

## Innovations for a European Green Deal

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The economic shock triggered by the SARS-CoV-2 pandemic has prompted calls to postpone the implementation of the European Green Deal that forms the central project of the European Commission under Ursula von der Leyen. The experts consulted for this IMPULSE publication unanimously and emphatically reject these calls. Instead, they recommend that the German government should work towards a **sustainable and resilient recovery**, especially since this will strengthen the numerous transformation initiatives that had already commenced before the crisis.

The current crisis cannot stop or delay efforts to bring about the **necessary transformation** to a sustainable economy that will **secure long-term value creation and employment** in Europe. The SARS-CoV-2 pandemic must not result in **innovation policy being put on hold**.

The following **ten key messages** summarise the main outcomes of the discussions and analysis carried out for this publication. As well as providing a strategic framework for shaping an effective, **sustainable, long-term recovery and prospective strengthening** of Europe based on the lessons learnt from the pandemic, they also set out the most promising **innovation policy drivers and initiatives** for achieving this goal.

1. **Innovation** must be **at the forefront** of a sustainable **reboot** of the German and European economies, with a focus on **technological, social and business model innovations** across all sectors.
2. Equal weight should be given to the **environmental, economic and social** dimensions of **sustainability**. Manageable paths to the transformation of business models and the proactive management of social transitions are every bit as important as the systematic pursuit of climate goals. Any potential conflicts of goals must be identified and addressed as soon as possible.
3. The aim should be to create a sustainable, more **resilient social market economy** that is both **internationally competitive** and capable of responding to unexpected shocks in a more flexible, more stable and technologically sovereign manner.
4. The **Green Deal's goals** should remain an integral part of the **design and concrete implementation of the medium- and long-term economic programmes**. Once they have been appropriately adapted, the parts relating to innovation and investment can play a particularly important role in this context.
5. **Hydrogen** and renewables-based **electrification**, the **digital and biological transformations** and the **circular economy** are all promising **drivers** of a sustainable **transformation of industry**. In addition, there is the potential to build on the **strong research base** that already exists in these areas in Germany and Europe.
6. The necessary **private investment** will only come about in a regulatory environment that supports innovation and if policy makers are able to build **confidence** in the predictability of measures that is currently lacking, especially with regard to **carbon pricing**. This investment would give Germany the opportunity to become a leading **global supplier** of sustainable, climate-friendly technology.
7. The example of the **plastics industry** serves to illustrate that sustainability is achieved through the comprehensive **transformation of value networks** rather than through the piecemeal replacement of individual products. Government can facilitate this by supporting pre-competitive collaboration between the relevant actors, for example in **regulatory sandboxes** – an approach that can also provide policy makers with input for **proactive, enabling regulation**.



8. **Transparent and comparable reporting** of sustainability indicators must be developed in order to provide a **robust basis for decisions** taken by businesses, investors, and government regulators.
9. **Germany** must maintain its position as a pioneer in the field of **sustainable finance** but must **avoid going it alone**. Instead, it must promote standardisation throughout Europe and ensure that companies' roadmaps for the transformation towards climate neutrality are taken into account, rather than focusing exclusively on their current status.
10. **Funding for first-class research without restrictions regarding topics** must be maintained even during these times of crisis in order to avoid jeopardising the basis of future innovations. Funding should be complemented by **improved transfer and innovation programmes**, for example under the auspices of the **European Innovation Council (EIC)**. These programmes can be closely coordinated with national funding instruments such as the **Agentur für Sprunginnovationen (Federal Agency for Disruptive Innovation)**.

These **strategic decisions** must be taken sooner rather than later. It will be necessary to **prioritise the key innovation projects**, not least because the crisis has substantially curtailed the financial resources that governments and businesses have at their disposal. The projects should be designed to contribute to the recovery while at the same time driving a successful, sustainability-based **transformation of key industries and sectors** that is socially **acceptable** and proactively manages the social transitions for the affected **workers**.

Accordingly, this IMPULSE publication begins by presenting a series of **proposals for initiatives** that can be used strategically by Germany and the EU to implement the identified transformation drivers. Their deployment can also contribute to increasing resilience of the economy. The initiatives should be implemented through **learning, adaptive strategies** capable of adjusting to dynamic developments in the economy and the relevant technology fields.

The proposals include the ambitious development of **infrastructure** for a **European hydrogen economy**. Germany would benefit from secure, environmentally and climate-friendly **energy imports** and from **systems technology exports**. Meanwhile, southern EU member states could gain opportunities to create value locally, also with the support of German investment. If implemented

rapidly, this proposal would ensure that Europe was well placed to **compete in the global market** for this critical emerging technology while also pursuing an **innovation-led cohesion policy**.

While the pandemic has starkly exposed some of the shortcomings with regard to the **digital transformation**, it has also prompted an increase in the use of digital technology that should be used as a springboard to ensure that these **shortcomings are swiftly addressed**. As well as providing infrastructure for a common **European data space** and quantum computing hardware, the experts interviewed for this publication felt that the principal role of the State should be to set an example by drawing up an ambitious roadmap for the digital transformation of its own structures, particularly **government services** and **schools and universities**.

On top of technological innovations, implementation of a **circular economy** will be heavily dependent on **new business models** and the **transformation of value networks**. In addition to better information and networking of the relevant actors, significant momentum can be generated through the introduction of **digital product passports** and through regulatory incentives based on **life cycle assessments** and the lessons learnt from regulatory sandboxes and living labs.

In conjunction with digital solutions, the **biological transformation** can provide new innovation opportunities in several different industries. The combination of biotechnology and bioinformatics has already revolutionised medical design and production. Initiatives such as **regulatory sandboxes for a materials transformation** could stimulate similar developments in other industries and sectors that are key to a sustainable transformation of the economy. The **agenda "From Biology to Innovation"** should send out a strong policy message in support of this approach.

The example of the **plastics industry** shows that the **transformation of industries** towards a circular economy model cannot be achieved simply through the piecemeal replacement of individual products. Instead, **systemic solutions** are required, coupled with policy measures to **address conflicts** that do not have a technological solution.

One way of going about this in the plastics industry would be to establish a **regulatory sandbox for chemical recycling** that brings together all the relevant actors in the resource cycle. This approach could also provide a knowledge base for



innovation-friendly regulation, for example with regard to the synergistic **combination of new and established recycling processes** to facilitate more widespread use of recycled plastic.

Implementing all of these initiatives and harnessing the drivers of the transformation will call for high levels of public investment and in particular the **mobilisation of private capital**. Consequently, the second focus of this study is on policy approaches to creating **transparent and user-friendly instruments** for evaluating sustainability. Together with **key market signals** such as carbon pricing, the experts identified this as a crucial requirement for generating the necessary investment.

The plethora of different methods currently used both to calculate financial product **ESG ratings** and for corporate **sustainability reporting** has created a **confusing landscape** and a lack of comparability in the markets. Consequently, policymakers should use the development of the EU Taxonomy, Germany's sustainable finance strategy and sustainability-based reporting standards to work towards the establishment of standardised, **comparable key indicators** that can provide a robust **basis for**

**both policymaking and corporate decision-making**. It will be important to ensure that these reporting obligations do not overburden businesses, especially SMEs, and that Germany does not damage the European Single Market by going it alone.

**Securing the European Research Area's existing strengths** over the long term is just one of the reasons why the experts interviewed for this publication recommend close cooperation within Europe. Instruments like **IPCEIs** (e.g. for hydrogen), institutions such as the **European Investment Bank** and European experiences with regional innovation and transformation strategies can also provide a basis for sustainability initiatives with far-reaching appeal. Clear market signals can also be sent through **sustainable public procurement** practices, especially as part of stimulus packages and economic programmes.

Ambitious initiatives and a **convincing sustainability narrative** will be key to raising awareness of the **opportunities for sustainable value creation and sustainable prosperity** among industry, the workforce and the general public, thereby **empowering** them to successfully **undertake the necessary transformations**.



## Methodological principles

The acatech IMPULSE “Innovations for a European Green Deal” is based on a review of the current literature and on a series of interviews with 75 experts from science, industry and government. The interviews were conducted between March and May 2020. The aim was to gain an overview of current opinion about how to pursue sustainability goals. As well as identifying promising approaches to help industry carry out the necessary transformation, we also asked how the public and private capital required for these major projects can be successfully mobilised.

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The project that gave rise to this report is funded by the Federal Ministry of Education and Research (funding code 16PLI7003). Responsibility for the contents of this publication lies with its authors.

SPONSORED BY THE



Federal Ministry  
of Education  
and Research



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**Series editor:**

**acatech – National Academy of Science and Engineering, 2020**

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This Executive Summary is based on: Bruder Müller, M./Hoffmann, R./Kagermann, H./Neugebauer, R./Schuh, G. (Eds.): *Innovations for a European Green Deal* (acatech IMPULSE), Munich 2021. The publication will be available for download at [www.acatech.de](http://www.acatech.de).