Promoting digitization

Session 3: The crisis as a catalyst for structural change

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Innovation in the ICT sector

- German innovation **not specialised** in ICT
- Low share of R&D spending in ICT

**Share of total R&D expenditure (2017)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Automotive industry</th>
<th>ICT</th>
</tr>
</thead>
<tbody>
<tr>
<td>KR</td>
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<td>US</td>
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<td>CN</td>
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<td>EU-28</td>
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<td>5</td>
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<tr>
<td>DE</td>
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</tr>
</tbody>
</table>

Sources: European Commission, own calculations

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Declining share of patents in the AI sector

Inventor countries for patents relating to AI

**Top 5 inventor countries**

Share of AI-related patents (%)

**Other inventor countries**

Share of AI-related patents (%)

Sources: OECD, own calculations
Patent figures in 4th Industrial Revolution high in absolute terms, but low in percentage terms

4IR-Patents

- USA and EU hold 30%
- Germany holds 12%

But

- Germany's technological specialization not in key digital technologies

Revealed technological advantage in technologies of the 4th Industrial Revolution

Sources: European Patent Office, own calculations

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Low diffusion of digital technologies in private sector, in particular in SMEs

Low use of digital key technologies in German firms

Small and medium-sized enterprises (SME) lag behind in use of ICT
...and in public sector

Compared to other European countries

- Low digitization of healthcare,
- Of public administration
- And low digital equipment at schools

Source: European Commission
Digitization boost from Corona crisis...

Digitalisation helps to cushion negative impact of the crisis

- Home-office allows to continue operations
- Substantial increase in online sales

Deficits in digitalisation in particular

- At SMEs
- In public administration
- In the health sector
- In education

Sources: Dingel und Neiman (2020), European Labour Force Survey (EU-LFS), own calculations
... can lead to lasting structural changes

Retail sales in year-on-year (yoy) comparison

- Online trade
- Cashless payment systems
- Virtual formats
- E-Health

![Graph showing retail sales comparison]

Sources: Federal Statistical Office, own calculations

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Improving the framework for digitization

- Improve broadband infrastructure
- Digitization of public services to stimulate demand
- Improve digital skills
- Strengthen incentives for digitalisation at SMEs
- Strengthen the digital single market
- Further develop competition rules for the data economy

Considerable lag in FTTP infrastructure in the EU

Coverage in % of households

Source: European Commission

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