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# The underestimated relevance and value of vocational education in tertiary education – making the invisible visible

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## ABSTRACT

Increasing the number of tertiary graduates has been a priority on the political agenda of the EU for some years. The focus has mainly been on academic courses though, with less emphasis on the role of vocational education and training. International educational statistics indeed show a clear increase in the number of persons completing tertiary education programmes in recent years. In overall terms, this development is referred to as 'academisation'. The present paper provides a critical analysis and uses examples from Germany, Austria and France to show that this interpretation is neglecting two crucial facts. One is that various academic programmes in fact are combining academic with vocational learning. The other is that there are vocational programmes in the tertiary education sector that are not adequately visible in international education statistics. This understanding is important in relation to future policy-making as well as individual decision-making.

## ARTICLE HISTORY

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Tertiary education; work-based learning; vocational drift; international comparison; ISCED

## 1. Introduction

Growth of the tertiary education sector, often equated with higher education,<sup>1</sup> has frequently been demanded from education and training policy as a response to the development of 'knowledge societies', in reaction to technological and in particular digital progress, and as an instrument for strengthening competitiveness (OECD 2008; Council of the European Union 2009).

The European Union took action in 2009 and agreed on the common benchmark that 40% of 30–34 year olds should have a 'higher education or equivalent

qualification by 2020' as part of the Europe 2020 Strategy (ibid.). This objective was incorporated in national policy-making.

International education data seem to confirm these policies to be successful (OECD 2014, 74). But this article demonstrates that at least for three EU countries – Germany, Austria and France – an interpretation of the developments in the tertiary education sector which is purely statistical and institution-based is not sufficient. It needs to be complemented by qualitative analysis, if it should be used as the basis for evidence-based policy.<sup>2</sup>

The article follows two arguments:

- There is a growing number of academic programmes that are explicitly linked to the needs of the economy and contain elements that are typical for vocational education, e.g. practice-oriented curricula, partnerships between companies and education institutions, and the use of practical learning phases as part of the curricula.
- There are higher vocational education programmes which are not visible or only partly visible in international education statistics. This leads to an underestimation of vocational routes to higher level qualifications.

The analysis of these two aspects may contribute to the awareness of the role of vocational education and training (VET) in tertiary education as an attractive model of education, as well as illustrating the value of linking academic and workplace learning. This would make higher level vocational and work-based education more obvious to policy-makers, give it greater visibility and enhance the esteem in which it is held. It could also support a more differentiated debate about the future role of practice-related or practice-integrated learning in all areas and subsystems of tertiary education. The strong emphasis at policy level on academic education runs the risk that learners feel directed to a general/academic educational route perceived to be the ideal pathway by society, and do not choose a learning path that accords with their talents.

The article starts by analysing the different national structures of the tertiary education sector, as well as understandings of tertiary education, in Austria, Germany and France, followed by examples of work-based learning in higher education that are allocated to the academic education sector. The challenge of adequate visibility of higher vocational education programmes in international education statistics is discussed in relation to the structure of levels 5 and 6 of the International Standard Classification of Education (ISCED). Finally the introduction of national qualifications frameworks (NQFs) are discussed as a means of improving the perception of VET at higher qualifications levels.

The basis of the data and information used in this article is a research project of the German Federal Institute of Vocational Education and Training (BIBB) that started in 2014 (<https://www.bibb.de/de/24108.php>). It analyses and compares models and functions of work-based learning programmes in the tertiary

education sector of selected European countries. This paper covers part of the results of the project's first phase, which used desk research along with cooperation with national experts to produce country specific reports. The term 'tertiary education' in this article follows the definition of ISCED 2011 and covers ISCED levels 5–8.

The theoretical approach builds on Trow (1973, 2000, 2005) regarding the development of higher education systems and their influences on education and training content, as well as on Teichler's structuring approaches for the international comparative analysis of higher education systems (Teichler 2014).

Teichler (2014, 20) differentiates between functional, idiosyncratic and political explanatory approaches for the structure of higher education systems. In order to investigate the highly heterogeneous structures of the tertiary education sector, an approach is needed which can be applied independently of the structures of education and training subsystems. For this reason the functional explanatory approach is adopted, since here the international comparison of HE systems bases on the explanation of their characteristics by focussing on its functions e.g. meeting economic needs, responding on social structures etc. In contrast, political and idiosyncratic approaches offer no cross-sector education and training categories by referring to political control mechanisms or by emphasising national features of HE systems. Focusing on the functions of practice-related or practice-based learning, by following what Teichler calls a functional explanatory approach, enables a cross-sector investigation in terms of education and training.

In this context Teichler refers to Trow's theory about the development from 'elite-', to 'mass' and 'universal' higher education. Trow argues that the character of the institutions, the curricula and the pedagogy changes in the development from elite, to mass and to universal higher education systems. This theory is followed insofar as it examines the extent to which ongoing developments of the higher education system can be observed and characterised by a structural opening-up to integrate aspects of VET, e.g. by incorporating work-based learning. The issue of 'vocationalism' or 'professionalism' as trends or mega-trends has been described and analysed in various studies and publications (Grubb and Lazerson 1974; Boud and Solomon 2001; Tynjälä, Välimaa, and Boulton-Lewis 2006; Taylor et al. 2008; Delplace 2014).

## 2. National structures and understandings of tertiary education

Austria, France and Germany have different national structures and understandings of VET and tertiary education. This impacts the allocation of programmes to national sub-systems and thus to the NQFs, the EQF and the ISCED-Classification with consequences for the visibility of VET and its integration in international education statistics.

According to the classification of Greinert (1997, 2010) the dual VET systems of Austria and Germany represent the 'dual corporatist' training model at upper secondary level despite some differences in the secondary VET system at large,

e.g. compared to Germany there is a higher relevance of a full-time vocational school system in Austria (Aff, Paschinger, and Rechenberger 2013). Both countries also provide a traditionally strong tertiary/advanced vocational education route for VET graduates alongside higher education (see Section 4). The secondary VET system of France is classified as an example of the 'state-regulated bureaucratic' model (ibid.), modified through the 'principle of alternance' as an attempt of modernisation (Lattard 1999). In Austria and Germany, the recent development of national qualification frameworks has triggered ongoing discussions on the allocation of advanced vocational qualifications in relation to higher education/academic qualifications.

In France tertiary education equals higher education. Nevertheless there are important education programmes in higher education that are defined as vocational and are to a large extent open to apprenticeship learning schemes (*Apprentissage*). France was one of the first countries in Europe that developed a NQF across all educational sectors and therefore has long-term experience with the allocation of its qualifications (see Section 5).

The selection of two similar and one different system provides an appropriate basis to examine the extent to which what is regarded as tertiary education has been opened up to practice-related and practice-based programmes (Trow, ibid.).

In Austria, tertiary education is formally equated with academic education taking place at universities and universities of applied science. This equivalence is due to the fact that traditionally most of the qualifications with direct relevance to occupations and the labour market are awarded at upper-secondary level.<sup>3</sup> In this perception, higher level education can only be delivered by universities and university-level institutions, while vocational education is in the responsibility of a separate set of institutions and is therefore regarded as at a lower level and not part of tertiary education (Schmid, Gruber, and Nowak 2014).<sup>4</sup> This affects education and training programmes that are offered at adult education institutions regardless of their level, as well as those programmes which may well be classified as tertiary vocational routes, but which do not take place in the university sector. As a quite new development, the first dual programmes (combining institutional and workplace learning) at universities of applied sciences have been created in Austria in recent years (see Section 3).

In Germany the classification as tertiary is also bound to institutions, although there is a slightly wider recognition of the institutions that fall within the tertiary sector: these include the various types of university (e.g. Universities, Universities of Applied Science, Baden-Württemberg Cooperative State University), the vocational academies in some federal states, and the trade and technical schools (Fachschulen) as well as the colleges of advanced vocational studies (Fachakademien) in Bavaria (Kultusministerkonferenz 2014). Additionally, there is the further vocational training pathway outside school that provides a career path for graduates of the dual VET system and generally leads to a government-approved advanced vocational qualification. It represents an alternative route outside higher and school-based

tertiary education that is widely recognised in German society (Hippach-Schneider et al. 2012). It also plays an important role with regard to educational inclusion and equality. When compared with bachelor's graduates, advanced vocational qualifications offer those completing the training comparable earnings and career opportunities depending on the specialism, sector and occupation (Flake, Werner, and Zibrowius 2016). In contrast to Austria, there has been a notable rise in degree courses combining academic and vocational learning (Leichsenring, König, and Göser 2015) in the last few years (see Section 3).

In France, there has been a long running debate around vocational education. The institutional view opposes a restrictive definition (Chirache and Vincens 1992); no distinctions are made in the area of tertiary education as in the German or Austrian systems. Higher education is used to describe all postsecondary tracks including VET programmes. The French tertiary education architecture is a multi-track system (Duru-Bellat, Kieffer, and Reimer 2008) mainly composed of universities, *Grandes Ecoles* (elite university-level schools) and specialist public or private-sector schools. In the 1960s, short VET programmes of two years duration, the *Brevet de Technicien Supérieur* (BTS, vocational training certificate) and *Diplôme Universitaire de Technologie* (DUT, technology university diploma) were created in various fields to respond to the needs of the labour market for intermediate level qualifications. There are also other vocational programmes at EQF levels 5 and 6 that provide preparation for specific occupations, and more recently the *Licence Professionnelle* (vocational bachelor's degree) was created, defined by the ministerial ordinance of 17 November 1999 as '... designed and organised in the framework of closed partnerships with the business world. It leads to knowledge and skills acquisition in the sectors concerned and opens to additional or cross-sectional disciplines.' Approximately 25% of all students of the two-year tertiary education courses BTS and DUT complete work-based components in the form of *Apprentissages*, and the growth of the French tertiary education segment since the 1960s is attributed in particular to the massive increase in vocational higher education courses (Givord and Goux 2007).<sup>5</sup>

### 3. Practice-related and practice-based academic programmes

This section provides examples of programmes in the sample countries that incorporate elements of vocational education but are nationally considered as academic and thus part of higher education.

Dual higher education programmes in Germany transfer the key features of the dual VET system (at upper secondary level), i.e. the use of two interlocked learning venues and thus the combination of theoretical and practical learning, into the academic sphere (Wissenschaftsrat 2013, 5). Such programmes have undergone considerable growth, as is reflected in the fact that their number has tripled from 512 to 1505 over the past ten years (Leichsenring, König, and Göser 2015). At bachelor level (ISCED-2011 level 6) there are two basic types of dual study programmes:

- (a) HE programmes integrating a full apprenticeship (the same feature as at upper secondary level; Kupfer 2013, also see Krone 2015, 23 re. legal framework, Ratermann 2015, 193 re. role of chambers) or a VET course at a trade/technical school, leading to a Bachelor's degree and a vocational qualification.
- (b) HE programmes including practical phases at companies which are designed similarly to the in-company training within apprenticeships, leading to a Bachelor's degree.

In both models, the company is explicitly considered as a learning venue and credits achieved there are recognised by the HE institution (Wissenschaftsrat 2013). The main providers of dual programmes are the Universities of Applied Sciences, followed by the Baden-Württemberg Cooperative State University (DHBW) and the Academies of Cooperative Education. There is, however, also a small amount of mainstream university-based provision in this area<sup>6</sup> (Leichsenring, König, and Göser 2015).

An example of the 'Bachelor's degree-only type' (type b) of dual programme is given by the courses at the Baden-Württemberg Cooperative State University (DHBW). Study alternates every three months between the university and a company or other employer. Students conclude a contract with the company for this purpose and receive an allowance during the whole programme; the contract is a prerequisite for admission to the course of study. The contents and aims of the practical phases are laid out in the study and examination regulations and in the descriptions for the practical modules. The companies draw up learning agreements and a training plan in conjunction with the students. The companies become members of the DHBW and participate in developing module descriptions via their involvement in working groups and committees (Zimmermann 1995). Students of these programmes are characterised by a high rate of continuing employment, with 85% signing a fixed contract of employment before the end of their training (Duale Hochschule Baden-Württemberg 2011).

At the higher levels in Austria, dual study programmes – where practical work phases are integrated with theoretical teaching – are the exception, partly because of the predominance of smaller enterprises in the Austrian economy that often find it hard to implement cooperative ventures with education and training institutions, and partly because of the tendency for non-formal work-related further education and training (see Section 4). Currently (as of February 2016), only four study specialisms designed in this way are available.<sup>7</sup> They are offered at Universities of Applied Sciences, which are considered to be part of academic tertiary education from a statistical and institutional point of view, but with a vocational remit. In the dual study programmes companies are viewed as 'educational partners'. They involve themselves actively in the structuring of the training programme and in the development or revision of curricula, as well as providing the practical phases which alternate with theoretical teaching.

**Table 1.** Tertiary education attainment in 2013 (ISCED-97) and 2014 (ISCED 2011), in %.

	2013 <sup>a</sup>	2014 <sup>b</sup>
Austria	27.3	40.0
Finland	45.1	45.3
France	44.1	44.1
Germany	33.1	31.4
Poland	40.5	42.1
United Kingdom	47.6	47.7
EU average	36.9	37.9

<sup>a</sup>European Commission (2014, 37).

<sup>b</sup>European Commission (2015, 42).

**Table 2.** First-time graduation rates, by tertiary ISCED level (2013), in %.

	Short-cycle tertiary (2–3 years) ISCED 5	Bachelor's or equivalent ISCED 6	Master's or equivalent ISCED 7
Austria	26	25	22
Finland	a	46	23
France <sup>b</sup>	16	28 (ISCED 6 or more)	
Germany	0	27	16
Norway	4	37	17
Poland	1	m	m
Switzerland	2	46	17
United Kingdom	8	45	27
OECD average	11	36	17

Notes: a = Data are not applicable because the category does not apply; m = Data are not available; 0 = Magnitude is either negligible or zero.

<sup>b</sup>Ministère de l'Éducation National (2015).

Source: OECD (2015, 72).

The usual pattern for this type of course is for the first year to provide a well-founded programme of basic training, after which students become employees of the company with a training contract; typically, they might enter a pattern of three months working and three months at the university, with the work blocks spent on a project or a set of activities that are both agreed with the tutors to ensure precise matching with the curriculum, and are of direct practical benefit to the company. The organisation of these dual programmes is a matter of collaboration between the university and the companies, normally involving the latter in structuring the training programme and developing the curriculum.

In France, many different types of work-based learning programmes coexist in higher education, and the French system can be seen as very flexible regarding the modality of learning. Short VET programmes have traditionally had a compulsory practical component or internship in the curriculum. Apprenticeships, at one time confined to secondary level, are now progressively increasing in higher education; around 25% of manufacturing BTS/DUT programmes are now taken through apprenticeships, along with 31% of vocational bachelor's courses (Calmand, Ménard, and Mora 2015). Apprentices sign a special contract called 'contrat d'apprentissage' with companies, with remuneration depending on age and on contract year. Nevertheless, the number of apprenticeships is dependent

on regional funding which varies between regions. Even though the added value of apprenticeships is universally recognised, companies still adjust their supply of apprenticeship places to the expected subsidies from the region and exemptions on employer contributions from the state.

BTS and DUT programmes were designed as preparation for broad professional fields whereas VET programmes in the paramedical and social sectors provide preparation for a specific occupation.<sup>8</sup> In contrast to the BTS, the DUT is becoming an entry programme which leads to further study, both for professional licencing and also vocational degrees from elite schools. The DUT used to provide direct entry to the labour market, but it no longer really fulfils this function; in 2011 only 12% of graduates entered the labour market directly, while 80% undertook an additional year of study in order to obtain the professional bachelor (ADIUT 2014).

The vocational bachelor's degree has progressively displaced the DUT for labour market entry. This programme offers an additional year for DUT, BTS and other EQF 5 graduates to specialise or to acquire an additional qualification. Like the DUT, the vocational bachelor is included in the RNCP (Répertoire National des Certifications Professionnelles), where all recognised vocational certificates are listed. However, there are important differences. Curricula are not nationally designed and companies are directly involved in the curriculum development process, giving them a closer partnership with the educational institutions. The other major difference is the duration of the practical component, which is between 3 and 6 months in only 1 year of study, against a minimum of 10 weeks for DUT without apprenticeship over 2 years.

The examples of Germany and France show that practice-orientation and practice-integration have become an increasingly important element in higher education programmes. Higher education is taking over and incorporating core elements of vocational education in order to provide high-esteem education with a specific linkage to economy. It is even changing governance structures by the involvement of trade and industry in the development of curricula and as partners of the education institutions and the learners. Returning to Trow, this is an indication that there has been a new phase of higher education arising, further diversifying mass higher education and making it more vocationally oriented, opening academic institutions and higher qualification levels to practice-related learning.

#### **4. The advanced vocational education programmes and their visibility in international statistics**

The second argument of the paper relates to the visibility of higher vocational education programmes in international statistics.

All of the programmes described in Section 3 are both vocational and academic, nevertheless in international statistics they are allocated to higher education. This hinders the visibility of the vocational part. These programmes can be considered as 'hidden' higher VET programmes. But in all three sample countries, there are also

tertiary vocational tracks that ‘fall through the cracks’ and thus do not count for international statistical data. Austria and Germany are especially affected due to the stricter national definitions of higher education and the different institutional landscape. The relevant qualifications are described in this section after a short introduction to the structure of ISCED and its definition of tertiary education. This introduction is necessary to understand the logic of the international statistics.

The ISCED is the basis for international education and training statistics. In 2011 it was revised and updated in line with international developments in the education and training sector. It is the reference classification for reporting on education programmes and related qualifications by education levels and fields. Education and training programmes are assigned to ISCED levels in a negotiation process with national and international stakeholders. An education programme is defined as a coherent set or sequence of educational activities (OECD, UNESCO, and EUROSTAT 2015). Under the new classification, the tertiary levels now reflect the Bologna structure of short-cycle programmes (ISCED 5) and bachelor’s (6), master’s (7) and doctoral (8) degrees. The data from *Education at a Glance 2015* (OECD 2015), the major publication on international educational statistics and analysis, is based on ISCED 2011 for the first time.

Data to aid orientation (i.e. separation into ‘academic’ or ‘vocational’) is not visible in the revised system; although this is possible in principle, international agreement has not been reached on the definitions to be used (OECD, UNESCO and EUROSTAT 2015), and the relevant data are only provided on an optional basis by the individual countries. Compared to ISCED 97 in which programmes that now fall into categories 5–7 were classified into 5A (academic) and 5B (vocational), this represents a backward step in terms of the visibility of vocational education in the tertiary sector. The effects of the changes in ISCED can be seen on the European benchmark on tertiary education attainment (European Commission 2014, 2015). The data for 2014 are based on ISCED 2011 and the data for 2013 on ISCED 97. This switch was causing some remarkable changes – especially for Austria – without any changes in the education systems or correspondingly large changes in the numbers of people actually graduating (Table 1).

In the context of Austria, the change to ISCED 2011 is interesting insofar as various education and training programmes are now viewed statistically as ‘tertiary’, but are nationally not regarded as tertiary from an institutional perspective or in terms of public perception.

In ISCED-97, these programmes were ‘post-secondary and non-tertiary’ (level 4). This upgrading in terms of classification is crucial to the fact that Austria has already achieved (or exceeded) the EU tertiary ratio of 40% (or the national target of 38%) (European Commission 2015). Although ISCED 2011 has improved the visibility of these higher level programmes, the statistics do not cover the entire ‘tertiary’ sector by means of qualification levels in Austria. Programmes in adult education institutions and specialist academies can be at level 5 or above of the EQF, but are not recorded in ISCED because they cannot be allocated to the formal

school/university sector; these include training as a certified accountant specialist, graduate counsellor, psychotherapist, pilot, air traffic controller or as a certified digital media designer, as well as various advanced courses in the public services (Schneeberger, Schmid, and Petanovitsch 2013).

As an example, accountancy certification is only mandatory for accountants who are self-employed. These must have at least three years' professional experience and complete a specialist examination conducted by the bodies responsible for master craftsman training. There is no requirement to undergo mandatory training before sitting this examination, but most candidates attend preparatory courses at an institute of adult education, which are not part of the formal education system. No specific prerequisites are set out in law for completion of the specialist examination. In effect, however, it is indispensable to have a number of years of practical experience. For this reason, the skills and knowledge needed to acquire the qualification are primarily obtained via informal means, i.e. in the workplace. The course curricula are not prescribed beyond the need to adequately prepare candidates for the examination, although it is possible for assessments conducted within the course to be accredited as providing exemptions from the final examination. Both the examination and courses focus on practical knowledge and skills, and trainers and examiners are drawn from the profession. Most courses are organised on a part-time basis, but they do not aim to structure candidates' work-based learning. Accountants qualified in this way are not counted as having completed a tertiary programme. Official statistics therefore underestimate the scope and breadth of tertiary education in Austria and, as a consequence, the level of qualifications of the Austrian (working) population.

Similarly in Germany a large number of higher level VET programmes outside the formal education system have not been included in ISCED. These are principally the 'non-formal' programmes provided by business organisations such as the Chambers which prepare learners for the examinations in state-recognised advanced vocational qualifications (e.g. the *Meister* or master craftsman). In some cases, they prepare for the same examination as do formal programmes at trade and technical schools classified as tertiary at ISCED. A total of almost 100,000 advanced training examinations from business organisations were successfully completed in 2014, compared with 370,000 first-time tertiary graduates (Statistische Ämter des Bundes und der Länder 2015).

The advanced vocational qualifications have their legal basis in the vocational training act, respectively, the crafts code, and the majority are regarded as equivalent to higher education (EQF levels 5–7). They can provide advancement to professional and management positions, but as described above are not currently included in the statistics for tertiary education. The regulations focus on the examination and not the training process. The examination regulations on federal level<sup>9</sup> are usually elaborated in cooperation with experts from practice who are appointed by the social partners for the relevant occupational area. On this basis business organisations prepare a skeleton curriculum which is non-binding

for course providers, who operate in an open market. Participation in a preparatory course is not a prerequisite, but a majority of examination candidates attend courses; support from the employer is possible but not necessary, and usually there is no cooperation between the employer and the training provider. Evidence of professional practice is however required to take the examination. It is the legal task of the competent bodies<sup>10</sup> to conduct the examinations, which lead to a state-recognised qualification such as master craftsman, certified senior clerk and industrial supervisor. In 2011, half of the persons completing such a qualification had more than nine years' of work experience (DIHK 2011).

In international comparisons, the OECD has regarded the graduation rate in Germany as too low (OECD 2015). This interpretation is based on the exclusion of a significant number of advanced VET qualifications from the statistics, as well as on the questionable perception that there is a need for a higher number of university graduates. This contrasts with German workforce projections that forecast a shortage of skilled workers with secondary level vocational training, as opposed to a shortage of university graduates (Helmrich et al. 2012). Regarding *Meister*-level workers there are already now in some German regions and branches shortages visible, for instance in the metal and electrical engineering industries (Institut der deutschen Wirtschaft 2016). It is notable that under the ISCED 2011 classification, Germany only deviates from the OECD average at levels 5 and 6 (see Table 2, OECD 2015). At levels 7 and 8, the differences are minimal or non-existent; the deviation therefore mainly exists at levels where Germany has an alternative (and well-regarded) qualification pathway that is not picked up in the ISCED statistics.

There has recently been an agreement between the OECD and the German government to include these programmes in future in the ISCED, with approximately 80% qualifying to count at tertiary level – according to informal information from the German statistical office, an estimated 80% at level 6 and 20% at level 5. However, due to the complexity of this process, it will still be some years before this can be implemented. When this does take place it will enable advanced vocational education, with its high level of relevance to Germany, to become integrated in the international education and training statistics at tertiary level (although as mentioned above it will be not visible specifically as 'vocational' education).

In contrast to Germany and Austria, in France there is a high level of consensus between the national understanding of education and training and the logic of the ISCED structure. But the reason for the growth of the French tertiary education segment since the 1960s that attributed in particular to the massive increase in vocational higher education courses is again invisible in the statistics.

In summary it can be said that in Germany and Austria, a significant proportion of tertiary education takes place outside of higher education institutions, and this is only partially visible in international statistics. However, the Austrian example also illustrates the level of caution with which the statistics must be used as the basis for comparing systems internationally and for policy-making. A change in the underlying classification results in a sharp rise in tertiary education graduates

without any change of the education and training system or the actual numbers of people graduating. It also becomes clear that the definition of the term 'tertiary education' differs among the sample countries and cannot be used as a direct synonym for higher education in international comparisons.

## **5. The impact of the national qualification frameworks on the understanding of tertiary education**

While a minority of European countries (including France) had previously had NQFs the launch of the EQF in 2005 gave impetus to the development of these frameworks across Europe, including in Germany and Austria. A central principle of the EQF, mirrored in most of the NQFs developed subsequently, is that its levels are based on learning outcomes rather than either the type of programme that leads to the qualification, or the institution in which it is taken.

The Austrian NQF consists of eight levels and is intended as a comprehensive framework in which qualifications from all education and training contexts are to be included. From an outcome-based perspective, tertiary education in Austria is more differentiated than the statistical and institutional perspectives suggest, as it includes as well as programmes in schools and higher education institutions those based in adult education and training institutions. As a result of discussions with experts in the course of establishing the NQF, many 'non-formal qualifications'<sup>11</sup> resulting from these latter programmes will end up at levels 5–7,<sup>12</sup> equivalent to higher education qualifications but not equal ('parity of esteem'): 'Non-formal qualifications' have their focus primarily in a 'field of work' and 'academic qualifications' in a 'field of study'; while the former can be regarded as sitting in the 'work sector' rather than the sector of formal learning, they should be regarded as equivalent from the perspective of the level of learning outcomes (Mayr and Tritscher-Archan 2015). However, a debate has arisen between representatives from universities and universities of applied sciences who have demanded exclusive classification of bachelor's, master's and doctoral qualifications at levels 6–8, opposed by the non-university education and training sector. A compromise was found in the so-called 'Y model' which both parties were able to agree on. Under this, the same levels are used but the Bologna qualifications are classified according to the so-called Dublin descriptors<sup>13</sup> (Bologna Working Group 2005) while all other qualifications are classified against the NQF descriptors.

In Germany, the development of the NQF (DQR) has raised awareness insofar as advanced vocational qualifications like the master craftsman (*Meister*) are allocated at the same level as bachelor's degrees, and are therefore regarded as being in the tertiary sector regardless of where the programmes take place. Thus, the introduction of the NQF has forced an alignment between the different subsystems that had previously existed in parallel. The DQR is a cross-sector qualification framework and aims to comprehensively cover the entire system of education and training in Germany (BMBF, Bundesministerium für Bildung und Forschung 2016),

using the same number of levels as the EQF but with different outcome-based descriptors. In the course of its development, agreement was reached regarding the 'equivalence' of vocational and general education and training (BMBF, BMWI, KMK, Wirtschaftsministerkonferenz der Länder, ZDH, BDA, DIHK, DGB and BIBB 2012). Apart from the master craftsperson and comparable advanced vocational qualifications that are placed at DQR level 6, a few vocational qualifications are also represented at DQR level 7. The process of classification for all advanced training programmes and general education qualifications is not yet complete, and a general revision of all allocations is planned.

The French NQF was created in 1967 and redefined in 1969. The 1969 NQF is composed of five levels of qualifications. The NQF is used by the national education and higher education and research ministry (MENESR) but also for example by *Pôle emploi*, the French national employment agency. Conversely to the EQF, the higher number (level 5) corresponds to the lowest level of qualification, representing the first secondary grades. Baccalaureate level (with or without graduation) belongs to level 4, as does higher education non-completion. Level 3 is allocated to short vocational programmes such as BTS and DUT (both EQF and ISCED 5), while bachelor's degrees are level 2 (EQF and ISCED 6) and master's degrees level 1 (EQF and ISCED 7). There is no additional level for doctorates. In some vocational fields such as nursing, the qualification level has moved from 3 to 2, and there is currently discussion of whether the same should happen for degrees in the social services sector. The established nature of the framework means that it is widely accepted by all stakeholders, and there are no debates about 'academic' and 'vocational' applications as in Germany and Austria.

The introduction of the national qualifications frameworks in Austria and Germany is contributing to a higher visibility of advanced vocational education in the tertiary sector. This might in future lead to a similar esteem of vocational pathways compared with the academic track. However, in Austria the persistence of the institutional focus is demonstrated by the way the NQF is divided at the upper levels.

While the EQF and respective NQFs are helping establish the equivalence of academic and vocational routes in Europe, the 'outcomes-based' approach that they are based on is not being reflected in ISCED. Therefore they appear at present to have only limited value for increasing the statistical visibility at tertiary level of practice-related or practice-based education that takes place outside of the academic sector.

## 6. Conclusions

Strong growth in higher education dual study programmes has been apparent in Germany for some years. Similar programmes are now also being offered in Austria. These programmes combine vocational and academic elements, involve companies in the development of content and as learning venues, and are an integral

part of the higher education sector. This is a positive development since it shows the flexibility of the respective education systems, but unfortunately it has not yet had any effect on the way that vocational education is perceived in general. The esteem in which these programmes are held is due to their location in academic institutions, ignoring that their attractiveness and effectiveness is due to the fact that they have a vocational focus. In France there is a more established system of vocational higher education, in which the two-year DUT and BTS programmes, and now the vocational bachelor's degree, are highly visible. All three countries show how strongly the higher education sector is being influenced by approaches from VET. This reflects, following Trow, a new phase of higher education that is characterised by a stronger vocational orientation in which the higher qualification levels are open to practice-related learning.

In Germany and Austria, the introduction of outcome-oriented National Qualifications Frameworks has the potential to challenge the strong institution-related view of qualifications that is present in both countries. A partial impact is indeed visible as vocational and practice-based qualifications are aligned with those from the formal education system, increasing their visibility and potentially their esteem; the positioning of the German *Meister* qualification at the same level as the bachelor's degree is a case in point. In Austria however discussion about the relative positioning of different pathways has led to a clearer manifestation of distinctiveness, as expressed in the 'Y' format of the NQF where the levels are defined differently in each of the two systems.

Nevertheless, the visibility of VET in international statistics relating to the tertiary sector remains inadequate. The change from ISCED-97 to ISCED 2011 has resulted in the subdivision of tertiary education into levels that mirror the Bologna categories, including the new level 5 which is used for (typically) two to three-year programmes that are practically oriented, job specific or provide labour market preparation, as well as academic programmes below Bachelor level (OECD, UNESCO and EUROSTAT 2015). Among other things this enables more of the characteristics of national education systems to be seen, so for instance the German formal education system generally does not have certification at level 5. However, ISCED currently excludes some higher VET programmes in both Germany and Austria because they are not part of the formal education system; although endeavours are under way in Germany to change this situation and to make them visible in the international statistics, this process will take a number of years. A further issue is that the presence of professional and vocational programmes at the upper ISCED levels is invisible because although ISCED 2011 allows differentiation according to academic or professional orientation at levels 6–8, no differentiated data are yet available, e.g. the high proportion of participants in France enrolled in DUT- and BTS-*apprentissages* are not visible. A lack of international agreement on the definition of these two orientations also means that data are unlikely at present to be compatible between different countries.

The analysis presented in this paper aims to serve as a corrective influence in the debate around 'academisation', and to help make it more focused by showing that expansion is also about the diversification of higher level learning and qualifications. It demonstrates the need for a supplementary qualitative analysis of international statistics concerning programmes, qualifications and national education systems, if they are to be used as a basis for evidence-based policy. It also illustrates that benchmarks such as the European one for tertiary education attainment need to be interpreted critically if they are to be useful.

To conclude, our increasingly heterogeneous societies require a diverse range of attractive and societally accepted educational pathways and programmes if inclusion is to be a serious policy goal; a narrow focus on general or academic education as standard is not conducive to achieving this.

A higher degree of societal acceptance and esteem for various forms of VET, together with more visible and critically informed policies, would be desirable at all educational levels. This would support learners to be able to learn according to their talents within a practically related context, rather than seeing them directed towards a general/academic educational route perceived to be the ideal pathway by society.

## Notes

1. A discussion of different understandings of 'tertiary education' is included later in the paper.
2. The focus of this paper is on ISCED-2011 levels 5 and 6/European Qualifications Framework (EQF) levels 5 and 6, so programmes like medicine or law, that in the case-study countries are at level 7, are not considered.
3. Almost 80% of young people in a cohort pass through school-based or company-based education and training at this level. This leads to a vocational qualification and enables direct entry to the labour market. The majority of young people enter professional life directly after completing training.
4. The establishment of Universities of Applied Sciences (from the mid-1990s) and of colleges of education has also had little effect on the dichotomous way in which goals and responsibility are ascribed in education and training. Both institutions have a vocational focus, but are classified at the academic higher education level both formally (classification in the ISCED) and in the public perception.
5. At the start of the 1970s, when the BTS (1962) and the DUT (1966) were launched, 50,000 students were registered on these programmes; in 1980 the figure was 120,000 students, and 235,000 students were registered in 2002 (Givord and Goux 2007, 224), while in 2014/15 the figure was 341,600 (MEN-RSS 2015).
6. Courses in 2014: Universities of Applied Sciences 1014, DHBW 204, Universities of Cooperative Education 188, and universities 71.
7. The dual courses of higher education study offered at Universities of Applied Sciences comprise a Bachelor's degree in Electrical Engineering at Voralberg University of Applied Sciences (<http://www.fhv.at/studium/technik/elektrotechnik-dual>), a Bachelor course in Smart Engineering at St. Pölten University of Applied Sciences (<https://www.fhstp.ac.at/de/studium-weiterbildung/medien-digitale-technologien/smart-engineering>),

a Bachelor course in 'Production Technology and Organisation' ([http://www.fh-joanneum.at/aw/home/Studienangebot\\_Uebersicht/department\\_engineering/~cyz/pto/?lan=de](http://www.fh-joanneum.at/aw/home/Studienangebot_Uebersicht/department_engineering/~cyz/pto/?lan=de)) and a Master's course in 'Engineering and Production Management', ([http://www.fh-joanneum.at/aw/home/Studienangebot\\_Uebersicht/department\\_engineering/~cnrh/enp/?lan=de](http://www.fh-joanneum.at/aw/home/Studienangebot_Uebersicht/department_engineering/~cnrh/enp/?lan=de)), both of the last two being offered at the Joanneum University of Applied Sciences in Graz.

8. These vocational qualifications are not counted in level 6 of the ISCED-classification, see Section 4.
9. Additionally there are examination regulations developed by individual chambers.
10. In most cases the chambers.
11. In the context of the NQF, qualifications which have no legal basis with regard to their curricula and examination standards are described as 'non-formal qualifications'.
12. The intention is to classify these qualifications under the NQF in line with the classification of the formal qualifications (probably from 2017 onwards).
13. Agreed descriptors of the Framework for Qualifications of the European Higher Education Area.

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