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Tradition meets globalisation: Principles and reforms of the German dual system of vocational education

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Introduction: Global economic challenges and vocational training

In a globalising world, a range of universal and wide-ranging developments influence all economic and social features of day-to-day life. These developments materialise in different shapes and forms in different national and cultural environments. However, in the economic field, there is widespread consensus about the existence and the challenges of developments that can be more or less directly attributed to processes that result in world-wide interdependences, interrelations, mutual dependences, and integration of economic structures and activities. In the relevant literature, these developments are often termed 'megatrends' Kremer & Sloane (2001, pp. 5ff.). These megatrends impact on the world of work in direct ways and – assuming a preparing role of training for work processes – also on vocational education. It is possible to distinguish between developments that are directly linked to the economic system (endogenous) and developments that influence it from the outside (exogenous). In the following, examples of both kinds of development are given, focussing mostly on European developments:[1]

Exogenous developments

- *Demographics*: In western European societies the average population is becoming older. In addition, "[…] cuts in the population pyramids (a result of war and of birth control)" (COST, 1995, p. 8) can be identified. The consequence will be a shortage of skilled workers. This phenomenon is rarely mentioned because of the current high rate of unemployment in almost all European countries.

- *Value patterns*: Individual and societal values and attitudes change. The changes can be identified in both western and eastern Europe. However, the reasons for the changes differ. Broadly speaking, the search for new social and cultural stability after the breakdown of the communist regimes seems to be the most important reason for changing value patterns in eastern Europe. In western Europe the processes associated with the increasing individualisation of societies seems to be particularly important. As a consequence, typical biographical patterns will change. For instance in Germany, it was possible in the past to regard a person's occupation (*Beruf*) as the main feature of her or his biography. Nowadays occupations are losing their regulating function and new career paths are developing. The education and training pathways leading to occupations becoming more and more individualised. The distinction between professional and private time are becoming increasingly blurred.

Endogenous developments

- *Globalisation and internationalisation of the economy*: Globalisation means in this respect that national economies, as well as international enterprises, are linked. On the

[1] The description of the developments follow largely the account by Sloane (1998). For a similar presentation of the influence of economic developments on training structures see Ertl & Sloane (2004).

one hand, the process of globalisation is the result of the growth of enterprises and, on the other hand, the consequence of a higher degree of co-operation between enterprises. One outcome of globalisation has been the phenomenon of internationalisation creating multinational enterprises (sometimes described as 'global players'), which set up their own political, economic, social and cultural standards.

- *Intercultural environments*: The ongoing internationalisation of the economy has resulted in the growing importance of multicultural working groups. In more general terms, various forms of migration have resulted in a rapid increase in intercultural encounters in all areas of society.

- *New information and communication technology*: 'Micro electronics lead to an automatization of routine work and also to new possibilities of controlled decentralisation of job structures and economic activities' (COST 1995, 11; see also Buttler, 1992). The management literature reveals a variety of scenarios describing the possible features of the world of work of the future. One such scenario is the idea of virtual enterprises. Such enterprises are not necessarily defined as organisations in space and time anymore, since the new technologies will allow the employees to work where and when they want to. One consequence of this idea is that individual work-places will have to be organised in totally different ways

- *Post-modern service society:* For decades now the importance of the service sector has increased in both, quantitative and qualitative terms. The growth of the service sector is part of the development of what is sometimes referred to as the 'post-modern economy'. In particular, three aspects characterise this development (see also Buttler, 1992, p. 165ff; Tessaring, 1993; COST, 1995; Braukmann, 1997 and Braukmann & Sloane, 1998):

  - The agricultural and industrial sectors are loosing their importance in terms of economic growth and welfare.

  - In modern societies, there is an increasing demand for services and counselling activities. This applies both to enterprises and to private households.

  - The importance of activities in economic areas such as the capital markets and the legal system create the need for 'sophisticated' services. In the case of Germany forecasts predict that around two-thirds of the working population will be employed in the service sector by the year 2010. In England, the central question seems to be how the growing low-skill service sector can be upgraded in order to create a counterbalance to the influential high-skilled sectors, such as finance and biotechnology (Green, 2001). These developments entail new patterns of organisation of work as well as the conceptualisation of new professional skills.

In general terms, these developments require that all people involved in the world of work are able to handle change. The days when it was sufficient for employees to complete initial training for an occupation, and then earn their living in that occupation for the rest of their working lives, are over. Nowadays employees must update and upgrade their skills

constantly. Employees have to develop competences and confidence regarding the permanent changes they are facing.

These developments have a number of consequences for the organisation of work:

- *New forms of company organisation*: Changes in the organisation of enterprises are primarily a consequence of the diversification of the products offered. For instance, the integration of banking and insurance products requires the reorganisation of banks and insurance companies (horizontal diversification). A second reason for the reorganisation of enterprises is the growing need for complex work places that allow co-operation between individuals. These work places will allow individuals to fulfil a wider variety of tasks and to make more autonomous decisions (vertical diversification). Decision-making processes will be transferred from the level of upper and middle management to the level of lower management.
- *Knowledge- and information-based work processes*: Manual activities do not figure strongly in the day-to-day work of most working people any more. Instead, dealing with complex sets of data has becomes more important. The understanding, interpretation, and processing of information of various types is the main task at most work-places nowadays. The fulfilment of routine work-tasks is less important than dealing with new situations and challenges.
- *New hierarchical structures*: The new types of work places will allow the enterprises to slim down their hierarchical structures, using the idea of 'lean-management' as an alternative organisational approach. Managers have to find new forms of instruction. They have to provide assistance for their workers dealing with complex work tasks. Also, they have the role of supervision and coaching teamwork.
- *Changing internal and external communication*: Effective communication is a prerequisite for co-operation and co-ordination of the activities of an organisation. Streamlined hierarchies imply an increasing emphasis on teamwork and co-operation of semi-autonomous groups within the organisation. This implies that the members of the organisation need to have ample opportunities for, and a variety of channels of communication. Information flows are no longer directed exclusively from top to bottom of the organisation but have to be made available for the whole organisation. The need to exchange experience, knowledge, and information systematically also extends to external partners, such as suppliers and customers.
- *New job structures and standards of qualification*: It is obvious that the organisational changes have to be accompanied by new qualifications. Cognitive work will become more important whereas unskilled work will become redundant. In the future, problem-solving, independent decision-making, and communication skills will be necessary for all employees.

The changes in the organisation of work have consequences for the qualification demands on the workforce:

- *Communication and co-operation*: Team-oriented work implies a high level of communication skills. In particular, the acceptance of dialogue and the search for consensus as the main ways of exchange with colleagues are central to communication patterns. Individual work has to be co-ordinated with the efforts of other team members; a skill unnecessary in the Taylorist plant regime, based on the division of labour.[2]

- *Learning-to-learn skills:* The ability to initiate, execute and evaluate one's own learning processes is a key skill in the future. Individuals need to be able to identify and acquire the knowledge and skills required to fulfil a given work task. This requires the ability to develop individual learning strategies and the capability to reflect about one's own working and learning processes. In the field of psychology these abilities are summarised in the concept of meta-cognition.

- *Change-management*: Given ever more dynamic economic environments, the capability to deal with constant change is an essential competence for the workforce. Traditional role models related to a specific occupation lose their potential to guide people through their working life. Instead, workers need to develop their own strategies to come to terms with constant change. This requires the acceptance of changes at the work-place and the willingness to engage in influencing the changes.

In summary, the new challenges at work-places require workers to not only update their knowledge about work processes and products. They also have to develop a high degree of social and methodological competence. The next step, then, is to conceptualise the pressures of the new qualification demands upon vocational education. The necessary changes in training provisions can be summarised in three aspects:

- *Importance of life-long-learning and new approaches to learning*: Learning itself will be a major skill in the future, whereas particular contents will be less important. Employees will have to be able to upgrade their skills motivated by of their own initiative. The consequence will be that the capability to learn will be an important aim of teaching and learning at schools, colleges, universities, and of in-company training. In the context of the organisation of vocational education this entails the need for informal learning arrangements, for instance work-place oriented forms of training.

- *New functions of learning and working*: The separation of learning and working in the biography of individuals is outdated. It will be necessary to create opportunities for learning in work situations. Within the field of economics and business administration the approach of the learning enterprise has been a matter of discussion for over a decade (Senge, 1993). The main idea of this approach is that the work of employees in permanently changing work places should foster autonomous learning skills. This type of

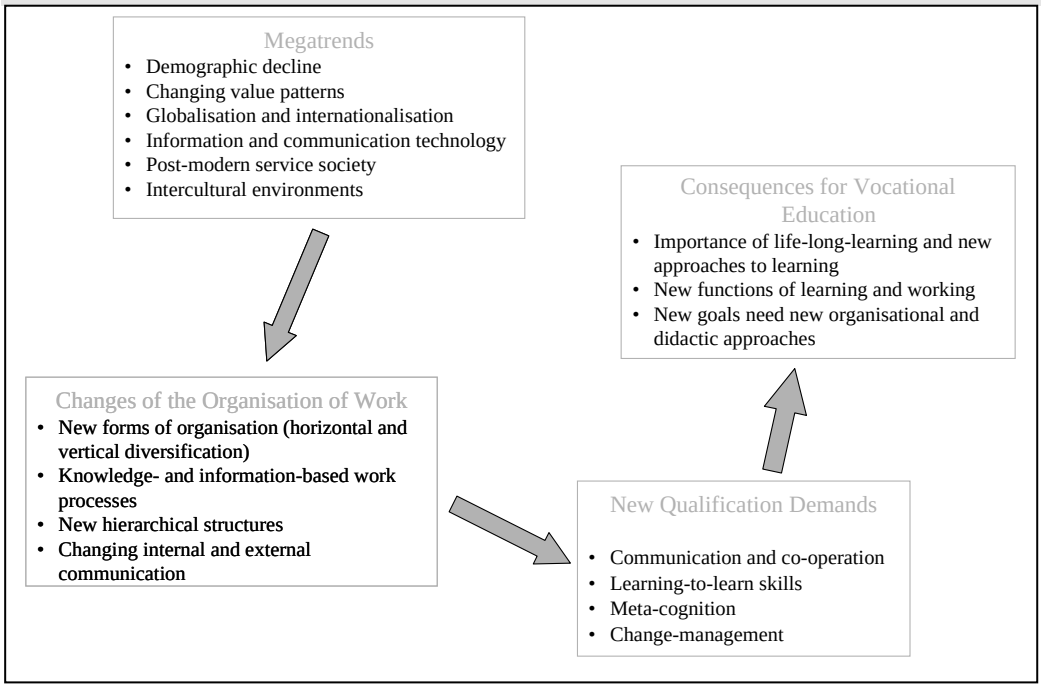
[2] The study 'The End of the Division of Labour?' (Kern & Schumann, 1984) should be mentioned here as probably the most influential in a series of research projects in the 1980s to investigate the scope and direction of changes in company organisation and rationalisation. However, in a follow-up study Schumann (1994) conceded that the changes were not as far-reaching as predicted ten years earlier.

learning represents not only the preparation for work, but rather the work itself (see Sloane, 1998).

- *New goals need new organisational and didactic approaches*: New approaches towards learning at the work-place need to be accompanied by organisational changes. At the moment, learning approaches in enterprises are being restructured. Pre-work, front-loaded types of training (apprenticeships, etc.) are not as important as they used to be. This is also the case in Germany, a country which traditionally has high standards of apprenticeships.

This line of argumentation can be visualised as follows:

FIGURE 1: **The influence of 'megatrends' on vocational education**



The way in which the mechanism described impacts on the system of vocational education in Germany will be discussed in the next section of this paper. In order to do this in a meaningful way, it seems necessary to outline the main structure of German training provisions.

1. Vocational training in Germany: diverging evaluations

In his recent study, Andy Green characterised Germany as a 'high skills society' with national competitiveness primarily based on high productivity in manufacturing a wide range of high-quality goods, relying predominantly on scientific elites and on high-quality intermediate skills. The system of skill formation that serves the 'high skills society' generates wide skills distribution and high levels of social trust, and produces high incomes and relatively high wage equality (Green, 2001, pp. 67-89 and 142f.).

At the heart of the German model of skill formation lies the so-called 'dual system' of vocational education and training. Comparativists have extensively discussed this system for some decades now. The main reasons for the prolonged foreign interest in the dual system are the constantly high participation rates (it prepares about two-thirds of German youth for working life). This high participation rate established the dual system as the regular framework for training in Germany. School-based programmes play a relatively minor role in quantitative terms.[3] Raggatt (1988, p. 180) calls the dual system the '[...] centrepiece of vocational education and training in the Federal Republic'. and the comparatively low youth unemployment rates associated with it (the system provides a comparatively smooth transition of young people from initial training to continuous employment). In fact, the German Economic Institute (*Institut der deutschen Wirtschaft*) has pointed out that the dual system has produced 'harmonious results' on the training market recently, balancing supply and demand for training places (IDW, 2002, p. 2).

However, there are increasingly clear indications that the German model of the high skills society and with it the dual system is at risk (cf. for instance, Green, 2001, pp. 148-151 and Culpepper, 1999, 44-48). In fact, the re-occurring discussions surrounding the 'crisis of the dual system' in the inner-German debate of academics and researchers are almost as old as the system itself.[4] The future prospects of the system are the subject of great controversy: Some

[3] Although this paper focuses on the dual system, there is an important role played by purely school-based forms of training in Germany. For the complementary functions of the dual system and school-based training in German VET see Hahn (1997).
For the latest numbers of newly concluded training contracts rates see BIBB (2004). For comparisons of figures in other countries see HMI (1991, p. 31) and Commission (1997).

[4] Cf. for example the far-reaching discussion that took place in the early 1970s. This discussion questioned the quality and attractiveness of vocational education (both perceived as insufficient), the status of vocational education (perceived as underprivileged as compared to general and academic education), and the supply of appropriate training places (perceived as too vulnerable to employers' discretion and the overall economic situation) (Wüstenbecker, 1997, pp. 14-19; Greinert, 1998, pp. 93-102; Baethge, 1999, pp. 127-136).
If publications from the 1970s are compared with reports on the dual system form the late 1990s, very similar lines of argumentation can be identified (cf. for instance the proceedings of a conference on *Fundamental Probelems of Vocational Training – Vocational Education in Crisis* [Grundprobleme der Berufsbildung – Berufserziehung in der Krise], edited by Blass, 1973).
All quotations from German texts in this paper translated by the present author.

observers regard the dual system as a model which has had its day and should be phased out; others regard it as a highly successful export commodity which will be the model for VET not only in the European Union but also in the countries of the former Communist Bloc (cf. Arnold, 1993, pp. 20f.; Heimerer, 1995, p. 166).[5] Irrespective of the position one supports in this debate, the need to modernise the dual system seems widely acknowledged by researchers and educationists. An indication for this observation are a number of edited books in which leading educationists describe the changes the dual system is facing and the ways in which reform and modernisation should lead.[6]

In this situation – signs of crisis and the acknowledged need for modernisation – it seems surprising that the decision makers have found it very hard to initiate reforms of the training system. This obvious reluctance to reform the system according to the needs of the modern economy has prompted one observer to complain about the decision makers' complacent 'rest on wilted laurels' (Geissler, 2002).

This paper argues that there is a broad consensus among the relevant stakeholders on the regulative principles of the dual system and that the prolonged success of the dual system is mainly due to this widespread acceptance of the system. However, the consensus on the system's principles is also at the root of the dragging modernisation process. The system's stakeholders – most importantly employers, trade unions, the federal state and the *Länder* – have such divergent interests that it is immensely difficult to change the status quo. Reform has been attempted at all levels of the dual system. However, the success of these attempts has been limited.

In order to substantiate this line of argumentation, the achievements of the dual system are characterised against the background of its underlying principles. Then, the reasons for the perceived crisis of the system are outlined and different levels of reform and modernisation of training provisions are suggested. In the third part of the paper, recent examples for reform initiatives are provided. The concluding section describes the reasons for the limited success of some reform approaches and outlines the concept of 'areas of learning'. This concept

[5] For the influence of the German system on educational policy and practice in other countries see Wilson (1997, p. 437), Deissinger (2001b) and Greinert (2001). And other papers ??? in Deissinger 2001.

[6] The titles of these publications are indicative: Beck & Achtenhagen (eds.) (1996): *Berufserziehung im Umbruch* (Vocational Education in Upheaval); Schlaffke & Weiss (1996): *Das Duale System ... Qualität und Reformbedarf* (The Dual System ... Quality and Need for Reform); Schmidt et al. (1997): *Das Duale System der Berufsausbildung – ein ‚Exportschlager' in der Krise?* (The Dual System of Vocational Training – an Export Best-seller in Crisis?); Euler & Sloane (1997): *Duales System im Umbruch. Eine Bestandsaufnahme der Modernisierungsdebatte* (Dual System in Upheaval. A Stock-taking of the Debate on Modernisation); Euler (1998a): *Berufliches Lernen im Wandel* (Vocational Learning in Transition); Flitner et al. (1999): *Wege aus der Ausbildungskrise.* (Solutions for the Training Crisis); Arnold (2003): *Berufspädagogik ohne Beruf* (Vocational Education without the Vocation).

seems promising since it initiates modernisation at a number of levels while acknowledging the underlying principles of the dual system.

2. The dual system: achievements and underlying principles

In comparison with exclusively school-based or company-based training system the German dual system of VET has the advantages of

- connecting experiences derived from the world of work with systematic learning processes at school, both organised in and regulated by nation-wide training occupations;
- providing a sufficient supply of training places for school-leavers and a comparatively smooth transition of trainees into occupation after the training period;
- establishing co-operation of the state authorities, employers' associations and trade unions on a consensual basis; and
- transferring the important competences of regulating, supervising and counselling of the partners involved in the system to the Chambers as the self-governing institutions of the economic sector (cf. Kutscha, 1999, p. 106; Greinert, 2000, pp. 50-55).

The traditions, legal foundations and structures of the system that provides these advantages has been the matter of an extensive amount of international literature.[7] However, what has been neglected too often in the past is that it is not the structure of the system itself that secures its success but a set of underlying, interdependent principles that make the system work successfully (cf. Kutscha, 1992, 1995, 1999).[8]

Principle of duality

Vocational training requirements in Germany consist of two basic parts. Learning processes in training companies focus on learning at the workplace or instruction in company training departments with an emphasis on practical elements of the training occupation. The vocational school provides general and vocational education in order to deepen and supplement on-the-job training. The continuation of general education in vocational training can be seen as a vital contribution to the 'overall and harmonious development of the personality' aimed for by training in the dual system (MPI, 1994, p. 577, cf. also Autsch, 1995, p. 16).[9]

Trainees spend about three or four days a week on in-company training and up to two days a week in vocational schools. Whereas federal law regulates the former, the latter falls under

[7] The publications dealing with the dual system in English include Raggatt (1988), HMI (1991 and 1995), Federal Minister (1992), Greinert (1994), Kutscha (1995), CEDEFOP (1995), and Standing Conference (1999). An outline of some of the main characteristics of the dual system is also given in Ertl (2002b).

[8] One of the notable exceptions is Green's analysis of the dual system in terms of its contribution to the wider framework of skills formation and transfer in Germany (Green, 2001).

[9] It is important to point out that 'general education' in this paper is used in the sense of education that should in principle be 'available for all'. This definition follows the usage of 'general education' in most European countries. This is in stark contrast to usage in England where 'general' implies 'lack of depth' and is often regarded as inappropriate for the brightest students (Young, 1999, pp. 2f.).

the legislation of the *Länder* (for instance skeleton curricula – *Rahmenlehrpläne*). Harmonisation processes are in place to integrate both parts of the training and to ensure the comparability of the provisions in the 16 *Länder*. The term 'dual' refers primarily to the division of training into two separate training environments, each regulated by its own distinct legislators.

However, the principle of duality goes beyond the division of training into two training venues. The duality of the structure is also reflected in systematic features such as the role and status of training personnel, the funding regime and the supervision of training processes:

TABLE 1: **The structural duality of the German training system**[10]

Systematic features	**Dual System components**	
Venue of training	Training company	Vocational school
Constitutional and legal authority	Federal government	Federal *Länder* governments
Status of learner	Trainee (based on a training contract with company)	Student (based on compulsory school attendance up to the age of 18)
Training personnel	Trainer (qualified on the basis of the Regulation on the Competence of Trainers)	Teacher (qualified on the basis of higher education Study and Examination Regulations)
Funding	Individual company	Federal *Länder*
General training plan	Training regulations (*Ausbildungsordnungen*)	Framework curricula (*Rahmenlehrpläne*)
Supervision of training	Chambers	*Länder* school supervision authorities

Principle of corporatism

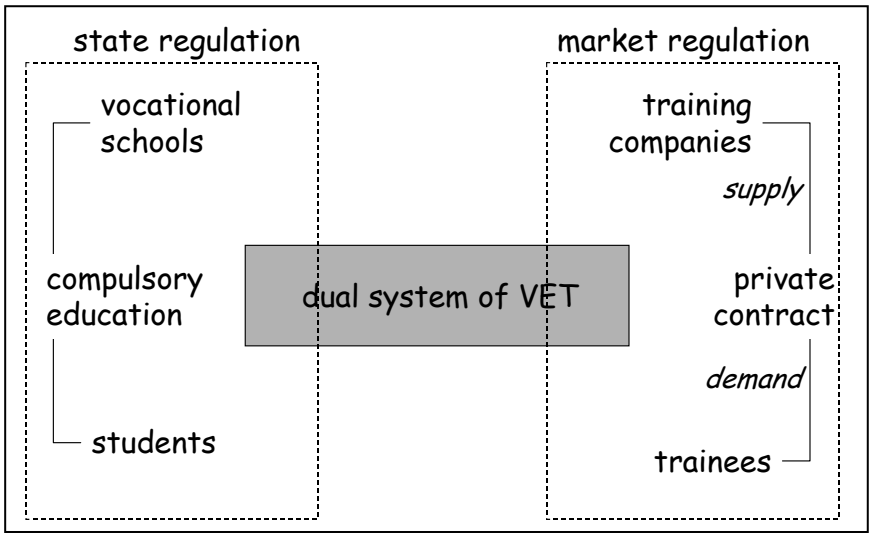
In terms of its regulative structure, the dual system may be best described as a state-controlled market model[11] in which the state sets the guidelines for the co-operation of employers and trade unions. This model is regarded as an efficient way of limiting the risks of 'market failure' on the one hand and 'state failure' on the other (Kutscha, 1995, p. 10). Building on

[10] For lists of other elements of the system indicating its duality see Benner (1996b, p. 33), Wilson (1997, p. 439) and Brand (1998, pp. 108,110). As in-company training is often supplemented by training at external training centres (Greinert, 1994, pp. 94-97) run by the Chambers or private providers, it has been argued that the term 'dual' is not accurate in its description of the relationship between training in enterprises and vocational schools (Kutscha, 1996, pp. 10f.).

[11] This model must be seen in contrast to the *bureaucratic model* (the state alone plans, organises and controls vocational training, for instance as in the former GDR) and the *market model* (the state plays no role, the provision of training is regulated solely by supply and demand). For other attempts to classify vocational training systems see Greinert (1995, chapter 2).

the feature of duality, the existence of a state-regulated and a market-regulated element can be depicted as follows:

FIGURE 2: **State-controlled market model**[12]



In this model the state delegates regulatory competence for the training system to corporatist bodies. This corporative structure in vocational training can be traced back to the amendments to the Trade Code in 1897 and 1908 (Kutscha, 1998, p. 270). The theory of *corporatism* proposes the organisation of the whole society into industrial and professional *corporations* serving as organs of political representation and exercising some control over persons and activities within their jurisdiction while still being subordinated to the state.[13]

The most important of these corporatist bodies are the local, self-governing Chambers of Industry and Commerce, the Crafts Chambers, the Chambers of Agriculture and the Associations of Professions. They have the status of 'competent bodies' (*zuständige Stellen*) and play a crucial role in the organisation, administration and examination of vocational training. More precisely, these bodies act as intermediate organisations between state and companies and put training laws and regulations into practice. The Chambers have the status of public autonomous agencies that oversee the legal and regulatory norms of vocational education and training within their sphere of responsibility according to the legal guidelines set by the state.

Following the 'principle of voluntariness', no employer is obliged to take on trainees. However, all firms have to register with a Chamber and those wishing to provide training

[12] Developed in Ertl & Sloane (2003b).

[13] Cf. 'corporatism' in Encyclopaedia Britannica, (2001); Emile Durkheim's ideas on corporatism in Aron (1967, pp. 85f.) and Wagner (1991, pp. 230f.)).

must be approved by the Chamber as a training company. The approval depends on the equipment and resources of the company, and the qualifications and experience of the trainers working for the company. It has been argued that the Chambers, therefore, not only supervise the outcomes of training (final examinations) but also the quality of the qualification process (resources, trainers' qualification) by monitoring the observance of legally binding regulations and standards.[14] The local Chamber also supervises the organisation and assessment of intermediate and final examinations and acts as an awarding body for vocational qualifications.

A further example reflecting the principle of corporatism in the training sector is the composition of regulating and executive bodies of the dual system. For instance, supervising and examining bodies are set up by the Chambers and consist of equal numbers of employers' representatives, employees' representatives and vocational school teachers. The most important of these bodies at the executive level of the training system are the vocational training committee and the board of examiners.

The most prominent body at the legislative and regulative level of the training system is the Federal Institute for Vocational Training (*Bundesinstitut für Berufsbildung – BiBB*). Following the corporatist principle, all the Institute's main boards and committees consist of an equal number of representatives of employers, employees and the federal and *Länder* governments. The most important task of the BIBB is to develop and maintain the list of recognised occupations and all related regulations (duration of training, standards, curricula, etc.). Decisions on this task are taken after mutual consultation by all the groups involved. However, it is also the cause of time-consuming negotiations whenever the regulations for a recognised occupation are updated.[15]

'Concept of the vocation'[16]

The concept of 'education by and in work' of training in dual structures is closely bound to the 'concept of the vocation' (*Berufskonzept*). Most importantly, the concept of the vocation places the individual's capability to work and act competently in a vocational environment (*berufliche Handlungsfähigkeit*) as the overarching aim of vocational education and training.

[14] This is a marked difference from outcome-orientated modular systems, for instance National Vocational Qualifications (NVQs) in England and Wales (Reuling, 1997, pp. 64f.; Rützel, 1997, p. 6). For some of the problems Chambers are facing in fulfilling these quality control functions see Dougherty (1987, pp172f.), Raggatt (1988) and Deissinger (1996b).

[15] An agreement between the social partners and the federal government in 1995 aims to reduce the time for the updating process to two years (Benner, 1996a, p. 3).

[16] The translation of the German term *Beruf* poses difficulties. Neither 'vocation' nor 'profession' is congruent with the German term, but the former is used in this paper because the latter is too closely bound to academic occupations (such as lawyers and doctors).

Education as part of the learner's personal development has been a constant feature of vocational education in Germany. Further, this concept reflects the need to prepare young people not only for a small number of specific tasks at one company, but to provide a qualification applicable in many employment contexts and responsive to the changing economic and social environments of a whole occupational field.

The 'concept of the vocation' and underlying social standards are reflected in the Vocational Training Act (*BBIG*) of 1969 and other training regulations. For instance, paragraph 1 (2) of the *BBIG* prescribes a broad basis of vocational education, a well-ordered course of training and the acquisition of sufficient vocational experience for training in a state-recognised training occupation (cf. Kuda, 1996, p. 17). At the moment, there are about 350 training occupations that are designed to prepare for about 30,000 specific jobs in companies (Benner, 1997, p. 54). Moreover, the qualification forms the basis for further training and life-long learning. As Kloas (1995, pp. 3ff.) elaborates, an initial training qualification is obligatory for most forms of state-subsidised further training or retraining.

Furthermore, the attainment of a skilled worker qualification within a recognised occupation and subsequent employment in a related vocational sector are the basis for classification in the wage system (for instance, minimum wages and salaries) and for measures of social security (for instance unemployment benefit) in Germany. Sociological studies have concluded that a person is almost exclusively perceived in relation to her/his vocation and that the vocation is used as a main source of information to form an impression of a person (Kell, 1991, p. 300; Bruijn & Howieson, 1995, pp. 91f.; Geissler & Orthey, 1998). Therefore, the vocation is a determining factor for a person's status and identity.

The following categorisation of the key features of the 'concept of the vocation' comprises the major elements for what is regarded – in the German context – as the necessary framework for a comprehensive course of training:

TABLE 2: **Key features of the 'concept of the vocation' in Germany**[17]

- ***Qualified work:***
Professional, methodical and social competences for planning, executing and controlling vocational tasks
- ***Broad vocational basis:***
Multi-layered, marketable pattern of competences relevant not only to the training company through a broad knowledge basis *and* skills specifically related to the occupation
- ***Adaptable skills:***
Skills are responsive to a changing vocational environment and represent an appropriate basis for further training and lifelong learning
- ***Mobility:***
National, state-recognised occupations decrease workers' dependence on one employer; labour mobility is enhanced
- ***Transparency:***
Recognised occupations and their value in the educational system are accepted and well-known by employers and employees
- ***Social Security:***
Qualification in a recognised occupation ensures a high degree of social security and determines to a large extent the social status

The categorisation is explicitly based on a German definition of vocation, cf. for instance a sociology-based definition by Beck et al. (1980, p. 20) which contains most of the elements of the categorisation in a very condensed form. They defined **vocation** as '[...] combinations and delimitations of specialised, standardised and institutionalised labour models that are relatively independent of specific activities but also related to these activities. Amongst other things, these combinations are traded as commodities in exchange for payment in externally determined labour and production processes within a co-operative business structure.'

The past success of the dual system is due to the effective functioning of these underlying principles and – to the same degree – to the broad societal consensus on these principles (Green, 2001). The principle of consensus in Germany on the value of education and training and strong commitment to it in practice was expressed by British observers through the term 'training culture' (Brown & Evans, 1994, p. 5). In more general terms, the consensus on the concepts and principles of vocational training at all levels of society is regarded as an expression of a living democracy and of a high commitment to training within society (Schmidt, 1996, p. 2).

However, the broad acceptance of these principles by all influential social groups in Germany makes the reform of the training system difficult. It seems much easier to preserve an existing consensus than to reach a new one. The complexity of decision-making

[17] Cf. Kloas (1997a, pp. 21-24).

procedures, in which all the stakeholders have their say, tends to underpin the status quo. The federalist structure of the German state contributes to this tendency. Very similar consequences for the training system result from a characteristic of legislation and administration in Germany known as *Verrechtlichung* (juridification) (Kloss, 1985a, p. 9). The far-reaching influence of various layers of bureaucracy and legislation on all aspects of society determines and delays decision-making not only in vocational education and training. Advocates of new training models are faced with rigid legal and bureaucratic regulations.[18]

In these circumstances, the reform process regarding the German training system is bound to be slow. It has to take the underlying principles of the dual system into account. Nevertheless, there are indications of a more intense debate on modernisation and of more decisive reform steps. The following sections attempt to trace the reasons why the reform of the training sector is on the political and educational agenda.

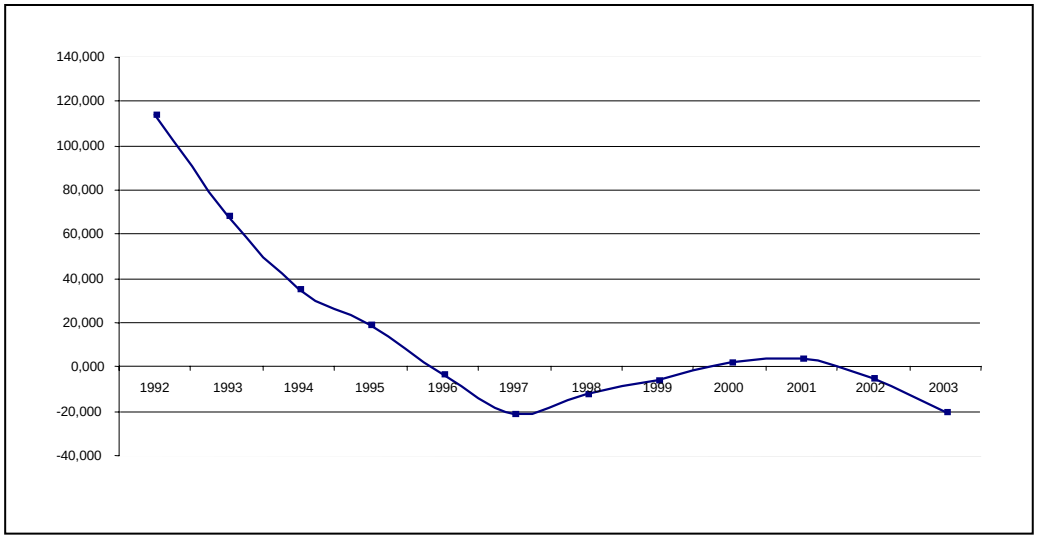
[18] In the field of general education, these phenomena have resulted in the persistence of the tripartite secondary education in most German *Länder* (Ertl & Phillips, 2000).

3. The German training crisis: a quantitative view

The structure of the dual system has remained comparatively stable over the last thirty years. However, there have been enormous difficulties in creating a similarly stable situation in eastern Germany since Unification in 1990. One of the main reasons for insufficient provision for vocational training and the high rate of youth unemployment in eastern Germany can be identified in the failure to transfer the dual system effectively from west to east.[19] In the last two years, a shortage of training places can be observed not only in eastern Germany but also in the rest of Germany where there has traditionally been a surplus of training places for most of recent times. Recent headlines in the daily papers even announce a 'training crisis' for the whole of Germany.

In quantitative terms, the dual system is regulated by market mechanisms. In rather simplistic terms this means that companies decide to offer training places and young people decide to take up training after they finish general schooling. The clearest indication for a crisis of the German dual system of training is the current shortage of training places. Considering the overall figures of supply of and demand for training places for the last decade, a shortage of training places can be identified since the mid-1990s (see Figure 3).[20]

FIGURE 3: **Excess and shortage of training places in Germany since Unification**



Source: Figures provided in BMBF (2003) and BIBB (2004)

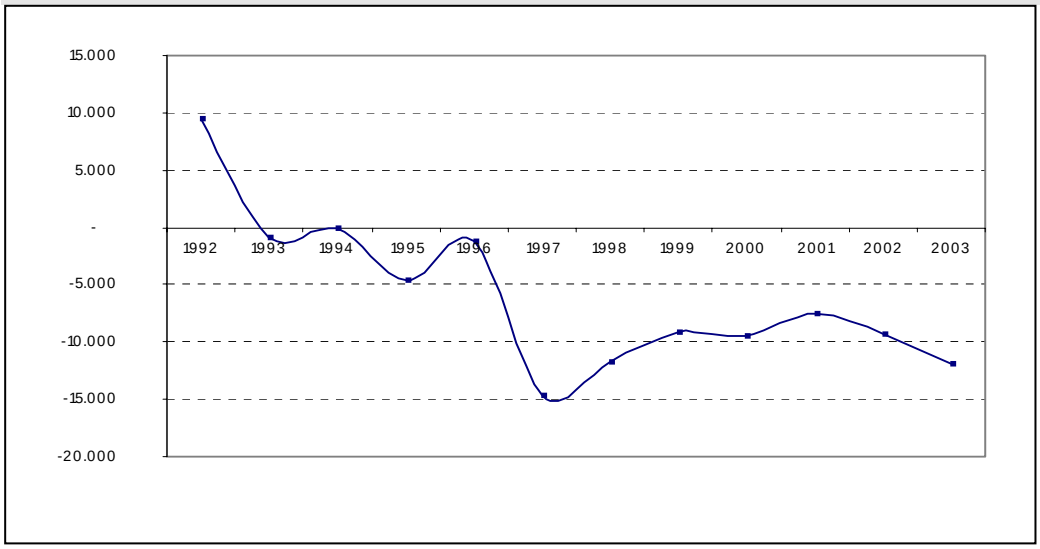
In order to judge the extent and consequences of this shortage correctly, it is necessary to consider regional differences. Whereas there was a surplus of training places in the western

[19] The problems of the training sector in eastern Germany in general and the difficulties of transferring the dual system is discussed in more detail in Ertl (2000b and 2000c).

[20] It can be assumed that a surplus of fifteen percent of training places is required to ensure a certain amount of choice for a majority of people looking for training.

federal states (*Länder*) of Germany for most of the 1990s, the figures for the eastern *Länder* show a consistent and substantial shortage of training places (see Figure 4).

FIGURE 4: **Excess and shortage of training places in eastern Germany since Unification**

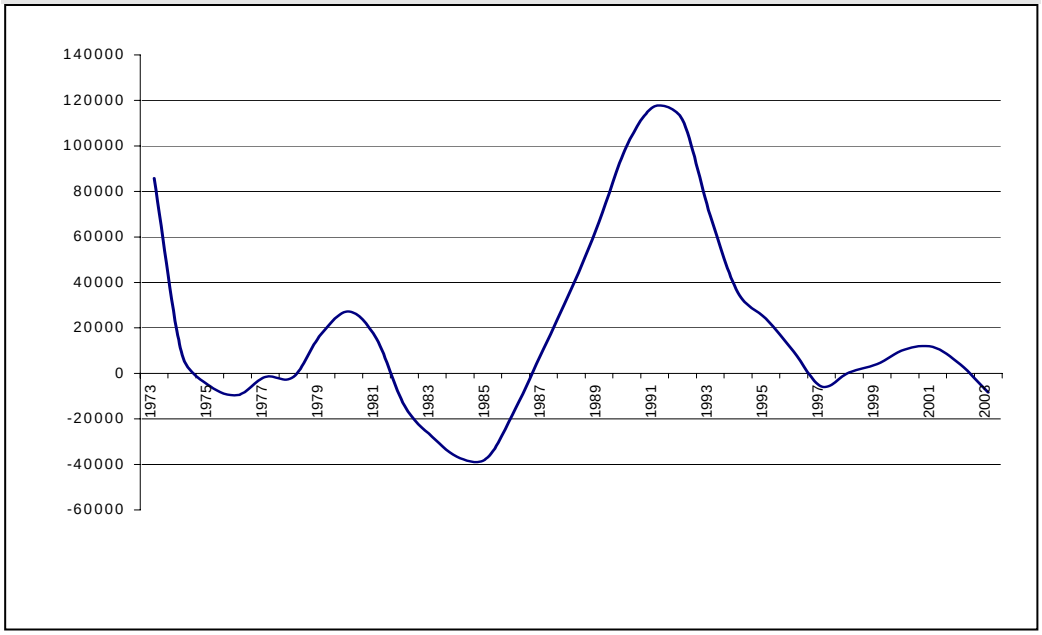


Source: Figures provided in BMBF (2003) and BIBB (2004)

Due to a number of structural problems in the training market, even many highly motivated young people in eastern Germany do not manage to get a place for their training occupation of choice (cf. Ertl, 2000b). Instead they continue at school, or decide to take on a training contract in the western *Länder*. Moreover, the numbers of concluded training contracts in eastern Germany include a substantial share either wholly or partly subsidised by federal or state government sources. In 1997, these places accounted for not less than 79 per cent of all training places (BMBF, 1998, p. 35). Therefore, some observers conclude that the dual system has not yet stabilised in the former East Germany. Culpepper (1999, p. 51) has termed this situation a 'subsidized disequilibrium'.

Taking a longer-term view, however, it becomes clear that the dual system has been subject to a number of quantitative crises. This is evident if the figures for supply and demand of training places are considered since the early 1970s, when these statistics were started (see Figure 5).

FIGURE 5: **Excess and shortage of training places in <u>western</u> Germany 1973-2002**



Source: Figures provided in BMBF (2003) BMBW (1993), BMBW (1977), BIBB (2004)

These figures can be interpreted in terms of the influence of the overall economic situation on the training market: the shortage of training places in the mid-1970s can be explained by the oil-crisis, as can the situation in the mid-1980s in the German economy caused by the world-wide recession at the time. In the same way, the 'training crisis' of today can be interpreted as a consequence of the ailing German economy.

However, times of crisis always shed light on structural problems of the training systems that are not obvious in times of shortage of qualified workers. Therefore, waves of innovation and reform of training provisions can be identified in the times of crises shown in Figure 5. For instance, in the mid-1970s the legal foundations of the dual system were stabilised. The Federal Institute for Vocational Training (BIBB) was founded in this process to supervise and innovate the company-based elements of the dual system. Also, provisions for school-based vocational preparation were introduced as a result of the rising number of young people who were unable to find a training place in the dual system. In the mid-1980s, the quantitative crisis was met by the development of activity-oriented training provisions particularly for in-company training processes. Moreover, a large number of training occupations were updated and newly structured.[21]

In summary, it can be argued that the structure of the dual system has remained comparatively stable over the last thirty years. However, there have been enormous

[21] The reactions to the lack of training places in the mid-1990s are described in some detail in section 4 of this paper.
For a comprehensive account on the development of the dual system in the 1970s and 1980s see Greinert (1998).

difficulties in creating a similarly stable situation in eastern Germany since Unification in 1990. One of the main reasons for insufficient provision for vocational training and the high rate of youth unemployment in eastern Germany can be identified in the failure to transfer the dual system effectively from west to east. In the last two years, a shortage of training places can be observed not only in eastern Germany but also in the rest of Germany where there has traditionally been a surplus of training places for most of recent times. Recent headlines in the daily papers even announce a ‘training crisis’ for the whole of Germany.

4. Modernisation and reform: selected initiatives and approaches

The dual system of VET in Germany has been called into question by many educational researchers not only because of the apparent quantitative crisis. The future prospects of the system are the subject of great controversy. Arguments in favour of a sceptical position are provided by the symptoms of crisis in the training sector: the decreasing appeal of the dual system to potential trainees, the declining willingness of employers to provide training places, and drastically dwindling state resources for training (Münk, 1997, p. 8).

Sloane (1997, p. 233) speaks of a double-sided crisis within the system: On the one hand, large training companies are reducing their training places because of the high costs, and on the other hand, small- and medium-sized firms have difficulties finding suitable trainees because their training provisions appear not to be attractive enough to gifted young people in contrast to higher education.[22]

The dual system faces significant changes: rising educational standards, increasing heterogeneity of trainees, higher demands on training and higher average age of trainees, changing training conditions in companies (Keune & Zielke, 1992, p. 32; Georg, 1997, p. 314).[23] Undoubtedly, these changes do not only concern the dual system but are rooted in changing social conditions affecting the main structures of the whole educational system (Reuling, 1998).[24]

Increasingly, the underlying principles of the dual system are questioned too. For instance during the early 1990s, experts in the field began to question whether the 'concept of the vocation' was still the right basis for the German training system. Whereas the merits of the concept for reconstruction and development after political and economic crises are unanimously acknowledged, some observers doubt its potential to respond to the modernisation pressures of a rapidly changing economic environment (Geissler, 1994, p. 328). The most important consequence of this process of change for VET is the decreasing value of initial qualifications, whereas further training and lifelong learning have become more significant in any worker's career. In their article 'At the End of the Vocation', Geissler & Orthey (1998) argue that vocations will be replaced by quickly adaptable 'packages of

[22] For the relevant statistics on training supply and demand see BMBF (2000a, 2001), BIBB (2004), and for a prognosis of the future demand for training places see BIBB (2000).

[23] This list does not claim to be exhaustive. It illustrates the range of issues connected with the changing socio-economic environment of training provisions. For a different list see Sellin (1995, p. 191).

[24] See Müller & Schaarschuch (1996, p. 9) and Deissinger (1996b, p. 324). It has even been argued that the dual system is not in crisis but its institutions are (Schmidt, 1996, p. 2); in particular the *Berufsschule* seems to have been in need of reform for decades because the didactic shortcomings and the 'identity crises' caused by improving in-company training in the larger training enterprises were already identified by Kloss (1985b).

skills' that are based on 'meta-competences' with the ability and willingness to learn constantly being the most important of these.

Irrespective of whether one follows this line of argumentation or not,[25] it is clear that the debate on the future of the concept of the vocation is still intensifying.[26] However, there seems to be agreement that the solution to the problems of the dual system of training must include more flexible structures for training. Flexibility in this context means primarily

- the responsiveness of training provision to the *changing work environment*. This responsiveness is necessary in order to meet the latest skill demands which emphasise comprehensive skills and knowledge structures.
- the responsiveness of training provisions to the *varying degrees of personal potential* of trainees in the form of individualised training pathways. This individualisation is also concerned with increasingly individualised pedagogical approaches and assessment procedures (Sloane, 1997, p. 231; Bruijn et al., 1993, p. 1).

Most frequently, educational researchers suggest measures of deregulation and differentiation to create flexibility in the two forms mentioned. More decision-making processes at a regional or local level and differentiated training paths, both integrated in a national framework, would be needed (Koch & Reuling, 1994).

More specifically, the options of reforms of the dual system can be systematised in a number of different levels:

- ***Structural modernisation***, including improvements of the transitions between general and vocational educational pathways, integration of initial and further education, and extension of the dual system to sectors that have not offered training within the system;
- ***Institutional co-operation***, including improvements of the co-operation of the partners of the dual system and the integration of other training venues;
- ***Re-conceptualisation of curricula***, including modularisation of training provisions and the implementation of additional qualifications; and
- ***Didactic innovation***, including promotion of activity-oriented and cross-curricular teaching and learning processes (cf. Sloane & Hasenbank, 2001, p. 224).

In the following, examples of current reform developments concerning these levels are provided and the debates surrounding a number of reform projects are described in some detail. It is important to note that the identification of different levels and areas of reform is only a means of systematisation: most of the reform developments mentioned not only

[25] Influential vocational educationists argue that in the absence of a structural and functional alternative to the concept of the vocation (Kutscha, 1992, p. 538), its modernisation is the only promising way forward to remedy the current symptoms of crisis in the VET system in Germany.

[26] Clear indications for the high intensity of the debate on the concept of the vocation are the numerous publications surrounding the future of the concept. See for instance Deissinger (1998), Harney & Tenorth (1999), Georg (2001), Backes-Haase (2002), Arnold (2003).

impinge upon one level or area but have consequences for others reform levels and areas too. In some cases, individual reform projects also go hand in hand with other projects. For instance, the debate on modularisation at the curricula level led to the question of how teacher training provisions need to be developed in order to enable young teachers to work with newly designed curricula guidelines. Further examples are projects that combine the introduction of cross-curricular learning with the improvement of school-company co-operation (Kremer, 1999 and Sloane, 2000b).

Structural modernisation

The training occupations offered in the dual system have an 'exclusive status': young people under the age of eighteen are only allowed to be trained in one of the recognised occupations (para. 28 (1, 2) *BBIG*). This restrictive regulation requires that the training occupations are continuously developed and updated in line with the vocationally orientated labour markets (*berufsfachliche Arbeitsmärkte*) (Reuling, 1998).[27]

The training regulations are based on common occupational practices. New occupational requirements resulting from new technologies or other innovations can become part of the training regulations only if a sufficient number of companies can offer instruction covering these new requirements.[28] Therefore, training regulations tend to lag behind the latest occupational practices (Koch & Reuling, 1998, p. 9).

However, between 1996 and 2001, the regulations of 114 of the total 348 training occupations were updated and 39 new training occupations were established. These numbers are remarkable in the German context as they indicate a stronger commitment for modernising the dual system of the social and administrative groups involved in regulating vocational training in Germany. This becomes clear if the figures for the five-year period (1996-2001) are compared with the corresponding figures for the preceding fifteen-year period (1980-1995) during which only 14 new training occupations were created and 166 existing ones were updated (BIBB, 2001, p. 12).[29] The newly developed training regulations cover such diverse occupations as stage designer, frontage mechanic, event manager, health manager, automobile dealer, and the combination of what used to be the separate occupations of mechanics and electronics engineers (*Mechatroniker*) (cf. Borch & Weissmann, 1999).

[27] For the theory of this type of labour market see Sengenberger (1987, pp. 126-149).

[28] For the exact processes involved in developing recognised occupations see Kutscha (1996, pp. 22ff.) and Benner (1997).
For the roles of the different stakeholders in VET policy-making in Germany see Brand (1998).

[29] In 2002, eighteen existing training regulations are modernised (BIBB, 2001, pp. 64f.).

With all these new training occupations it is hoped to raise the attractiveness of the dual system for prospective training companies and trainees (BIBB, 2001, pp. 5f.).

Particular hopes in this respect are linked to two fast growing economic sectors that have only started recently to offer training in the dual system: the IT and the media sector (Pütz, 1999). The new training occupations in the IT sector include IT electronics engineer, informatics and IT manager, and engineer for microelectronics. In the media sector, training regulations were developed for media designers (for audio and visual media / for digital and print media) and specialists for media and information services (BMBF, 2000b, p. 6 and BIBB, 2001, p. 6). The new training occupations in these two sectors seem to be extraordinarily popular with training companies and trainees: The growth rates of training contracts in the newly created training occupations range from twenty to over fifty percent in the first years of their existence (BIBB, 2001, p. 6). In the training year 2001/02 there was an increase of ten percent (+28,600) in training contracts in the new IT and media training occupations (IDW, 2002, p. 2). This contributes to the structural modernisation of the training sector in as far as training in the crafts sector and in agriculture continues to decline while training in the services, IT and media sectors increases.[30]

Institutional co-operation

In particular for start-up companies in the IT sector it is in many cases impossible to offer all the training contents prescribed in the training regulations. For such companies, three types of co-operation are offered in order to cover all training contents:

- In a ***consortium*** co-operation is initiated between a number of small companies that are specialised in different fields of the same economic sector. The trainees spend time in all participating companies in order to cover all the contents of the respective training regulation. The involved companies form a so-called training association (*Ausbildungsverbund*).
- A small company can also commission parts of the training process to a larger training company that trains young people in the same training occupation and has spare capacities. In the same way co-operation can be initiated between small companies and external training centres, mostly run by the self-governing bodies of business and industry such as the Chambers of Commerce (Waterkamp, 2002, pp. 7f.). In this system of ***commissioned training*** (*Auftragsausbildung*) administrative matters (including formulation of training contracts, organisation of a training plan, enrolment for intermediate and final exams) as well as responsibility for certain training contents can be transferred from companies that lack sufficient experience and/or resources to a partner institution.
- A number of smaller companies can also establish a ***training society*** (*Ausbildungs-verein*) which administers the training of trainees centrally. The individual training

[30] The German Economic Institute shows a decline of training contracts in the crafts sector of 4.1 percent in western Germany and of even 10.6 percent in eastern Germany. The corresponding figures for agriculture are a decline of 9.4 percent and 1.8 percent (IDW, 2002, p. 2).

> companies are members of the society and entrust the overall responsibility for the training process to the society. The training society formally assumes the role of the training institution. It organises the training, including on-the-job training of the trainees with the member companies (cf. BIBB, 2000, pp.108-115).

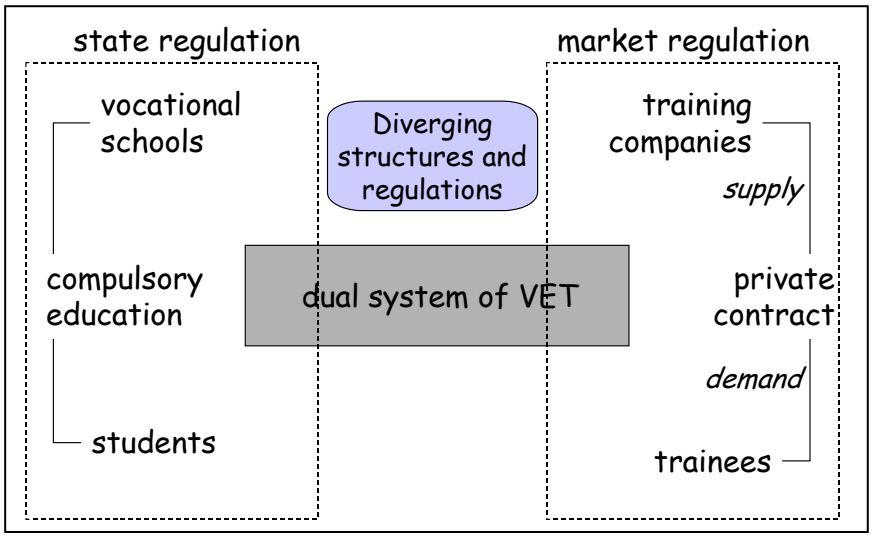
There is a certain amount of experience with all three types of co-operation, but they seem of particular relevance for new companies in the IT, media and services sector that have not offered training places hitherto. Advice and support in setting up and running such co-operations is offered by the responsible federal and *Land* ministries as well as by regional Chambers and job centres (BMBF, 2000b).

A further field of co-operation of institutions represents the need for co-ordination of the training processes at the two primary training venues of the dual system: training companies and part-time vocational schools. Due to their independence, there is the danger of a lack of coherence and co-operation between the two venues. This includes the tendency towards insufficient co-ordination between theoretical and practical training contents (Sloane, 1994, pp. 205f.; Pätzold, 1997, pp. 124-130). The analysis of current co-operation patterns between vocational schools and training companies has shown that only thirty percent of institutions are involved in regular co-operation. This means that in over sixty percent of cases, teachers at schools and trainers at companies either have no contact with each other at all, or communication only takes place occasionally. In most of the latter cases, teachers and trainers only start to co-operate when serious problems with a trainee occur. The evidence for this analysis seems conclusive, i.e. research in different economic sectors, in different parts of Germany, and over a longer period of time come to similar results. The evidence also suggests that bigger training companies are more likely to initiate constant and effective co-operation with vocational schools than small and medium-sized companies.[31]

In the light of these results, research has focused on the improvement of the co-operation of the two training venues of the dual system over the last two decades, rather than on calling into question the principle of duality of the training provisions. In terms of the structure of the dual system, a transition problem between the workplace in training companies and education at vocational schools can be identified:

[31] Cf. for instance Autsch et al. (1993), Pätzold & Walden (1995) and Berger (1998).

FIGURE 6: **Transition problem 1 – The structural gap between schools and work contexts**[32]



In order to solve this transition problem, a number of pilot projects have been initiated.[33] The main aim of these projects and of the related research is to overcome the lack of coherence between classroom learning at vocational schools, associated with the acquisition of subject knowledge, and workplace learning in the training companies taking place in ad hoc style while the trainee is actively engaged in productive work (Walden, 1996). The body of research acknowledges that the learning demands on both training sites are changing. Training at vocational schools and in training companies needs to be developed in ways in which '[...] knowledge [can be] situated in specific contexts if it is to become part of the experience of the learner' (Young, 1999, p. 19).[34]

With regard to intensified co-operation of the institutions involved in the training process, Kutscha (1993, 1997) advocates the expansion of the dual system into a 'plural system' which

[32] Developed in Ertl & Sloane (2003b).

[33] Cf. for instance the approaches developed by the pilot project *Kooperation der Lernorte in der beruflichen Bildung* – Co-operation of the Training Venues in Vocational Education (Euler, 1998a, 1998b, 1999) and the project *Fächer- und Lernortübergreifender Unterricht* – Cross-curricular and Cross-venue Teaching and Learning (Kremer, 1999 and Sloane, 2000b).
For an overview of pilot projects in the area of co-operation of the partners in the dual system see BIBB (1998, pp. 109-132).

[34] The fact that Young has argued for a re-conceptualised relationship between training sites in the context of his concept of a 'curriculum of the future' that would unify provisions for academic and vocational provisions in England and Wales (Young, 1998) shows that the problems of co-ordination between learning at different sites go beyond the context of training in the German dual system. Young (1999, p. 18) has identified the following general developments for schools and workplaces as training venues: 'Workplaces increasingly require knowledge that cannot be learned "in practice" and schools are being expected to prepare their students not just to pass exams but to be lifelong learners in contexts where there may not be teachers.'

would not only integrate learning venues like external training centres and 'polytechnics' (*Fachhochschulen*) into the training structure but also school-based training courses outside the dual system (cf. Autsch et al., 1993; Rosenau, 1997, p. 11 and Hahn, 1997).

Re-conceptualisation of curricula

The comprehensive nature of state-recognised training occupations and the complex and often lengthy process of developing and updating the regulations and curricula for these training occupations has been described earlier in this paper. These complex processes are a main reason for the perceived inadequacies of the dual system for meeting the demands of a rapidly changing economic environment.

Modularisation in VET is one of the main approaches that could increase the aforementioned types of flexibility since modularised structures can potentially be more rapidly updated than conventional training provision. The basic idea of modularisation is to create training arrangements that are composed by a set of self-contained elements or modules. These modules are distinguished from 'conventional' courses by their outcome orientation, their shorter duration, and – in some cases – their relevance for more than one course of training (Watkins, 1987; Young, 1995; Lauterbach & Grollman, 1998). Modularisation is currently applied or introduced in varying conceptual frameworks in several European – in most such cases with the explicit aim of modernising training structures perceived as too inflexible for matching the demands of an ever more changing economic world.[35]

Although modularisation is also discussed as a promising way of reforming the dual system, the German debate about modularity seems in many respects to be in the early stages. The assessment by Richardson et al. (1995a, p. 22) that '[...] education and training systems which are relatively stable have shown little interest to date in modularity and credit' applies perfectly to the case of Germany. Moreover, the debate on modularisation in Germany seems to suffer from the fact that it often remains unclear what concept of modularisation is under scrutiny (Wiegand, 1996, pp. 261f.). For instance, the comparison of definitions of modules and modularisation (cf. Ertl, 2000a, appendix II) makes it clear that there is no consensus on the applicability and possible contexts of modularity. In order to overcome this dilemma, a number of conceptualisations have been developed recently, identifying conceivable types of modular structures for the German system of initial training. The following three concepts are a synopsis of different conceptualisations developed in the German context:[36]

[35] Cf. for instance the comparison of modular VET structures in the Netherlands, Spain, France and Scotland in Ertl (2001).

[36] This attempt to conceptualise modularisation in VET is based on similar accounts by Deissinger (1996a, pp. 192f.), Zedler (1996, pp. 20f.), Sloane (1997, pp. 227-231), Rützel (1997, pp. 5f) and Kloas (1997a, pp. 11f.).

TABLE 3: **Concepts of modularisation in VET in the German context**

- ***Expansion concept:***

Modules supplement initial training qualifications to generate additional competences that are typically the subject of further education and training. The overall functions of initial qualifications are expanded.

There are two types of organisational implementation: In the *consecutive model* the contents of initial and further training remain separated. In the *integrative model* the contents of further training are integrated into the initial qualification.

- ***Differentiation concept:***

Modules are self-contained and can be assessed and credited individually, but they are only marketable as part of an overall qualification. The framework of the overall qualification regulates the combination of modules. Modules can be the result of restructuring the curricula of existing qualifications.

The differentiation concept facilitates the accreditation of prior learning. Modules can be accredited towards different vocational qualifications but also across the academic/vocational divide.

- ***Fragmentation concept:***

Modules are credited and marketable without the framework of an overall qualification. By combining modules freely, trainees create individualised qualifications that mirror the requirements of a rapidly changing occupational environment.

In comparison to the *expansion* and the *differentiation concept*, the *fragmentation concept* offers the greatest opportunities for flexibility and individuality in VET but poses the danger of establishing disintegrated part-qualifications that are not recognised by employers.

The opponents of modular structures in Germany simply put forward the 'concept of the vocation' and describe it as incompatible with any type of modularisation. From the conceptualisation, however, it becomes clear that is only the *fragmentation concept* that is incompatible with this concept. Therefore, it is only this concept that causes the controversial debate regarding modularisation in Germany (cf. ZDH, 1993, p. 128; Zedler, 1996, pp. 20f. and 1997, p. 42; Schmidt, 1997, p. 42).

However, in this politically driven argument, the potential of the other two concepts is neglected. Most importantly, the *differentiation concept* could be used to create flexible and individualised routes to qualifications which may bridge the gap between vocational and academic careers, and to increase the efficiency in the training sector as a result of the multiple relevance of modules. Further, the traditional, chronological pattern of training comprising vocational orientation and preparation, initial vocational training, and further training and education, which has determined the careers of the majority of working people in Germany for decades, is rapidly dissolving. The *expansion concept* in particular recognises these developments and integrates initial and further training in a systematic way.

The potential of the two concepts of modularity could be realised by developing the existing elements of occupational profiles (*Berufsbildpositionen*) into self-contained part-qualifications which fulfil the functions of modules.[37] Currently, occupational profiles are divided into a number of elements regarded as relevant for a vocation. In order to fulfil the functions of modules, these elements of occupational profiles and the current accreditation procedures have to be transformed in a number of ways, including the

- development of *outcome specifications* (as opposed to the current exclusive reliance on the specification of input factors of the training process),
- development of an adequate *accreditation instrument* for individual modules (as opposed to the 'all-or-nothing' character of the dual system's current assessment regime, which is focused on the all-important final examination),
- development of flexible, *modular assessment systems* (allowing for assessment immediately after a module is completed and for a greater variety of testing methods), and
- development of modules with *multiple relevance* (as opposed to the current tendency of developing comprehensive training regulations for each state-recognised occupation in isolation) (cf. Ertl, 2002a, pp. 60ff.).

For the success of this strategy it is important that these developments take place within the corporative structure of the German regulatory framework to ensure that employers and trade unions of the different occupational areas generally accept the standards of the modules. By developing modules within the framework of existing recognised training occupations, the danger of fragmentation in the VET sector – one of the main criticisms faced by NVQs and GNVQs (Smithers, 1997, p. 57) – can be minimised (Deissinger, 1996a, p. 200). The combination of self-contained modules (i.e. further developed and redesigned elements of occupational profiles) is regulated by an overall qualification, and modules are generally only marketable as part of a comprehensive qualification.

Didactic reform

In order to understand the scope of change didactic innovations have brought to training processes in the German dual system, one has to be aware of the traditional method of teaching that has developed from the beginnings of the apprenticeship system which arose in the Middle Ages in the craft trades. The apprentice adopted the work techniques and skills of his master. He tried to imitate his master as closely as possible and to improve his skills by practising. In the 1920s and 1930s this basic model was moulded into a linear sequence of steps when large industrial companies introduced means of standardised training for a large number of apprentices for the purpose of creating employees skilled for mass production. This process can be seen as the didactic integration of the Taylorist plant regime of labour division

[37] This strategy draws on ideas from Kloas (1997a, 1997b, 1997c) and Rützel (1997).

into the traditional German 'concept of the vocation'. The result of this integration process at a micro-didactic level was the 'four-step-method' which dominated company-based training in Germany for the greater part of the twentieth century:[38]

TABLE 4: **The four-step-method of company-based training**

Active Person	Stages of Activity
Trainer	1. Preparation
	2. Demonstration
Trainee	3. Imitation
	4. Exercise

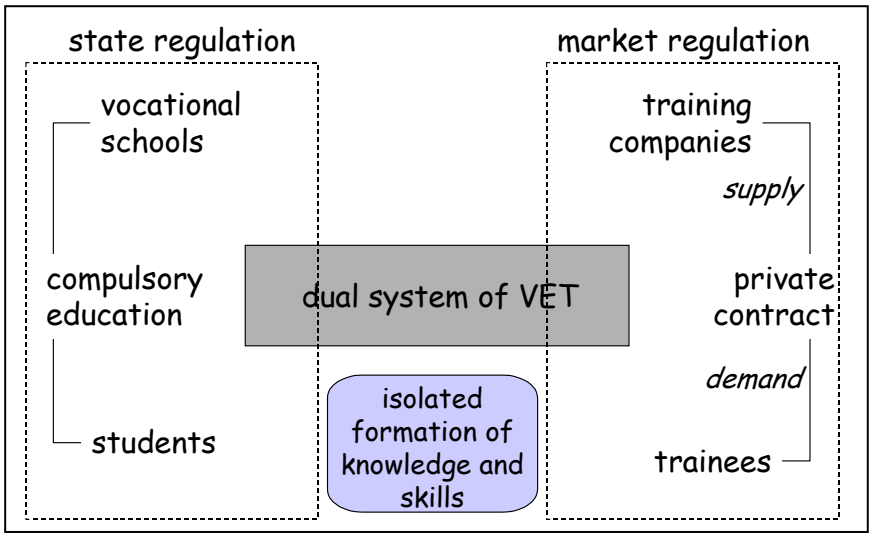
It is important to note that the four-step-method was developed and used in strongly hierarchical and directional company structures. Its effectiveness was dependent on the clearly defined roles of the trainer (who has specialist knowledge and skills and who knows the only possible way of using them) and the trainee (who is willing to accept the dominant role of the trainer and to put aside her or his own interests and aspirations) in the learning process.

With the introduction of new, flexible production processes, primarily as a consequence of the rapid progress of information technology, the Taylorist division of work started to lose its dominance. Although the identification of a Taylorist and a post-Taylorist era would be simplistic and in spite of doubts as to the extent to which the new era of production processes has materialised, decentralisation, work in partly autonomous groups, and company-wide quality control measures did influence training methods.

For the dual system, these developments make it necessary to think of new ways in which knowledge and skills developed at schools can be applied at the workplace of trainees and vice versa. In more general terms, a transition problem between the state-regulated learning context and the market-regulated training context can be identified:

[38] Cf. Kutscha (1995, p. 14).

FIGURE 7: **Transition problem 2 – The skills and knowledge gap between school-based and work-based training contexts**[39]



For training at companies, new concepts were developed to take the changed work environment into account. It was concluded that tasks and functions were no longer separate issues and this resulted in the skilled worker having to fulfil the formerly separated functions of planning, executing and controlling work tasks. As a consequence, more complex and integrated training processes had to be developed to enable the trainee to fulfil the new role. The traditional four-step-method could not provide such processes.

The following outline represents one example of such new methods of in-company training, developed in the field of metal work occupations but analogous to approaches in other fields (cf. Kutscha, 1995, pp. 13ff.). The process is organised into 6 sequences[40] in which trainees solve complex work tasks.

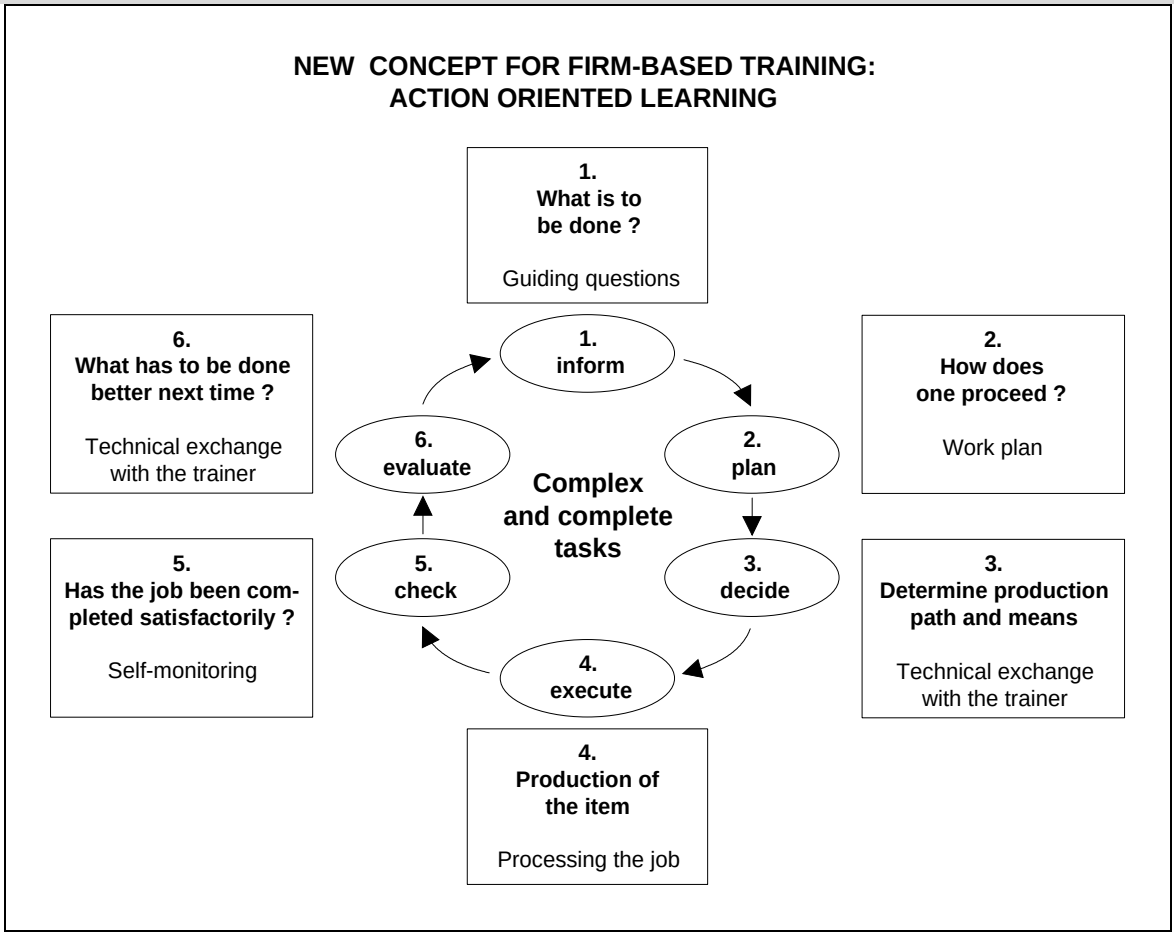
- The trainees are given the tasks and basic explanations. For this sequence 'guiding texts' (prepared written materials that support independent learning) and interactive training programmes may be used.
- The trainees try to find the information they need independently. They plan necessary steps and resources.
- The resulting plan is discussed with trainers who also support decision-making.
- The trainees execute the plan unaided, in most cases in teamwork.
- The trainees control and assess the final product independently to learn to judge the quality of their work.
- After this process of self-monitoring, the trainees present their work to the trainers. Together they discuss any problems and draw conclusions for future tasks.

[39] Developed in Ertl & Sloane (2003b).

[40] For sequencing mechanisms based on the theory of activity-oriented learning see Ebner (1992).

This model is explicitly based on the trainees' actions. Thinking in comprehensive patterns and teamwork are fostered. This implies distinctly different roles for trainees and trainers to those in the four-step-method. Kutscha (1995, p. 15) illustrated the concept in the following diagram:

FIGURE 8:



Since the mid-1990s the concept of 'complex and complete tasks' as illustrated by Kutscha has been further developed and extended to training processes at vocational schools.[41] In the school context the most prominent expression of the ideas of activity-oriented and comprehensive learning is the recently introduced concept of 'areas of learning' as described in the next section.[42]

[41] The idea of 'complex teaching and learning arrangements' as developed by Achtenhagen et al. (1992) has a far-reaching influence on the curricula and didactic reform of training provisions in Germany. At an European level, this idea is the core of research and innovation co-operation within the EU-funded research project COST (Kremer & Sloane, 2001).

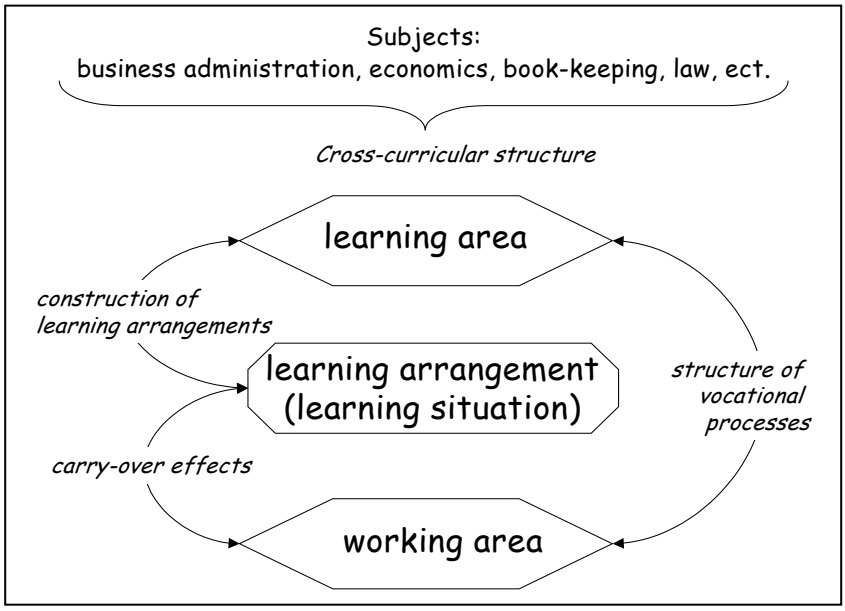
[42] Berger & Diehl (2000, p. 8) regard the concepts of activity-orientation and comprehensiveness of teaching and learning processes as the dominant didactic models of the *Lernfeldkonzept*.

5. ‘Areas of learning’: the concept and its consequences

Arguably the most important step of reform in the current crisis is the so-called ‘Lernfeldkonzept’. The term *Lernfelder* can be roughly translated as ‘learning areas’. The concept was introduced formally by a decision of the Conference of Education Ministers (*Kultusministerkonferenz*) in 1999 (KMK, 1999; cf. Bader, 2000). It applies the notions of didactic innovations such as activity-oriented and comprehensive learning to the context of vocational colleges.

The main idea of this concept is the reconstruction and/or simulation of vocational processes at vocational colleges. Tasks and activities the trainees are typically confronted with in training companies (‘working area’) are the basis for the construction of ‘learning arrangements’ (learning situations at vocational colleges) that constitute a learning area (Sloane, 2001). Learning areas also draw on the knowledge that is represented in conventional school subjects. However, the traditional subjects are transformed into a cross-curricular structure in which comprehensive tasks have to be fulfilled and real-life problems have to be solved by the trainees. Put in a nutshell, learning areas represent pedagogically adapted and enriched vocational processes derived from actual work contexts (Kremer & Sloane, 2000, p. 73). The connection between learning and working areas and the way in which learning arrangements are constructed is illustrated in Figure 9:

FIGURE 9: **Connection between learning areas and work contexts**

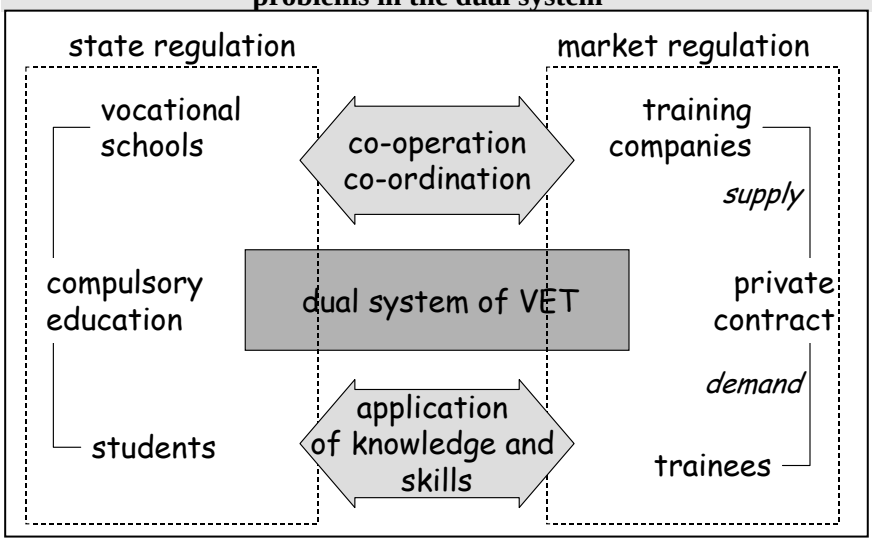


Source: Adaptation of a figure by Kremer & Sloane (2000, p. 74)

The concept of learning areas creates a systematic connection between workplaces and the curricular sources on which basis learning at vocational school takes place. In order for the

teachers to construct day-to-day learning arrangements it is necessary that they co-operate with training companies. Structural linkages between the two training venues are the pre-condition for this process. Moreover, the formation of knowledge and skills at vocational schools will take the potential of their application into account. Due to their connection to the working area of trainees, learning areas will focus on knowledge and skills that are inherently relevant for fulfilling the tasks trainees face at their workplace. Therefore, the concept of areas of learning seem to be well equipped to solve both transition problems outlined in the previous sections (see Figures 6 and 7):

FIGURE 10: **The concept of areas of learning and the transition problems in the dual system**[43]



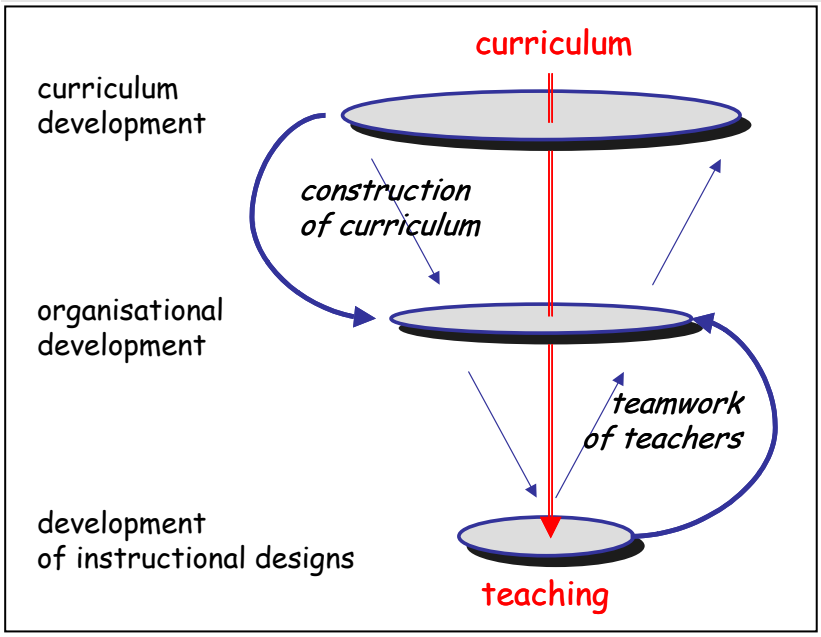
There are a number of conditions for the successful implementation of the concept of learning areas. First and foremost, the work and the role of teachers at vocational colleges has to change. For instance, the concept requires and structures the co-operation of the primary training venues of the dual system, since teachers at vocational colleges and trainers at training companies have to work together in order to ensure correspondence of working and learning areas (Ertl & Sloane, 2003a).

As the new curricula based on the concept of learning areas are formulated in an open way (in contrast to the strongly prescriptive curricula in the past), the translation of curricula into instructional designs becomes part of the work of teachers. The processes of curriculum construction are transferred form the state level to the level of individual schools. This task can only be fulfilled in close co-operation of the teaching staff, which has consequences for the ways in which vocational colleges are organised. In sum, the responsibilities of teachers

[43] Developed in Ertl & Sloane (2003b).

increase and the tasks they are asked to fulfil become more complex. These are typical indicators for job enrichment (see Figure 10).

FIGURE 11: **Job enrichment at vocational schools**[44]



In the light of the current 'training crisis', the *Lernfeldkonzept* is regarded as one way of improving the dual system, in particular in terms of its responsiveness towards the challenges of modern workplaces. Therefore, it is hoped that it increases the willingness of companies to offer training places and thus to overcome the quantitative crisis of the system.

[44] Developed in Ertl & Sloane (2003b).

Conclusions: Reform options and the political climate

With regard to the reform measures described in the previous sections, it can be said that the modernisation of VET in Germany has only proven to be feasible within the regulatory framework set by the underlying principles of the dual system. The context of debate at two of the aforementioned levels of reform may illustrate this point of view:

In the case of projects attempting to improve the co-operation between the dual system's two primary learning sites (institutional level), the debate is based on the acknowledgement that the 'principle of duality' should not be questioned. The assumption that the combination of training at vocational schools and in training companies is the best way of organising VET not only dominates the respective pilot schemes but it is also – at a closer view – the main reason why the schemes are necessary. Radically different reform models, for instance the introduction of in-company vocational schools, are hardly ever discusses.

This is somewhat surprising, since there is a well-known precedent for such a model in Germany: In the former GDR, the majority of trainees were trained in vocational schools that were part of a training company (*Betriebsberufsschulen*). These schools formed a department of the large nationalised companies and combines, with the head of the school being directly responsible to the company leadership (Waterkamp, 1987, p. 193; Horn, 1992, pp. 53f.). This model was regarded by a number of observers as being better equipped to prepare trainees for the demands of work in the company, particularly as the company was obliged to offer every trainee a permanent job after the training (see, for instance, Siemon, 1991, p. 269).[45]

In the case of modularisation in VET (curricular level), the major focus of the debate in Germany seems to be driven by educational policy rather than by arguments concerning pedagogical aspects or the teaching/learning process (Pütz, 1997, p. 63; Münk, 1995, pp. 35f.). The arguments put forward by supporters of modularisation seem to be unclear and sometimes dubious.

For example, Kloas (1997b, p. 18) suggests that controlling departments of companies may favour modularisation only because they hope to cut the costs of training. Others seem to use the term with inflationary frequency, because it sounds modern and progressive, without understanding the concept at all. agedorn (1997, p. 18) characterises the trade unions' attitude towards modularisation in VET as a 'primeval fear' which is not objectively justified. For example, some unions believe their right to free collective bargaining is endangered by modularisation (Münk, 1997, p. 7).

[45] For a discussion of this drive towards a 'unitary system' of vocational training in the GDR see Ertl (2000b).

On the other hand, the opponents of modular structures simply put forward the ‘concept of the vocation’ and describe it as incompatible with any type of modularisation. Examples of this point of view are the reaction of the German Federal Government to the *Memorandum of the EU Commission for the Community’s Policy in Vocational Education in the 1990s*: ‘Modules as a regulatory framework are rejected’ (quoted in Lipsmeier & Münk, 1994, pp. 77f.; Münk, 1995, p. 35); and the wholesale disapproval of certificates for modules by many employers because they would represent ‘ [...] an inadequate alternative to the current vocational examinations’ (quoted in Deissinger, 1996a, p. 190). The first reactions against modularisation in Germany came from the craft trades as the traditional apprenticeship system has a strong base within them (ZDH, 1993; Cleve & Kell, 1996, p. 19).

Both positions outlined in the previous paragraphs seem to be inappropriate starting points for an unbiased analysis of the potential advantages modularisation has to offer for the German VET system.

As a result, modular structures can be found only in comparatively small areas of VET, for example in the qualifications of specific target groups, in further training, in retraining schemes, in schemes for initial training of people in work, and in schemes for additional qualifications in initial training (Brinke & Rüb, 1995; Davids, 1996; Kloas, 1996; Reuling & Sauter, 1996, p. 6; Zedler, 1996, p. 20; Sloane, 1997, p. 224; Davids, 1998; BBJ, 2000). Modularisation in these sectors of training has been tested in a number of pilot schemes. For instance, the Federal Ministry of Education, Science, Research and Technology initiated a scheme for modularised training of people in work in 1995. Davids (1998) provides various reports on the experience with modularisation in different economic sectors in different parts of Germany.

The potential of modular approaches to ‘rejuvenate’ the ‘concept of the vocation’ is wasted. Modularisation could be utilised to overcome the static interpretation of the ‘concept of the vocation’ by introducing measures that allow vocational training to take the rapidly changing economic environment and the individualised career paths of young people into account.

For reform attempts that are based on the underlying principles of the dual system, it seems that those approaches that initiate change at more than one of the levels described have a better chance of becoming reality and of improving training provisions. As an example for such a ‘multi-level’ approach, a discussion of the concept of ‘areas of learning’.

By initiating innovation at different regulatory levels the concept of ‘areas of learning’ seems to be well equipped to contribute to the modernisation of the dual system of VET in Germany. The introduction of the concept also proves that far-reaching change in the training sector is possible without leaving the realm of the well-accepted stabilising principles of the

dual system. Thus, the dual system could – once more – contribute to keep the balance of the German 'high skills society' (Green, 2001, p. 151).

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