

Research and Innovation in the Basque Country: a long path

Edurne Magro

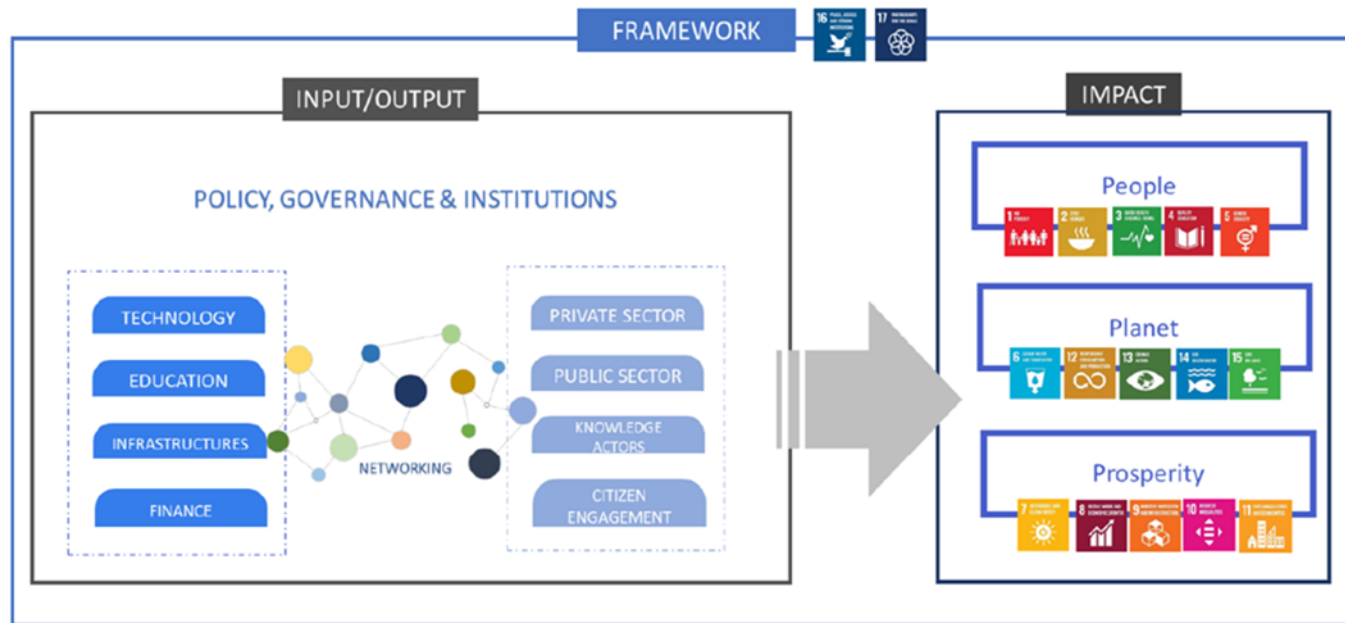
Bilbao, 7th November 2024

Contextualisation

- Smart specialisation strategies (S3) have dominated the regional innovation policy panorama over the last decade. Particularly relevant is the entrepreneurial discovery process, focused on the triple/ quadruple helix.
- The Basque Country has a long experience in industrial and STI policy and have implemented a S3 even before the concept has been adopted by the European Commission.
- However, in an era of grand societal challenges S3 have been criticised for a narrow focus on science and technological innovation and lack of incorporation of civil society in open discovery processes (Hassink and Gong, 2019; Benner, 2020)
- New approaches such as transformative innovation policy (Schot and Steinmuller, 2018) or mission-oriented innovation policy (Mazzucato, 2018) have shaken the policy panorama and have regional policy implications.
- In addition, the relevance of SDGs as a common policy agenda is being adopted by territories.

How to measure the contribution of research and innovation in this new context? How to capture the value of knowledge for society?

Conceptual framework



European Commission (2023)

- Need to develop a framework to measure the contribution of STI to sustainability
- Despite the great interest to give directionality to STI towards sustainability and how to measure, there is not much literature about how to do it.
- In addition, traditional STI indicators and statistics do not capture the contribution and impact of innovation in social challenges.
- Existing frameworks rely on the relevance of networking and collaboration among multiple actors.

The Basque Country Case

- Region of 2.2 million people with a manufacturing-intensive economic structure
- Long-term, proactive and industry-focused territorial strategy that has been widely analysed for its success in spurring economic and social transformation based on collaboration values and social capital (Aranguren *et al.*, 2012, 2021; Morgan, 2016, 2020; OECD, 2011; Porter *et al.*, 2016; Valdaliso, 2013, 2015)

The 1980s

- Creation of a new regional Administration
- Need to promote substantial industrial restructuring in response to deep economic crisis

The 1990s

- Strategy built around clusters
- Improve the efficiency of industry
- Foster non-R&D-based diversification
- Promote internationalization

The 2000s

- Sustained focus on innovation

From 2010

Impact of S3

Policy Analysis

SCIENCE TECHNOLOGY & INNOVATION PLAN 2010-2015

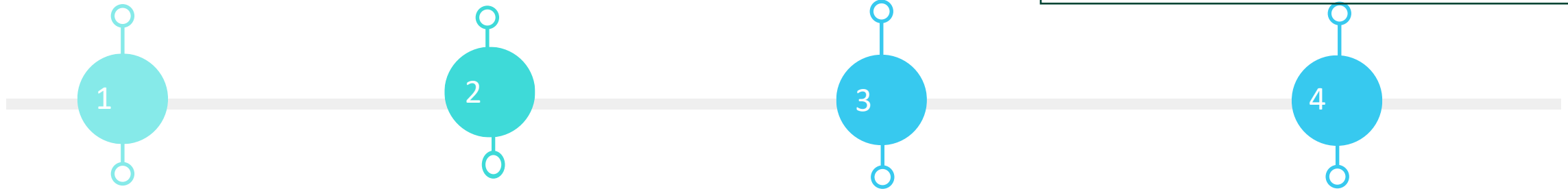
- What for: STI for industry & social innovation
- What: Horizontal & vertical policy (existing & emerging areas of specialisation)
- How: Led by Presidency Department with multi-department coordination

SCIENCE TECHNOLOGY & INNOVATION PLAN 2016-2020

- What for: S3 for wellbeing & economic growth
- What: Vertical policy focused on strategic areas
- How: Led by Presidency Department & multi-actor involvement through EDP (triple helix with emergent shared leadership)

SCIENCE TECHNOLOGY & INNOVATION PLAN 2021-2030

- What for: STI for societal challenges and SDGs
- What: Vertical policy focused on strategic areas & societal challenges, including missions
- How: Led by Presidency Department & multi-actor involvement through EDP (triple helix with consolidating shared leadership)



BUSINESS COMPETITIVENESS PLAN 2010-2013

- What for: Economy and industry
- What: Horizontal policy based on existing sectors (clusters) + sustainability focus
- How: Led by Economic Dev. Department with multi-department

INDUSTRIALIZATION PLAN 2014-2016

- What for: Economy & industry
- What: Horizontal policy & diversification + energy focus
- How: Led by Economic Dev. Department with multi-department & multi-level

INDUSTRIALIZATION PLAN 2017-2020: INDUSTRY 4.0

- What for: Economy, industry & social impact
- What: Horizontal policy with emphasis on technology (advanced industry)
- How: Led by Economic Dev. Department with multi-actor involvement & coordination (strong emphasis on clusters)

INDUSTRIAL DEVELOPMENT AND INTERNATIONALIZATION PLAN 2021-2024

- What for: Industry & economy, oriented towards SDGs
- What: Horizontal & vertical policy focused on transitions
- How: Led by Economic Dev. Department with multi-actor involvement & coordination (strong emphasis on clusters)

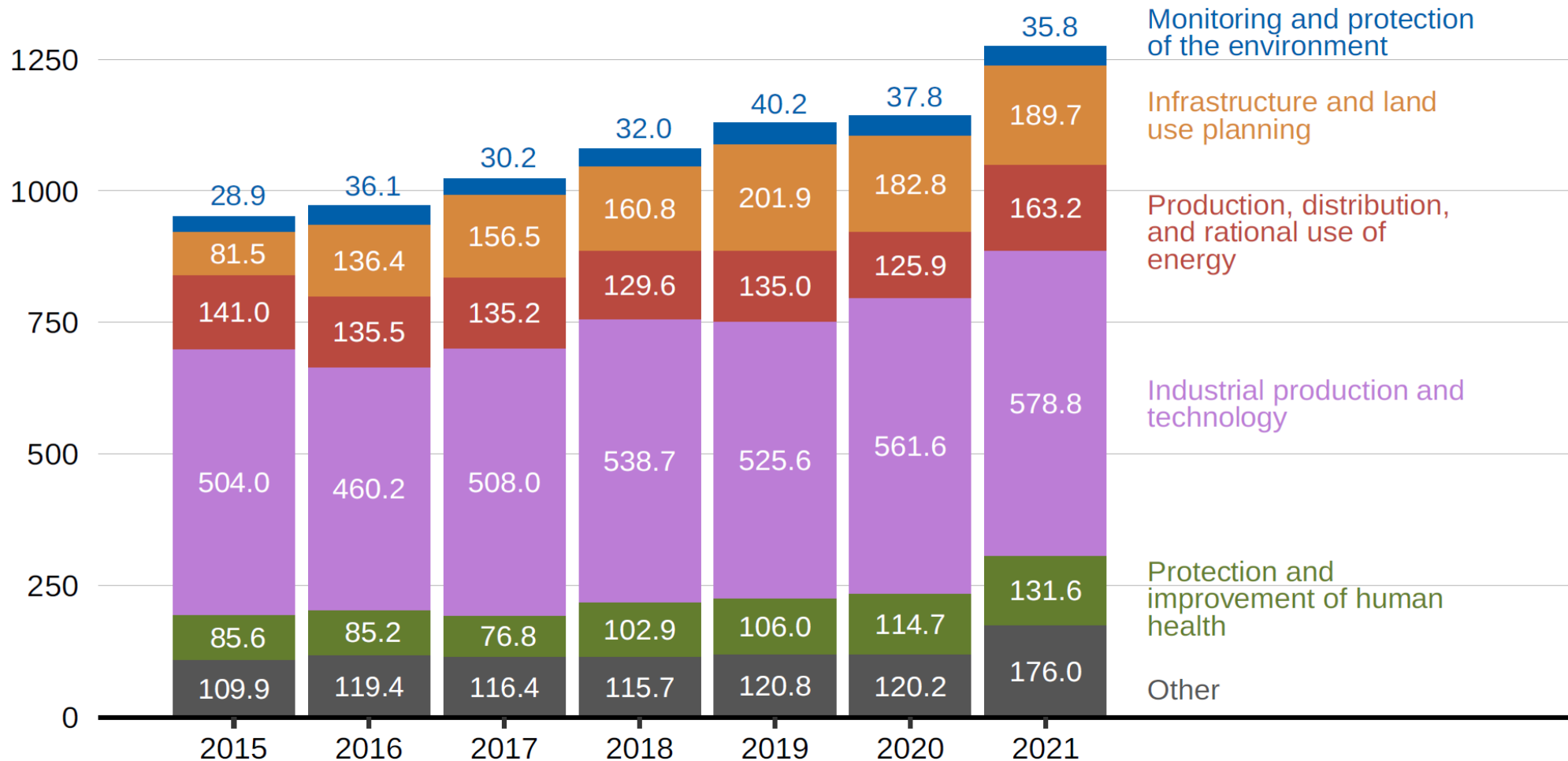
STI Plan 2030: Social challenges and SDGs

Social challenge	SDG
ENERGY AND CLIMATE CHANGE	7. Affordable and clean energy
	13. Climate action
	11. Sustainable cities and communities
HEALTH	3. Health and wellbeing
EMPLOYMENT	8. Decent work and economic growth
DIGITAL TRANSFORMATION	9. Industry, innovation and infrastructure
GENDER EQUALITY	5. Gender equality

Focus of STI aligned to social challenges and corresponding SDGs

Thematic orientation of R&D spending

GRAPH 3-5 Internal R&D spending by companies and private non-profit institutions in the Basque Country, by socioeconomic objective (millions of euros)

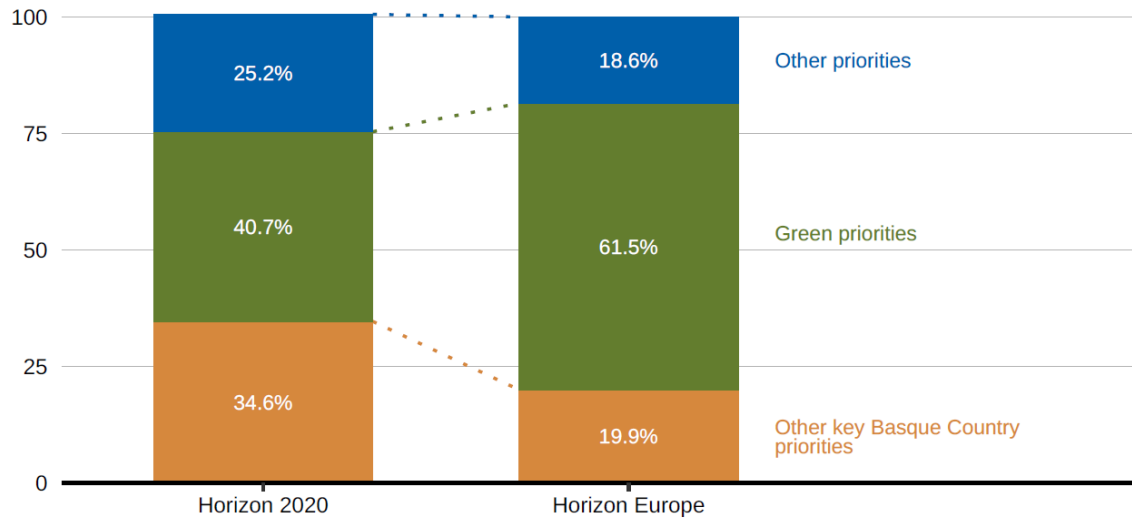


Source: Eustat. Compiled by authors.



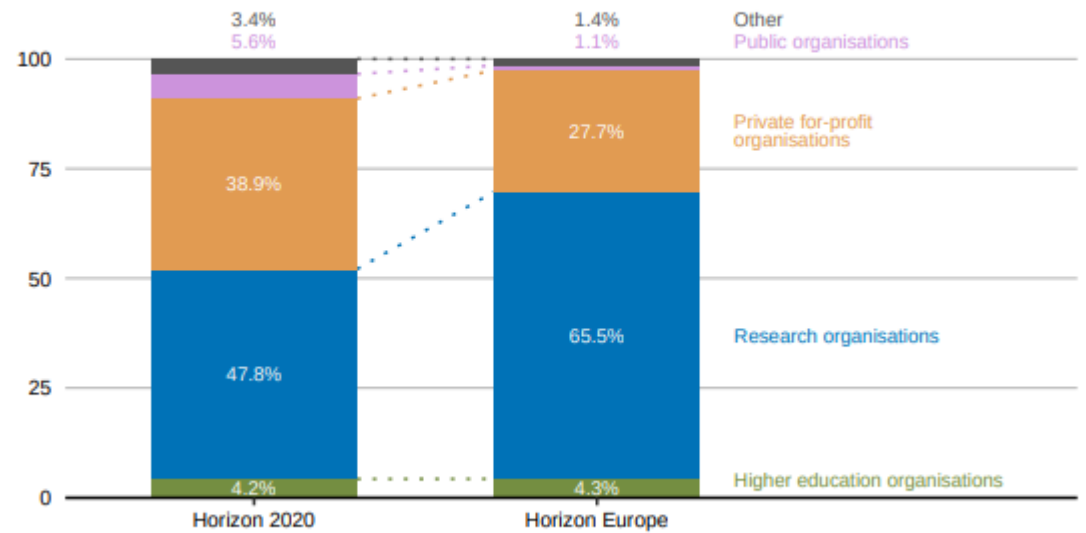
Thematic orientation of EU funding

GRAPH 3-7 Distribution of Horizon 2020 and Horizon Europe programme funds in the Basque Country by themed priority (% net EU contribution)



Source: European Commission (Horizon Dashboard). Compiled by authors.

GRAPH 3-9 Participation in green priorities in the Horizon 2020 and Horizon Europe programmes by organisation type (% net contribution received)



Source: European Commission. Compiled by authors.



Evolution in environmental technology patents

TABLE 3-5 Specialisation of environmental technology patents in the Basque Country

Technology group:	% of patents over the total of the Basque Country (three-year average)							Specialisation index with respect to EU-27 (EU-27=1)						
	2004	2007	2010	2013	2016	2019	2020	2004	2007	2010	2013	2016	2019	2020
1: Environmental management	0.8%	1.3%	1.1%	2.9%	2.1%	1.7%	1.6%	0.29	0.46	0.36	0.98	0.75	0.70	0.76
2: Climate change mitigation technologies related to power generation transmission and distribution	1.2%	6.6%	8.6%	9.1%	8.1%	7.7%	9.4%	0.63	2.42	1.69	1.81	2.07	1.92	2.13
3: Capture, storage, sequestration or disposal of greenhouse gases	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.2%	0.00	0.00	0.00	0.34	0.00	0.64	1.18
4: Transportation-related climate change mitigation technologies	0.8%	0.0%	0.6%	1.4%	1.4%	1.3%	1.2%	0.54	0.00	0.22	0.46	0.56	0.48	0.45
5: Building-related climate change mitigation technologies	0.7%	1.4%	2.5%	1.5%	1.1%	1.8%	1.9%	1.12	1.71	1.65	0.98	0.80	1.52	1.54
6: Climate change mitigation technologies related to water treatment or management	0.8%	0.4%	0.8%	1.4%	0.8%	0.2%	0.7%	1.86	0.74	1.46	2.45	1.48	0.28	0.78
7: Climate change mitigation technologies in goods production and processing	1.0%	2.8%	1.1%	3.1%	2.5%	4.3%	5.3%	0.74	1.74	0.48	1.31	1.00	1.62	1.83
8: Climate change mitigation technologies in ICTs	0.0%	0.0%	0.0%	0.2%	0.0%	0.2%	0.2%	0.00	0.00	0.00	0.50	0.00	0.41	0.41
9: Climate change adaptation technologies	0.9%	0.9%	2.3%	0.7%	0.5%	0.4%	0.4%	0.91	0.73	1.69	0.49	0.35	0.31	0.31
10: Economics of sustainable oceans	0.0%	0.7%	1.4%	1.2%	2.1%	1.4%	0.4%	0.00	2.89	3.95	3.20	6.85	4.02	1.27
Total environmental technologies	4.7%	10.1%	13.9%	15.3%	15.1%	15.1%	16.4%	0.59	1.06	1.07	1.12	1.22	1.23	1.29

Source: OECD-REGPAT and Eurostat. Compiled by authors.



Similarly, analysis of scientific publications classified by SDG reveals a growing specialisation related to SDG7 (energy)

Concluding Remarks

Policy analysis from the Basque Country highlights:

- A clear evolution of STI policy and industrial policy towards directionality.
- The 'what for' has also been strongly influenced by the SDG framework
- Some evidence of changing directionality in innovation activities
- Relevance of collaboration processes for discovery, which need to incorporate civil society

Some implications for measuring STI contribution to SDGs:

- Statistics rely on traditional indicators (input/output)
- SDGs are not mutually exclusive (indicators contributing to more than one SDG)
- Need to advance in common frameworks

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