

## A 6 Area for action: digital change

Digital change is an extremely rapid process. Its key technologies and business models are not among the core strengths of the German (R&I) system. For Germany in particular, digital change represents a radical innovation that calls into question competitive and specialisation advantages attained over many years.

Up to now, German R&I policy has paid too little attention to the technical and economic dynamics underlying this transformation. This is also reflected in a lack of funding for the promotion of R&D in information and communication technologies. In the next few years, Germany must develop new technical and economic strengths. This will require consistent and prompt policy measures, and these should be implemented right at the beginning of the new legislative period.

### Build a future-proof infrastructure

The existing measures for developing the digital infrastructure have not been designed sustainably. Germany needs an ambitious expansion of its infrastructure that is not geared towards average OECD figures, but aims to lead the way in terms of performance and upgradability. The expansion targets must be adapted dynamically to the respective technical standards.

### Give SMEs support with digital change

There is currently a risk of a ‘digital divide’ in the corporate sector. Not all SMEs seem to be fully aware of the importance of the imminent changes. Furthermore, a lack of financing makes it difficult for companies to tackle the necessary changes systematically. For this reason, SMEs in particular should be the main target of measures aimed at explaining digital technologies and business models and facilitating

their implementation. The Commission of Experts calls for the creation of an ‘SME Digital’ programme, in which – as in the case of the Central Innovation Programme for the Mittelstand (ZIM) for R&D support – SMEs are eligible for state support in the planning and implementation of digitisation projects.

### Expand digital education

The population in Germany has less experience than people in other countries in dealing with digital technologies and data. In this context, emphasis should be placed on a broad-based promotion of skills in the use of digital technologies and models – in all training and further-education segments.

In Germany, the PISA studies have supplied transparent information on the level of education of German school students and revealed deficits. A corresponding data pool is also needed in the field of digital education. Länder governments should not – as in the case of the PISA studies – be able to block comparative surveys or their analyses.

Digital education in particular should be strengthened in all elementary and secondary schools in Germany. The education offensive for the digital knowledge-based society proposed by the BMBF is a step in the right direction. The concept must be backed up by budgets and specific, ambitious time schedules.

Students in tertiary institutions should be offered instruction in computer science – whatever they are studying. Computer science should be understood as a new key discipline and incorporated more into the curricula of other training courses. The new possibilities offered by Article 91b of the Basic Law should be used in a joint effort on the part of the Federal and Länder governments to implement appropriate best-practice approaches in tertiary education institutions.

### Introduce targeted research funding for start-ups

Start-ups contribute in a special way to managing digital change. Up to now, the concerns of start-ups have not been sufficiently taken into account in R&D funding. The Commission of Experts proposes extending the EXIST programme by adding a further research component. This should be based on the established EXIST start-up grants and give those supported an opportunity to finance staff that might be required for short-term research needs that crop up in the course of building their company. In the funding programmes of the BMBF, the BMWi and other ministries, greater efforts should also be made to extend support to young companies that are already established on the market.

### Use e-government and open data as innovation drivers

Germany still has a lot of catching up to do when it comes to digital governmental and administrative processes – so-called e-government. This is reflected in a limited and not-very-user-friendly range of digitized public services. Furthermore, data in the public sector are not yet automatically made available as open government data via well-structured access systems. The Commission of Experts welcomes the fact that important legislative framework conditions have been created in the last few months for the establishment and operation of efficient central portals for e-government and public data stocks. In the new legislative period, the Federal Government should make active use of its extended regulatory powers to significantly improve the quality of services provided for the citizens by the authorities and to open up significant value-added potential.

### Create a future-oriented legal framework for the digital economy

Internet and internet-based technologies require new or adapted legal frameworks, e.g. in the fields of copyright, data protection and consumer protection. The legal framework should, wherever possible, be adopted at the European level in order to strengthen the internal market. In this context, legislation must not be geared towards building protective fences around established sectors of the economy.<sup>11</sup> Rather, the framework must be designed in such a way that new models of the digital economy can be introduced

rationally and quickly in Germany and Europe.<sup>12</sup> In the long term, grandfathering and perks for established business models – e.g. the introduction of new intellectual property rights – jeopardise Europe's competitiveness as a centre of the digital economy.

### Provide more effective governance for digital policies

Up to now, the activities of the government departments in charge of the Digital Agenda have been fragmented and in some cases contradictory; the Commission of Experts advocates a greater concentration of these activities. Above all, the next legislative period must see the rapid implementation of further measures to strengthen the digital infrastructure, research and innovation (especially among SMEs). Possible solutions could be an innovation agency, which has already been discussed in the Bundestag, a coordination office at the Federal Chancellery, or the creation of a digital ministry with far-reaching responsibility for the infrastructure, innovation funding, e-government, and public-sector digital procurement. The Commission of Experts believes that a political decision needs to be made in favour of an effective pooling of competencies – without again creating a high level of complexity.