Digitalisation of Work - Visions vs. Empirical Evidence

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NTA-Workshop: Technology and Work from a TA perspective

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1. Background: TAB project “Opportunities and threats of mobile and digital communication in the workplace”

2. Digitalisation of work: Trends
   I. Digital rationalisation
   II. Boundaryless digital work
   III. Crowd work

3. Preliminary insights from the field
   I. The labour market
   II. Production & service work

4. Conclusions
1. Background: TAB project

- “Opportunities and threats of mobile and digital communication in the workplace” (Project duration: 2015-2016, running)

- “Digitalisation of work” on the political agenda
  - Parties
  - Bundestag committees
  - Ministries

- Novelty: Advisory board (7 experts)
  - Scientific experts
  - Trade associations
  - Labour unions
  - Foundations

- 4 expert reports
  - Evaluation of the EWCS for Germany
  - 2 Sector surveys
  - Legal expertise
2. Digitalisation of work: Digital rationalisation
2. Digitalisation of work: Digital rationalisation

> Trend 1: Digital rationalisation
  - Cognitive Automation (Kurz/Rieger 2013) & 2nd Machine Age (Brynjolfsson/McAfee 2014, also Frey/Osborne 2013)
  - Thinking & analyzing in work processes are covered by software (not only routine work!)

> Fields
  - services, finance, management, law; transportation & logistics; production, …

> Technologies
  - self-driving cars, automatic speech recognition, automated text generation, translation, robotics , 3D printing

> Massive job losses?
2. Digitalisation of work: Boundaryless digital work

**Figure 56**: E-nomads, by sector and occupation, EU27 (%)

Quelle:
Eurofound (2012): Fifth European Working Conditions Survey, Luxembourg
Trend 2: Boundaryless digital work

- Temporal dimension: work outside of working hours (in one’s free time, on weekends or holidays)
- Spatial dimension: work at different places (at the client, in the hotel, at home, during travels,…) → equalization or extra work?
- New qualities of boundaryless work due to smart technologies → constant availability
  - New forms of boundaryless work → social media; ByoD
  - Attempts to limit it technically

- Reinforcement of blurring of boundaries?
2. Digitalisation of work: Crowd work

Mechanical Turk is a marketplace for work.
We give businesses and developers access to an on-demand, scalable workforce.
Workers select from thousands of tasks and work whenever it’s convenient.
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Whether you need one writer or an entire team of programmers, we help you find the right experts to fuel your success. Our platform lets you work effortlessly with freelancers anywhere. Say goodbye to business as usual.

Our mission
To create economic and social value on a global scale by providing a trusted online workplace to connect, collaborate, and succeed.

Our vision
To connect businesses with great talent faster than ever before.
2. Digitalisation of work: Crowd work

Trend 3: Crowd work

> Definition & Principle:
  - Outsourcing of value added work activities to the internet (Blohm et al. 2014)
  - Work packages are broken down into small units and offered on web-based platforms → Taylorism

> Different models
  - **External**
    1) Cognitive piecework: e.g. Amazon Mechanical Turk (about 1-2€/h)
    2) Contest-based (e.g. product design): e.g. Jovoto or 99designs (up to 100.000€)
    3) Platforms for job placement (low-skilled – high skilled)
  - **Internal**
    IBM Liquid: global distribution of work at IBM Crowd and freelancers → “strategic option recasting production structures” (Boes 2014: 13)

> Many open questions, e.g.
  - Spreading
  - Organisation principles
  - Regulation

→ Levering out labour standards?
3. Insights from the labour market

*Digital work as privilege*

- **Digital work**
  - Classic computer & internet use represents the most important form of digitalisation

- **Distribution**
  - Sectors
    - Information & communication, finance and insurances, self-employed, scientific and technical services
  - Qualification
    - High qualification → high share of “digital work”
    - Low qualification → high share of “analogue work”

- **Working conditions**
  - High quality of digital (mobile) work
    - good position in the labour market (income, career development)
    - high work autonomy
    - innovative work environment (“learning organization”)
  - However
    - long working hours (longer than collectively agreed, work despite illness)
    - no negative influence on high work satisfaction of digital workers → high degrees of freedom
    - stressful work situations also in “traditional” forms of work

*TAB-Study:* Quantitative analysis for Germany based on the European Working Conditions Survey (European Foundation for the Improvement of Living and Working Conditions, 2010) by Stefan Kirchner, TU Hamburg
3. Insights from production work

*Digital work as “business as usual”*

> **Already high degrees of “digitalisation”**
>  - “Classical” ICT-use (computer, e-mail, ERP-systems) & “passive ICT-use” (all types of applications)
>  - High degrees of technical and organisational changes (automation)
>  - “Digital work” largely integrated, however for general developments (e.g. high work load) no direct relation to “digitalisation” as such possible

> **Effects on employment**
>  - Characterized by few large companies and SMEs
>  - “Classical employment” seems “still largely normality”, but high levels of temporary employment
>  - Little fear of job loss (also: High relevance of industrial relations)

> **Working time, WLB, health**
>  - High work satisfaction, high collegiality
>  - Work within usual time limits, high proportion of shift work (about 25%), rarely weekend work
>  - Growing intensity of work

> **Qualification**
>  - Digitalization seems to be well managed by workers
>  - High relevance of dual vocational training
>  - Further education is embedded, little interest in ICT-related training; training “on the job” perceived as sufficient

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**TAB-Study:** Quantitative analysis for automobile production based on BIBB/BAuA/ DGB-Index/IGM-Beschäftigtenbefragung data sets by Sabine Pfeiffer & team, Hohenheim
3. Insights from service work

**Digital work as ongoing flexibilisation**

- **Already high degrees of “digitalisation”**
  - Many products/process are already “completely digital”
  - High spread of ICT applications (cloud processes and services; differences along company size)
  - Crowd work no predominant model of work: neither in ICT or design

- **Effects on employment**
  - ICT- and design characterised by freelancer, SMEs, few larger companies
  - Ongoing trend of high flexibilisation (self-employment)

- **Working time, WLB, health**
  - Flexible working hours
  - Regular weekend work (31%)
  - Blurring of boundaries (work and private life)

- **Qualification**
  - Already now: high level of digital “qualification”
  - Advanced digital skills
  - further education in IT → high interest, high self-responsibility

*TAB-Study: Quantitative analysis for ICT services/ creative occupations based on BIBB/BAuA/DGB-Index/IGM-Beschäftigtenbefragung data sets by Sabine Pfeiffer & team, Hohenheim; IFOK, Berlin.*
4. Conclusions

> Trend 1: Digital rationalisation
  – Until now, no employment effects of recent “digitalisation“
  – However, future trends like “Industry 4.0” and “Crowd work”

> Trend 2: Boundaryless digital work
  – Intensification of work
  – Embedded in long lasting trends and debates: No direct conclusion from digitalisation, rather organisational and social embedding!

> Trend 3: Crowd work
  – New forms of global digital distribution of work → fragmentation
  – Diffusion in many fields → “platform economy models” as new guiding model
  – High expectations: autonomy versus precarious work

*Digital work is much more embedded in developments of the labour market than assumed by current trends*
4. Conclusions

> Need for further research
  - “Digital work” is currently only defined as “internet and computer” use at the workplace → many effects cannot be detected by current data
  - Qualitative research, e.g.
    - specific influence of digital technologies on the blurring of boundaries
    - crowd work (spread, motivations of crowd worker, economic evidence)
  - Quantitative research, e.g.
    - statistical documentation of the IT-sector for Germany

> Challenges for political regulation
  - Adaptation of existing labour regulations
    - Working time
    - Ergonomics
    - Data protection
  - Quick reaction to new developments of digital technologies
    - Early regulatory embedding of new flexible work forms
    - Reactions towards implications of new technologies for the working life
Thank you for your attention!
2. Digitalisation of work

Background

- In the 1970s critical public debates on work and technology: technical rationalisation of industrial work
  - Job losses due to automatisation
  - Intensification of work
  - De- and upskilling
  - Initiative for the humanisation of work (HdA) (beginning in the 1970s)

- Since the 1980s
  - No views on technology in work studies
  - No reflection of work in studies on technology
  - Also TA!

- Today
  - Processes of digitalisation have an impact on work relations and work process, however systematic research is currently missing
  - Still influential: German concept on “Informatisierung” (Boes et al. 2005)
  - Working definition of digital work
    - Use of computers and the web at the job
    - Technologies: PC, sensors, connected technical systems, smart phones, pads