
Promoting digitization

Session 3: The crisis as a catalyst for structural change

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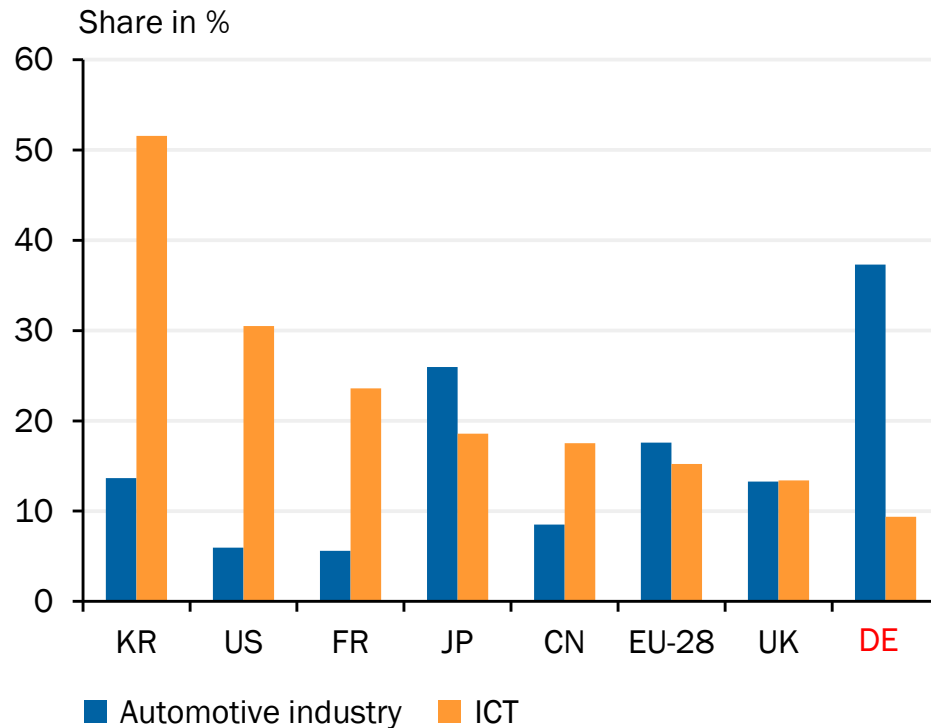
LMU Munich and Council of Economic Experts

SUERF- E-Workshop in Cooperation with KfW

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Innovation in the ICT sector

Share of total R&D expenditure (2017)



Sources: European Commission, own calculations

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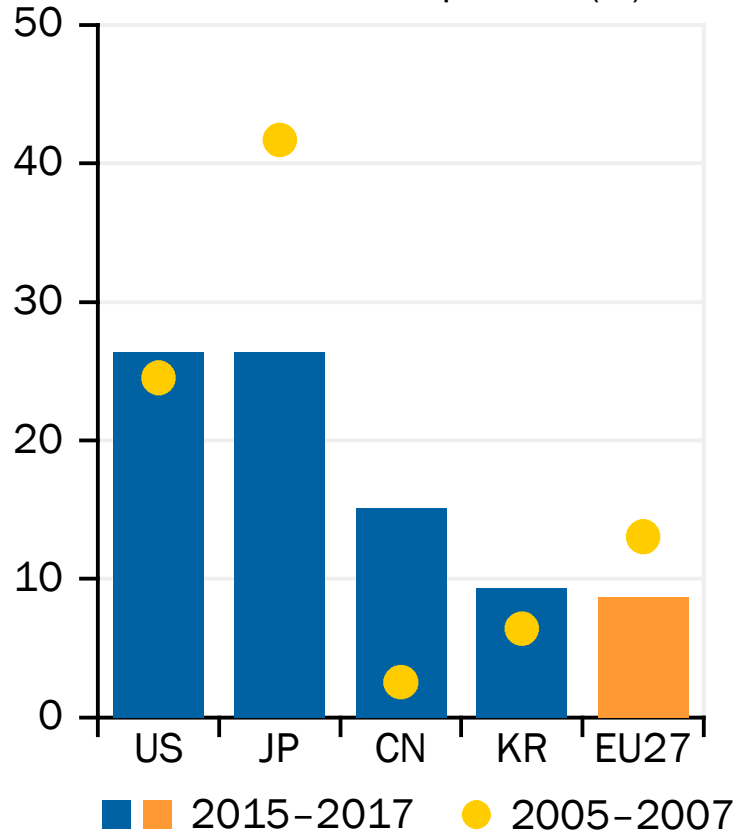
- German innovation **not specialised** in ICT
- Low share of R&D spending in ICT

Declining share of patents in the AI sector

Inventor countries for patents relating to AI

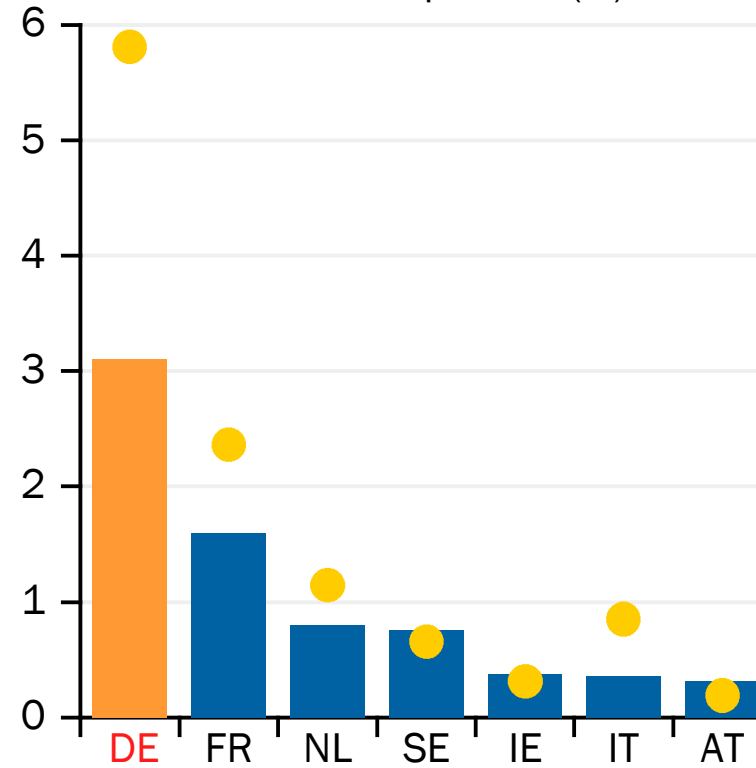
Top 5 inventor countries

Share of AI-related patents (%)



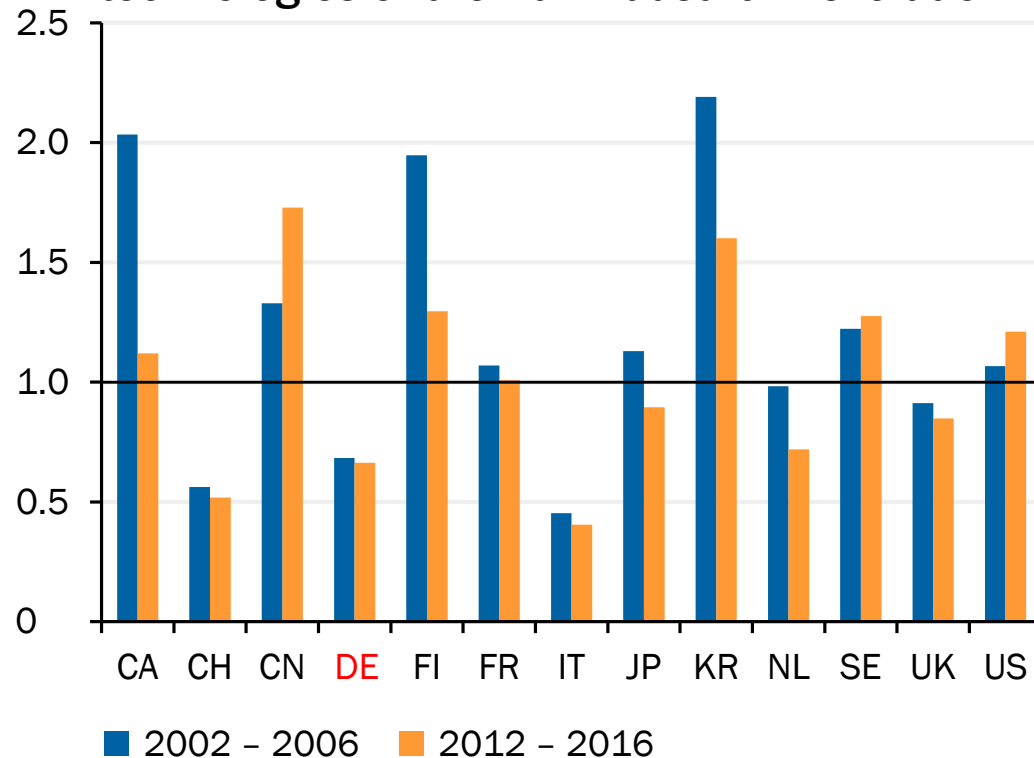
Other inventor countries

Share of AI-related patents (%)



Patent figures in 4th Industrial Revolution high in absolute terms, but low in percentage terms

Revealed technological advantage in technologies of the 4th Industrial Revolution



Sources: European Patent Office, own calculations

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4IR-Patents

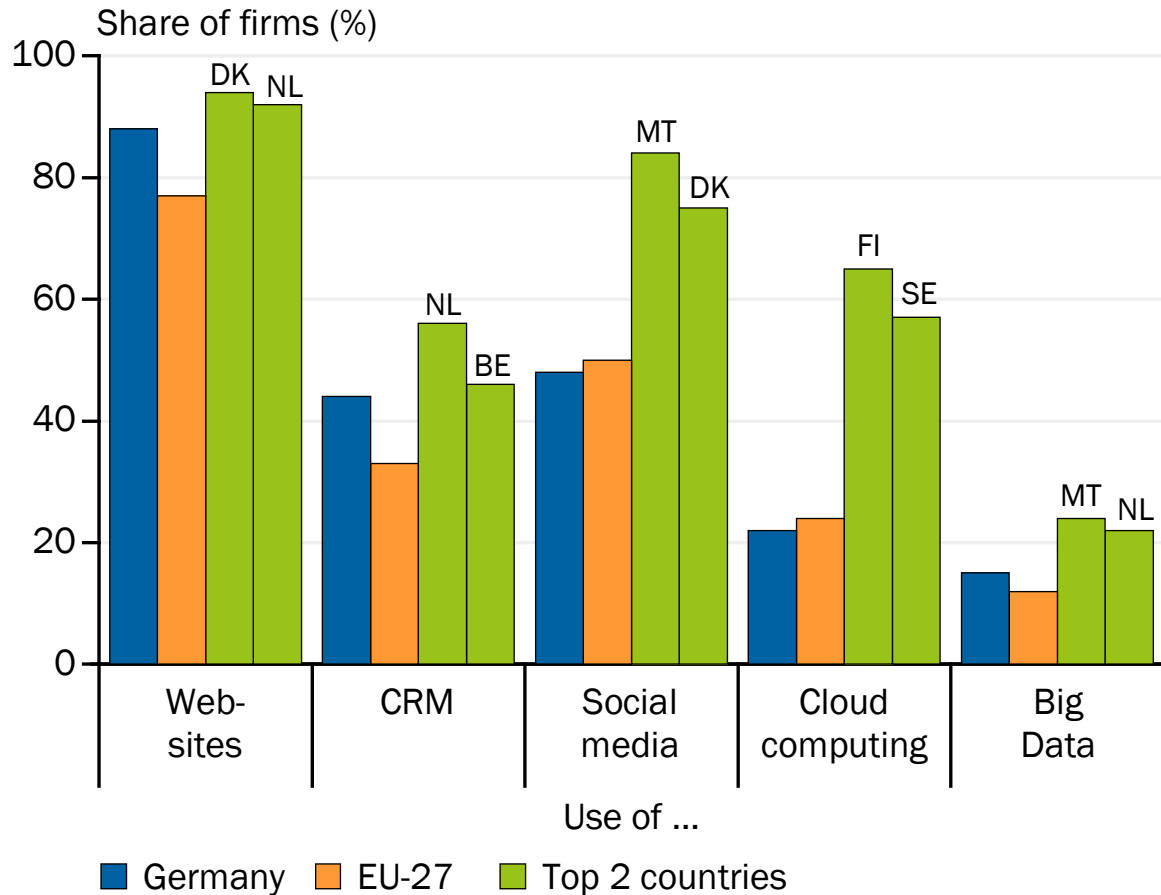
- USA and EU hold 30%
- Germany holds 12%

But

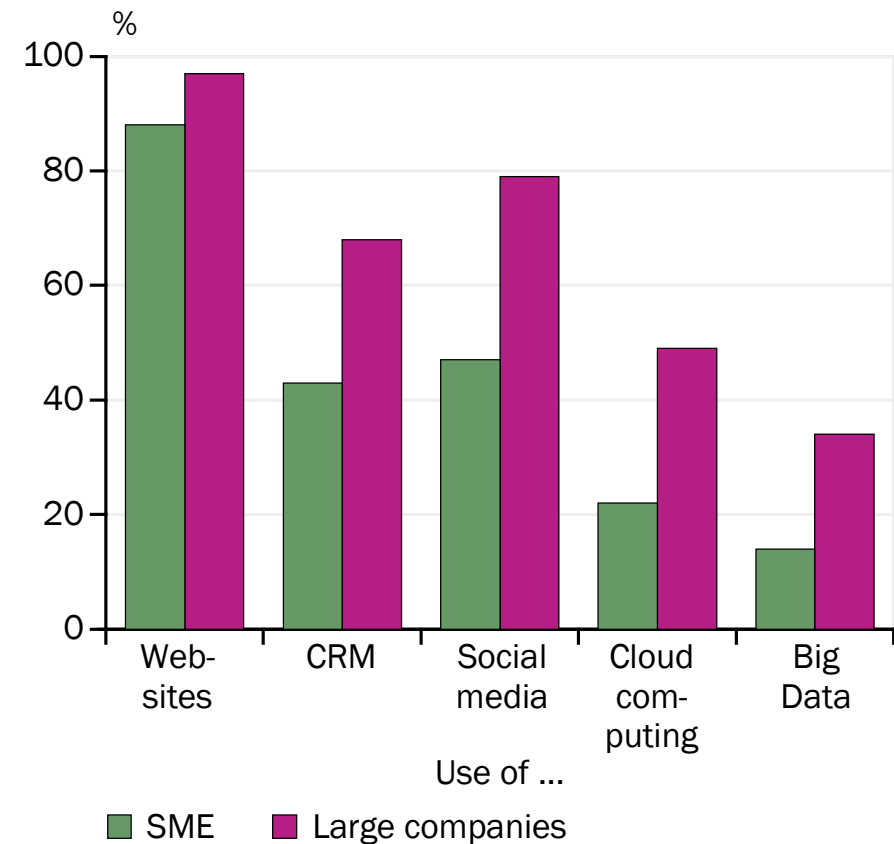
- **Germany's technological specialization** not in key digital technologies

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



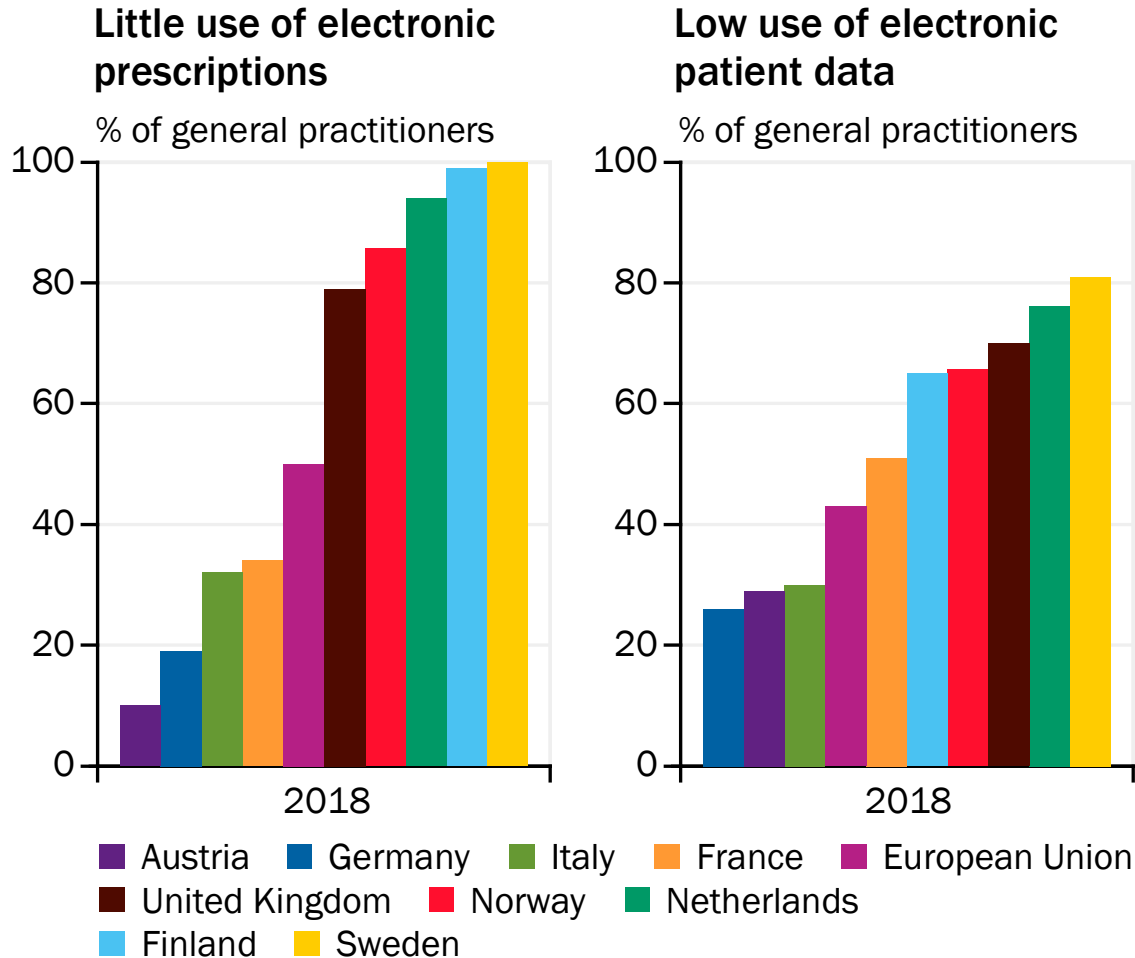
Source: Eurostat

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...and in public sector



Compared to other European countries

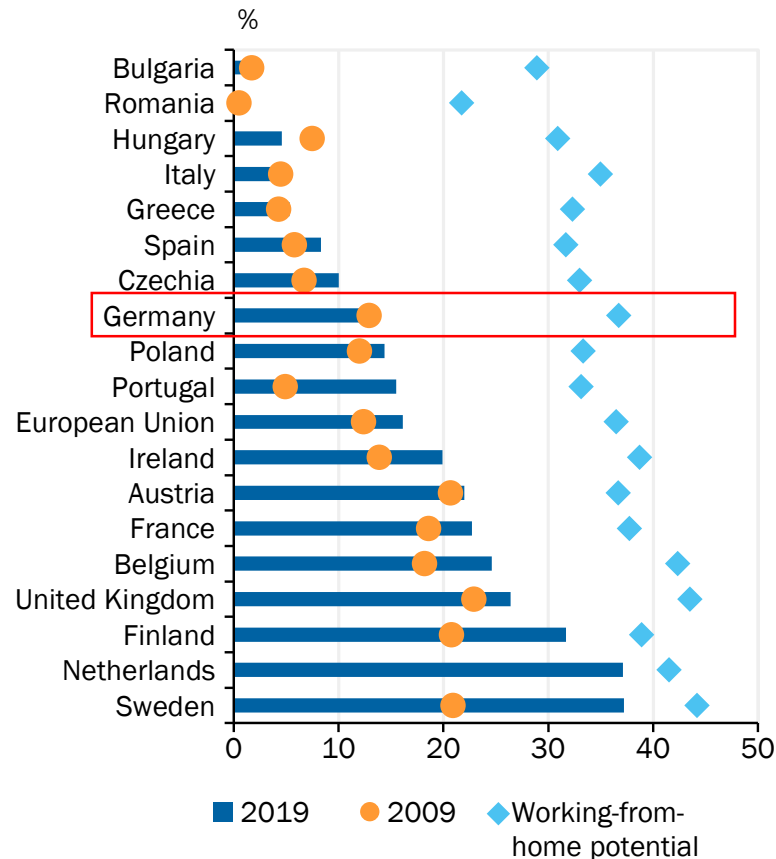
- Low digitization of **healthcare**,
- Of **public administration**
- And low digital equipment **at schools**

Source: European Commission

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Digitization boost from Corona crisis...

Share of employees working from home



Digitalisation helps to

cushion negative impact of the crisis

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

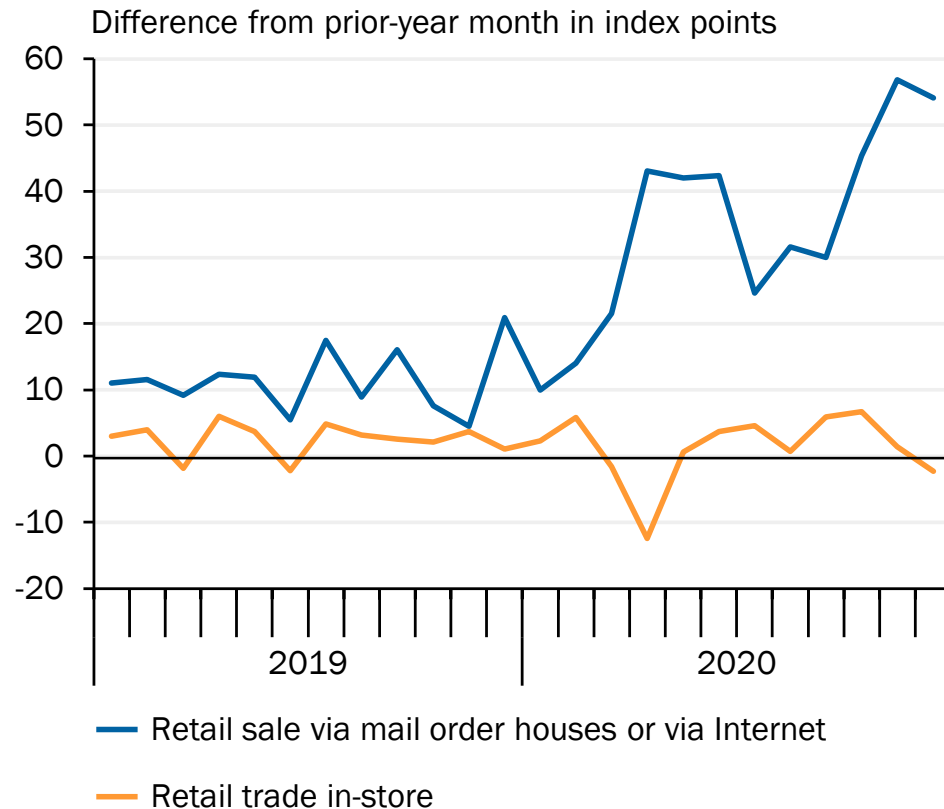
Deficits in digitalisation in particular

- 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



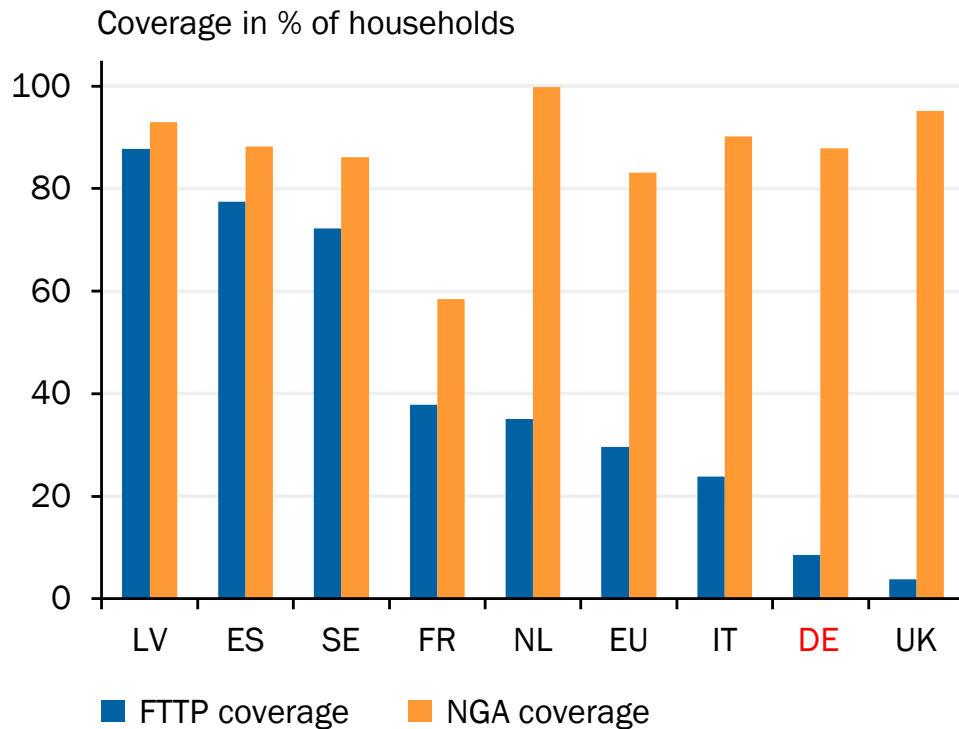
Sources: Federal Statistical Office, own calculations

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

Improving the framework for digitization

Considerable lag in FTTP infrastructure in the EU



Source: European Commission

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- 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**