

HIGHTECH FORUM

Innovation policy after the coronavirus crisis: Seven guidelines for new* growth

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In Germany, agile government action, social cohesion, and a broad consensus on the need for far-reaching measures have helped to indicate initial routes out of the coronavirus crisis in June 2020. During acute pandemic management, political decision making was based on scientific advice. It should be noted, however, that almost every country in the world was caught unprepared for this crisis. Dependencies on international supply chains, in medical care for example, and structural weaknesses, particularly in digitalization, made crisis management more difficult. Fragmented national responses and border closures damaged confidence in Europe and in international alliances. The fight against the health crisis plunged the global economy into a recession, with massive social consequences.

At the time of publication, it is not possible to rule out setbacks and new waves of the pandemic. Nevertheless, the High-Tech Forum highlights the historic opportunity to trigger a transformation towards new and qualitative growth. To achieve this, the Sustainable Development Goals are more important than ever for Germany and the world. On the one hand, courageous investments in the future, such as those formulated by the Federal Government in the "Economic stimulus and future package", and supportive framework conditions on the other, are the right way to emerge from this crisis stronger for the years to come. The High-Tech Forum reflects on experience gained from the coronavirus crisis and outlines seven innovation policy guidelines for new* growth.

*** The High-Tech Forum sees new growth as a positive development towards social, economic, and environmental sustainability. New growth is qualitative and based on the central values of society. New growth creates added value for present and future generations.**

1 Investing in change.

The crisis has shown how Germany can protect its citizens by investing in research and infrastructures, such as healthcare. However, it has also ruthlessly exposed structural weaknesses and vulnerabilities. Opportunities for modernization and fundamental renewal are obvious. Politics, business, and society should commit to an innovation pact designed to push investments and improve the framework conditions in economically difficult times. In research policy, this means achieving the 3.5 percent goal by 2025 at the latest. In innovation policy, faster implementation of new findings in practice, in particular the development of value-oriented business models for sustainable development, must be promoted jointly. The High-Tech Forum supports the fact that the European Union and the Federal Government have put together economic stimulus packages. However, the burden on future generations must not be overlooked. These packages should therefore consistently promote the development of viable future concepts for industries and services. Courageous investments in sustainable infrastructures (digitalization, mobility, energy and living, research, education, and culture) stimulate the economy and thus promote competitiveness and resilience. They lay the foundations for performance, sustainability, and social participation. In some future fields, such as quantum, bio, nano and hydrogen technologies, Germany is internationally competitive in research. Extensive support for innovation is necessary if progress is to be made here in application and scaling in Europe, and Germany is not to fall behind, as has been the case for digitalization and artificial intelligence. Measures against the sell-out of innovative companies and start-ups from Germany should be continued with a view to systemic relevance and future potential. At the same time, policies should set reliable framework conditions to promote sustainable management. The European perspective must be at the forefront in this. The High-Tech Forum expressly recommends that the Federal Government should use the instrument of the CO2 price effectively and in a socially acceptable manner. The European Green Deal as well as the Federal Government's sustainability and high-tech strategy name further specific fields of action.

2 Revitalizing Europe.

The value of the European Community became clear during the acute phase of the pandemic. Bottlenecks in healthcare systems, in the supply of goods and in the availability of labor and information were the result of insufficient cooperation and solidarity among the 27 member states. In many places, they aggravated the situation and formed rifts. In the High-Tech Forum's opinion, the Federal Government should take advantage of its EU Council Presidency to actively revitalize the European Community. In view of the unprecedented investments, cuts in the new research framework program and in central

funding institutions, such as the European Research Council, are not acceptable. New models for joint financing of social innovations are required to enable citizens to participate more in European projects and at the same time leverage funding. The High-Tech Forum stresses the strong relationship between political sovereignty and technological development. A European digital strategy in line with technological independence and security should be addressed as a priority of a European economic recovery program ("Next Generation EU"). In particular, there is a need to build up the human and organizational capacities for IT and cyber security for practically all necessary infrastructures and to network them throughout Europe. In innovation policy, strategic sovereignty and future scope for action must be secured through joint R&D and infrastructure projects and the development of lead markets for future technologies. With the (re)location of strategically relevant production in Europe, e.g. in the production of medicines, the crisis offers an opportunity for investments in regions that have not yet been able to develop their economic potential.

3 Training for the future.

The coronavirus crisis is rapidly accelerating digital and flexible forms of learning, collaboration, and organization in society. The inequality of opportunities in education and serious gaps in the basic and digital skills of children, young people and adults must be addressed systematically with great ambition. Policies should promote a culture of lifelong learning by providing concrete incentives and modernizing the continuing education market. The High-Tech Forum particularly recommends that education and qualification programs should be consistently digitalized while at the same time creating the infrastructures and networks necessary for this. Digital literacy must be taught as basic education. The learning materials necessary for this, including terminals and devices, should be available at all levels of training. Digital teaching skills must be developed quickly by means of training courses. Innovative solutions and services for and by educational institutions should be encouraged. Consideration should further be given to promoting a European platform for online education. Universities and colleges should offer their study courses digitally to promote talent throughout Europe and decrease the educational divide. Recognized degrees must be made possible within the context of a Europeanization of study programs, irrespective of location ("Digitalization of the Bologna idea"). The High-Tech Forum suggests that the main aim must be to promote personal responsibility in lifelong learning, independence, and resilience. Social innovation is an essential component of this.

4 Strengthening cohesion.

A strong economy, social security systems and the state's financial reserves for aid programs have demonstrated the advantages of the social market economy during the crisis. Nevertheless, social inequalities and injustices became apparent. Women bear the main burden of family work during the crisis. Many system-relevant occupational groups suffer from poor working conditions and low pay. Areas that are essential for public welfare and the development of society, such as childcare, (higher) education, care of the elderly or the cultural and creative industries, are not sufficiently prepared for crises.

After the crisis, we should take the opportunity to rethink the concept of the social market economy based on experience gained during the crisis. Innovations will be needed for modern and more flexible models of working hours, remuneration and management. After the massive state interventions, there is also a need to strengthen individual responsibility, entrepreneurial action, and social initiative again. In addition, recent surveys¹ confirm that a change in thinking started during the crisis. Equal opportunities, quality of life, slowing down, longer-term thinking and sustainability have gained in importance. They should be the cornerstones of a renewed narrative for the social market economy. Alternative indicators of prosperity – in addition to GDP – are central to evaluating and communicating the achievement of societal objectives. The new narrative and the technological and social developments require fundamental modernization and simplification of the tax system, among other things in order to finance the social systems in a future-proof way (e.g. relieving the burden on the labor factor) and to encompass cross-border digital value chains.

¹ Germany-wide surveys on "Experiences and perspectives of young people during the coronavirus measures", available at: <https://nbn-resolving.org/urn:nbn:de:gbv:hil2-opus4-10782> and "Children, parents and their experiences during the coronavirus pandemic", available at: <https://nbn-resolving.org/urn:nbn:de:gbv:hil2-opus4-10817>

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Acting flexibly and pragmatically.

Public administration, science and business have never been more agile in navigating the crisis. The High-Tech Forum calls for the flexibility shown and the underlying pragmatism to be preserved and strengthened after the crisis. Valuable experience has been gained which should be used to reduce bureaucracy and streamline structures. Innovation promotion should make greater use of living laboratories and experimental spaces to test and introduce innovations. Regulations and structures that have proven to be an obstacle or inefficient for achieving the objectives must be put to the test – also in view of the urgent digitalization of public administration. The European General Data Protection Regulation (GDPR), for example, has proven to be burdensome in practice – and thus in part not very effective. In light of the new needs (home office, distance learning, videoconferencing, etc.) arising from the crisis, the GDPR should be reviewed with a view to legal certainty and proportionality.

6

Being better prepared.

In recent years, international security, economic, environmental and health crises have shaken the world in rapid succession. In view of the advancing climate change and political protectionism, further stress tests are emerging – for both Germany and Europe. The more sustainable societies and economies are, the better they will be able to cope with these challenges. Modelling and simulations must be used as important tools to prepare politics, business, and society for future crisis situations, to establish redundancies and tighten security networks. The High-Tech Forum recommends developing more comprehensive models that combine scientific and socio-economic analyses. There should be consistent support for the further development of global warning systems and their application in Europe. Education and training should place greater emphasis on handling insecurities and crises. Resilience strategies need to be developed for Europe as a business location. There is a need to support joint planning and crisis scenarios in order to maintain basic services as well as the necessary infrastructure and supply chains in crisis situations. A critical evaluation must take place with a view to improving crisis communication. In cooperation with new stakeholders, e.g. the creative industries and cultural scene, more target group-oriented formats need to be developed.

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Contributing to solutions globally.

The coronavirus crisis is setting the global community back in several respects. For the first time in 30 years, there will be global deterioration in the areas of health, education, and income. During the crisis, international mobility, particularly in research, trade, and the labor market, was made more difficult, and in tourism it was almost stopped completely. Multilateral political forums such as the G20 did not take on a leading role in crisis management. Confidence in international organizations has been weakened. Their ability to act is at risk. The High-Tech Forum stresses that global networking and understanding is of paramount importance for Germany's innovative capability and competitiveness. As one of the leading exporting and industrial nations, Germany is called upon to drive forward the development of sustainable innovations even under difficult conditions. To this end, international technology partnerships and research networks need to be further developed and strengthened with both strong and weaker partners. In the commitment to the sustainable use and protection of the global commons, international collaboration in science and innovation policy is of the utmost importance. In accordance with its role as a major donor country for the United Nations and as a member of the G7 and G20, Germany should continue to work in Europe and the world for the implementation of international goals and the strengthening of international organizations. Against the background of geopolitical competition, multilateral arrangements and agreements in innovation policy, for example on technology standards, security considerations or research ethics, will gain importance in future.



About these innovation policy guidelines

The content of the present paper was discussed and adopted in the current High-Tech Forum by the members Prof. Dr. Dr. Andreas Barner, Prof. Dr. Antje Boetius, Dr. Martin Brudermüller, Prof. Dr.-Ing. Holger Hanselka, Prof. Dr. Anke Hassel, Prof. Dr. Katharina Hölzle, Prof. Dr. Sabina Jeschke, Dr. Marion Jung, Prof. Dr. Hanna Krasnova, Prof. em. Dr. Wolfgang Lücke, Prof. Dr. Patrizia Nanz, Prof. Dr.-Ing. Reimund Neugebauer, Johannes Oswald, Prof. Dr. Dr. Manfred Prenzel, Frank Riemensperger, Julia Römer, Prof. Dr. Günther Schuh, Prof. Johannes Vogel, Ph.D., Prof. Dr. Birgitta Wolff, and Prof. Dr. Christiane Woopen. The paper is intended to stimulate discussion of the guidelines. The positions presented reflect the content discussed in the High-Tech Forum. They do not necessarily reflect the opinion of the Federal Government. The innovation policy guidelines were prepared by the named members in the High-Tech Forum in spring 2020 and published on 10 June 2020.

About the High-Tech Forum

The High-Tech Forum is the central committee that advises the Federal Government on implementing its High-Tech Strategy 2025. Its task is to provide tangible recommendations for implementing and actioning the Federal Government's research policy. The members of the High-Tech Forum were appointed by the German Federal Ministry of Education and Research in 2019. They are to serve for the duration of the current legislative period. Members serve on an honorary basis and alongside their professional capacity. The co-chairs of the committee are Prof. Dr.-Ing. Reimund Neugebauer, President of the Fraunhofer Society, and Christian Luft, State Secretary at the Federal Ministry of Education and Research. As trustee for the Federal Government, the State Secretary accepts the results of the consultation on behalf of the Federal Government.

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