

# **New Institutional Linkages Between Dual Vocational Training and Higher Education: A Comparative Analysis of Germany, Austria and Switzerland**

**Christian Ebner, Lukas Graf and Rita Nikolai**

## **14.1 Introduction**

The expansion of the service sector, changes in technology and increasing demand for abstract and codified knowledge feed the need for qualified personnel. The transformation of work has profound consequences for the process of skill acquisition in schools, vocational training institutions and the workplace. In countries like the US or France, which can be characterised as “internal labour markets” (ILMs), the link between the education system and the labour market is rather loose and it is mostly the company which is in charge of organising work and jobs. In contrast to this, in “occupational labour markets” (OLMs) like Germany or the Netherlands, the education system provides occupation-specific skills and jobs are very much structured around standardised occupations that require specific formal training (Marsden 1990; Gangl 2001).<sup>1</sup>

We decided to put the spotlight on three countries within the OLM cluster: Germany, Austria and Switzerland. In the political economy literature, these countries have also been labelled as “collective skill systems” (Thelen and

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<sup>1</sup> Similarly, Maurice et al. (1986) distinguish between “organisational spaces” and “qualificational spaces”.

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C. Ebner (✉) · L. Graf  
Social Science Research Center Berlin (WZB), Reichpietschufer 50 D-10785 Berlin,  
Germany  
e-mail: christian.ebner@wzb.eu

L. Graf  
e-mail: lukas.graf@wzb.eu

R. Nikolai  
Institute for Education Studies, Humboldt University of Berlin, Geschwister-Scholl-Str.7 D-  
10117 Berlin, Germany  
e-mail: rita.nikolai@hu-berlin.de

Busemeyer 2008; Busemeyer and Trampusch 2012). All three countries have a federal form of government, highly “stratified” school systems (Allmendinger 1989; Ebner and Nikolai 2010), and a considerable number of young people who go through dual vocational training at the upper-secondary level<sup>2</sup>: in Austria 36 %, in Germany 45 % and in Switzerland 60 % of all students in upper secondary education are enrolled in dual vocational training (OECD 2011, p. 305). Compared to other OECD countries, dual vocational training is very dominant in these countries. These countries’ unique dual vocational training system is characterised by the following three features (Greinert 2005; Trampusch 2010): Firstly, the state regulates apprenticeship training in cooperation with unions and employer representatives (corporatism). Secondly, apprenticeship training takes place in two different but complementary learning environments: in the company and in the part-time vocational school (in conjunction these are called “*Duales System*” or dual vocational training). Thirdly, training follows the occupational principle: young people are trained for several years in a specific occupation and acquire occupation-specific skills.

In all three countries, universities largely developed separately from industrialisation and business, whereas vocational education and training (VET) developed separately of higher education (Greinert 1999; Gonon 1994). Traditionally, the completion of dual vocational training does not provide eligibility for higher education entrance in Germany, Austria and Switzerland (“*Educational Schism*”) (Baethge 2010). Writing on the German case, Baethge (2006) observes that all reform efforts in the 20th century have failed to dissolve the institutional divide between dual VET and academic (or higher) education, given the deep roots of VET in the social structure of German society as well as in the German mode of diversified quality production.<sup>3</sup> Recently, however, the possibility of progression from VET to higher education has become a widely-discussed topic—both at the national level in the countries in question and in the European context (Allmendinger et al. 2010; Powell and Trampusch 2012; Powell and Solga 2008). Not only does the option to progress from VET to HE agree with the concept of lifelong learning (Jakobi and Rusconi 2009), but it should also accommodate the increasing demand for academics (“*academic drift*”) (Busemeyer and Trampusch 2012) arising from the development towards a knowledge-based service economy (Iversen and Wren 1998; Mayer and Solga 2008; OECD 1996). The permeability of educational institutions is also closely linked with educational opportunity and is viewed as a key to enhancing social mobility. Similarly, facilitating the transition from dual vocational training to higher education aims to improve work and career

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<sup>2</sup> Furthermore, Germany, Austria and Switzerland also provide vocational training in full-time vocational schools and general schooling to varying degrees (Ebner and Nikolai 2010).

<sup>3</sup> On the one hand, this refers to the role of an influential German educated middle class (“*Bildungsbürgertum*”) in excluding other social classes from access to higher education (Baethge 2006) and, on the other, to the important status of the dual training system and, hence, vocationally skilled workers within ‘*Rhenish capitalism*’ (see Streeck 1991 on diversified quality production).

chances for individuals without a higher education entrance qualification. At the beginning of the 1990s the three countries in question featured low entry rates to higher education compared to other OECD countries. Meanwhile, entry rates into higher education increased by more than 20 % points between 1995 and 2009 in Austria and Switzerland. This trend towards an educational expansion is less obvious in Germany (OECD 2011, p. 317).

In this chapter we analyse in what ways Germany, Austria and Switzerland are establishing institutional links between the dual vocational training system and higher education and thus try to increase openness. We will moreover touch upon the issue of “institutional differentiation” (Lepsius 1990) and discuss in how far the introduction of “new” educational institutions or the differentiation of existing ones can lead to a loss in institutional specificity and cause institutional ambiguity.

The chapter is divided into four main sections. Section 14.2 presents our theoretical framework. In this section we review the literature on educational institutions and argue that there are—from a theoretical point of view—at least six ways of how a country can institutionalise bridges from VET to higher education. In Sect. 14.3 we explore the actual approaches to linking the dual system to higher education. Even though these three countries belong to the same skill regime cluster (see also Busemeyer and Trampusch 2012; Ebner and Nikolai 2010; Nikolai and Ebner 2012; Powell and Solga 2008), they have not adopted the same strategies for increasing openness. In Sect. 14.4, the article concludes with a summary of the findings and an agenda for future research in this area. Our analyses are based on evaluations of statistical data, official documents and secondary literature.

## **14.2 Educational Institutions: State of Research and Theoretical Approach**

Generally speaking, studies on educational institutions fall into two broad categories. One strand of research deals with *change and stability of educational institutions*. In the German-speaking research area an important focus is on changes of the dual system of vocational training, often raising the question of whether or in how far this system is still appropriate in a knowledge-based service economy (Thelen 2004; Thelen and Busemeyer 2008; Solga 2009; Trampusch 2010; Geißler 1991; Heidenreich 1998). Besides these studies on the dual system, the higher education system has more and more attracted researchers’ interest, not least due to the Bologna reform, i.e. the implementation of undergraduate (Bachelor) and graduate (Master) studies all across Europe (e.g. Teichler 2007; Ebner and Nikolai 2010; Powell et al. 2012a; Graf 2009). A third focus within this strand of research is on the interconnectedness of different types of educational institutions and how they influence one another (e.g. Baethge 2006; Shavit and Müller 2000). For instance, a number of studies have been conducted on the

competition between the dual system of vocational training and full-time vocational schooling (Ebner and Nikolai 2010; Graf et al. 2012) or of that between the dual system and higher education (Nikolai and Ebner 2012; Powell and Solga 2010).

A second strand of research deals with the topic of *educational institutions and individual life chances*. Most studies in this field are concerned with general schooling, focusing on how school structure shapes individual decision making. In particular, it is the early separation of children into different school forms that was identified as central to the evolution of inequalities in education and low inter-generational mobility (e.g., Bauer and Riphahn 2006; Boudon 1974; Breen and Goldthorpe 1997; Erikson and Jonsson 1996; von Below 2002; Pfeffer 2009; van de Werfhorst and Mijs 2010). Further studies indicate that educational institutions also affect individual labour market entry (Allmendinger 1989; Müller and Shavit 1998) and the assessment of an individual of his or her economic position (Groß 2003). In more general terms, institutions can be described as imposing informal constraints (norms, customs) and formal rules that not only create social order and reduce uncertainty, but also shape opportunity structures for individual behaviour (North 1990, 1991). This idea is very similar to life course research, which argues that life courses—in this case the specific pathways through the education system—are shaped by institutions (Mayer 1990, 2009). Especially in countries like Germany, Austria and Switzerland—in which apprenticeship training traditionally plays a pivotal role next to higher education—institutional changes in the relationship between dual vocational training and higher education may increase inter-sectorial permeability and thus can be viewed as key to enhancing social mobility (Bernhard et al. 2010; Powell and Solga 2011).

In this chapter we build on such institutional theory to illustrate the ways in which Germany, Austria and Switzerland are establishing institutional links between the dual vocational training system and higher education. This is interesting for at least two reasons. Firstly, it gives an impression of a country's opportunity structure for VET graduates and illustrates how institutions affect equality of opportunity in the education system. Secondly, it delivers—from an institutional perspective—insights into the degree of “institutional differentiation” (Lepsius 1990) within a national educational system. If a country has adopted several measures to link the dual training system to higher education, the differentiation between and specificity of institutions are likely to become less clear. Thus, we can observe that both the dual vocational training system and the higher education system are challenged to take on additional institutional functions which implies increased institutional differentiation. Whereas previously the goal of vocational training was to develop comprehensive vocational competence in a specific vocational field (“Beruflichkeit”) (Kraus 2007), there now prevails the idea that the dual vocational training system should ideally also provide people with the general competences required for access to and successful completion of higher education programmes. Higher education, on the other hand, is typically meant to equip students with academic skills for research-based work and similarly demanding professions (Powell et al. 2012a). However, in order to facilitate

institutional openness to allow a progression from dual vocational training to higher education, universities and universities of applied sciences (see below) are now asked to introduce procedures which enable the consideration of vocational competences for admission (Freitag et al. 2011b) but also to cater the specific needs of applicants with mostly occupational experiences. As we will show, this ongoing institutional differentiation may lead to *institutional ambiguity* and to *institutional task overload* for educational institutions, both in dual vocational training and in higher education. In this context, institutional ambiguity refers to institutions sending unclear signals to students as well as employers, while institutional task overload refers to institutions being assigned multiple tasks resulting in operational deficiencies.

Before we take a closer look at Germany, Austria and Switzerland, we will first consider from an ideal–typical point of view the different institutional approaches to bridging the gap between dual vocational training and higher education (e.g. Dunkel et al. 2009; Nikolai and Ebner 2012; Powell et al. 2012b). We differentiate between six measures: the upgrading of VET, dual courses of study, the attendance of upper secondary schools, parallel completion of dual vocational training and higher education admission certificate, admission to higher education based on prior work experience and the recognition of prior learning as an element in higher education programmes. Please note that we focus on fairly recent developments. For example, we do not discuss the topic of specific higher education entrance examinations for persons without higher education entrance qualification, which have existed for a long time in different forms and variations in the countries in question (see e.g. Wolter 2010 on the German case).

The *upgrading of VET courses* means that former VET institutions are transformed into higher education institutions. An example are the universities of applied sciences (“Fachhochschulen”) that have been created through such upgrading in Germany and Switzerland and that are more practically and vocationally orientated than the traditional theoretical and research-orientated universities. *Dual courses of study* (“duales Studium”) combine higher education with practical in-company training periods. However, both of these measures (upgrading and dual courses of study) have the disadvantage for young people that they must still meet the formal requirements for admission into higher education: the completion of either a general higher education entrance qualification—or a university of applied sciences entrance qualification—is usually mandatory. The opportunity for dual vocational training graduates to acquire a higher education entrance certificate can again be institutionalised in two ways.<sup>4</sup> First, these certificates can be obtained after graduating from the dual vocational training system via the *attendance of an upper secondary school*. For individuals this has the obvious disadvantage that they have to return to the education system for at least

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<sup>4</sup> Please note that in this chapter we are not concerned with individuals who acquired a higher education entrance certificate prior to entering dual vocational training.

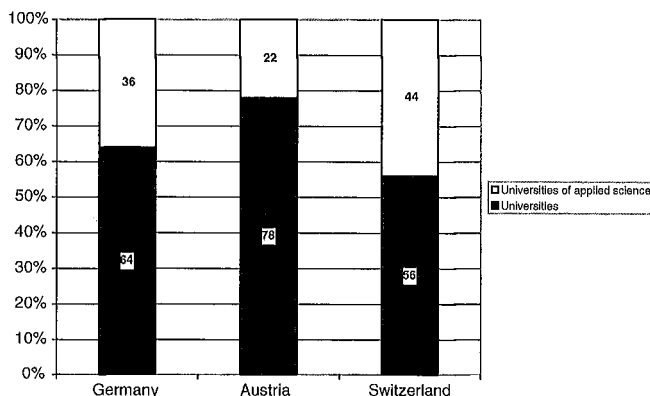
one year and are not able to cash in on acquired vocational competencies in the labour market full-time. The second way of increasing openness from the dual vocational training system to the higher education sector is by enabling the *parallel acquisition* of a dual vocational training degree and a higher education entrance certificate at the same time. This increases the graduates' flexibility on the labour market and in the education system. Another way to link dual vocational training and higher education, which does not require the acquisition of a higher education entrance certificate after or during dual vocational training, is the *admission to higher education on the basis of prior work experience*. This means that graduates from dual vocational training can enter the higher education sector without any higher education entrance qualification, but by proving that they have a dual vocational training qualification and been employed for a certain number of years, thus qualifying for higher education in a specific area of studies. A related possibility to promote the openness of and progress from dual vocational training to higher education is to define procedures for the recognition of prior learning *as an element within higher education programmes*. That is, vocational competences relevant to a specific higher education programme are credited and count towards this programme to avoid redundant learning and, hence, to reduce study load and time.

### **14.3 Institutional Linkages Between Dual Vocational Training and Higher Education**

With regard to the theoretical-institutional approaches presented above, we next investigate which of these links have been established in Germany, Austria and Switzerland to bridge the gap between dual vocational training and higher education.

#### ***14.3.1 Upgrading of Vocational Education and Training Courses***

*The upgrading of VET courses*, as one measure for linking dual vocational training and higher education, can be found in all countries in question: as far back as the 1970s, some schools of engineering, academies and higher institutes of design, social work and economics in Germany were upgraded to universities of applied sciences ("Fachhochschulen") and hence became part of the higher education sector. Universities of applied sciences were established at a later date in Austria (1993) and Switzerland (1997) (Graf et al. 2012; Gonon and Maurer 2012; Culpepper 2007; please note that the Swiss 'Fachhochschulen' are a clear case of



**Fig. 14.1** Relationship between universities and universities of applied science in Germany, Austria and Switzerland—Percentages of freshmen in the winter semester of 2008/2009. *Sources* (BFS 2010; Statistik Austria 2010; StBa 2009)

upgrading, whereas the Austrian ones were established from scratch). In general, universities of applied sciences are rather practical and occupational in their orientation, whereas universities are more theoretical and research-orientated (Mayer et al. 2007; Buchmann et al. 2007; van der Wende 2008). This higher education structure, consisting of universities and universities of applied sciences, has been labeled a “binary” structure (Shavit et al. 2007). Universities of applied sciences have become an important sector within the higher education system in all three countries under investigation.

Figure 14.1 illustrates the relationship between the universities and universities of applied sciences in the winter semester of 2008/2009. In all three countries universities remain the most dominant sector in higher education. Nevertheless, particularly in Switzerland, universities of applied sciences have gained in importance as 44 % of freshmen opt for this type of institution (BFS 2010). The relative share of freshmen attending universities of applied science is still over one-third in Germany (36 %) (StBa 2009) and 22 % in Austria (Statistik Austria 2010).

### 14.3.2 Dual Courses of Study

A second way of establishing closer links between dual vocational training and higher education is the introduction of *dual courses of study* (“duales Studium”). All of the German *Länder* are attempting to combine dual vocational training with higher education through such *dual courses of study* and *vocational academies* (“Berufsakademien”) (BLK 2003; Busse 2009; Hippach-Schneider et al. 2007). During their dual studies, students are trained at a higher education institution as

well as in the workplace. They receive a monthly salary throughout and have the insurance status of employees. Yet, with the exception of the degrees awarded by the Baden-Wuerttemberg Cooperative State University (“Duale Hochschule Baden-Württemberg”), the bachelor’s degrees awarded by the vocational academies are not always accepted by the regular universities as entrance qualifications for master’s programmes (Hoeckel and Schwartz 2010). Dual courses of study are, to this date, mostly a German phenomenon, and even there these programmes cater only a small proportion of the overall student population (see Minks et al. 2011). However, even if dual courses of study have not yet attained a high level of significance in quantitative terms, they are growing rapidly and have become an attractive model for companies and individuals (Graf 2012).

### ***14.3.3 Attendance of an Upper Secondary School***

Both of the two abovementioned measures, i.e. the upgrading of educational institutions and the introduction of dual courses of study, have the disadvantage for young people that they must still meet the formal requirements for entrance into higher education. Therefore, a major obstacle regarding access to the higher education sector remains. The requirement for admission to higher education is usually the successful completion of a corresponding higher education entrance qualification. Two forms of entrance certificates can be identified in principle: the general higher education entrance qualification (“allgemeine Hochschulreife”) which enables the holder to study at both universities and universities of applied sciences (in Switzerland access to the latter often requires relevant work experience), and the university of applied sciences entrance qualification (“Fachhochschulreife”) which only provides access to universities of applied sciences. Higher education entrance certificates are usually acquired at general upper secondary school. In Switzerland, since 1993, individuals holding a federal VET certificate can attain a vocational baccalaureate (“Berufsmaturität”) typically after one year of full-time schooling. This certificate then allows direct access to universities of applied sciences. In Austria, since 1997, it is possible to attend “vocational education matriculation classes” after completing dual vocational training in order to obtain a general higher education entrance qualification (“Berufsmatura”). A similar possibility has existed for a long time in Germany in the form of the courses provided by the specialised upper secondary schools (“Fachoberschule” and “Berufsoberschule”), where graduates normally study for a qualification that will give them access to universities of applied sciences. These programmes usually last for one to two years on completion of a basic VET programme.



### ***14.3.4 Parallel Acquisition of a Dual Vocational Training Qualification and a Higher Education Entrance Qualification***

Switzerland and Austria, but not Germany, have comprehensively institutionalised the possibility of the parallel acquisition of a dual vocational training qualification and a higher education entrance qualification. Thus, the Swiss vocational baccalaureate (“Berufsmaturität”) can also be attained parallel to the completion of a dual apprenticeship programme. In 2008, Austria introduced the apprenticeship with a general higher education entrance qualification (“Lehre mit Matura”) which enables students to acquire a general higher education entrance qualification while simultaneously completing dual vocational training.<sup>5</sup> In both countries, the parallel completion of dual vocational training and higher education entrance qualifications has established close institutional links between different learning locations. For the completion of such a course, the apprentices are released from work for an additional half-day or day per week. The training company, the apprentice and the vocational school coordinate the specific way in which the “matriculation classes” are integrated into dual training. Similar options exist in some places in Germany. However, these options vary across the 16 federal states. For example, young people in some of the German *Länder* can combine a VET qualification with a higher education certificate in pilot projects and as part of the ‘Kollegstufe’, as in North Rhine-Westphalia.<sup>6</sup> Given that the parallel acquisition of such qualifications is not institutionalised at the national level in Germany, apprentices may sometimes find it difficult even to access adequate information about a suitable programme.

### ***14.3.5 Admission on the Basis of Prior Dual Vocational Training Qualifications and Work Experience***

In addition to the upgrading of VET courses, dual courses of study and parallel qualification certificates, the linking of dual vocational training and higher education can also be achieved through admission to higher education on the basis of prior VET qualifications and work experience. The master craftsman’s certificate (“Meisterprüfung”) and similar qualifications fall in the category of professional education and training (PET, “Höhere Berufsbildung”) in the countries in question and also belong to the tertiary level. However, a clear distinction is drawn at

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<sup>5</sup> In the case of Austria, three out of the four necessary exams can be completed parallel to apprenticeship training. The last exam follows *after* the VET certificate has been awarded (and on the condition that the individual is at least 19 years old) (BMUKK 2011, p. 8).

<sup>6</sup> Available from: <http://www.berufsbildung.schulministerium.nrw.de/cms/> (accessed 1st December 2011).

tertiary level between tertiary-level A (ISCED 5A) (universities and universities of applied sciences) and shorter programmes which are located at tertiary-level B (ISCED 5B) (PET programmes). The graduation rate at tertiary level B was 13.8 % in Germany, compared to the OECD average of 10.4 % (OECD 2011, p. 68). In the 1990s, some German *Länder* had already introduced regulations to grant holders of vocational master's certificates and similar qualifications subject-restricted access to universities and universities of applied sciences (Ulbricht 2012). With the KMK-resolution<sup>7</sup> of 2009, this regulation applies nationwide and now also includes general access to universities and universities of applied sciences (KMK 2009a, b). Since 2009, moreover, prospective students in Germany with basic dual vocational training qualifications can become eligible for subject-restricted university admission if they can demonstrate three years of occupational experience (sometimes an additional entrance examination or a trial period of study are required). In Switzerland, holders of PET qualifications may enrol in universities of applied sciences without having to obtain the "Berufsmaturität" (SKBF 2011, p. 244). The Swiss PET sector comprises the Federal PET Diploma Examination, the Advanced Federal PET Diploma Examination ("Meisterprüfung") and the PET Colleges. The graduation rate at tertiary level B was 18.9 % in Switzerland (2009) and thus higher than in Germany. In Austria, tertiary level B programmes (e.g. "Meister" and "Werkmeister") are less popular than in Switzerland and Germany. The graduation rate was 10.1 % in 2009 (OECD 2011, p. 68). Compared to Switzerland and Germany, these programs do not grant access to either universities or universities of applied sciences.

### ***14.3.6 Recognition of Prior Learning as an Element in Higher Education Programmes***

In all three countries some limited provisions exist for the recognition of prior learning as an element *within* higher education programmes. However, these measures are rather marginal or, as in the case of the German ANKOM initiative, in the process of being further developed. The ANKOM initiative ("Anrechnung beruflicher Kompetenzen auf Hochschulstudiengänge") started in 2005 and since then has established a range of methods and tools to test equivalences of VET and higher education learning outcomes (Hartmann et al. 2008). Two specific approaches have been tested in 10 higher education institutes, namely accreditation of prior experiential learning (APEL) and accreditation of prior certified learning (APCL). The key difference between the two approaches is that the former is based on a case-by-case assessment of an individual's competences ("individuelle Anrechnung") while in the latter case an entire course or

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<sup>7</sup> The KMK ("Kultusministerkonferenz") is the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* of the Federal Republic of Germany.

qualification is tested for equivalence (“pauschale Anrechnung”) (Hartmann 2008). While both approaches are often described as essential to promote progression from VET to higher education,<sup>8</sup> it has turned out that their actual implementation is highly challenging due to the differences in learning styles between VET and higher education (Müller 2008) and the need to adjust these measures to specific institutional conditions (e.g. the type of higher education institution or programme of study) (Freitag et al. 2011a). In Austria, recognition of prior learning as an element in higher education programmes can, for example, be found in the case of VET college graduates who have the option to commence studies in the second or third semester at universities of applied sciences in their field and may also be offered some exemptions at universities. However, the extent to which prior learning is counted towards credit depends in large part on the individual higher education institution (Prokopp and Luomi-Messerer 2009). In the German-speaking part of Switzerland, there exists no genuine and systematic procedure for the accreditation of prior learning as an element of higher education. However, in the French-speaking part, the University of Geneva and the University of Applied Sciences Western Switzerland have procedures in place to credit non-formal and informal learning. Here, persons with 3–5 years of professional experience and above 25 years of age can obtain advanced credit and an adjusted study plan for specific Bachelor or Master programmes (Voit et al. 2010, p. 6).

### ***14.3.7 Discussion***

It becomes clear that the dual training systems in the countries we studied are interlinked with the higher education system in different ways. Dual courses of study are far more widespread in Germany than in Austria or Switzerland. This way of reconciling work and study at university level has not yet attained a high level of quantitative significance, but could become a rather popular model in the future. To date, the recognition of prior learning as an element *within* higher education programmes remains underdeveloped in all three countries (see paragraph above). However, Germany, Austria and Switzerland have implemented new measures in order to increase the number of VET graduates entitled to access university: Austria and Switzerland are trying to bridge the gap between VET and higher education through the introduction of the parallel acquisition of qualification certificates. In Germany this is hardly an option as key actors have opted to provide VET graduates with access to higher education by taking individual work experiences into account. These new approaches should generally increase opportunities in the education system as a whole, even though it is too early to

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<sup>8</sup> Please note that the ANKOM initiative is strongly focused on accreditation of prior certified learning (APCL).

conclusively evaluate recently introduced measures such as the Austrian “Lehre mit Matura” or the German way of recognizing work experience.

Nonetheless, the introduction of “new” institutions such as universities of applied sciences as well as the creation of links between different kinds of institutions (e.g. Austria: “Lehre mit Matura”; Switzerland: “Berufsmaturität”) might have unintended consequences, such as a loss in institutional specificity. This, in turn, could lead to *institutional ambiguity* and send unclear signals to students and employers. Several examples may serve to illustrate this point. Firstly, the introduction of universities of applied sciences in Germany, Austria and Switzerland increased institutional differentiation in the higher education sector. Even though universities of applied sciences are rather practical in nature, there is still a great amount of overlap with universities, which makes it difficult for potential students as well as for employers to judge the value of these institutions’ degrees (Merkator and Teichler 2010). The higher education sector has become even more diversified with the introduction of Bachelor and Master degrees as promoted by the Bologna process. The corresponding emphasis on “employability” and “professional relevance” in higher education (Powell et al. 2012a) foster the “vocational drift” (Dunkel et al. 2009) in all three countries under consideration. In fact, the three-year bachelor’s degrees now create increasing competition for dual vocational training, which also normally lasts three years (Powell and Solga 2010). Companies now have the opportunity to either employ graduates with Bachelor’s degrees or train their own staff within the dual vocational training system. Institutional ambiguity also manifests when regulations do not apply nationwide. Switzerland and Austria introduced the parallel acquisition of a dual vocational training qualification and a higher education entrance qualification with the passing of a federal reform act in all cantons and *Länder*. With this standardisation, students and employers can be assured that the regulations apply throughout the country. In Germany, the KMK-regulation of 2009 regarding *admission on the basis of prior dual vocational training qualifications and work experience* had to be passed by each individual legislation of the *Länder*, which means that significant differences in its actual implementation are possible.

The national objective of increasing the ability to progress on from VET to higher education requires both educational sectors to take on new functions, which might lead to *institutional task overload*. Today the expectation is that VET should not only train for a specific occupation and provide occupation-specific skills, but also offer access to university and universities of applied sciences—this is particularly the case in Switzerland (“Berufsmaturität”) and Austria (“Lehre mit Matura”). But the universities and universities of applied sciences are also faced with a new task: they are asked to introduce procedures which enable the consideration of vocational competences for admission purposes, and to cater to the specific needs of applicants with mostly occupational experience—this trend is most obvious in the case of Germany with regard to the recognition of prior learning and work experience. Another educational institution which lies “in-between” dual vocational training and the higher education sector is formal non-university based further education at the tertiary level (tertiary level B). In

Germany, Austria and Switzerland graduates of the dual vocational training system have the option of attending shorter, often two-year educational courses which focus on practical, technical or occupational skills (“Meisterausbildung”, “Technikerausbildung”, “[Höhere] Fachschulausbildung”). In Germany, since the KMK resolution of 2009, the attendance of these courses has also opened up access to universities.

## 14.4 Outlook

Germany, Austria and Switzerland have traditionally provided a large proportion of their workforces with qualifications obtained in the dual vocational training system. At the same time the share of tertiary graduates used to be relatively low in these countries. Despite this well-known similarity, Germany, Austria and Switzerland show remarkable differences when institutional linkages between dual vocational training and higher education are analysed. In recent years, Germany, Austria and Switzerland have adopted different strategies to increase progression from dual vocational training to higher education. Thus, Germany currently puts a strong emphasis on higher education admission based on prior dual vocational training qualifications and work experience as well as on the recognition of prior learning as an element within higher education programmes, while Switzerland and Austria have opted for a comprehensive introduction of the parallel acquisition of a dual vocational training qualification and a higher education entrance qualification. With regard to the latter, there are differences between Switzerland and Austria regarding qualifications that grant general access to higher education (e.g. *Berufsmatura* in Austria) as opposed to those which grant (subject-)restricted access to higher education (e.g. *Berufsmaturität* in Switzerland, granting direct access only to FHs).

One future task will be to analyse how institutions which have recently been established in Germany, Austria and Switzerland actually affect individual mobility between VET and the higher education sector. So far it remains unclear whether the route via upper-secondary education (Austria: “*Berufsmatura*” and “*Lehre mit Matura*”, Switzerland: “*Berufsmaturität*”) or via the labour market (Germany: recognition of work experience) is the more promising one to further mobility. This, however, can only be done with suitable data at hand. Further empirical questions are being raised by our findings. Ongoing institutional differentiation is always connected to the topic of social stratification. What positions will graduates of the dual training system, from non-university based further training, Bachelor and Master graduates from universities and universities of applied sciences occupy in the labour market? And how will a shift in the institutional structure of the education system labour market stratification?

As the three countries in question have adopted several measures to link the dual vocational training sector to the higher education sector, these two arenas are now moving closer together, but—in doing so—are also becoming more

ambiguous. As we have shown, the differentiation between and specificity of institutions in dual vocational training and higher education is becoming less clear. The dual vocational training sector and the higher education sector are taking over additional institutional functions which, in turn, lead to increased institutional ambiguity. We would therefore suggest that future research should pay greater attention to institutional differentiation and institutional ambiguity within the education system as a whole.

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