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FIT TO DELIVER CLIMATE NEUTRALITY

BUILDING AN EU RESEARCH & INNOVATION STRATEGY FOR ACCELERATED DECARBONISATION

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Research and Innovation (R&I) is central to the European Green Deal, the delivery of climate neutrality by 2050, and to the EU's future economic prosperity. This was reaffirmed in the European Commission's recovery proposals. Yet while European R&I policy is committed to decarbonisation as one of its objectives, it is still missing a strategy outlining how it will support this transformation and achieve the deep changes necessary to deliver on climate neutrality.

This briefing argues that to deliver the ambition of the Green Deal, a new EU R&I strategy is needed. Establishing the following three design principles for R&I in the EU would accelerate the climate transition and catch up the EU's global leadership on clean innovation:

Aim for system-level change

Delivering climate neutrality by 2050 will require a deeper reorganisation of EU R&I around achieving system-level innovation for decarbonisation, best served by a challenge-driven approach.

Support a socially and geographically inclusive transition

Success of the European Green Deal will highly depend on spreading the benefits of EU R&I policy and funds more widely across European geographies and ensuring existing disparities are not further entrenched.



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EU R&I policy must also own the social dimension and address it as an integral part of its agenda.

Leverage EU R&I for global decarbonisation

The EU's challenge will be to overcome the binary competition mindset of winning at the expense of cooperation. The EU instead has the ability both pursue global decarbonisation and competitiveness if it taps into its recognised R&I decarbonisation expertise to solve other countries' decarbonisation challenges – in partnership with them - thereby securing future R&I markets for competitiveness gains.



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Why rethink the EU's R&I policy?

R&I is integral to the European decarbonisation agenda

Meeting the EU's climate neutrality goal requires a technological and social shift from the current energy and economic system which is still largely fossil fuel based¹. The development of low and zero emissions solutions and their integration into all facets of the European economy and society² will be critical to this success, as regularly identified by expert bodies like the IEA or the High-Level Panel of the European Decarbonisation Pathway Initiative. In fact, it is our capacity to accelerate the progress – both of scale and speed – of innovation technologies today that will strongly impact our capacity to achieve the net-zero objective by 2050³.

Politically, adapting R&I policy is of particular relevance to meeting the European Green Deal's major goals – as Europe's new growth strategy, its agenda to increase inclusiveness across Europe and its way of meeting the climate objectives of the Paris Agreement⁴. More specifically R&I can contribute to:

- > Boosting EU competitiveness – Given that low carbon will be the only viable market of the future, the diversification away from fossil heavy industries and specialisation into clean industries will enable the EU to boost the competitiveness of European industrial regions, driving investment and exports, and creating jobs for a low carbon global economy.
- > Guaranteeing the social and geographical inclusiveness of the transition – Only a socially inclusive transition owned and operated by all member states and EU geographies can be considered successful. R&I is a powerful lever to drive social inclusion through technologies like 3D printing or 5G networks. However deliberately designing R&I policy to promote social inclusion by pushing R&I into new EU geographies must become part of the policy's baseline responsibility⁵ as is mitigating the sometimes negative impact of innovation deployment on labour.
- > Stimulating global decarbonisation - The diffusion of clean technologies and processes abroad accelerates the global pace of decarbonisation, reduces the risk of catastrophic climate impacts, and contributes to countries' development.

Currently, the EU R&I policy is not fully equipped to deliver climate neutrality

The EU had a head start in the international R&I race, but this is now endangered by global competition and R&I investment stagnation. The EU accounts for 30% of all

¹ European Commission 2018, 'A Clean Planet for all A European long-term strategic vision for a prosperous, modern, competitive and climate neutral economy', p.241.

² European Commission 2018, High-Level Panel of the European Decarbonisation Pathways Initiative, **Final report**

³ IEA 2020 'Energy Technology perspective 2020'

⁴ See European Commission 2019 'What is the European Green Deal?' and 'The European Green Deal' communication

⁵ Two third of EU productivity growth in the past decade was achieved through R&I investments. European Commission 2020 'The role of R&I in Europe's recovery'



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scientific publications and one fifth of global research expenditure⁶ with patent application steadily increasing up to 2007 though it has stabilised since then. It also has highly skilled labour force to power the R&I sector. However, compared to the rest of the world, Europe's position is lagging, and expenditures have not yet reached the 3% GDP target the EU set itself⁷, stagnating far behind at around 2%. While the private sector is powering EU R&I expenditures with increased R&D spending, the EU is still lagging when it comes to turning its scientific leadership into leadership in innovative products and innovation-driven entrepreneurship⁸.

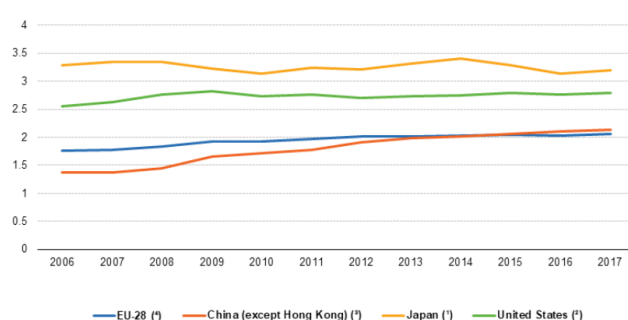


Figure 1 – Gross domestic expenditure on R&D compared to GDP, 2019
Eurostat⁹

On R&I for decarbonisation, whilst the EU has placed R&I centre stage of both the European Green Deal and post-COVID-19 recovery efforts, the challenge remains considerable. R&I needs are substantial ranging from developing novel technologies (aviation technologies), developing promising ones (Li-ion batteries), to further optimising and reducing the cost of existing ones (renewable energy). Bringing technologies up to scale, deploying them and finding viable market solutions will require unprecedented alignment of EU, national and private sector R&I spend, conducive legislation, and regulation. New business models and manufacturing processes as well as new services will also be needed. Beyond this, social behaviours will be impacted as well as the socio-economic environment, such as our cities, in which they are embedded. Indeed, the nature of the

Research and Innovation – What's the difference?

Research and innovation are sometimes used interchangeably, yet they refer to two highly interrelated yet separate dimensions, which the OECD defines in the following way:

Research – or basic research 'is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.' **Research and development (R&D)** are sometimes referred together to cover basic research, applied research, and experimental development. (OECD 2013)

Innovation – 'An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.' (OECD 2005)

Types of innovation – Innovation, as defined by the [OECD's Oslo Manual](#) to measure scientific and technological activities, can refer to several types on innovation: product, process, marketing and organisational.

⁶ European Commission 2016 'Open innovation, open science, open to the world'

⁷ European Council March 2000 Summit in Lisbon and March 2002 Summit in Barcelona

⁸ European Commission 2018, [Science Research and Innovation performance of the EU 2018 - Key findings](#)

⁹ Eurostat in European Commission 2019, [R&D expenditure](#)

challenge is far from being purely technological, and the benefits go way beyond technology.

The case for an EU R&I strategy to deliver climate neutrality by 2050

Given the scale of the challenge, ensuring EU R&I policy acts as enabler to achieving climate neutrality therefore requires a new EU R&I strategy – as opposed to a collection of initiatives¹⁰. As figure 2 below recording the main funding sources supporting EU innovation shows, support to climate R&I is many and varied and often even extend beyond R&I policy, to include cohesion, social or investment policy tools. This shows the potential to mobilise EU R&I funds to deliver decarbonisation, provided these are effectively streamlined to achieve climate neutrality.

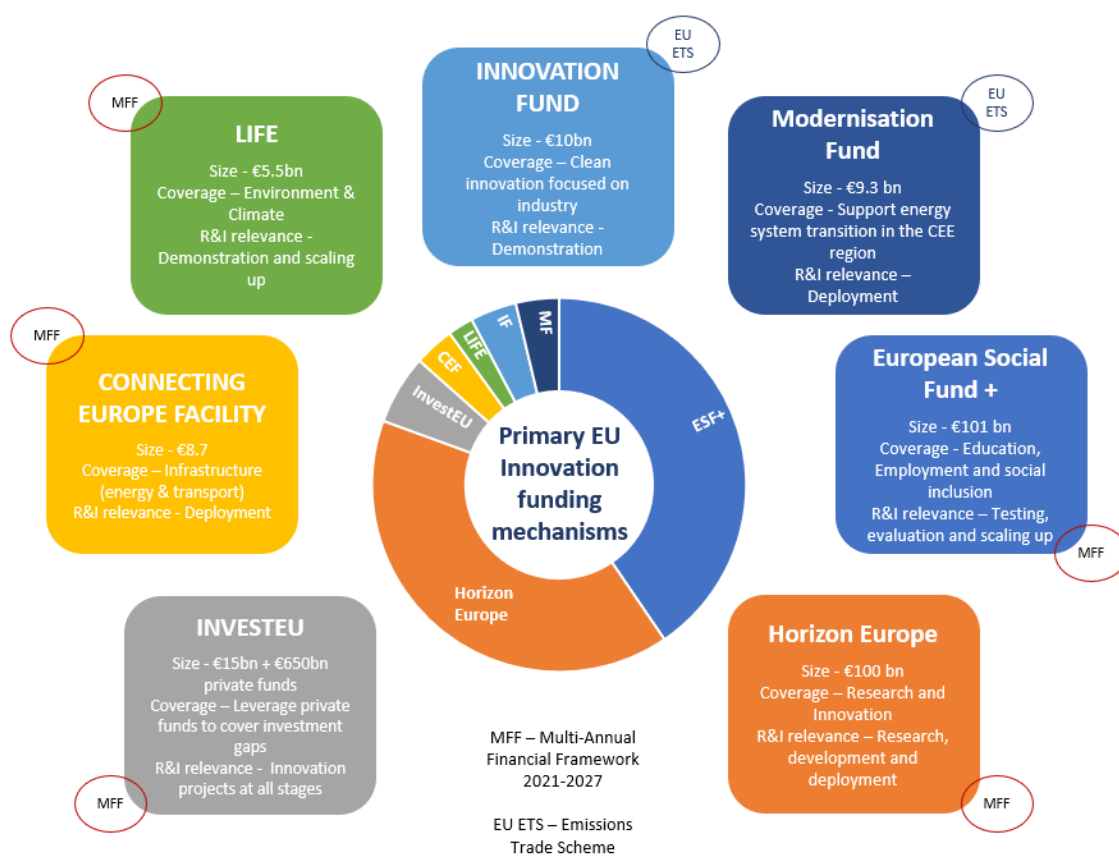


Figure 2: Landscape of EU funds supporting R&I in total size, E3G¹¹
 figures as of original European Commission proposals

When it comes to EU agenda guiding R&I policy, the last agenda review was proposed in 2018¹² and predates the EGD and the climate neutrality objective. While the EGD guides EU R&I policy in principle, currently this has not led to a the more structural restructuring of R&I policy with actionable recommendations. A strategy that

¹⁰ European Commission EGD R&I activities

¹¹ Inspired by E3G 2019, 'Delivering Climate Neutrality: Accelerating EU Decarbonisation with R&I'

¹² European Commission 2019 'A renewed European Agenda for Research and Innovation - Europe's chance to shape its future'

delineates how EU R&I policy will deliver on enabling the transition to climate neutrality is therefore necessary. That strategy will ensure we achieve alignment and consistency across the wide EU R&I policy toolbox that is crucial to accelerate decarbonisation. The latest recommendations for a future review of EU R&I policy¹³ is a step in the right direction, acknowledging that ‘the European Green Deal requires a shift towards a transformative innovation policy’, falling just short of calling for a new strategy for R&I to deliver on climate neutrality.

Designing an EU R&I strategy to deliver system change

From an R&I *policy* perspective however, the challenge is much bigger than the technology aspect, and one much less often covered in reports or analysis pieces. **Climate neutrality requires change at system level, as a result a re-orientation of EU R&I policy** towards systems transformation, instead of a sector or technology focus, is needed. Only a goal-oriented EU R&I policy can deliver the grand challenge of climate neutrality by 2050¹⁴.

Goal-, challenge- or mission-oriented innovation policy aim to solve problem-specific societal challenges – like climate change - as opposed to adopting a more sectoral approach. This ‘transformative’ type of policy represents a break from past approaches in that innovation policy sets aim to change the socio-economic economic system, with a strong role for governments in providing that directionality to innovation policy¹⁵. It has been recently applied by the European Commission through the launch of the **Mission 100 climate neutral cities by 2030**.

Like most EU policies, R&I policy has not been built to deliver on the unique challenges posed by transitioning to climate neutrality. The EU has developed instruments and initiatives to boost EU R&I ranging from its flagship programme Horizon Europe, the SET-Plan for energy technologies or InvestEU to support private R&I investments¹⁶. Europe’s ‘Next Generation EU’ recovery initiative will further financially support EU R&I at member state, SME and private R&I investment level. However, merely combining these measures and policies, which have for the most part not been designed with climate neutrality in mind, will be insufficient. While necessary to support the EU’s R&I sector, these are not aimed –individually or in combination – to drive the deep system transformation required for climate neutrality.

The European Green Deal and the post COVID-19 recovery efforts are an opportunity to rethink EU R&I policy, including new organising principles, to ensure

¹³ European Commission 2020, **Science, Research and Innovation Performance of the EU (SRIP) report**

¹⁴ Simon Skillings et al 2019, **Mission-based innovation for climate and energy**

¹⁵ Hekkert et al 2020, **Mission-oriented innovation systems**

¹⁶ See E3G (2019) **Delivering Climate Neutrality: Accelerating EU Decarbonisation with R&I** for an overview of the main EU R&I instruments and financing tools



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that it can fully play its role of transformational change. This paper proposes three main principles around which to build EU R&I policy to deliver climate neutrality and the European Green Deal's main goals of economic prosperity, social fairness and environmental sustainability¹⁷.

¹⁷ See European Commission 2019 '[What is the European Green Deal?](#)'



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Principle 1 – Aim for system-level change

The Challenge

While R&I is built-in as an essential delivery mechanism for the climate neutrality objective throughout the European Green Deal, the pressing question is **how to achieve the system-level change to deliver on this objective**. A holistic approach to EU R&I's contribution that spans sectors is for example necessary to achieve integrated energy system transition¹⁸. To be effective, the EU's R&I policy must see its role as being, first and foremost, a driver of socio-economic progress. This is broader than the current competitiveness-driven understanding of EU R&I policy – an understanding that risks undermining the transition¹⁹. While the EU has embraced transformative innovation policy with the launch of the **Missions** under Horizon Europe, this did not lead to a reorientation of the EU's R&I policy as a whole. EU R&I policy already acts as an enabler in a cross-sectoral fashion²⁰ but **delivering climate neutrality by 2050 will require a deeper reorganisation of EU R&I around achieving system-level innovation for decarbonisation. This is best served by a mission or challenge-driven approach**.

Recommendations

- > **Embrace a mission-oriented approach to the whole of EU R&I policy for climate neutrality** - Relying on incremental and siloed approaches, using existing tools that have been built without climate neutrality in mind, is unlikely to match the systemic nature of the challenge. These approaches address discreet needs and gaps to boosting the R&I sector in Europe – supporting fundamental research, deployment of technology or scaling up of innovative businesses. Increased R&I impact for decarbonisation requires a systemic – and possibly more complex – approach, which warrants efficient orchestration, around a common objective, to secure early action and results.

A mission-driven policy²¹ has the potential to bring more alignment and cohesion to EU R&I for decarbonisation, by leading more naturally to a 'one policy' type of approach to the multitude of EU R&I funds and initiatives²². This would secure alignment, and maximise the impact, of the considerable number of R&I instruments and resources that are currently spread out over several sectoral policies, and under the responsibility of various Commission Directorates-General, to support EU R&I policy. It would also help identify related regulatory, market development needs or instances where greater national alignment is required for EU innovations to take off. Finally, a challenge-driven approach

¹⁸ The High-Level Panel of the European Decarbonisation Pathways Initiative highlighted in its 2018 **report** that 'decarbonisation requires a holistic approach' giving this example

¹⁹ Hekkert et al 2020, **Mission-oriented innovation systems**

²⁰ Skillings et al 2020, **Innovation priorities to deliver climate neutrality**

²¹ Simon Skillings et al 2019, **Mission-based innovation for climate and energy**

²² E3G referred to a 'one policy' or single policy approach in a 2019 **briefing** to draw attention to the need for bringing together the variety of EU R&I funding for decarbonisation for maximized impact and coherence.



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expands decarbonisation from a purely technological approach to a more holistic socio-economic one, with solutions spanning far beyond pure technological innovation. Not only does this holistic approach rehabilitate the role of social sciences and humanities (SSH) in contributing to meeting the challenge, but it opens the possibility of increasing the impact of EU policy through a better mobilisation of SSH and interdisciplinarity.

- > **Develop adequate governance for climate R&I geared towards climate neutrality across sectors** - An R&I governance process should be set out that is focused on delivering a consistent approach to R&I for decarbonisation across policies, allocating resources efficiently across sectors, while ensuring learning and fair distribution of benefits across Europe. This function could be performed through an independent technical expert body to advise on technology deployment targets²³. Through this mechanism, an integrated climate R&I roadmap should be created to identify R&I requirements for short-, medium- and long-term emissions reduction across all economic sectors. Rather than reacting only to sectoral demands, such an approach maximises the impact of emissions reduction efforts because it quickly identifies R&I-related barriers and gaps to drive decarbonisation across sectors. The roadmap should be regularly updated and used as the benchmark for assessing climate R&I priorities across all relevant EU and national policies²⁴.

- > **Financially support the whole innovation chain under one R&I funding ‘toolbox’** – The EU benefits from a variety of funding instruments to spur EU R&I beyond the flagship instrument of Horizon Europe. However, the suite of EU climate R&I funding tools currently does not provide continuity along the innovation chain and proves difficult for small companies to access. Although many EU programmes and funds overlap, the fragmentation prevents achieving deep synergies. These tools need to be aligned under a one-stop shop approach to increase their accessibility, avoid duplication and maximise value. Their capacity to support the delivery of decarbonisation through R&I depends on whether systemic and joined-up thinking can be extended to the use of EU financing.

- > **Prioritise demonstrating systemic transitions** – Systemic transitions at societal level are a challenge due to the simultaneous and coordinated nature of change that needs to take place at scale. The Horizon Europe “Mission on decarbonising European cities” is a way of directing R&I towards achieving outcomes – climate neutrality by 2030 - and a good example of the requirement for systemic change. However it also highlights that systemic change delivery relies on a co-ordinated governance system. “Missions” are the EU’s only large-scale demonstration of holistic transition in Europe as they offer the opportunity to pilot systemic transition at smaller scale across Europe, in different geographies, at different development stages and of different sizes. They collect vital data for scaling up

²³ Skillings and Fischer 2019, **EU Energy system decarbonisation policy: Breaking through the logjam**

²⁴ Such as the European Semester, National Energy and Climate Plans, National Long-Term Strategies, Just Transition Plans and Adaptation Strategies



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systemic transitions. Making sure they do not become one-off initiatives by committing to scaling them up and using learning to apply to the whole of EU R&I policy is currently the best chance to effectively ensure the whole of EU R&I policy enables systemic change.



Principle 2 – Support a socially and geographically inclusive transition

The Challenge

The clean economy is already a large source of growth and wealth across Europe and this will only increase with the objective to reach climate neutrality by 2050. The success of the transition to climate neutrality will depend on **spreading the benefits of EU R&I policy and funds more widely across European geographies and ensuring that disparities are not further entrenched** - between richer and poorer member states, between cities and rural areas, between capital and periphery or between social classes. Looking across Europe, geographies like Central and Eastern European (CEE) countries benefit less from EU R&I funds²⁵, which can lead to a sense of division and fuel a more general sense of disenfranchisement towards the transition. At the same time, while usually intended for positive progress, R&I developments also inevitably create deep challenges for the socio-economic fabric of society across Europe. Actively supporting more member states to move from R&I ‘takers’ to ‘makers’, together with addressing the social consequences from R&I-powered transformations, is essential to guarantee the viability of the transition and also for enhanced European cohesion. To mitigate the risks, EU R&I policy must own the social dimension and address it as an integral part of its agenda.

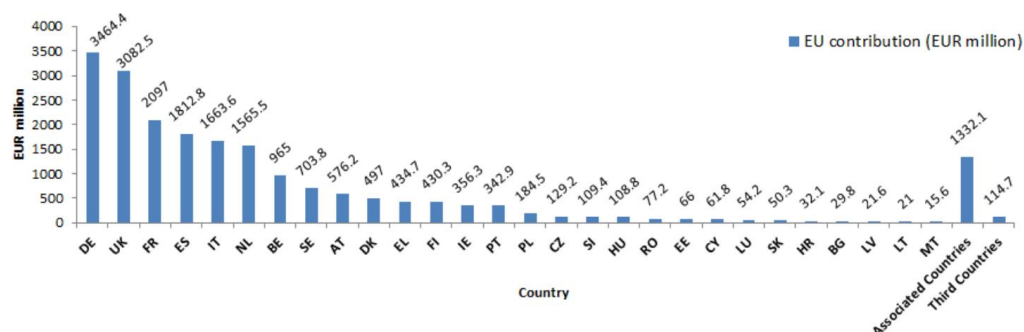


Figure 3 – Horizon 2020 EU contribution and participation per country, 2017
European Commission²⁶

Recommendations

- > **Close the innovation gap in Europe and better spread R&I benefits** – There is an innovation divide among EU member states²⁷. The EU is already deploying R&I policy through its regional policy as a tool for development through numerous initiatives²⁸. Re-orienting some of these tools specifically to develop clean R&I in CEE countries would not only contribute to developing a sustainable source of

²⁵ See European Commission, **Regional Policy – Research and Innovation**.

²⁶ European Commission 2017, **In-depth interim evaluation of Horizon 2020 – Commission Staff Working Document**

²⁷ Bruegel 2016, **The European Union’s growing innovation divide**

²⁸ For an analysis of EU funds and initiatives supporting EU climate R&I see Dutton and Pilsner 2019, **Delivering Climate Neutrality: Accelerating EU Decarbonisation with R&I**



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growth but would also strongly contribute to ensuring a greater ownership of the transition. An example might be using smart specialisation to identify region-specific R&I solutions or the European Research Area to create researcher mobility to build capacity for the transition. The EU is also ideally placed to turn clean R&I into a vector of growth in CEE as it can support countries to improve structural conditions, without which initiatives such as infrastructure, education and skills or support to SMEs, risk ending up as ‘cathedrals in the desert’. Doing so would also require investing in the social acceptability of innovation. The newly established EU Just Transition mechanism, which has a strong R&I focus, could become a tool to develop regional growth strategies based on clean innovation – provided EU support is conditioned on national coal exit and a climate neutrality commitment²⁹. National commitments to direct funding and capacity, complemented by European capacity-building support to reap the benefits of R&I funds and identify pipelines of eligible projects, will maximise the impact of broadening R&I. Such commitment is necessary to align the often greater national (public and private) resources and could be incentivised by matched EU funding against national clean innovation pledges.

- > **Direct R&I policy to mitigate industrial decarbonisation impacts** - Excellence is the cornerstone of EU R&I policy. This tends to create a ‘winner takes all’ effect whereby the most developed countries and regions reap most of the benefits of EU R&I funds, including attracting innovative companies or projects. Making sure CEE is more systematically integrated in new value chains powering the transition, such as batteries or renewable hydrogen, is essential to bridge that geographical divide, ensuring excellence in one country benefits others. Such an integration contributes to transforming some energy-intensive activities, or developing new economic activities, that can better distribute jobs across Europe. The upcoming review of the European Research Area could allow building capacities of CEE researchers specifically on clean and green technologies with a view to developing capacities to drive the CEE transition. A more general integration of the R&I agenda with EU and national skills development support is needed to ensure success.

²⁹ De Pous and Popp 2020, [The Just Transition Fund: 4 Benchmarks for Success](#)



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- > **Increase social ownership of the transition** – More systematic EU support for social innovation solutions to the transition has the potential to both increase people’s ownership of the transition, empowering them as actors and drivers of the process, and help the development of place-based innovation approaches with greater local relevance. While the relevance of social innovation – including grassroots innovation or social entrepreneurship - to achieving the transition to climate neutrality is widely understood, there are knowledge gaps around its exact contribution to reducing CO2 emissions³⁰. One challenge is the focus on process rather than outcome and the fact social innovation initiatives often produce tailored solutions born out of specific contexts, which makes them difficult to scale up. Setting up an EU-wide and cross-disciplinary initiative to more systematically collect data across Europe is necessary to understand and quantify the contribution of social innovation to emission reduction and the broader transition. This should also be complemented by measures incentivising local actors to promote social innovation, notably through social innovation labs and dedicated financial support in EU programmes. This would provide the basis to develop Europe’s learning governance by valuing and successfully scaling up or disseminating successful models or their components.

Social Innovation

Is a relatively recent concept. It refers to ‘new strategies, concepts, ideas and organizations that meet social needs of all kinds - from working conditions and education to community development and health- and that extend and strengthen civil society.’ (OECD 2011)

³⁰ See European Commission, 2018 - **Final Report of the High-Level Panel of the European Decarbonisation Pathways Initiative**, chapter 7 and DEEDS 2019, **Workshop Report Social innovation and lifestyle change for the decarbonisation of Europe**.



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Principle 3 – Leverage EU R&I for global decarbonisation

The Challenge

Even though primarily designed to guide the EU's own decarbonisation, the success of the European Green Deal also depends on the capacity of this agenda to leverage the external dimension of EU policies to encourage decarbonisation efforts in third countries. This is a matter both of scientific reality, since European decarbonisation cannot substitute for lack of progress in the rest of the world, but also of domestic acceptability of efforts required from EU citizens and companies. For Europe's economy this represents an opportunity to use EU R&I to drive decarbonisation abroad, while boosting competitiveness, by ensuring new markets for Europe's new technologies. Despite the importance of cooperation in solving global challenges, as evidenced by the COVID-19 crisis, competition generally prevails between major R&I actors. International cooperation is already part of EU R&I policy, however the way it is designed is turned inwards, meant to attract talent and resources to increase Europe's own excellence and competitiveness, rather than used as a means to support decarbonisation in third countries. The EU's challenge will be to tap into Europe R&I capacity around decarbonisation and **position itself to win the innovation race against global competitors by focusing on solving decarbonisation challenges in cooperation with countries that will provide future R&I markets.**

Recommendations

- > **Aim for climate neutrality-centered bilateral R&I cooperation initiatives** – The transition to climate neutrality is predicated on deployment at scale of existing clean technologies and the development of innovations for sectors still in need of decarbonisation solutions. EU R&I attractiveness to third countries is based on its technological advances in certain sectors and expertise in deployment, resulting from a long-term commitment to the clean transition. These capacities are recognised abroad. Instituting initiatives specifically tailored with third countries to solving specific decarbonisation needs has the potential to solve socio-technological challenges outside the EU's borders, as well as developing markets for EU technologies.
- > **Build international climate neutrality cooperation initiatives** – R&I is typically an area of fierce international competition. When it comes to global challenges like climate change, exploiting the global capacities can help accelerate technological developments. Therefore, investing in existing initiatives meant to catalyse international cooperation, such as Mission Innovation, is not to be overlooked. Such cooperation can help pooling of resources and build demand for innovative products. However, such initiatives would require areas of lower competitive threat or large joint benefits to succeed. These need not be only technological in nature. Europe's 'Climate-neutral and smart cities' mission is one area that could be replicated internationally and create stronger synergies with existing initiatives such as C40 or initiatives by multilateral development banks. Holistic and systemic transition is difficult to achieve and would benefit from being applied to the



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largest conditions and geographies possible, with a sharing of experience and data likely to be of use for all countries.

- > **Boost emission reductions and climate resilience capabilities in developing countries** – Under Europe’s Framework Programme 7 (2007-2013), 2% of the programme was dedicated non-partner countries and only about 0.5% of the Programme’s budget went to Africa, Caribbean and Pacific countries³¹. This suggest a greater focus on R&I in developing countries is required. The impact of R&I support depends critically on the state of framework conditions in developing countries³². It is essential to bring together at EU level R&I, development cooperation and climate action capacities to define adequate and effective approaches to building capacities in both climate mitigation and climate risk³³. Early warning systems have notably enabled significant resilience improvements in some geographies, though more needs to be done in areas such as field-testing and supporting the roll out of resilience innovations.
- > **Leverage EU R&I attractiveness to encourage or strengthen decarbonisation commitments with middle to high income countries** – Europe’s R&I space is attractive due to its highly qualified labour resources, advanced research capacity and unified market. It is also relatively open. International cooperation is encouraged through programmes like Euraxess, for researcher mobility, and funding is accessible for projects through Horizon Europe whereby third countries – even those considered competitors – can apply to cooperate institutionally or through researchers. China notably has systematically used such schemes to build its own science and technology capacities. Whilst this openness is beneficial in attracting high quality researchers and building institutional partnerships, it is not reciprocated. Channelling cooperation with foreign R&I stakeholders specifically into solving decarbonisation challenges that require pooling of technologies and knowhow has the potential to solve common challenges. To be credible and not risk losing out on cooperation opportunities, such conditionality would have greater chances of success if negotiated as part of bilateral trade or investment agreements.

³¹ European Commission 2012, **International Cooperation in Research and Innovation**

³² European Commission 2016, **Science and Innovation for Development**

³³ Countries with lower GDP per capita levels have been found to be generally more exposed to climate risks according to a the McKinsey 2020 ‘**Climate risk and response: Physical hazards and socioeconomic impacts**’ report



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About E3G

E3G is an independent, non-profit European organisation operating in the public interest to accelerate the global transition to a climate-safe world. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere.

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