

THE GERMAN COUNCIL OF SCIENCES AND HUMANITIES (WISSENSCHAFTSRAT) PROVIDES ADVICE TO THE GERMAN FEDERAL GOVERNMENT AND THE STATE (LÄNDER) GOVERNMENTS ON THE STRUCTURE AND DEVELOPMENT OF HIGHER EDUCATION AND RESEARCH.

# Impulses from the COVID-19 crisis for the advancement of the research and higher education system in Germany

The long-term effects of the COVID-19 pandemic on a national, European and global level still cannot be fully estimated, even a full year after the viral infection first broke out. Research activities have in many ways created the basis for countering the pandemic and its worldwide consequences.

In a first approach, the German Council of Sciences and Humanities (Wissenschaftsrat, WR) has identified **ten central challenges** which have become apparent or have been exacerbated during this time. It has subsequently engaged in **initial considerations on how to rise to these challenges (need for action)** | <sup>1</sup>.

**Health research** has been and continues to be affected in a particularly intense way by the pandemic due to the nature of the crisis. Simultaneously, some of the challenges which have been identified as pertaining to the entire research and higher education system are reflected within this field in particular. These challenges can be assigned to four different areas:

- \_ **interplay between the world of politics and the public** (policy consulting and science communication),
- \_ science-immanent effects of acceleration and digitalisation on quality assurance, governance, interaction and the design of the digital space,
- \_ positioning Germany within the **European and international context** as well as
- \_ the future **financing** of the research and higher education system.

This order does not reflect any sort of prioritisation but results from a bundling of the challenges.

<sup>1</sup> The English press release “An impulse from the COVID-19 crisis: strengthening the resilience of the research and higher education system“ is available here: [https://www.wissenschaftsrat.de/download/2021/pm\\_0221\\_engl.pdf](https://www.wissenschaftsrat.de/download/2021/pm_0221_engl.pdf).

The position paper on “Impulses from the COVID-19 crisis for the advancement of the research and higher education system in Germany“ is available for download here (German version only): <https://www.wissenschaftsrat.de/download/2021/8834-21.pdf>.

The individual challenges, and the need for action arising from them, have been identified as follows:

## **I. HEALTH RESEARCH**

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### **Challenge**

The pandemic has pushed two specific health research challenges into the spotlight: improvable and faster translation processes, i.e. transferring scientific research results to patient care and patient care expertise back to research; and insufficient networking and collaboration within and beyond the limits of health research.

### **Need for action**

Powerful health research is the cornerstone of innovative, science-based healthcare and plays a central role in the healthcare system's crisis response capability. To fulfil this role, there is an urgent need for IT networking to be established at the interface between the research and higher education system on the one hand and the healthcare system on the other, including developing standards and rules for exchanging and using research and patient care data.

Furthermore, efforts must be made to intensify networking within health research itself as well as across disciplinary and institutional boundaries. In addition, collaborations with partners from other disciplines as well as from the fields of patient care and industry must be strengthened. To drive forward such networking and translation efforts effectively, funding formats will need to be adjusted.

## **II. CRISIS RESPONSE CAPABILITY IN POLICY CONSULTING**

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### **Challenge**

The research and higher education system is faced with the challenge of shaping structures of science-based consulting together with the world of politics and administration, so that situation-appropriate consulting with experts can be provided to political players both in a responsive – especially in a crisis situation – and anticipatory manner.

### **Need for action**

More plural networks and collaborative forms of partnership should be established between scientific and political players as a basis for responsive and anticipatory political consulting and as a way of strengthening the role of policy consulting in certain

institutions. The question of if and how academies can implement or expand this kind of function must be examined. Collaborating in a scientifically substantiated manner, in line with the respective audience and within a reasonable timeframe, plays a decisive role in sound policy consulting. To achieve beneficial results, the state sector must more readily make data available to scientists.

The sophisticated practice of collaboration between heterogenous teams requires active preparation. Therefore, cross-sectorial participatory formats in research should be strengthened. They should also be prepared and supported with training and education offers as needed.

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### **III. RESPONSIBILITY OF SCIENCE COMMUNICATION IN A CRISIS**

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#### **Challenge**

Scientists as well as scientific institutions are required to convey highly complex knowledge which must, at the same time, be able to hold its ground within an open and pluralistic scientific discourse, while also being revisable in nature. In doing so, they are faced with a public whose reception of scientific knowhow tends to be selective and include a wide range of viewpoints. It is also a public which sometimes meets science – and other “elites” – with scepticism.

#### **Need for action**

Science communication depends on the commitment of the scientists who engage in dialogue about scientific knowledge, who convey the logic of scientific approaches and conditions of scientific knowledge production in a transparent way and who are able to create trust at the same time. To deal professionally with the varied media and communication landscape as well as with the heterogeneity of the audience and its selective receptiveness, support structures in scientific institutions are needed. Furthermore, it is in the research and higher education system’s own interest to participate in the search for solutions which improve the situation of science journalists.

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### **IV. ACCELERATED QUALITY ASSURANCE PROCESSES**

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#### **Challenge**

Due to the COVID-19 pandemic, research and transfer processes were sometimes accelerated to an extreme degree and the implications of great differences in quality became apparent. The system is thus faced with the challenge of reliably ensuring a high

quality of scientific research and transfer, even under conditions of accelerated knowledge production.

**Need for action**

Quality assurance processes form the basis of freedom for science and research. They guarantee scientific progress and resource efficiency while creating trust in the research and higher education system. Scientific communities and organisations must be called upon to develop and implement viable strategies for a high standard of quality assurance even when circumstances require accelerated processes. The WR therefore recommends the systematic application of insights from meta-analyses in order to improve quality assurance processes on various levels.

**V. LEADING AND MANAGING UNDER DYNAMIC AND INSECURE CONDITIONS**

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**Challenge**

Universities and research institutions have proved themselves to be organisations with effective decision-making abilities even under immense time pressure and in a situation of uncertainty. In this context, they have shifted many work processes into the digital space. They are now faced with the challenge of having to respond quickly to exogenous events within a dynamic and uncertain environment as well as having to develop proactively and for the long term. In doing so, they must take into account comprehensive digitalisation processes and seize the opportunities for the future.

**Need for action**

There is an urgent need for legislators to create the legal foundations for the legally compliant use of digital formats for various academic functions. Universities and research institutions should ensure that their leadership and management possess the necessary organisational agility to act both responsively in a crisis situation and proactively under normal circumstances. At the same time, the strategic development of the respective institution should be continued in a consistent manner so that necessary decisions about investments and prioritisation can be made on a sound basis once the crisis is over, and in response to the deficits it has brought to light.

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**VI. NEW BALANCE OF IN-PERSON AND VIRTUAL INTERACTION**

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**Challenge**

The COVID-19 crisis has helped to reduce reluctance to engage in various forms of virtual interaction while also highlighting its limitations. The challenge is to leverage and expand the potential of the changed interaction formats in the research and higher education system which became visible during the crisis – by actively shaping and using this digital space.

**Need for action**

In the future, formats for a science-promoting interplay of in-person and virtual interaction should be expanded and applied more broadly. The goal is to integrate a more diverse range of perspectives, enable participation while, at the same time, driving a more sustainable way of working. For scientists, especially in the early stages of their career – and depending on their discipline and how severely affected they are by the crisis – it is paramount for medium and long-term measures to be developed. This helps to compensate for the impeded access to research subjects during the pandemic, also with a view to later evaluation procedures. Doing this requires systematic observation (e.g. about studies, surveys and the respective accompanying research). At the same time, the risks and opportunities of in-person and virtual interaction should be recorded and reflected on. Relevant initiatives should be started immediately so that experiences from the early phase of the pandemic can still be taken into account.

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**VII. SOVEREIGNTY AND SECURITY IN THE DIGITAL SPACE**

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**Challenge**

The COVID-19 crisis has accelerated the digitalisation of all areas of life immensely. And it has frequently demonstrated the limitations of our basic infrastructure. Simultaneously, the vulnerability of the research and higher education system to external attacks has grown and its dependence on private sector players from non-European countries – who function as de facto regulators – has increased. The push for digitalisation and increased openness to accompanying developments now make it an even greater requirement that we shape all the various facets of the digital space.

**Need for action**

Technical, organisational and staff-related measures are required across all universities and research institutions in order to increase and ensure their sovereignty and security

in the digital space. It is the task of policy-makers to provide the basic digital infrastructure both as a public service task and as a way of setting incentives for the development, use and implementation of a science-specific digital infrastructure. To this end, and wherever possible, synergy potentials based on supra-regional structures should be exploited. Stakeholders in the research and higher education system depend particularly on sophisticated digital services and should see themselves as pioneers in the sovereign shaping of the digital space and the development of its potential.

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#### **VIII. NETWORKING AND THE ABILITY TO ACT WITHIN THE EUROPEAN SCIENTIFIC AREA**

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##### **Challenge**

The European Union is subject to strong political centrifugal forces, as has been clearly demonstrated in the pandemic. In addition, the degree to which member states are affected socially and economically by the crisis varies greatly. For member states to be able to meet the major social challenges and current geopolitical situation, they must strengthen their joint ability to act and position themselves as a science area of global appeal.

##### **Need for action**

Germany should – not least in its own interest – set strong impulses for strategy development on a European level and consistently support initiatives aimed at technological sovereignty, primarily in the digital space, while also intensifying collaboration in the area of European science. The centrifugal forces which can be observed in Europe, along with shifts in global geopolitical power, require swift action if Europe is to be strengthened as a leading science and innovation region.

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#### **IX. NEW STRATEGIES OF INTERNATIONALISATION**

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##### **Challenge**

The pandemic has drastically restricted international exchange and transnational mobility in terms of research and university studies wherever a physical presence was required. The medium-term consequences of these limitations cannot yet be estimated. In a context where mobility opportunities and the international political order are undergoing quick and unpredictable shifts, the challenge facing the research and higher education system now lies in stepping up its internationalisation efforts and developing new internationalisation strategies.

**Need for action**

Above and beyond the measures established to date, the research and higher education system requires additional instruments for cushioning the loss of international mobility and networking activities, primarily for scientists in the early stages of their career. This is also necessary for refining international collaborations to create a new balance between in-person and virtual exchange. All of this should be embedded in an advanced internationalisation strategy for which science and the political world must come together to develop joint framework conditions. Objectives and participants as well as the extent and conditions of international mobility and collaboration must all be closely reassessed against this backdrop.

**X. RELIABLE INVESTMENTS IN THE FUTURE**

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**Challenge**

The resource requirements of the research and higher education system must be reliably covered in a situation where society as a whole requires massively increased spending to cushion the immediate effects of the pandemic. Tax revenues are expected to fall due to an economic slump and investments in the research and higher education system are having to compete with spending in other areas of society.

**Need for action**

The German federal and state governments should ensure solid basic funding for research institutions and the state governments for the universities. In addition, a closer examination must be given to the way that short-term funds for necessary investments in digital infrastructure and security architecture can be made available – if possible jointly and across Germany. At the level of individual institutions, it is of strategic importance that they diversify their own funding portfolio, tap into new sources of funding and invest in their digital infrastructure and security architecture quickly – potentially through fund reallocation as well.