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Changes in LM and Skill Formation: comparison between Germany and Japan

Tokio JILPT 13th of March 2025 Prof. Dr. Gerhard Bosch



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Agenda

Different training philosophies and LMs



The German dual system of apprenticeship - structure and actors



Modernization of the dual training system

Hybridization of the dual system

Dual Sytem of VET and further training in labour market policy



Different training philosophies and LMs

World-wide same technologies but different skill structures

International comparisons show:

- Assembling of Airbus by skilled workers in DE and with on-the-job-trained in UK, France, Spain (Bremer 2008)
- Retail trade: 2 to 3 years vocational training of sales staff in Germany, in France. UK, USA unskilled are employed (*Carré u.a. 2010*)
- Broad brick-layer training in Germany + Denmark (3,5 years), short training (1 year) in Italy und UK (*Clarke/Winch 2014*)
- Car industry: 3-year training in Germany, on the-job-training in Japan (Jürgens 2024)

Different training philosophies and different LM-Structures



Different types of VET systems with different training philosophies

Greinert (2004) identifies three basic types of VET in Europe:

- 1. The dual-corporatist type in Germany: monitored and administered through 'intermediate institutions' (trade unions, employers' associations, chambers of commerce). It is largely separated from the general education system. Training is largely provided in firms but highly standardized.
- 2. The statist-bureaucratic type in France: school-based vocational training system regulated by the state: Training is concerned less with current practice than with abstraction and theorising. Certificates awarded ranked according to the different types of school.
- **3.** The liberal market economy in the UK: training supply and demand are regulated through the market. The type of skills produced is determined by the assumed needs of the workplace. Training is not particularly standardised, which results in very varied combinations of school-based, firm-based and industry-wide forms of training

Only Type 1 an autonomous societal sub-system with its own nexus of communications and institutions. The other two models are shaped by other systems (school and market).



Different types of VET systems with different training philosophies

- 4. Company orientation in Japan a further non-European type of VET (Greinert 2004):
- The emphasis of the training here is less on the technical content than on the social ۲ context of the work tasks.
- Competencies high but not transparent to the LM through standardized occupations ۲
- An individual's willingness and ability to integrate him/herself (typically) into a company ۲ with unquestioning loyalty is the main priority and is associated with a guarantee of lifelong employment.

According to Greinert: 4 Ideal-Types - In each country, elements of the other models can be observed alongside the dominant model

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Different concepts of competencies and skills:



Brookmann et.al. 2011 focus only on Europe:

- Germany: acting autonomously within the labour process of a defined broad occupation with underpinning knowledge
- UK: task performance to an acceptable standard, not necessarily with the underpinning knowledge
- France: Savoir faire Focus on knowledge to move up in the education system

Book ends with an "interpretive dictonary" since the same words like "competencies" or "skills" have a different meaning in different countries

Link between training and labour market models



Germany and Japan prototypes of occupational and internal labour markets in international comparative literature

- Building bocks of occupational LMs in Germany: (1) standardized occupations with transferable and transparent competencies, (2) standardized wage systems with payment according to qualification requirements not seniority, (3) work organization according to skill system
- Building blocks of internal LM in Japan: (1) non standardized internal company training probably transferable, but not transparent, (2) wage systems based on seniority and individual appraisal, (3) work organization with internal promotion ladders

Both countries have internal LMs in big companies but inter-company mobility more difficult in Japan



The German dual system of apprenticeship structure and actors

The German dual VET-system within the education system

- Dual VET dominant system in VET
- Training in 327 national white and blue collar occupations for all sectors
- Apprenticeship contract with an employer: apprentices are employees and receive a training allowance paid by the company
- Learning 3 days in the company, 2 days in vocational schools
- Diversity of learning in companies: Own training centers in companies or industries, on the job training
- Standardized promotionanal traing in all 327 occupations (master, technician, business administrator)
- Certified trainers in companies









Unions, employer's associations and chambers are running the dual VET with the support of the state at national and regional level







Occupational profiles and curricula



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- The goal of vocational training in Germany is: "Acquisition of professional competence in a recognised training occupation" *: transferable skills which protect workers in structural change
- Recognised vocational training means: 2 to 4 years of training with a standardized curriculum that applies throughout Germany
- Occupational profiles and curricula developed in consensus by trade unions and employers with the technical assistance of the Federal Institute of Vocational training (BiBB)
- Federal states develop the curricula for the school part (2/3 occupational related and 1/3 general knowledge)
- Curricula a compromise between modern and less modern companies
- Social partners regard the occupations as "their" occupations and promote them to members



Monitoring, quality assurance, examinations and certificates

- Chambers' own VET departments advise companies, control quality, organise examinations and issue certificates
- Each chamber has a vocational training committee (1/3 trade unions, 1/3 employers, 1/3 vocational school-teachers).
- Examination committees (1 trade unionist, 1 entrepreneur, 1 vocational school-teacher) Voluntary work
- High engagement of social partners in the implementation of the dual system at regional level – strong interaction of social partners at national and regional level

VET – system with own governance

- Strong commitment of unions and employers to the system: They do not want intervention
- System depends on the willingness of companies to train: Incentive high quality of training, no training costs after training
- Companies train more than **500,000** new trainees each year, **72%** of which they take on.
- In 2022 the companies paid € 8.4 Billion for VET compared to approx. €4.63 Billion public expenditure for schools and support measures
- Gross costs for companies higher = €27.2 Billion, but 69% of the funding invested is recouped through the productive contributions of trainees during the training
- Levy grants systems in some industries (mainly construction) and one region (Bremen)
- Adoption of central pillars in school-based vocational training (nurses, geriatric care, educators): today they receive a training allowance; geriatric and nursing care have national training standards and levy grant system







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Outcomes of the dual system of VET

30% 26.6%

Youth unemployment rates (saionally adjusted) 11/24*



Many comparative studies show lower youth unemployment in countries with apprenticeship training (Bosch 2017)

Positive impact on work organization:

- less supervisors ٠
- more complex job tasks •
- steep learning curve after reorganization
- communication between shop floor and ٠ management at eye level

Dual system of VET not easy to copy due to its anchoring in the German industrial relations system







Modernization of the dual training system

System requires continuous modernization because of structural change and the green and digital transformation

- 1995 Social partners agreed to accelerate the modernisation of old occupations and the creation of new ones (6 months for modernization, 1 year new occupation)
- Creation of **broader occupations** than in the past

- Between 2014 and 2023 111 occupations modernized, 5 created
- New learning forms for flexible work organisation
- Creation of optional modules for initial or further training like additive manufacturing for the metal occupations
- 2021 introduction of cross-occupational standard job profile positions on digitalisation, environmental protection, occupational health and safety, organisation in the company and labour law

Parallel: **Modernization of promotional training** for masters, technicians, business administrators

Broadening of occupations and creation of new



Occupational profiles in the metalndustry 1987 and 2004 (until 1987 - 45, 1987 – 2003 - 16, 2004 – 5 occupations)

4 new IT occupations – training with 50% overlap – further training up the master level



Structure of the VET in the construction industry

Screed laye Carpent third year **Construcion finishing worker** second year basic vocational training first year

berufe. bilden.

zukunft







New learning forms for flexible work forms: From product towards teamwork and customer process orientation





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Modernized profile of the "Industrial mechanic"





- Organise and check production and manufacturing processes
- Make structural components and subassemblies and assemble them to produce technical systems
- Identify and document faults and their causes in technical systems
- Repair technical systems Retrofit machines and systems
- Complete maintenance work and inspections Select testing procedures and testing equipment
- Deliver technical systems and products to customers and provide instructions in the use of the plant
- Ensure the functionality of technical systems
- Monitor and extend electrical control components
- Consider business processes and apply quality management
- Act autonomously in completion of activities taking into account relevant regulations and safety provisions
- Coordinate work with upstream and downstream departments
- Set up workstations Communicate with internal and external customers in a manner appropriate for the situation; work as part of a team
- Check and document maintenance and assembly work with due regard to company quality management systems
- Use IT systems, including in digitalized processes
- Apply regulations relating to data protection and information security



Hybridization of the dual system

Academic drift



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• Skill structure: share of employees with a vocational training:

- 1964= 29%, 2011= 66.6%, 2022: 60,2%
- 2022 13,6% unskilled, 18,6% tertiary education, 8,4% no answer
- Apprenticeship rate*: 2007= 6.5%, 2022= 4,5%
- Since 2011 number of beginners in tertiary education higher than in dual system

Beginners in VET and tertiary education**



*apprentices in % of employees; **Bundesinstitut für berufliche Bildung 2024: Datenreport,

Companies want to attract young 9,0 people to VET who want to study at

university.

VET and bachelor programs

Increasing spread of a combination of

- **Two types:** (1) apprenticeship contract with company + training allowance and degree program - two examinations; (2) bachelor's degree program + trainee allowance and practical training – one examination
- Double work load for students but good career opportunities

Beginners in dual study programmes as a % of all tertiary students*

Dual study: Combination of VET and tertiary education





Expansion of higher vocational training



- Long tradition of promotional training traditional access to middle management position
- Promotion of equivalence of vocational and higher education qualifications in the German Qualifications Framework (DQV) (In all other EU countries beside Austria levels 6 to 8 are reserved for tertiary qualifications) against the strong resistance of universities and ministries of education
 - Bachelor professional Level 6 in DQV (master, technician, business administrators)
 - Master professional Level 7 in DQV (Business economist, technical business economist or vocational teacher)
- Upgrading Training Assistance Act*: means tested grant/loan system for professional further training (minimum 400 hours training) number of participants increased from 135,000 in 2007 to 192,000 in 2021



Dual Sytem of VET and further training in labour market policy

Long tradition of active labor market policy in Germany



- Since 1969 financing the retraining of the unemployed: A focus on financing two-year retraining programs in a new occupation: Retraining in a dual system occupation: completion with examination and certificate
- 2003 Paradigm shift from train-first to work-first: sharp decline in expensive, degree-related, longer retraining programs – mainly short "fast-food retraining"
- 2007 2023 slow **paradigm change**: increase of degree-related further training because of (1) skill-bottlenecks, (2) the digital and green transformation and (3) positive evaluations of the degree related further training
- Re-introduction of the train first approach training allowance = unemployment benefits + 150 € per month
- 2024 introduction of Training Allowance * for employees if at least 20% of the workforce of a company needs retraining because of structural change (at least 120 hrs training, not only firm-specific training)



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Participants in further training measures under labour market policy*

Year	Further training	Of this: further training with certificate
2000	356.768	143.660
2005	111.744	70.500
2007	128.386	34.279
2010	188.360	59.947
2015	147.588	69.964
2020	148.416	70.187
2023	150.038	60.494

Higher numbers in retraining with certificate than 2007 but no return to the old figures due to the good labor market situation and a growing proportion of low-skilled workers among the unemployed



Conclusions

Conclusions

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 Dual system of VET is designed by consensus between the social partners - Offer in Denker Employers see vocational training for school leavers as its responsibility

- **High level of acceptance** among the population thanks to its anchoring in the economy, high training standards, career opportunities and continuous modernization
- Dual system= basis for occupational labor markets with transferable standards
- **Positive effects**: (1) Low youth unemployment, (2) flexible forms of work organisation, (3) fast learning curve in structural change
- Problems:
 - Too high a proportion of young people without school-leaving qualifications who remain without training
 - Lower wage growth than for employees reinforces academic drift

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Thank you for your attention

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