Comment les partenaires sociaux doivent-ils s’y prendre pour assurer la transition numérique et l’avenir du travail? Le cas allemand

AMÉLIORER LA PRODUCTIVITÉ LA MÉTALLURGIE À L’ÈRE DU NUMÉRIQUE
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Structure of presentation

1. Work 4.0 in the German High-Tech Strategy

2. Pro-active trade union policy

3. Modernization of the dual system of vocational training
1.1 High-Strategy in Germany since 2010

- Until 2010 R&D-policy focus on specific technologies
- Since 2010 focus on society’s needs to develop forward looking solutions in 6 fields:
  - The digital economy and society
  - The sustainable economy and energy
  - Healthy living
  - Intelligent mobility
  - Civil security
  - And since 2015 due to union pressure: The innovative workplace

- Main pillar in the field “innovative workplace“ „Future of work program“ with 1 Billion € for seven years
1.2 High-Strategy in Germany since 2010

- Goal 3% of GDP in R&D: 1% state / 2% companies
- Strength of Germany – high road strategies in the core of the economy: High own R&D investments

„Future of Work“ projects:
- Yearly tenders on specific themes like „competencies for digital work“, „new forms of internal flexibility“ etc.
- Only support of applied projects with innovations in more than one company + plausible ideas of dissemination + own contributions of companies
- All projects: cooperation agreements between researchers + companies + works councils
1.3 R&D as percentage of GDP 2016 (change 2000-2016 in pct. points)

- Canada: 1.71 (change: -0.15)
- Germany: 2.93 (change: +0.54)
- France: 2.22 (change: +0.14)
- Israel: 4.25 (change: +0.32)
- Korea: 4.23 (change: +2.05)
- USA: 2.79 (change: +0.18)
- UK: 1.70 (change: +0.06)

Source: OECD
1.4 Example: The technology network it’s OWL in figures

24 core companies with innovation projects*
- Revenue: 11.8 billion euros
- Percentage of R&D employees: 14.7%
- R&D investment as a percentage of turnover: 8.4%
- Export quota: 56%
- 230 production sites and 782 branches worldwide

6 universities and 18 research institutes
- External funding: 100 million euros per year
- Investment in research infrastructure (2006 to 2012): approx. 300 million euros

More than 100 associated companies and 30 economy-oriented institutions

*The figures refer to revenue and employees for the 24 core companies in OWL in 2012.

New research centres provide perfect conditions for cutting-edge applied research in collaboration with businesses all over OstWestfalenLippe:
Zukunftsmile Fürstenallee Paderborn, Research Building “Interactive Intelligent Systems” of Bielefeld University, Centrum Industrial It (CIIT) Lemgo and Bielefeld University Campus

Source: it’s OWL Clustermanagement GmbH (2016)
2.1 Pro-active trade union policy

- German unions see industry 4.0 as a necessary innovation push: help to secure jobs and improve working conditions
- Pro-active approach proposed: to avoid job risks through underinvestment in skills and to improve working conditions

- What do unions do?
  - Influence national and regional R&D priorities
  - Encourage/coordinate „Future of Work“ projects
  - Innovative collective agreements on further training or working time
  - Own projects on Work 4.0
2.2 Project „Work 4.0 - North-Rhine-Westphalia 2020“

- **Ressources:** (1) Own „Work 4.0“ team (IG Metall 5 FT officials), (2) State money for consultants, (3) HansBöckler-Foundation financed evaluation of IAQ
- „Work 4.0“ team identified companies with pro-active works councils and interested management
- 6 - 8 all day workshops in 30 companies with the help of consultants (another 30 in 2019/20):
  - Stock-taking of digitalisation of 4.0 in all departments
  - Involvement of employees as „*experts of their workplaces*“
  - Mapping of problems and chances
  - Development of pro-active strategies (if promising additional strategic workshops are financed)
2.3 Company map of industry 4.0

Betriebslandkarte Arbeit und Industrie 4.0

Erklärung zu den verwendeten Symbolen

Einschätzungen zur Technik – Status Quo

Grad der Verwendung
Stand
Abteilung
Abteilungsübergreifend
Mit externen Unternehmen

Grad der Steuerung durch Technik
Entscheidungsunterstützung
Entscheidungsvergaben
Teilweise technikgesteuert
Voll technikgesteuert

Wirkungen auf Arbeit – Status Quo

Entwicklung
Anforderungen an Arbeit
Arbeitsbedingungen

positiv
negative
keine
keine eindeutige

Einschätzungen zur Technik – Ausblick

Verstärkter Einsatz von Industrie 4.0-Lösungen
Keine Veränderung
Verlassen des technik-zentrierten Pfades
Unklar

Wirkungen auf Arbeit – Ausblick

MA = Mitarbeiter/-innen

Stand: August 2017
2.4 Some intermediate results

- Works councils - more participation of employees
- Management impressed by professional approach / high interest in results: I 4.0 also for them a journey in unknown waters

- Big themes: Job security, intensification of work, initial and further training, working time
- Until 9/ 2018 in 9 companies „Future Agreements“ signed:
  - joint working groups / regular meetings
  - joint monitoring of changes: especially skill development, working time ......
- Clear intensification of social partnership
3.1 Modernization of vocational training

- Between 5 and 6% of the employees apprentices in the dual system of vocational training
- Training in around 350 national white and blue collar occupations
- Most employees in manufacturing skilled (VET or tertiary education)
- Broad skill base supports learning on the job - rapid changes require more learning on the job
- Job tenure increasing since companies rely more than in the past on the tacit knowledge of the employees
3.2 Example of Modernization of vocational training

- Most occupations modernized in the last decade
  - Occupational profiles broader than in the past and technology open
  - Learning in teams and in real business processes to acquire social skills and understand the context of their work
- August/2018: Fast track modernization of 11 engineering and electronic occupation with agile methods (step by step modernization) - creation of optional modules like programm or IT-Security for initial or further training
- Ongoing: Social partners check the impact of industry 4.0 on 20 occupational national profiles - Ambitious goal: joint module „media competence“ across all occupations
3.3 New learning forms: From product towards team work and customer-or business process orientation

Source: Bosch 2000a
3.4 Example of modernization with agile methods

(Red=new, Blue=modernized)

Mécanicien industriel/Mécanicienne industrielle (42 mois)
- Organisation et contrôle des flux de finition et de fabrication
- Fabrication de composants et de sousgroupes et montage sur des systèmes techniques
- Détection et documentation d’erreurs et de leurs causes sur des systèmes technique
- Remise en état de systèmes techniques
- Modification de machines et de systèmes
- Exécution de travaux de maintenance et d’inspection
- Sélection de procédés et de moyens de contrôle
- Remise de systèmes et de produits techniques aux clients et instructions sur le fonctionnement de l’installation
- Maintien du bon état de fonctionnement de systèmes techniques
- Vérification et développement de composants électrotechniques du domaine de la technique de commande
- Prise en considération de processus commerciaux et application de principes de gestion de la qualité
- Exécution des tâches de façon autonome, en respectant les règlements et les dispositions de sécurité en vigueur
- Coordination du travail avec les personnels en amont et en aval
- Installation de postes de travail
- Communication avec des clients internes et externes en fonction de la situation, travail en équipe
- Contrôle et documentation de travaux d’entretien et de montage en prenant en considération les systèmes de gestion de la qualité de l’entreprise
- Utilisation de systèmes informatiques également pour les processus numérés, application de la législation sur la protection des données et sur la sécurité des information
3.4 Occupational profile of a repairperson today (blue) and tomorrow including further training (red) (Siemens)
Conclusions

• I-4.0 not new - digitalisation started earlier but I 4.0 hype creates a culture of department
  • Helps focussing R&D priorities, employer and union strategies

• Work was appendix to I-4.0, but increasingly important
  • Unions succeeded to implement the „Future of Work“ program as well as own industry and company initiatives

• Many speculations on „The Future of Work in 2030“ - the formation of „Work 4.0“ an experimental process - small steps and agile methods needed

• Social partnership in this process crucial for economic and social reasons