Digitalisation of Work - Visions vs. Empirical Evidence

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NTA-Workshop: Technology and Work from a TA perspective

27.11.2015, Karlsruhe

Agenda

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

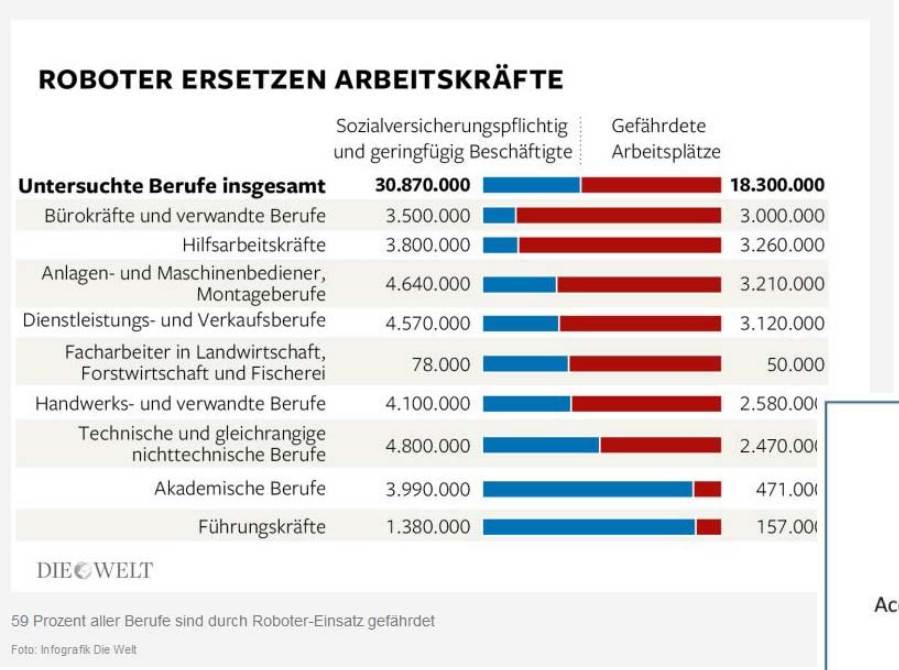
- “Opportunities and threats of mobile and digital communication in the workplace” (Project duration: 2015-2016, running)

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

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

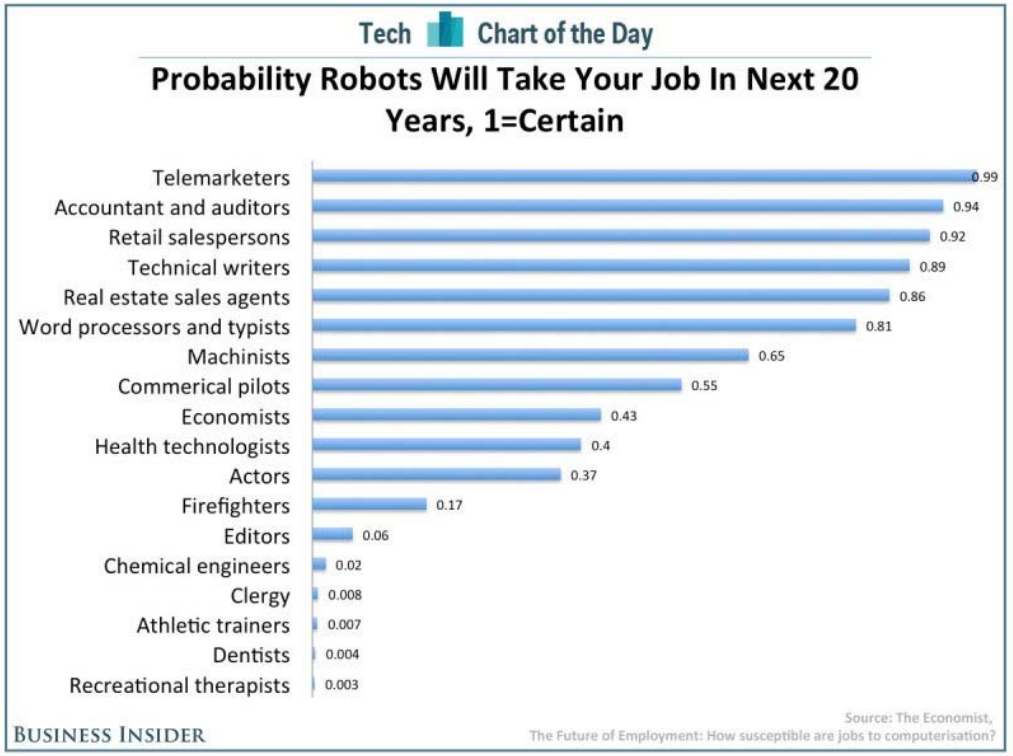
- 4 expert reports
  - Evaluation of the EWCS for Germany
  - 2 Sector surveys
  - Legal expertise

2. Digitalisation of work: Digital rationalisation



59 Prozent aller Berufe sind durch Roboter-Einsatz gefährdet

Foto: Infografik Die Welt



2. Digitalisation of work: Digital rationalisation

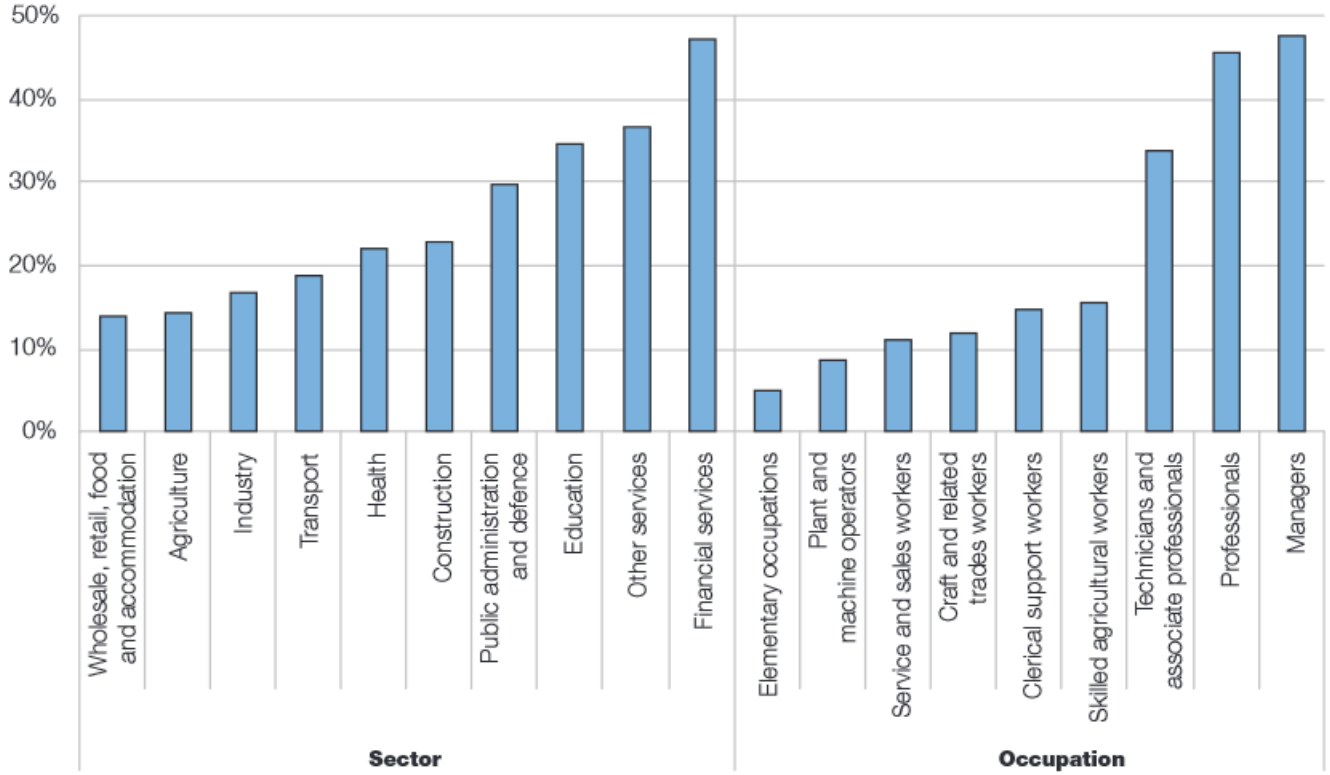
- **Trend 1: Digital rationalisation**
  - Cognitive Automation (Kurz/Rieger 2013) & 2nd Machine Age (Brynjolfsson/McAfee 2014, also Frey/Osborne 2013)
  - Thinking & analyzing in work processes are covered by software (not only routine work!)

- 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

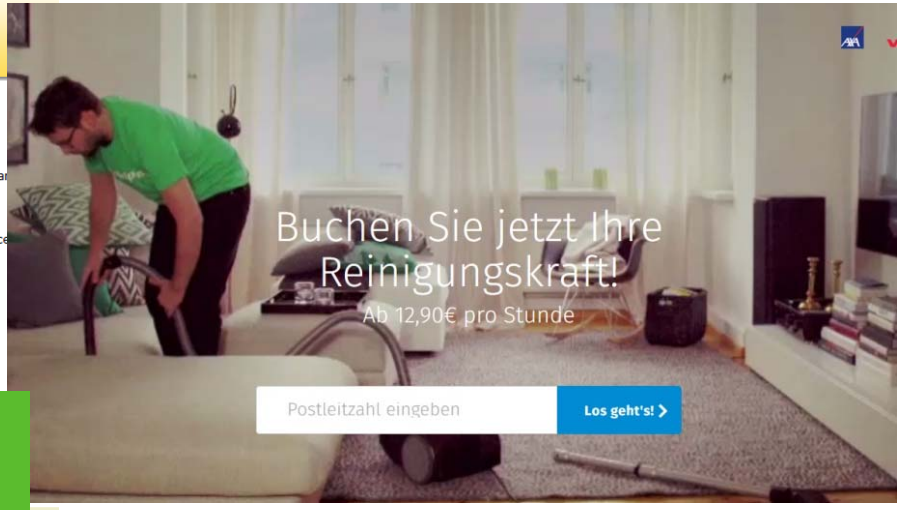
2. Digitalisation of work: Boundaryless digital work

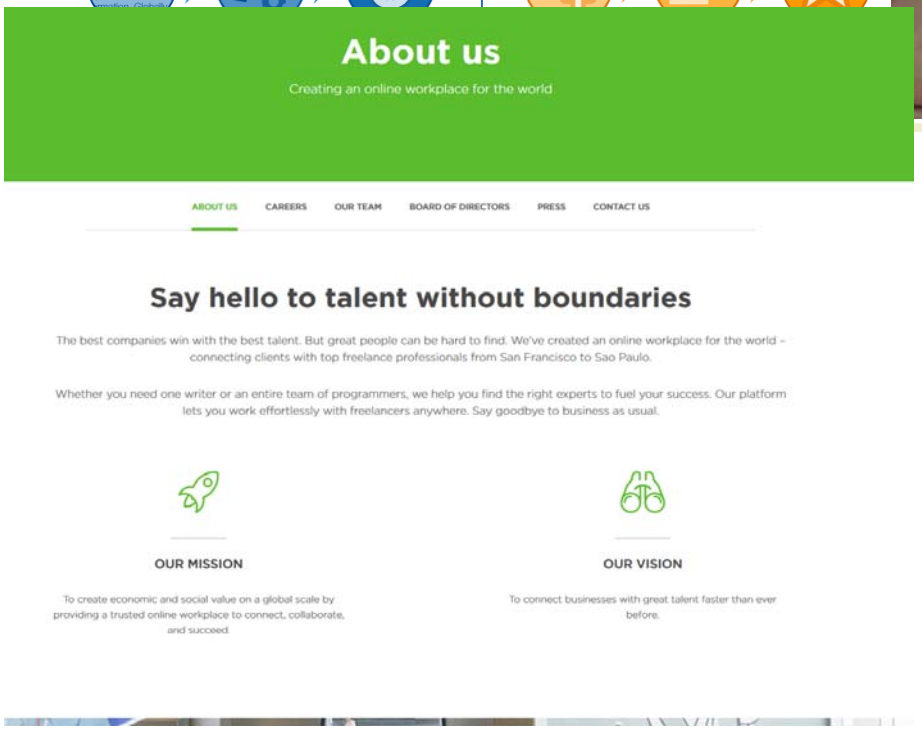
Trend 2: Boundaryless digital work

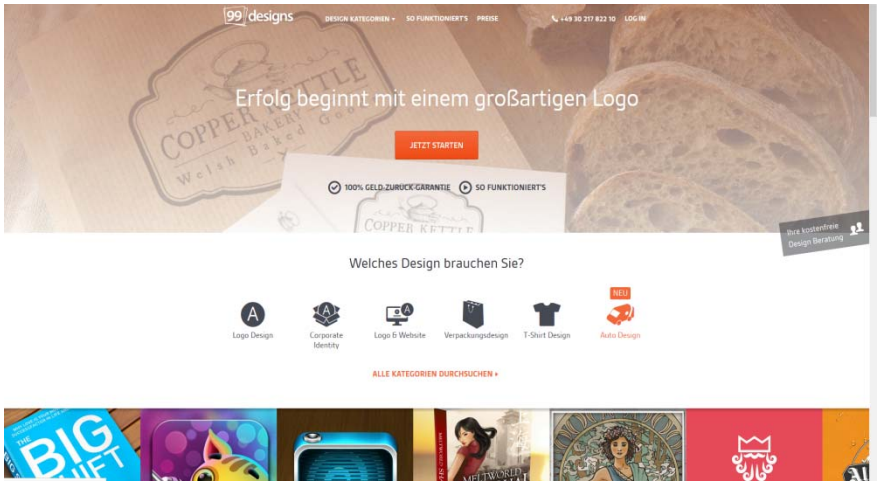
- Temporal dimension: work outside of working hours (in one's free time, on weekends or holidays)
- Spatial dimension: work at different places (at the client, in the hotel, at home, during travels,…) → equalization or extra work?
- New qualities of boundaryless work due to smart technologies → constant 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







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

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*