Teleworkability and the COVID-19 Crisis: A New Digital Divide?

Cedefop conference: Getting the Future right

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COVID-19 accelerated corporate digitisation (especially telework)

What drove digital transformation in your company?

LinkedIn Poll, 375 participants

- Covid-19: 88%
- The CEO: 6%
- The CTO: 6%

Source: LinkedIn, 05.02.2021 - 12.02.2021
Telework in the EU: past, present, and future

• **Questions:**
  - How many people teleworked in the EU before the COVID-19 pandemic hit?
  - How many jobs are *potentially teleworkable*?
  - What does increasing telework imply for inequality (income, gender, education)?

• **Working definition:** *telework* as the remote provision of labour that would otherwise be carried out within the employer’s premises.

• **Methodology:** classify occupations based on their tasks profiles and identify technically non-teleworkable ones (with physical interaction).

• **Findings:** We estimate that 37% of dependent employment in EU-27 could *potentially* telework, compare to <15% *actually* teleworked in 2019.
Data and methodology

Classifying occupations as (non-)teleworkable:

- **Technical teleworkability**: jobs are not teleworkable if they require *physical interaction* with tools or people.
  - **Social interaction** (e.g., coordinating, attending, teaching) *complicates* telework, but does not *prevent* it.

- Data on *tasks* of occupations:
  - ICP/O*NET: occupational survey (Italy, 2012)
  - European Working Conditions Survey (2015)

- Project occupation-level indices to EU-27 occupational structure (EU LFS 2019): compute employment numbers and demographics.

### Technical teleworkability and social interaction indices for selected occupations

<table>
<thead>
<tr>
<th>ISCO</th>
<th>Occupation</th>
<th>Technical teleworkability</th>
<th>Social interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>133</td>
<td>ICT service managers</td>
<td>1.00</td>
<td>0.57</td>
</tr>
<tr>
<td>221</td>
<td>Medical doctors</td>
<td>0.39</td>
<td>0.79</td>
</tr>
<tr>
<td>233</td>
<td>Secondary edu. teachers</td>
<td>1.00</td>
<td>0.77</td>
</tr>
<tr>
<td>412</td>
<td>Secretaries</td>
<td>1.00</td>
<td>0.44</td>
</tr>
<tr>
<td>512</td>
<td>Cooks</td>
<td>0.00</td>
<td>0.48</td>
</tr>
<tr>
<td>723</td>
<td>Machinery mechanics</td>
<td>0.00</td>
<td>0.33</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification</th>
<th>Number of ISCO 3-digit occupations</th>
<th>% of EU-27 employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-teleworkable</td>
<td>83</td>
<td>65</td>
</tr>
<tr>
<td>Teleworkable, extensive social interaction</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>Teleworkable, limited social interaction</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>
During lockdown: all those who could telework did so

**Technical teleworkability vs actual telework before and during pandemic across countries (% of employees)**

Many more occupations could telework!

Technical teleworkability vs previous teleworking among employees in EU-27, by broad occupation group

<table>
<thead>
<tr>
<th>Occupation Group</th>
<th>Technically teleworkable</th>
<th>Reported teleworking before COVID-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managers</td>
<td>80%</td>
<td>70%</td>
</tr>
<tr>
<td>Professionals</td>
<td>70%</td>
<td>60%</td>
</tr>
<tr>
<td>Technicians and associate professionals</td>
<td>60%</td>
<td>50%</td>
</tr>
<tr>
<td>Clerical support workers</td>
<td>50%</td>
<td>40%</td>
</tr>
<tr>
<td>Service and sales workers</td>
<td>40%</td>
<td>30%</td>
</tr>
<tr>
<td>Skilled agricultural, forestry and fishery workers</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>Craft and related trade workers</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Plant and machine operators and assemblers</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>Elementary occupations</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Teleworkability also reflects existing inequality

Teleworkable occupation tend to be:
- Higher-paid
- Higher education
- Higher share of women
- Permanent, full-time
- More urban

Before 2020, all self-employed who could telework did so, but employees did not
Is this a matter of digital skills?

Spoiler: not really
Digital skills in online job advertisements

- Try to identify **prevalence of digital skills** in occupations, from online job advertisements (OJA), Burning Glass NOVA UK data (2012-2020)

- Consider three categories:
  - **Computer Literacy**: as it appears in the BGT data. Most likely the result of re-naming or standardisation by BGT, but likely not written verbatim in the original ad.
  - **Office suite**: our re-classification, including office software like Microsoft Office and its apps, iWorks, OpenOffice, etc.
  - **Specialised software**: all other software skills.

- BGT indexes **software** skills especially well: over 1,200 keywords
Digital skills in online job advertisements (UK)

Prevalence of digital skills across occupations
Share of job ads requiring different digital skills, by occupation major group (SOC-1) in 2019

- Managers, Directors & Senior Officials
- Professional occ.
- Associate Professional & Technical occ.
- Administrative & Secretarial occ.
- Skilled Trades occ.
- Caring, Leisure & Other Service occ.
- Sales & Customer Service occ.
- Process, Plant & Machine Operatives
- Elementary occ.

Type of digital skill
- "Computer Literacy" (sic)
- Office Suite
- Specialised software

Source: own elaboration from Burning Glass Nova UK data
Digital skills in online job advertisements (UK)

Trends in digital skills by occupation

Trends in share of ads mentioning different digital skills, by occupation major group (SOC-1)

Source: own elaboration from Burning Glass Nova UK data
Telework, digitisation, digital skills

- OJA data suggest that basic digital skills are either not very important or can be safely assumed by employers in many occupations.

- Skill requirements in OJA add information “at the margin”: identifying digital skills works better for specialised skills, rather than basic ones.

- OJA represent “aspirational” skill requirements by employers…

- Upshot: digitisation (including telework) is more about organisations’ processes, than individual’s digital skills

- Changes in organisation routines to enable digitisation:
  - Work organisation
  - Effective communication
  - Management, supervision, teaching
Implications for telework post-COVID

- Telework pre-COVID seemed driven as much by *work organization* (autonomy, latitude, coordination, status) as by *technical feasibility* and *technology*.

- Previous labour market trends towards (high-skilled) service occupations and ICT use point to increase availability of telework.
  - Pros and cons for working conditions, and work-life balance
  - May encourage routinisation and offshoring of some tasks

- Telework is not feasible for many low- and mid-skilled occupations:
  → a new divide between “teleworkers” and “essentials”?

- Increase telework may change geography of employment.
References

• Science for policy brief: “Who can telework today? The teleworkability of occupations in the EU”
• JRC Working paper series on labour, education and technology