of projects co-funded by the ERDF
(in the course of the Stairways to Excellence project by JRC)

- R&I viewer: https://s3platform.jrc.ec.europa.eu/synergies-tool
  - Regional Dashboard – ERDF, Regional Dashboard – Horizon 2020

- Technical documentation:
  - Bachtroegler, J., Doussineau, M. and Reschenhofer, P., Dataset of projects co-funded by the ERDF during the multi-annual financial framework 2014-2020, Publications Office of the European Union, Luxembourg, 2020, https://www.doi.org/10.2760/491487, JRC120637.

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ERDF dataset at a glance

- More than 238,000 projects co-funded by the ERDF in EU-27 and the UK

- ERDF co-funding amount: €133.8 bn (67% of total ERDF budget)

- Coverage: 199 of 207 operational programmes and 58 of 87 INTERREG programmes

- Information required by Common Provisions Regulation available for over 90% of projects

- NUTS-2 (NUTS-3) information for 99% (89%) of projects

- **Update ongoing**

ERDF commitment
- >=730m-<4.3bn
- >=220m-<730m
- >=80m-<220m
- >=33m-<80m
- >=170t-<33m
- NA
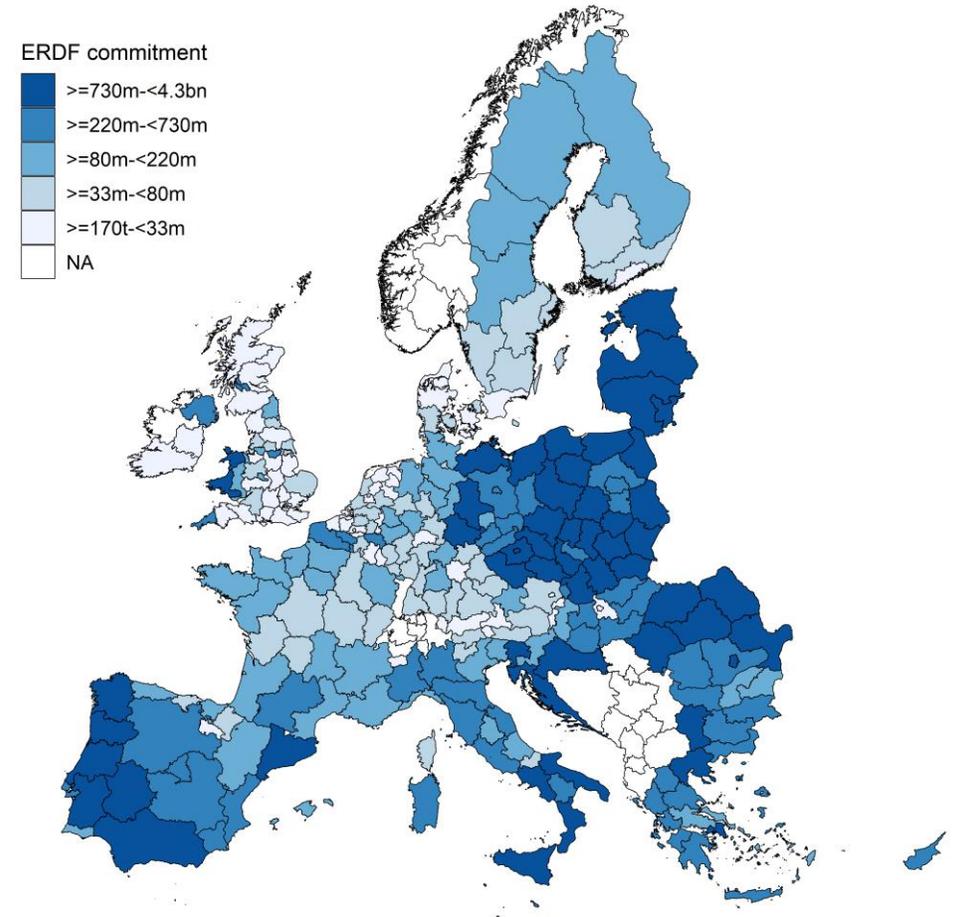
Using project-level data for monitoring & evaluation of EU policies
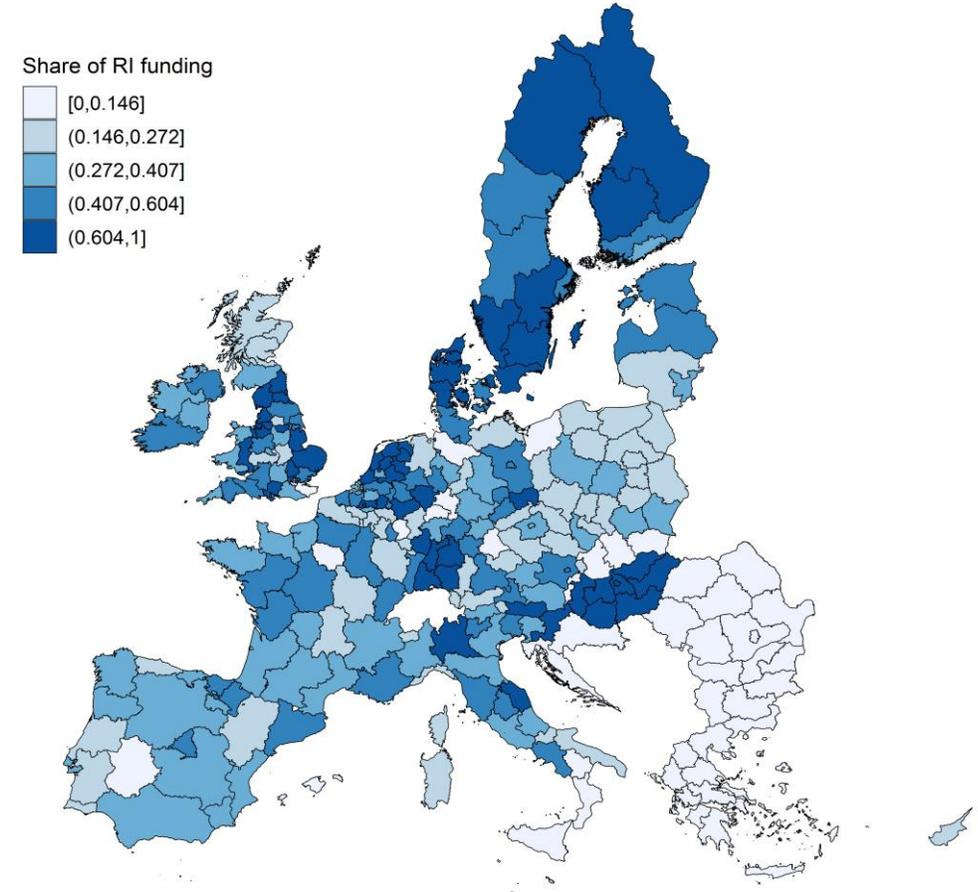
- Share of ERDF co-funding amounts committed to R&I-related projects
  - More than a third of 238,000 projects in the dataset (= around ¼ of the total ERDF co-financing amount) are related to R&I activities

  Note: Hungary has only provided detailed project data for R&I activities.
  See https://cohesiondata.ec.europa.eu/countries/HU.

Source:

Bachtrögler-Unger, Julia and Doussineau, Mathieu (2020) *EU research & innovation funding schemes: Using project-level data for monitoring & evaluation*. fteval Journal for Research and Technology Policy Evaluation (51), pp. 5-10. ISSN 1726-6629. https://repository.fteval.at/541

Share of RI funding
- [0,0.146]
- (0.146,0.272]
- (0.272,0.407]
- (0.407,0.604]
- (0.604,1]

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New dataset of R&I-related ERDF projects: Enrichment

- Translation of project names and descriptions

- Linking the data set with business data (e.g. AMADEUS/ORBIS)

Ways to link Horizon 2020 and ERDF funding data:

- Names of ERDF beneficiaries are matched with Horizon 2020 beneficiaries

- Key enabling technologies (KET) and societal grand challenges (SGC) are assigned to ERDF projects based on project descriptions
  - Using the KNOWMAK ontology

Keep in mind ...

- Various issues due to varying degree of detail of original data (e.g. project descriptions), differing quality of AMADEUS matches, etc.

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Interlinkages between Horizon 2020 and ERDF R&I funding
Beneficiaries

- Share of ERDF beneficiaries carrying out R&I-related projects that also receive Horizon 2020 funds

Country	ERDF+H2020	Country	ERDF+H2020	Country	ERDF+H2020
IE	27%	LU	9%	HR	3%
AT	26%	ES	8%	CZ	3%
UK	23%	SI	7%	EE	3%
BE	19%	CY	7%	PL	2%
MT	17%	DE	7%	BG	2%
DK	15%	FI	7%	HU	2%
RO	12%	SK	6%	EL	2%
NL	11%	LV	6%	LT	1%
FR	11%	IT	6%		
SE	11%	PT	4%	**Average:**	**5%**

Source: ERDF beneficiaries' database (https://s3platform.jrc.ec.europa.eu/synergies-tool) as described in Bachtrögler et al. (2020a), own analysis.

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Interlinkages between Horizon 2020 and ERDF R&I funding
Thematic area

- Number of ERDF projects being assigned a specific KET or SGC
 - Total number of R&I projects in ERDF beneficiaries' database: 84,500

Key enabling technologies (KET)	Number
Biotechnology	28,800
Advanced materials	13,900
Nanoscience and technology	12,300
Micro- and nanoelectronics	9,000
Optics and photonics	7,900
Advanced manufacturing technology	6,400
Total number KETs assigned to 42,700 R&I projects	**78,300**

Societal grand challenges (SGC)[1]	Number
Europe in a changing world - inclusive, innovative and reflective societies	46,700
Smart, green and integrated transport	27,400
Secure, clean and efficient energy	24,500
Climate action, environment, resource efficiency and raw materials	24,100
Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy	21,400
Health, demographic change and wellbeing	18,500
Secure societies – protecting freedom and security of Europe and its citizens	16,100
Total number SGCs assigned to 69,800 R&I projects	**178,700**

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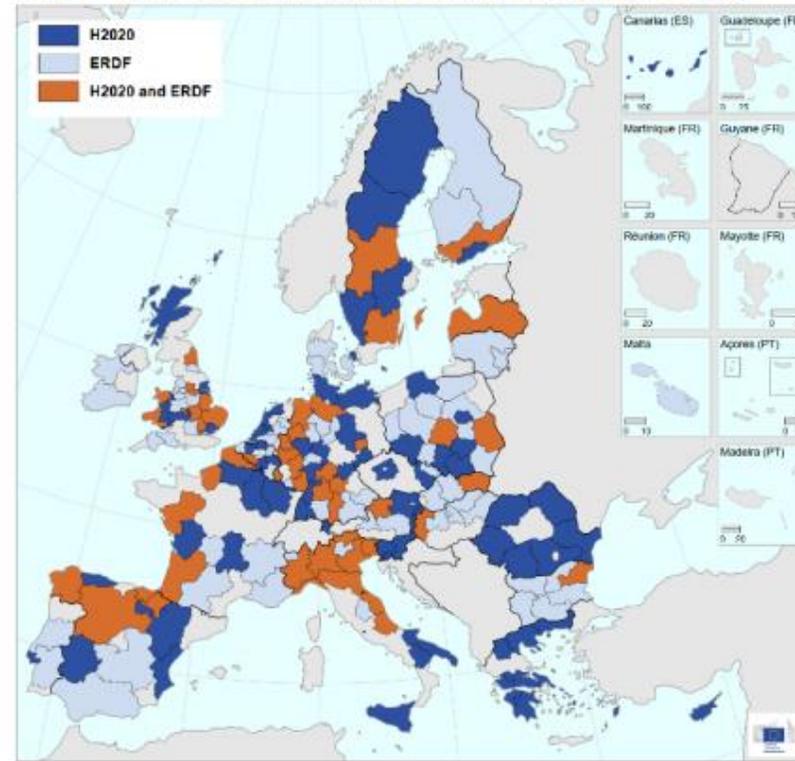# Interlinkages between Horizon 2020 and ERDF R&I funding
Thematic focus of funding by area (I)

- Is regional Horizon 2020 and ERDF R&I funding directed at the same technological areas?

Map 6 Industrial biotechnologies
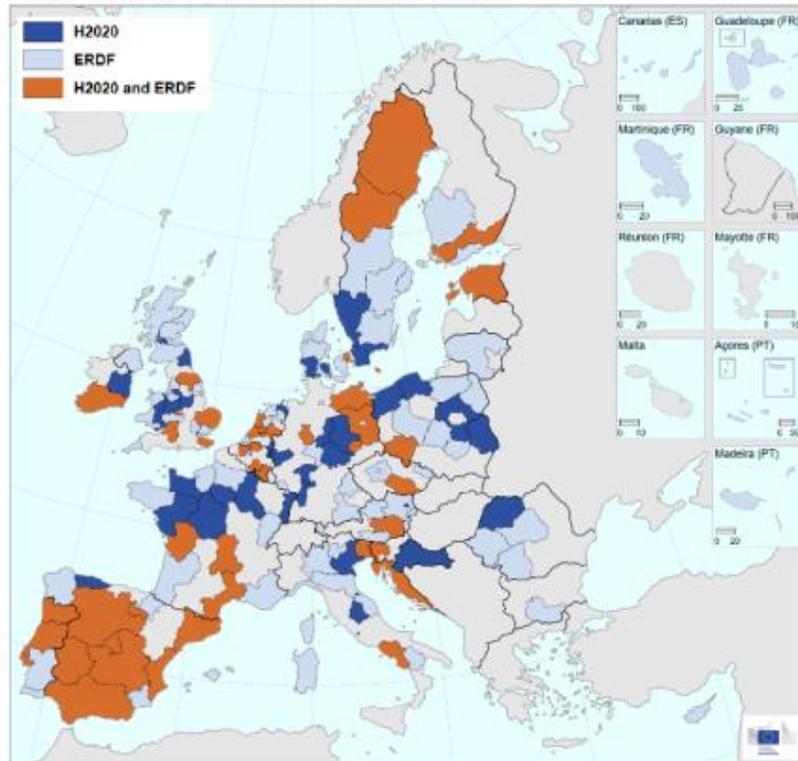
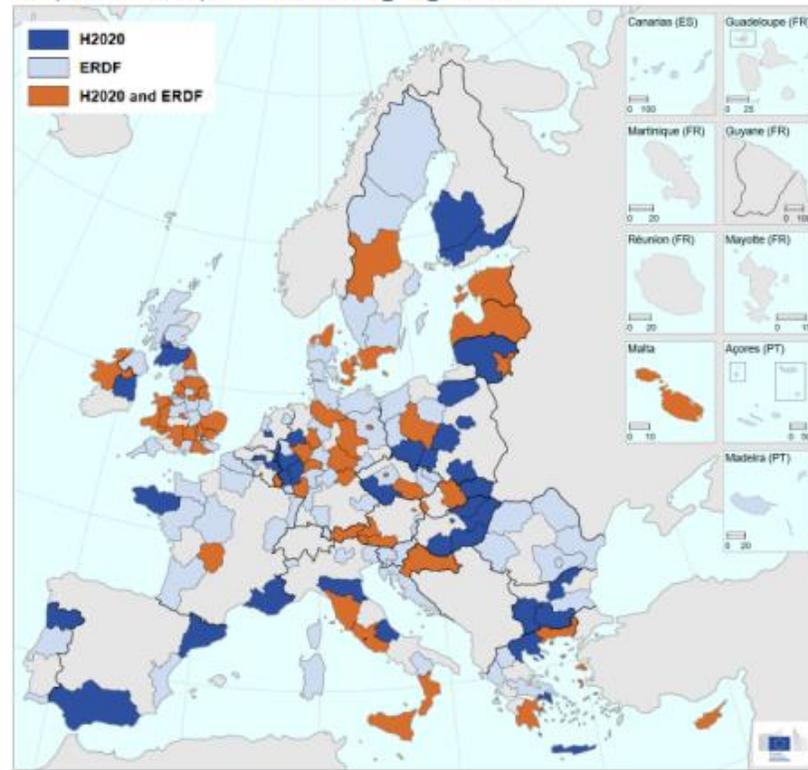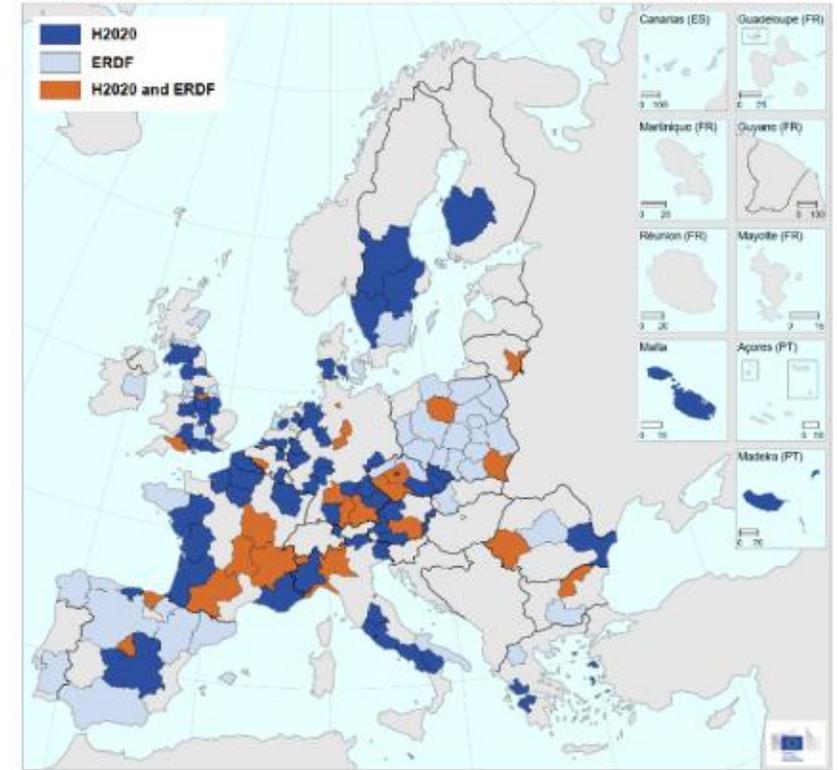Map 7 Advanced manufacturing and processing

Thematic focus of funding by area (II)

- Is regional Horizon 2020 and ERDF R&I funding directed at the same policy areas?

Source: Doussineau, M., Bachtrögler-Unger, J. (2021), Exploring synergies between EU Cohesion policy and Horizon 2020 funding across European regions, Publications Office of the European Union, Luxembourg.

Map 13 Europe in a changing world

Map 11 Smart, green and integrated transport

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To conclude...

- Project-level analysis is a powerful tool to complement the regional analysis of the effects of EU cohesion and R&I policy
  - Link with other European and national funding programmes
  - Small-scale analysis at municipality level
  - Micro-level analysis at beneficiary level

- Future research questions in the context of R&I policies and smart specialisation
  - Is there a overlap of funding for similar activities, or are different tasks of the very same project funded by different funding schemes?
  - By bridging project categories: Is Horizon 2020 and ERDF R&I funding directed at priority areas (industrial, technological, policy areas) as defined in regional RIS3?
  - ...

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Recent research using project-level data

- Bachtrögler-Unger, J., Dolls, M., Schüle, P., Taubenböck, H., Weigand, M. (2021), **Evaluating EU cohesion policy using satellite data**, Bertelsmann Stiftung (Hrsg.), doi:10.11586/2021047.

- Doussineau, M., Bachtrögler-Unger, J. (2021), **Exploring synergies between EU Cohesion policy and Horizon 2020 funding across European regions**, Publications Office of the European Union, Luxembourg, doi:10.2760/218779, JRC123485.

- Bachtrögler-Unger, J., Doussineau, M. (2020), **EU research & innovation funding schemes: Using project-level data for monitoring & evaluation**. fteval Journal for Research and Technology Policy Evaluation (51), pp. 5-10. ISSN 1726-6629. https://repository.fteval.at/541

- Mayerhofer, P., Bachtrögler, J., Nowotny, K., Streicher, G. (2020), **Quantitative Wirkungen der EU-Struktur- und Kohäsionspolitik in Österreich. Ein Beitrag zu "25 Jahre Österreich in der EU"**, ÖROK Schriftenreihe, Nr. 207, Austrian Conference on Statual Planning, https://www.wifo.ac.at/wwa/pubid/66158.

- Bachtrögler, J., Fratesi, U., Perucca, G. (2020), **The influence of the local context on the implementation and impact of EU Cohesion Policy**, Regional Studies, 54(1), pp. 21-34, https://doi.org/10.1080/00343404.2018.1551615.

- Bachtrögler, J., Hammer, C., Reuter, W.H., Schwendinger F. (2019), **Guide to the galaxy of EU regional funds recipients: evidence from new data**, Empirica, 46(1), pp. 103-150, https://doi.org/10.1007/s10663-018-9427-5.

- Bachtrögler, J., Oberhofer, H. (2018), **Euroscepticism & EU Cohesion Policy: Impact of Micro-Level Policy Effectiveness on Voting Behaviour**, WIFO Working Papers, 2018, 567, Vienna. https://www.wifo.ac.at/wwa/pubid/61131.

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