"Digitalization (or the fourth industrial revolution) and the related labor and employment issues."

Duisburg May 23, 2018
Structure of presentation

1. The high-Tech Strategy of Germany
2. Impact on employment
3. Pro-active trade union policy
4. Modernization of the dual system of vocational training
5. Reducing low wage work
1.1 High-Strategy in Germany since 2010

- Since 2010 focus on society’s need to develop forward looking solutions in the 5 fields:
  - *Climate / energy,*
  - *Health / nutrition,*
  - *Mobility,*
  - *Security*
  - *Communications*
- Digitalization cross-cutting aspect in all fields
- In 2015 due to union pressure addition of “Future of Work” program in the tradition of the “Humanization of Work” programs in the 70’s/ 80’s
1.2 R&D as percentage of GDP 2016 (change 2000-2016 in pct. points)

Source: OECD
2.1 Impact on employment: uncredible horrorscenario of Osborne/Frey

2.1 But productivity growth declining: productivity puzzle

German prognosis on impact of industry 4.0:

- **Structural change towards service sector**
- **Only small overall employment effects** (IAB-Studie 2015-2025 – 60 000 Beschäftigte / minimal changes of assumptions positive effects)
- **More dangerous for Germany: technological backlog and loss of competitiveness**
- **But: Loss of jobs in some industries**

**Problems:**
- Loss of well-paid jobs covered by CA‘s
- Intensification of work
- High risks with transitions in other companies (lower wages, de-skilling)
3.1 Pro-active trade union policy

- German manufacturing regard industry 4.0 as an necessary innovation push

- Pro-active approach needed - to avoid job risks through underinvestment in skills and innovative work organization

- What do unions do?
  - Encourage/coordinate of „Future of Work“ projects
  - Own projects on industry 4.0
  - Integrate new themes in CB like further training
  - Old themes (protection against dismissals, employer dominated working time flexibility, low wages) remain important
3.2 Pro-active trade union policy

- Example Project „Work 4.0 - North-Rhine-Westphalia 2010“ of three manufacturing unions
- Identifying 40 entreprises with pro-active works councils
- 6 - 8 all day workshops in each entreprise with the help of consultants - goals:
  - stock-taking of industry 4.0 in all departments
  - summarizing conflicts and problems
  - debate with employees and management
  - Development of pro-active strategies - best case „Future Plant Agreement“
  - evaluation by IAQ
3.3 Company map of industry 4.0

Betriebslandkarte Arbeit und Industrie 4.0

Erklärung zu den verwendeten Symbolen

Einschätzungen zur Technik – Status Quo
Grad der Versetzung
Stand alone | In Abteilung | Abteilungsübergreifend | Mit externen Unternehmen
Grad der Steuerung durch Technik
Entscheidungsunterstützung | Entscheidungsvergaben | Teilweise technikgesteuert | Voll technikgesteuert

Einschätzungen zur Technik – Ausblick
Verstärkter Einsatz von Industrie 4.0-Lösungen | Keine Veränderung
Verlassen des technik-zentrierten Pfades | Unklar

Wirkungen auf Arbeit – Status Quo
Beschäftigung | Anforderungen an Arbeit | Arbeitsbedingungen
positive Entwicklung | negative Entwicklung | keine Veränderung | keine eindeutige Entwicklung

Wirkungen auf Arbeit – Ausblick

Stand: August 2017

MA = Mitarbeiter/-innen
3.4 Some intermediate results

- Mostly gradual and not disruptive change
- *The old problems are also the new* like overtime or high stress but sometimes more urgent like
  - Underinvestment in further training is decoupling mainly older workers from the technological development
  - Delocation of work
- Compromises on flexible working hours and pay system already found in the past - sufficient for I 4.0
- „Future Agreements“ in 6 companies - content: joint working groups, regular meetings and information, avoidance of dismissals, agreements on necessary training etc.
4.1 Unemployment rates by skill level 1975 - 2015: Increasing problems of unskilled workers

Quelle: IAB. Qualifikationsspezifische Arbeitslosenquoten. 2016 (Eigene Darstellung)
1) Ab 2006 Fachschul-, Meister-, Technikerausbildung, Daten aus Mikrozensus
4.2 Modernization of vocational training

- Between 5 and 6% of the employees apprentices in the dual system of vocational training
- Training in around 350 white and blue collar occupations
- Most employees in manufacturing skilled (VET or tertiary education)
- Broad skill base supports learning on the job
- Job tenure increasing since companies rely on the tacit knowledge also of new digital tools of the employees
4.3 Modernization of vocational training

- Most occupations modernized in the last decade

- Occupational profiles technology open - broad occupations - skill reserves needed to be able to manage changing demands

- Industry 4.0 an important push to reflect on the curricula, the learning tasks and tools

- At present:
  - Social partners check 20 occupational profiles at national level
4.5 Occupational profile of a repairperson today (blue) and tomorrow including further training (red) (Siemens)

Quelle: IGM (2016) Berufsbildung 4.0: Lernen im digitalen Wandel Fünf Betriebe zeigen ihre Praxi, p. 17s
5.1 Increasing wage inequality: Change of real hourly wage by deciles 1995-2015 in Germany

Source: Bundesregierung 2017: 60
5.2 Evolution of coverage by collective agreements in Germany 1998 - 2016

Source: WSI Tarifarchiv (based on IAB Establishment Panel data)
5.3 Rate of coverage by collective agreements and share of low-wage work (2014)

Correlation: -0.82

Source: Visser 2015, Eurostat, own calculations
Conclusions

• I-4.0 not new - digitalisation started earlier but I 4.0 hype creates an atmosphere of departure helps focussing R&D priorities, employer and also union strategies

• Work 4.0 an appendix of I-4.0, but
  • unions succeeded to implement the „Future of Work“ program as well as own industry and company initiatives
  • Main issues: safeguarding employment, re-skilling, and high coveragy by CA‘s

• Work 4.0 includes many other aspects like the status of click and crowd workers and other bogus self-employed, the role of the employer (Ubersation)