

Ute Hippach-Schneider | Elena Rieder

The roles of stakeholders in vocational education and training systems in times of digitalisation – a German-Swiss comparison (RADigital)

Final report of the development project



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List of abbreviations

AFBG	Upgrading Training Assistance Act (<i>Aufstiegsfortbildungsförderungsgesetz</i>)
AG DQR	DQR Working Group (<i>Arbeitskreis DQR</i>)
AI	Artificial Intelligence (<i>Künstliche Intelligenz</i>)
BBiG	Vocational Training Act (<i>Berufsbildungsgesetz</i>)
BBV	Ordinance on Vocational Education and Training (<i>Berufsbildungsverordnung</i>)
BCH-FPS	Vocational Education and Training Switzerland (<i>Berufsbildung Schweiz</i>)
BDA	Confederation of German Employers' Associations (<i>Bundesvereinigung der Deutschen Arbeitgeberverbände e. V.</i>)
BFI System	Education, Research and Innovation System (<i>Bildungs-, Forschungs- und Innovationssystem</i>)
BDBA	Federal Association of German Vocational Trainers (<i>Bundesverband Deutscher Berufsausbilder e. V.</i>)
BfB	Alliance for Education (<i>Bündnis für Bildung</i>)
BIBB	Federal Institute for Vocational Education and Training (<i>Bundesinstitut für Berufsbildung</i>)
BiZG	Education Cooperation Act (<i>Bildungszusammenarbeitsgesetz</i>)
BLK	Federal Government/Federal State Commission for Educational Planning and Research Promotion (<i>Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung</i>)
B-L-KS DQR	Federal Government-Federal State DQR Coordinating Point (<i>Bund-Länder-Koordinierungsstelle</i>)
BMAS	Federal Ministry of Labour and Social Affairs (<i>Bundesministerium für Arbeit und Soziales</i>)
BMBF	Federal Ministry of Education and Research (<i>Bundesministerium für Bildung und Forschung</i>)
BMWi	Federal Ministry for Economic Affairs and Energy (<i>Bundesministerium für Wirtschaft und Energie</i>)
BV	Federal Constitution (<i>Bundesverfassung</i>)
BvLB	Federal Association of Vocational Education and Training Teachers e. V. (<i>Bundesverband der Lehrkräfte für Berufsbildung e. V.</i>)
B&Q/SKBQ	Swiss Commission for Occupational Development and Quality (<i>Schweizerische Kommission Berufsentwicklung und Qualität</i>)
DGB	German Trade Union Confederation (<i>Deutscher Gewerkschaftsbund</i>)
DGB-Jugend	Youth Branch of the German Trade Union Confederation (<i>Jugendorganisation des Deutschen Gewerkschaftsbundes</i>)
DIHK	Association of German Chambers of Commerce and Industry (<i>Deutscher Industrie- und Handelskammertag</i>)

DIZH	Digitalization Initiative of the Zurich Higher Education Institutions (<i>Digitalisierungsinitiative der Zürcher Hochschulen</i>)
DStGB	German Association of Towns and Municipalities (<i>Deutscher Städte- und Gemeindebund</i>)
DQR	German Qualifications Framework (<i>Deutscher Qualifikationsrahmen</i>)
EBBK	Federal Commission for Vocational and Professional Education and Training (<i>Eidgenössische Berufsbildungskommission</i>)
EDK	Swiss Conference of Cantonal Ministers of Education (<i>Schweizerische Konferenz der kantonalen Erziehungsdirektoren</i>)
EdTech	Education Technology Industry (<i>Education Technology-Industrie</i>)
EHB	Swiss Federal Institute for Vocational Education and Training (<i>Eidgenössisches Hochschulinstitut für Berufsbildung</i>)
EQF	European Qualifications Framework (<i>Europäischer Qualifikationsrahmen</i>)
GEW	German Education Union (<i>Gewerkschaft für Erziehung und Wissenschaft</i>)
GG	German Basic Law (<i>Grundgesetz</i>)
GWK	Joint Science Conference (<i>Gemeinsame Wissenschaftskonferenz</i>)
HarmoS Concordat	Intercantonal agreement on the harmonisation of compulsory education (<i>Interkantonale Vereinbarung über die Harmonisierung der obligatorischen Schule</i>)
HwO	Trade and Crafts Code (<i>Handwerksordnung</i>)
fbd	Forum Education and Digitalisation (<i>Forum Bildung Digitalisierung e. V.</i>)
FIDES	Federation of Identity Services in the Swiss Education Area (<i>Föderation der Identitätsdienste im Bildungsraum Schweiz</i>)
IAB	Institute for Employment Research (<i>Institut für Arbeitsmarkt- und Berufsforschung</i>)
ICT	Information and communication technologies (<i>Informations- und Kommunikationstechnik</i>)
IG Metall	Industrial Metal Workers' Union (<i>Industriegewerkschaft Metall</i>)
IHK	Chamber of Commerce and Industry (<i>Industrie- und Handelskammer</i>)
KMK	Standing Conference of Ministers of Education and Cultural Affairs (<i>Kultusministerkonferenz</i>)
KoA	The Federal Government/Federal State Coordination Committee for Vocational Education and Training (<i>Koordinationsausschuss</i>)
LCH	National Association of Swiss Teachers (<i>Dachverband Lehrerinnen und Lehrer Schweiz</i>)
LKBZH	Teaching Staff at Vocational Schools in the Canton of Zurich (<i>Lehrpersonen Konferenz Berufsfachschulen Kanton Zürich</i>)
NWS	National Continuing Training Strategy (<i>Nationale Weiterbildungsstrategie</i>)
OdA	Organisations of the World of Work (<i>Organisationen der Arbeitswelt</i>)
SAV	Swiss Employers' Confederation (<i>Schweizerischer Arbeitgeberverband</i>)

SBBK	Swiss Conference of Vocational Education and Training Offices (<i>Schweizerische Berufsbildungsämter-Konferenz</i>)
SBFi	Swiss State Secretariat for Education, Research and Innovation (<i>Staatssekretariat für Bildung, Innovation und Forschung</i>)
SGB	Swiss Confederation of Trade Unions (<i>Schweizerischer Gewerkschaftsbund</i>)
sgv	Swiss Association of Small and Medium-Sized Enterprises (<i>Schweizerischer Gewerbeverband</i>)
SME	Small and Medium-Sized Enterprises (<i>Kleine und mittlere Unternehmen</i>)
STEM subjects	Science, Technology, Engineering and Mathematics (<i>Berufe aus den Bereichen Mathematik, Informatik, Naturwissenschaft und Technik</i>)
TBBK	Tripartite Committee (<i>Tripartites Gremium</i>)
VBE	Association of Teachers and Nursery School Teachers (<i>Verband Bildung und Erziehung</i>)
ver.di	United Services Trade Union (<i>Vereinte Dienstleistungsgewerkschaft</i>)
VET	Vocational Education and Training (<i>Berufsbildung</i>)
VPET	Vocational and Professional Education and Training (<i>Berufliche Aus- und Weiterbildung</i>)
VPOD	Swiss Union of Public Service Personnel (<i>Schweizerischer Verband des Personals öffentlicher Dienste</i>)
WBF	Federal Department of Economic Affairs, Education and Research (<i>Departement für Wirtschaft, Bildung und Forschung</i>)
WeBiG	Continuing Education and Training Act (<i>Weiterbildungsgesetz</i>)
ZDH	German Confederation of Skilled Crafts (<i>Zentralverband des Deutschen Handwerks</i>)
ZSAV	Agreement on Cooperation in the Swiss Education Area (<i>Vereinbarung über die Zusammenarbeit im Bildungsraum Schweiz</i>)

Key points in brief

Vocational education and training (VET) systems in Germany and Switzerland are based on a different distribution of state governance power. However, both cultivate extremely close cooperation between state stakeholders on the one hand and employers and trade unions on the other. Such an approach allows the systems to be shaped and implemented by impetus emerging from practice. It also ensures a high level of flexibility in terms of addressing economic, technological and societal changes and adapting VET accordingly. The same applies in respect of the challenges being created by digitalisation.

Minor changes in the respective stakeholder structures appear to be sufficient. Non-state stakeholders are each developing their own initiatives within the context of digitalisation. These initiatives are being supported, supplemented or even instigated by overarching state-funded education, labour market and economic policy schemes which display a greater or lesser degree of coordination. The involvement of various state and non-state stakeholders creates a structure which is flexible in overall terms. This seems capable of securing the sustainability and attractiveness of VET and can be viewed as a particular strength of both systems. VET stakeholders in both Switzerland and Germany are reacting to the serious technological changes with numerous initiatives and programmes. Nevertheless, differences in the distribution of state governance power are making their presence clearly felt, especially with regard to the coordination of educational policy decisions within the overall governance structure of the education system.

1. Starting point/presentation of the problem/ project objectives

“Digitalisation has become a driver in vocational education and training.” This was the view expressed by Friedrich Hubert Esser, President of the Federal Institute for Vocational Education and Training (BIBB), in his preface to the 2018 BIBB Annual Report. “We note that digitalisation has arrived at all levels of vocational training. It is having an impact on virtually all initial and advanced training occupations. Digitalisation is changing tasks and requiring new qualifications and competencies. Its influence on teaching and learning materials cannot be ignored, and a mark is being left on the learning venues of vocational education and training – companies, vocational schools and inter-company training centres” (BUNDESINSTITUT FÜR BERUFSBILDUNG 2019). Digitalisation is affecting VET in a multitude of ways and at various levels. In this project, we investigated the question of whether and to what extent digitalisation is impacting on the governance structure of VET systems. We focus on the stakeholders, on their roles, on their understanding of these roles and on the way in which they cooperate to shape the systems in Switzerland and Germany.

The VET stakeholders develop proposals and recommendations for reacting properly to the challenges of digitalisation. These proposals and recommendations are determined by their respective roles and vested interests. Implementation of the proposals can have implications for the existing stakeholder structure and can result in alterations to the interplay thus far established between participants in a VET system. Stakeholder structures admittedly always represent a dynamic system in which individual collaborators strive to expand or alter their influence or role rather than constituting a rigid construct. To this extent, any change in interaction is not an entirely current phenomenon. Stakeholders are generally involved in a process of negotiation which is confrontational to one degree or another. They coordinate their views and find solutions which shape and institutionalise VET (WETTSTEIN/SCHMID/GONON 2014). Nevertheless, digitalisation is an accelerator of change. Within the framework of the project, it thus serves as a magnifying glass for the investigation of the stakeholder constellation and of possible alterations in collaboration between parties involved in VET.

Investigating the governance structures of education systems and in particular the changes they undergo does not merely constitute an academic exercise. A specific benefit is delivered, because these structures determine the reality and the “practicalisation” of education and training. Investigations contribute towards creating visibility of different developments in other comparably similar VET systems. They also help to explain these developments and facilitate a better categorisation of the actions of stakeholders (BUSEMEYER 2009; CULPEPPER 2007; EBNER/NIKOLAI 2010; THELEN 2007; THELEN/BUSEMEYER 2008; TRAMPUSCH/BUSEMEYER 2010). This allows a country to gain a deeper understanding of its own national system and can lead to the opening up of perspectives for educational policy initiatives.

Stakeholder structure is a dynamic construct, and the established constellation can shift in favour of or to the detriment of one stakeholder or another. It is, however, also possible for new stakeholders to enter the arena whilst others become meaningless (KIENER 2004). In the Swiss Federal Constitution of 2000, for example, responsibility for regulation of the areas of health, social affairs and art in vocational training was removed from the cantons and transferred to the Confederation. Systemic changes can also, however, go largely unnoticed at first. The overall cumulation of supposedly minor educational policy measures and technological and societal changes which are sometimes of global origin can have significant effects on education systems and on their governance mechanisms. Global challenges do not recognise national

borders. Digitalisation and all its attendant aspects – such as issues relating to changes to work, work processes, task profiles, competencies and so forth – exert a direct effect on education systems. Nevertheless, there can be considerable differences in terms of whether and how national educational policies react. An investigation of the respective governance structures can help to provide explanations.

2. Methodological notes

2.1 Definitions of terminology

The focus within the scope of the project is on those stakeholders which are involved in national governance of the VET system by dint of a statutory stipulation. In Switzerland, these are the collaborative partners stipulated in Article 1 of the Federal Act on Vocational and Professional Education and Training (BGG). As far as Germany is concerned, reference is made to those stakeholders or stakeholder groups which are represented on the BIBB Board pursuant to section 92 of the Vocational Training Act (BBiG). The four parties in question in the second case are the Federal Government, the federal states, employers (including the chamber associations) and employees.

Besides these stakeholders which govern policy within the national VET system, there are also other actors which play crucial roles in terms of delivering VET and ensuring its successful implementation. Each of the latter also has differing degrees of structural leeway at their own level or within their area of responsibility. In particular, they include the companies offering training and training providers such as schools and organisers of inter-company courses. However, this category further encompasses education and training staff and indeed the learners themselves or civil society groups. The recommendations and demands of these stakeholders are also covered in the study.

Because digitalisation creates multifarious and multi-layered consequences for the vocational training system, it appears especially important to take their perspective into account. Aspects such as dealing with new media, new didactic approaches, changes in the tasks of education and training staff, and the growing need for employees' lifelong learning all have a strong bearing on stakeholders and stakeholder groups which were not previously involved in the governance of VET. And yet they have a particularly crucial part to play in securing the future attractiveness of vocational training. All of this is also taking place against the background of limitations to the governability of VET systems. These are becoming visible within the context of regional variances in the willingness of companies to provide training (KUHN/SCHWERI 2018) or in connection with individual education and training decisions taken by young people and their parents (GONON et al. 2016).

Within the scope of the project and based on SCHARPF (2000), the term “stakeholder structure” incorporates the parties involved, their strategic options and their preferences in respect of the intended outcome of their activities.

“Governance” is viewed as a methodological instrument of description and analysis which allows the interaction between stakeholders and stakeholder groups to be evaluated and understood (GONON 2016).

The term “digitalisation” is broadly defined within the context of the project. It denotes the technologies and work processes which are undergoing ever more rapid change in companies and firms and the effects of these on tasks and competence requirements.

2.2 Methodological approach

The project first examines and analyses proposals made by stakeholders in respect of how the VET systems should, in their view, react to the challenge at hand. Its primary objective and focus is, however, the extent to which suggestions and recommendations may have ramifications for the established stakeholder structures which characterise VET governance processes.

The material for the project was obtained from two sources. The report is based on an extensive review and evaluation of existing secondary literature and non-academic publications focusing on Switzerland and Germany and relating to the topic of digitalisation and its consequences for education systems. The main emphasis of the assessment was on the question of the extent to which the role of the stakeholders or interplay between stakeholders in established VET governance processes is changing or could change.

In addition to this, 16 semi-standardised expert interviews were conducted with stakeholder representatives in Switzerland and Germany who work at the interface between VET and digitalisation (see Annex 2).

3. Results

The aim of the project is not the comprehensive documentation, analysis and comparison of stakeholders. Its objective is, instead, geared towards identifying and mapping out the main content focuses of the recommendations and demands with regard to possible associated direct or indirect consequences for the role of stakeholders and therefore also for governance structures. For this reason, the list of documents provided below is not exhaustive.

3.1 Switzerland

3.1.1 The legal starting point of the stakeholder structure¹

a. A brief summary of the governance structure and main governance mechanisms of the VET system in Switzerland

A public debate on the future of VET took place in Switzerland in the 1990s. This instigated its integration into the overall education system. This paradigm shift was reflected legally in an amendment to the Swiss Federal Constitution in 1999. Article 61a of the Federal Constitution (BV) emphasises the importance of vocational and professional education and training (VPET): “They [the Confederation and the cantons] shall ensure in the fulfilment of their duties that general and vocational courses of study achieve equal recognition in society.”

The constitutional amendment meant that responsibility for all occupational areas, with the exception of higher education, passed to the Confederation. This applied regardless of whether provision was school based, company based or organised along inter-company lines.² The Constitution now defines VPET as a component of the overall education system. This basis in constitutional law led, in turn, to the development of a reformed Federal Act on Vocational and Professional Education and Training (BBG), which entered into force in 2004. The BBG regulates both initial and continuing training. It also in particular governs tertiary-level professional education (also referred to as Tertiary B), which is equivalent to academic training/higher education, as well as vocational and study guidance and careers advice. A so-called *Berufsmatura* (Federal Vocational Baccalaureate) was also introduced. This is a qualification which combines a university of applied sciences entrance qualification with a national skills certificate and thus leads to a dual qualification at upper secondary level. The BBG also opens up the possibility of “other qualification procedures” (Article 2, (2) d, Chapter 5 BBG). Admission to qualification procedures is not dependent upon having attended certain education and training programmes. The aim here is to accord recognition to competencies acquired via non-formal or informal means and to allow this process to lead to a formal qualification.

The financing regulations contained within the BBG also offer a significant autonomous right to the professional organisations (also referred to as “organisations of the world of work”, or “OdA”³). They are given the possibility of creating their own special VPET funds, which can be used alongside the VET funding support provided by the Confederation. It, nevertheless, remains incumbent upon the Confederation to ensure that VPET is properly funded. Article 1 (2) of the BBG states: “The measures taken by the Confederation shall be designed to provide the cantons and professional organisations with financial and other resources to encourage

1 For technology definitions, see Chapter 3.

2 Including the healthcare professions, social services occupations and the artistic professions.

3 OdA are formative for the development of VET in Switzerland.

initiatives to the greatest extent possible.” The new BBG has also resulted in some changes in terminology. “Apprenticeships” are now referred to as “vocational education and training”, or “VET”. As far as VET stakeholders are concerned, the “associations” have now become “professional organisations”.

The principal understanding is that vocational training is a joint task, and this is made clear at the very beginning of the Act. The introduction provided in Article 1 of the BBG does not start by defining the jurisdiction of the law, as is usually the case. Instead, an explicit principle of partnership is set out. This states that responsibility for vocational training is to be shared by the Confederation, the cantons and the professional organisations (social partners, trade associations, as well as other organisations and education and training providers within the VPET system). Such an approach in particular ensures that the labour market is able to exert an influence on the structure of VET. COUCHEPIN (2004, p. 70) also points out that “The quality of vocational education and training is only ever as good as the cooperation which takes place between the collaborative partners.” The quality of cooperation within this collaborative partnership is a constant object of scrutiny (SCHWEIZERISCHE EIDGENOSSENSCHAFT 2016). Nevertheless, the degree of satisfaction which the collaborative partners display towards the governance of the VET system in Switzerland is very high in general terms (RENOLD/CAVES/OSWALD-EGG 2019; SCHWEIZERISCHE EIDGENOSSENSCHAFT 2016).

The Audit Committee of the Swiss National Council notes that stakeholders take on different roles within the scope of the collaborative partnership. It observes that strategic tasks are performed at Confederation level, whilst responsibility for operational or practical remits rests with the professional organisations and the cantons in particular. In the view of the Audit Committee, the parties are afforded considerable leeway under the BBG. However, this leeway requires a willingness to compromise and the readiness to seek a consensus. There is danger of a blockade if only one partner is unwilling to cooperate. The open wordings in the statutory foundations are viewed as a particular hindrance to cooperation, and the role of the professional organisations in particular is seen as lacking clarity. This frequently means that the Confederation needs to walk a tightrope between responsibility for strategic governance and taking the best possible account of interests which are in some cases divergent. The Audit Committee is of the opinion that the Confederation needs to exert a little more control over its strategic governance remit in some areas (SCHWEIZERISCHE EIDGENOSSENSCHAFT 2016). Others describe the balance which has been achieved between the stakeholders as “fragile” and claim to recognise tensions between the partners (BONOLI/BERGER/LAMAMRA 2018).

This principle of “joint” or harmonised governance of vocational training in Switzerland is characteristic of the system at all levels and in all thematic areas. The partners have wide-ranging design options, and obligations largely only arise as a result of specific interactions between the collaborative stakeholders. This allows flexible action and also makes it possible to react to changes. In the view of BACKES-GELLNER, VPET in Switzerland also forms an essential element of a system “which operates via various stakeholders and mechanisms and makes an important contribution to the ability of the Swiss economy to innovate” (BACKES-GELLNER/PFISTER 2019, p. 70).

The uniform and comprehensive regulation of vocational training in Switzerland provides an ideal basis for joint strategic development and for the adaptation of VPET to societal and technological changes. Greinert (2015) views this as a central difference to the German VET system, to which he ascribes a regulatory policy “competence schism”.

b. Focus – legal organisation of the stakeholder structure

The update of the BBG in 2004 helped to clarify the roles of stakeholders (GONON 2016). The law is seen by policy actors as a response to economic changes and to the increase in the need

for education and training. Not the least of their perceptions is that it constitutes a measure for the international matching of the tertiary education sector with tertiary-level professional education (ibid.).

The establishment by the Confederation of the Swiss State Secretariat for Education, Research and Innovation (SBFI) combined federal competencies for the whole of the education sector in organisational terms. Financial support represents an important lever for governance of the education system by the Confederation. Funding for education and training is linked with the financing of research and innovation within the scope of the *Education, Research and Innovation System (BFI System)*. This means that the funding of education is both coordinated across all sectors and related to research and innovation. In February 2020, the Federal Council proposed a concept for a new funding phase which is to run from 2021 to 2024. In the area of vocational training, the specific aim is to provide funding for “innovative projects” which “will bring VPET up to speed with regard to the digital shift and lifelong learning” (SCHWEIZERISCHER BUNDESRAT 2020, p. 3684). Dealing with the consequences of digitalisation is also the main content focus of the financing of continuing training. In the light of the areas of stakeholder responsibility, reference is made at the very beginning of the proposal to cooperation in a spirit of partnership. The proposal makes it clear that the regulation of education, research and innovation is an expression of the federal organisation of responsibility and that “subsidiarity, autonomy and collaborative partnership are key principles at all levels” (SCHWEIZERISCHER BUNDESRAT 2020, p. 3684).

Responsibility for execution and implementation is assigned to the cantons (so-called administrative federalism). The VPET Offices in the respective cantons are in charge in this case.⁴

With regard to financing, the costs are borne by the companies, which also derive the benefits from practical training. Public funding is provided by the Confederation and the cantons. The financing and provision of the school-based part of vocational training are incumbent on the cantons in particular, and this reflects their responsibility within the system.

The current governance mechanisms of the Swiss VPET system were also called into question as part of the 2030 Vocational and Professional Education and Training Strategy Process. An expert report prepared by the University of St. Gallen investigated the extent to which, in the light of mega trends such as digitalisation, de-industrialisation and globalisation, the system would need to be enhanced and to what degree the collaborative partnership would need to be strengthened (EMMENEGGER/SEITZL 2019). One key result to emerge from the inherent mutual dependencies is that the strategy competence fundamentally accorded to the Confederation can only be exercised if the other collaborative partners are already systematically integrated. Although the distribution of tasks is ostensibly precisely defined, there are still areas in which clarification is needed. The report goes on to state that the Confederation needs to assume the role of an “organiser and facilitator” within the scope of strategic governance and that it could significantly increase the governability of the VPET system by making a clear commitment to acting together with the collaborative partners in this respect (ibid., p. 1).

This analysis also points out the absence thus far of a joint committee at the level of *technical and strategic governance* to operate alongside the existing mutual organs at the various levels of governance. The Swiss Association of Small and Medium-Sized Enterprises (sgv) also believes that adjustments are needed in this regard. It emphasises that the structuring of vocational training is a joint task of the Confederation, the cantons and the professional organisations, and that the three partners must always be involved and respected on an equal footing. The

⁴ The responsibilities of the VPET Offices also include checking whether companies wishing to provide training have the capacity to do and then issuing the necessary approval. In Germany, this function is performed by the chambers.

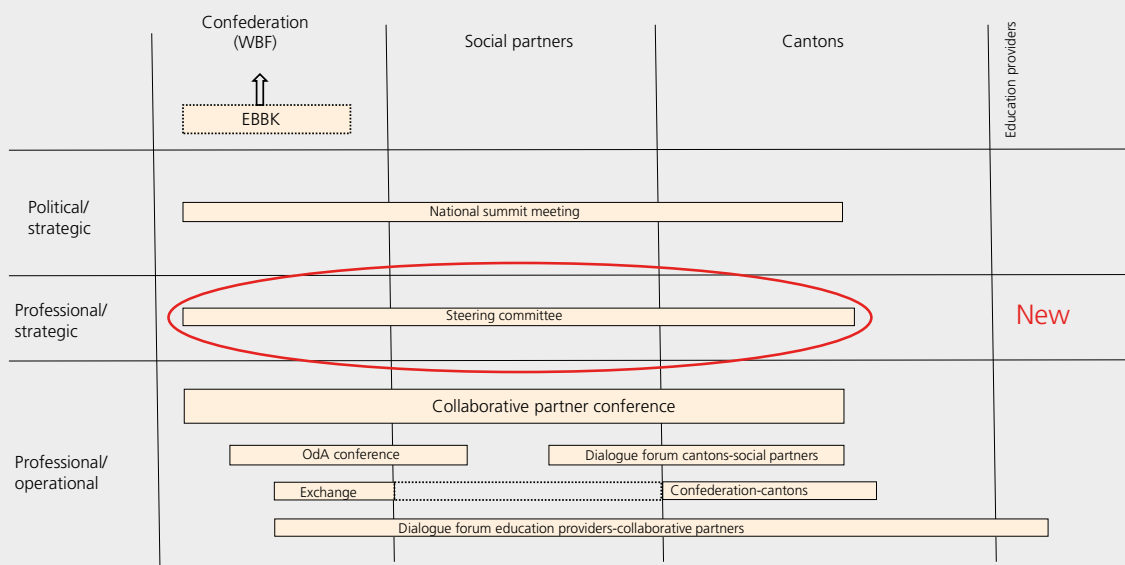
sgv also makes it clear that “Governance of the system does not mean that the Confederation is able to dictate to the professional organisations what should be taught and learned in an occupation and how this teaching and learning should take place. The professional organisations decide on content and on the materials that are relevant in examinations” (SCHWEIZERISCHER GEWERBEVERBAND 2017b, p. 3/14). One interview partner stated that the highly heterogeneous nature of the other partners is one of the reasons why the role of the Confederation is strong. Clear organisation and financial resources which can be used to acquire expertise and studies from universities and institutes of higher education and to obtain research results mean that it is in the nature of things for the Confederation to take on a particular role. The law was set out to allow the Confederation to perform a crucial function, especially when the other partners cannot reach agreement (interview partner CH_K).

In several of the interviews (CH_K, CH_A) which were conducted for the project in Switzerland at the start of 2020, mention was made of the plan to establish a new tripartite committee (TBBK) in mid-2020 in order to deal with technical strategic issues and to look, in particular, at how decisions made at the National VPET Summit Meeting were prepared and followed up. The aim is that this new body will also focus on the structure of the entire vocational training system. One interview partner at cantonal level was of the view that this “new” governance structure could alter the strong role of the Confederation. These changes may be positive (interview partner CH_K, CH_A, CH_OdA1).

The interview partners CH_A and CH_OdA1 emphasise that the governance body should become more institutionalised in future. The main task here consisted of achieving “cross-cutting representation of the employer side in the committees”. There is a particular interest in developing vocational training so that it is as closely related to the labour market as possible. CH_OdA1 indicates that “educational policy and labour market policy need to be accorded equal consideration [in this regard]”. In this process it is particularly important to ensure that a large selection of training opportunities and high-quality training content continue to be provided.

According to the recommendation by EMMENEGGER/SEITZL (2016, p. 35), the governance structure would then appear as follows.

Figure: Recommendations for the systematic governance of VET in Switzerland



Source: EMMENEGGER/SEITZL (2019), with own emphasis

The *Federal Commission for Vocational and Professional Education and Training* (EBBK) is the only body which has a legal foundation under the BBG. The representatives who usually sit on the EBBK are experts from the cantons, from the umbrella organisations of trade and industry, from the professional associations and from the fields of continuing training and academic research. The function of the EBBK is to provide advice to the “Confederation on general matters relating to the VET and professional education sectors as well as on matters relating to development, coordination and harmonisation with the general education sector” (Article 70 (1) a BBG). The latter point constitutes a further strength of Swiss VPET. VPET always considers itself to be part of the education system. Wherever possible, strategic decisions should be taken with the overall structure of the education system in mind (HIPPAACH-SCHNEIDER 2018). All education sectors are thus also brought together in a State Secretariat or Ministry, and this makes it easier to coordinate and strengthen the education system as a whole.

A national *Summit Meeting* was established in 2005 (see chart above). This only enjoys legitimacy in policy terms. The objective was for the meeting to act as a vehicle for joint policy-based and strategic governance of the VPET system, a role which the EBBK cannot perform because of its advisory function. The participants in the *Summit Meeting* are the three collaborative partners referred to in Article 1 of the BBG, each represented by its lead member. The aim now is for the vacuum which exists below the level of the Summit Meeting in the area of technical strategic governance, which requires the specialist expertise of each of the collaborative partners, to be closed by creating a tripartite body (TBBK). The members of this body will be delegated by the lead organisations of the collaborative partners. The process of the 2030 Vocational and Professional Education and Training Strategy has also made it clear that the EBBK is not a political governance body. The EBBK does not play any part in the strategy (EMMENEGGER/SEITZL 2019), and in fact responsibility was transferred to a newly created committee solely comprising experts from the collaborative partners.

The aim of the two-day *Collaborative Partner Conference* (see chart above) is to ensure that the majority of the professional organisations and cantons are involved. The conference is valued as a communication platform because it provides a networking opportunity and exerts a wide-ranging impact (ibid.). It has a technical/operational function.

The study proposes further changes beyond the establishment of a new governance body at the technical/strategic level. One idea is that companies, as opposed to business associations, should be able to bring their expert knowledge to bear more effectively. Despite their important role within the VPET system, companies have played no part in governance thus far. This would be possible within the scope of an extra-parliamentary expert commission. A round table has also been proposed. Such a body could comprise the important stakeholders from the various education sectors alongside representatives of the Confederation and the cantons. The objective is to create a discussion forum to look at the major challenges facing the education systems, such as globalisation, demographic change and migration. EMMENEGGER/SEITZL do not believe that it is formally opportune to open up committees to further stakeholders, meaning the education and training providers in particular (pp. 37f.). They point out that both a legal foundation and a relevant umbrella organisation are lacking. These are, nevertheless, important stakeholders, especially at the interfaces between different education sectors, for example continuing training and tertiary-level professional education. For this reason, there are proposals for the formal creation of so-called dialogue forums or expert commissions at the technical/operational level. Without taking on a governance or decision-making function, these would offer closer networking and better content coordination for the numerous professional organisations, for example, or would improve communication between the Confederation and the cantons. In formal terms, cooperation and coordination between the cantons takes place at the Swiss Conference of Cantonal Ministers of Education (EDK) (ibid.).

The following presentation of the areas of responsibility of the collaborative partners addresses selected task areas which are of relevance to the project issues. It does not constitute a comprehensive description of the remits of the stakeholders. Rather, the focus is on areas of responsibility which affect joint activities and processes undertaken with other stakeholders.

Summary of the responsibility of the Confederation and of the cantons and of the forms of their cooperation

The area of responsibility of the Confederation or of the SBFI in particular encompasses the areas of legislation, quality assurance (e.g. via participation in the Commission for Occupational Development and Quality (B&Q or SKBQ)), information and documentation. The most significant competence is the issuing of ordinances relating to VET and the drawing up of skeleton curricula (e.g. for general teaching in VET or for the Federal Vocational Baccalaureate) (Article 19 BBG). The SBFI has strategic project lead in the development of VET ordinances and training plans (for information on the main role of the professional organisations, see below). It enacts VET ordinances upon request from the professional organisations or does so on its own initiative where necessary.

A Commission for Occupational Development and Quality (B&Q or SKBQ) has to be set up for each respective occupation. This oversees implementation of the VET and is also responsible for monitoring objectives and requirements, the current validity of the occupational profile and quality (STAATSEKRETARIAT FÜR BILDUNG 2014; STAATSEKRETARIAT FÜR BILDUNG 2017b). The B&Qs are collaborative partnership bodies. For this reason, the SBFI, the cantons, specialist teachers, other specialists and guests (experts, pedagogical advisors where appropriate) are all to be represented in the commissions alongside the professional organisations (WETTSTEIN/SCHMID/GONON 2014, p. 136). If responsibility for a VET ordinance is borne by more than one professional organisation, then all such parties have to be represented on the relevant commission.

Unlike in the process for the development of training regulations for initial VET in Germany, the trade unions are not automatically involved in these procedures in Switzerland. However, the SBFI recommends that the unions be represented if a collective bargaining agreement has been concluded (STAATSEKRETARIAT FÜR BILDUNG 2014).

After a period of five years, the B&Q responsible for the occupation in question carries out a review as stipulated in the VET ordinances. It also checks the current validity and quality of the VET (DER SCHWEIZERISCHE BUNDESRAT 2003). The time at which this five-year review is launched is based on the requirements of the respective VET and by the needs of the provider. The procedure can be scheduled flexibly in agreement with the collaborative partners. Full or partial revision can be recommended. For further comments on the challenges created by this task, such as the demands on the time of those involved and the possibility of an “accumulation of different bodies and influences”, see BÜRGI/GONON 2019 (p. 2). Associations and companies with access to more resources believe that their voices carry more weight and that they are able to exert a greater influence because they are more likely to be able to afford to participate in several commissions. The Confederation provides financial support for work connected with adapting VET. In the tertiary-level professional education sector, the SBFI approves examination regulations for federal professional examinations at levels 1 and 2. It also oversees the examinations themselves (WETTSTEIN/SCHMID/GONON 2014).

The cantons supervise school-based and company-based VET, and are also responsible for the implementation of the BBG and of the VET ordinance (Article 24 (1) BBG).

In Switzerland, harmonisation of education systems by the cantons is a fundamental constitutional requirement (Article 62 BV). This remit forms the basis, among other things, of an

inter-cantonal agreement concluded in 2007, in which certain benchmarks relating to compulsory schooling were set out. These included language teaching and stipulations regarding enrolment and the duration of key stages. Further national educational standards were developed in 2011. The cantons which have signed up to these standards began to apply them in the 2015/16 school year. However, not all cantons decided to accede to this so-called *HarmoS Concordat*.⁵

The Swiss Conference of Cantonal Ministers of Education (EDK) and the Swiss Conference of Vocational Education and Training Offices (SBBK) are the two bodies charged with achieving harmonisation between the cantons. The tasks of the cantons in particular include the provision of guidance and support to the parties involved in apprenticeship contracts and coordination of participants in VET. In organisational terms, responsibility primarily rests with the Education Directorates. In the cantons of Bern and Zurich, these departments also take charge of middle schools (*Mittelschulen*). These include grammar schools as well as secondary schools with vocational or specialist baccalaureates. In other cantons, such as Solothurn, the Education Offices have responsibility for institutes of higher education.⁶ They enact the school curricula for general education in VET and appoint examination experts. As well as being responsible for the execution of VET, the Vocational Education and Training Offices also take charge of tertiary-level professional education. Their remit further extends to the supervision of full-time vocational schools and higher trade and technical schools. This includes ensuring that teaching takes place and appointing the principals of canton-run schools.

The cantons enact enforcement legislation. They issue authorisations for companies to provide training, approve apprenticeship contracts between companies and learners, and supervise vocational training arrangements. All of this means that they maintain close and direct contact with daily training practice. This means that there is also direct contact with the companies providing training and the professional organisations. Committees based on collaborative partnership also exist at a cantonal level, Bern and Zurich being two cases in point. These bodies advise the Education Directorate on strategic issues relating to vocational training, continuing training, vocational orientation, and study and careers guidance. They can, for example, be VET commissions set up by cantonal associations of Small and Medium-Sized Enterprises (SMEs) which frequently also involve representatives of other collaborative partners. The cantons bear about 75% of the public costs of VET (WETTSTEIN/SCHMID/GONON 2014).

As far as the cantons are concerned, cooperation with the Confederation is based on the *School Concordat*. The Confederation has created a statutory foundation for its own cooperation in the form of the *Education Cooperation Act* (BIZG) of 2017. On this basis, the Confederation and the cantons went on to conclude an *Agreement on Cooperation in the Swiss Education Area* (ZSAV).⁷

This agreement stipulates that operationalisation is to take place via a steering committee comprising the Chair, the Councillor of the Federal Department of Economic Affairs, Education and Research (WBF) and the Presidium of the EDK. Operational process management is performed by a member of the Management Board of the SBFI and by the Secretary General of the EDK.⁸ These process directors can deploy so-called coordination committees to tackle cross-cutting topics which are creating particular challenges for cooperation. Such a coordination committee has been set up to look at the topic of educational monitoring, and a further

5 For further information on the HarmoS Concordat, see www.lehrplan21.ch, accessed on 09.03.2020.

6 For a summary, see: <http://www.sbbk.ch/dyn/19622.php>, accessed on 09.03.2020.

7 For further information on the agreement, see: <https://www.admin.ch/opc/de/federal-gazette/2017/365.pdf>, accessed on 22.04.2020.

8 For further information on the EDK, see: www.edk.ch, accessed on 21.08.2020.

committee devoted to digitalisation was established at the end of 2016.⁹ The extended group of members also includes representatives from the institutes of higher education, from VET (e.g. SFIVET), from the National Association of Swiss Teachers (LCH), from umbrella associations such as ICTswitzerland and from major companies.

A joint declaration issued by the Confederation and the cantons in 2019 also stipulates that the actions of the federal and cantonal authorities will be informed by an “overall view of the [education] system” and that there will be a commitment to equal recognition of general and vocational learning pathways. A total of eight joint objectives were defined. Objective 7, for example, states that the Confederation and the cantons will address the opportunities afforded by digitalisation in an anticipatory way and that they will address the challenges which emerge. Respective strategies are being actioned, and implementation is being harmonised where necessary (SCHWEIZERISCHE EIDGENOSSENSCHAFT 2019, p. 1). Common to all of these agreements is to ensure the coordinated and joint state control of education as a whole and thus also of VET by bringing the greatest possible degree of further expertise to bear.

The role of the “organisations of the world of work”

The professional organisations (also referred to as “organisations of the world of work”) are the third main stakeholder alongside the two state bodies. They represent the interests of the companies, which are in turn organised within associations. Within the scope of this remit, they play a material part in shaping the occupational profiles and in defining standards, and thus have a major impact on VET. Although strategic project leadership for the development of VET ordinances rests with the Confederation, the professional organisations are able to determine specialist content and also enjoy a right of initiative under Article 19 (1) of the BBG. They exist at a national, cantonal and regional level. The professional organisations can be sector-specific or cross-cutting and can be aligned both employer-oriented and employee-oriented (STAATSEKRETARIAT FÜR BILDUNG 2019).

The strong position of the professional organisations within the context of VET ordinances is also apparent in the interviews (interview partners CH_OdA1, CH_OdA2, CH_A, CH_OdA3). They are the “engines of vocational education and training” (STREBEL/EMMENEGGER/GRAF 2019, p. 1), and a distinction needs to be drawn between them and traditional employer associations, professional associations and employee organisations. In the view of GONON (2016a), however, the influence of the cantons and the Confederation within the framework of the collaborative partnership has grown in the wake of measures launched to combat the shortage of skilled workers and following moves to place greater emphasis on universities of applied sciences: “In their capacity as traditional stakeholders, the professional organisations have been included in these reform dynamics nolens volens” (ibid., p. 49).

There are 146 professional organisations in Switzerland (as at 2018). STREBEL/EMMENEGGER/GRAF (2019) differentiate these into four major organisational types with regard to number of learners, number of companies providing training and number of activities. These four categories comprise the traditional employer associations,¹⁰ the professional associations,¹¹

9 For further information on the coordination committee, see: <https://www.educa.ch/de/digitalisierung-bildung/zusammenarbeit-bund-kantone/koordinationsausschuss-koa-digi>, accessed on 22.04.2020.

10 For instance, the Swiss Employers' Confederation (see interview list in the Annex) and the Swiss Association of Small and Medium-Sized Enterprises (see interview list in the Annex).

11 For instance, Swissmem (Swiss Association of Mechanical and Electrical Engineering Industries), see interview list in the Annex.

the employee organisations,¹² and dedicated VET organisations. In contrast to the first three types of association, the VET organisations¹³ specialise in VPET and bring together a heterogeneous group of members, one example being ICT-Berufsbildung Schweiz. Fifty-nine percent of the professional organisations formed between 2001 and 2015 can be allocated to this group of specialised VPET organisations. They account for around 25% of the professional organisations. Only five professional organisations are employee organisations, and these also share responsibility for the respective occupations with the relevant employer associations.

The VET organisations have the highest average number of learners (4,633), as compared to the employer associations (2,112), the employee organisations (2,041) and the professional associations (593). They are often responsible for popular occupations such as basic commercial training, healthcare and social work (*ibid.*). Three of the four types of professional organisations take part in policy processes to varying degrees and in different ways. They can be involved in the Federal Commission for Vocational Education and Training via their membership of umbrella associations and can also participate in national events which are arranged by the Confederation on a regular basis. It is worth noting that 41% of the professional organisations do not use these channels. Also, none of the five employee-oriented professional organisations are represented in employer umbrella associations (*ibid.*).

The professional organisations regulate the conditions of admission to federal professional examinations at levels 1 and 2, i.e. tertiary-level professional education, or the “Tertiary B” sector. They develop learning content, qualification procedures, certificates and occupational titles. In overall terms, the professional organisations are ascribed a significant role within the Swiss VPET system in their capacity as “intermediary bodies”. They assume “responsibility for training their own young skilled workers” COUCHEPIN (2004, p. 70).

3.1.2 The main recommendations and initiatives of the stakeholders involved

Besides those stakeholders who are currently steering the national VPET system in policy terms, there are further actors who play an important part when it comes to the successful implementation of vocational training. Each of these also has differing degrees of structural leeway at their own level or within their area of responsibility. These actors include, in particular, the companies offering training, providers of inter-company courses, the various vocational schools including those delivering tertiary-level professional education, education and training staff and, of course, the learners themselves. Stakeholders can be individuals or vested interest groups.¹⁴ For this reason, statements and recommendations made by these groups of stakeholders within the context of the main focus of the project were reviewed and included in the evaluation.

a. Confederation

The Swiss Government has launched numerous initiatives, measures and funding lines to strengthen the education system in general and its different sectors in the light of technological changes.

12 For instance, Travail.Suisse (Swiss Confederation of Trade Unions).

13 For example, ICT-Berufsbildung Schweiz: <https://www.ict-berufsbildung.ch/>, accessed on 09.03.2020 (see interview list in the Annex).

14 GONON (2016b) defines “stakeholders” very broadly and also feels that the term, for example, encompasses universities of applied sciences, upper secondary schools, universities, political parties, academic researchers and journalists. His view is that universities of applied sciences have become a particularly significant stakeholder over recent years.

A Continuing Education and Training Act (WeBiG) has been in place since the start of 2017. Continuing education and training is considered to include all non-formal training, from basic competencies to continuing training in the higher education sector. Crucial roles are also played by further training for education and training staff and by the issue of modern digital teaching and learning methods and materials, the keywords here being “digital platforms” and “networking”. The matter of how to organise the VPET system as a collaborative partnership is also being addressed.

The **WeBiG**, for example, stipulates that the Confederation and the cantons must “create the prerequisites that allow all persons to participate in continuing education and training” (Article 4 b WeBiG). Continuing education and training organisations are required to assume responsibilities such as “Information and coordination tasks” (Article 12.1 WeBiG), and public- and private-sector employers are called upon to “promote” continuing education and training for their staff (Article 5.2 WeBiG).

The *2030 Vocational and Professional Education and Training Strategy* is of particular significance and emphasis because of the broad scope of the stakeholders involved and of the thematic issues. It provides a framework for debate on fundamental topics relating to Swiss VPET and to the way in which vocational training is organised. From the very outset, the 2030 Strategy was designed as a participative process to be conducted in conjunction with the collaborative partners, and the academic research sector and society as a whole have also been involved.

The first phase focused on the development of a joint *2030 Mission Statement* and on the drawing up of common strategic guidelines. The main thematic discourses were communicated on an online platform, and all interested parties were given the opportunity to become involved by making comments and contributions. The strategy also serves as an umbrella for numerous activities and projects undertaken as part of the *Berufsbildung 2030* collaborative partnership.¹⁵ The topics of the projects are multifarious. They encompass aspects as diverse as general education in basic vocational training, the positioning of higher trade and technical schools, credit transfer issues, VET for adults, strengthening inter-cantonal cooperation and improving governance. The objective of the strategy is to ensure that “the dual system continues to be a successful model” (STAATSEKRETARIAT FÜR BILDUNG 2017a, p. 3).

Such a broadly based and comprehensive strategy for the review and further development of VET does not exist in Germany. The process of updating the BBiG and the work being carried out by the German Bundestag’s Committee of Enquiry on Vocational Education and Training in the Digital World provide only individual and specific points of comparison. Questions regarding appropriate governance structures are not raised. The approach towards the 2030 Strategy, which is based on a collaborative partnership between the Confederation, the cantons and the professional organisations, is enabling fundamental considerations to be undertaken in this respect. The incorporation of the academic research sector supplements expertise, whilst involvement of the public is helping to put the significance of vocational training on a firmer footing within society.

“digitalinform.swiss”, the main digital transformation funding focus, is one element for the *realisation* or implementation of the 2030 Strategy. All collaborative partners are involved, and project funding runs until 2024. One important aspect here is to secure the transfer of expertise between the projects. The aim is for stakeholders to be networked in order to create synergies. The “digitalinform.swiss”¹⁶ web portal was set up to provide support.

15 For further information on the *Berufsbildung 2030* strategy, see: <https://berufsbildung2030.ch/de/projekte>, accessed on 04.05.2020.

16 Web portal: <https://digitalinform.swiss/de>, accessed on 26.08.2020.

The participative way in which the strategy process was designed requires different interests to be weighed up and a balanced approach to be taken when it comes to the issue of governance. These negotiation processes are not always easy, but they are a particular reason why participants have to relativise the various perspectives and aims and are ultimately unable to assert their particular interests in a comprehensive manner. This is evaluated as being a positive outcome of the activities thus far and is regarded as a sign of the flexibility of the Swiss VPET system: “The Swiss VPET system works” (BOSSHARD 2018, p. 31; SCHWEIZERISCHE KONFERENZ DER KANTONALEN ERZIEHUNGSDIREKTOREN (EDK) 2019; TRAVAIL.SUISSE 2017).

Assessment of the overall situation – collaborative partnership

The SBFI evaluates the structural shift being caused by digitalisation as a positive development and believes that Switzerland has been able to turn this to its advantage thus far. Nevertheless, it also takes the view that improvements need to be made to general conditions and that specific measures need to be instituted with regard to initial and continuing education and training if the challenges emerging as a result of structural change are also to be successfully met in future (SCHWEIZERISCHE EIDGENOSSENSCHAFT 2017a). The assessment arrived at by SFIVET in respect of the challenges created by digitalisation is similar to that reached by the SBFI. SFIVET also believes that the Swiss labour market and VPET system are well placed to meet these challenges. It was, for example, not possible to discern any polarisation of the labour market in the wake of technological developments. The permeability of the education system and the expansion of the Federal Vocational Baccalaureate and of universities of applied sciences are cited as being the reason for this. The VPET system in particular was “preparing its trainees well for technological change” (AEPLI et al. 2017, p. 11). The focus is on the acquisition of employability skills rather than on training in a narrow spectrum of tasks (ibid.). The proximity to the labour market, from which trainees benefit when they are deployed in the companies providing training, enables the current status of their professional competencies to be identified (AEPLI et al. 2017; EIDGENÖSSISCHES HOCHSCHULINSTITUT FÜR BERUFSBILDUNG 2018a; EIDGENÖSSISCHES HOCHSCHULINSTITUT FÜR BERUFSBILDUNG 2018b).

The fundamental impression gained is that all partners involved are acting within their task framework and that they are called upon to make their contribution to the development of the VPET system via these areas of responsibility. It is also emphasised that “vigorous use must be made” of the imposed structures of the Confederation and cantons (SCHWEIZERISCHE EIDGENOSSENSCHAFT 2017b, p. 4; SCHWEIZERISCHE EIDGENOSSENSCHAFT 2017c).

The SBFI is currently launching a large number of projects to support digitalisation in VPET. Four areas in the education system are being addressed within the scope of the “Digitalisation in Education, Research and Innovation 2019–2020” action plan (SCHWEIZERISCHE EIDGENOSSENSCHAFT 2017b; SCHWEIZERISCHE EIDGENOSSENSCHAFT 2017c): the improvement of digital competencies; the use of information and communication technology (ICT) in teaching and learning; rapid adaptation of the education system to the requirements of the market; and coordination and communication in education and training cooperation. A national research programme entitled “Digital Transformation” was subsequently launched, and this will run for a five-year term. Correlative effects and the specific impact of the digital transformation on Switzerland are both being investigated. One of three modules in the research programme centres on “education, learning and the digital shift”. The main funding focus “digital change in vocational and professional education and training – digitalinform.swiss” is a communication instrument which aims to offer better networking opportunities for VPET stakeholders. A further objective is to facilitate active knowledge transfer between the institutions and their digitalisation projects. A further main funding focus will support cantonal vocational, study

and career guidance in the 2021 to 2024 period of the Education, Research and Innovation System since such guidance takes on a main role in occupational mobility.

SFIVET points out possible action which may need to be taken. The Institute believes that there is room to improve the way in which “digital literacy” is taught. Other areas of potential development are achieving a balanced combination of occupation-specific and general educational training opportunities, curricular specialisation within pathways, and continuing education and training and retraining for employees (KAISER/LÜTHI 2018). SFIVET also believes that changes in task profiles will be another consequence of ongoing digitalisation which will create challenges. The focus in VPET needs to be on paying attention and giving consideration to the shift in significance of manual and analytical/interactive tasks. The rapid developments would likewise necessitate an equally quick adaptation of curricula at all levels of education as well as in the initial and continuing training of teaching staff. In addition to this, increased networking arrangements brought about by digitalisation, creating new overlaps between certain occupational groups, would in turn lead to more instances of cooperation. It would thus be important to achieve an appropriate alignment of the increasingly complex work processes at these interfaces, which would have a corresponding influence on the structuring of curricula in VPET. The shift would also have consequences for employees’ competence requirements, and they would then be forced to pursue follow-up training on an ongoing basis. The same applies to those with competencies for which there is low demand, who would need to prepare for changes on the labour market by retraining (AEPLI/SCHWERI 2018).

Skills development/continuing education and training

The SBFI in particular notes the challenges which are emerging for the education system as a result of the change in competence requirements arising as digitalisation progresses (KAISER/LÜTHI 2018). The Swiss Confederation notes that Tertiary B education and training measures will take on greater significance in the future based on the high demand for skilled ICT workers. The constant changes to competence requirements on the labour market will result in education and training courses needing to be adapted to this shift on an ongoing basis. Indeed, it may well be the case that completely new courses will have to be created. Lifelong learning will take on a higher degree of importance within this context. Although responsibility for continuing education and training courses should primarily rest “with each individual”, participation by the social partners and by state would be equally as necessary. For this reason, action should be taken to strengthen the emphasis on national competencies in measures relating to continuing education and training programmes initiated by the relevant Federal Department (SCHWEIZERISCHE BUNDESRAT 2017, p. 5/18).

The SBFI has been involved in financing the main funding focus of “Basic competencies in the workplace” since 2018. This support is limited to measures which are necessary in regard to specific “work-related core skills”. In order to qualify for SBFI funding, these measures need to be included either in continuing training provision financed by sectoral funds or by a professional organisation or they need to be part of internal company-based continuing training and need to distinctively relate to everyday working life and its associated challenges (STAATSEKRETARIAT FÜR BILDUNG 2018a). Further to this, the Confederation is funding initiatives in the STEM (science, technology, engineering and mathematics) professions as part of the 2017 to 2020 period of the Education, Research and Innovation System. These encompass extracurricular activities in particular, because adapting the system and the transfer of knowledge and technology to meet the increased speed and scope of digitalisation has been identified as a major challenge. The aims are to intensify measures for strengthening competencies at all education levels and to adapt provision more rapidly by making VPET more flexible (WBF/SBFI 2017).

SFIVET notes in this context that the change in the significance of competencies such as soft skills and creativity is useful and that a combination of cross-cutting and technical competencies is very important in terms of employability skills (EIDGENÖSSISCHES HOCHSCHULINSTITUT FÜR BERUFSBILDUNG 2018a). In order to prepare learners for the changing requirements on the labour market, competencies should be capable of transversal deployment. Learning content needs to be made rapidly adaptable to current developments if this is to be facilitated. SFIVET proposes retaining the collaborative partnership processes, but also suggests that open wording should be used to describe technology in the curricula so as to allow the training organisations to become more flexible (SCHWERI/TREDE/DAUNER 2018). Additional funding for integrating digital competencies and for requirements-related continuing education and training courses has been made available to SFIVET as part of the *Digitalisation Action Plan*.

Digital teaching and learning methods and materials which feature the keywords "digital platforms" and "networking"

The effective use of different digital technologies requires both current competencies and an appropriate adaptation of the didactic approach employed. The aim is to ensure this is the case by updating the media competencies of teaching staff and of heads of inter-company courses. SFIVET points out that no sustainable impact can be achieved by technologies in VPET without measures in the field of didactics. Digitalisation therefore requires "continuous and long-term renewal" of VET (EIDGENÖSSISCHES HOCHSCHULINSTITUT FÜR BERUFSBILDUNG (EHB) 2018b, p. 19). Knowledge relating to the use of technology at vocational schools is described as "fragmentary". Targeted didactic use of technologies by teaching staff first requires them to redefine their role as learning experts and to adapt their professional competencies to the new challenges and tasks arising in the wake of digital transformation in the world of work (SCHWERI/TREDE/DAUNER 2018). The teaching of digital knowledge in vocational schools is within the remit of the cantons. Numerous cantons have developed information strategies and concepts aimed at ensuring that both trainees and teaching staff are able to acquire the necessary competencies, for example via *Lehrplan 21* as part of the *HarmoS Concordat* (see above).

Teaching staff

In both 2019 and 2020, SFIVET received CHF 3 million from the Confederation to fund various support measures which foster the digital competencies of teaching staff and school principals. Plans included an electronic platform, an analysis tool for school heads and course provision for various target groups. The primary goal was to familiarise teaching staff with the new learning technologies (STAATSSSEKRETARIAT FÜR BILDUNG 2018b).

In the view of CATTANEO (2018), one particular problem which teaching staff perceive is how they can employ technology in a targeted way in order to provide greater support for autonomous activity on the part of the learner. Teaching staff need to establish appropriate expertise and competencies to that end. Within this process, consideration needs to be given to the fact that basic training takes place at three learning venues. Each of these demands that a vocational school teacher adopt different roles together with specific pedagogical strategies. An overview of the digital competencies of teaching staff needs to be obtained with a view to facilitating more targeted development and implementation of their initial and continuing training. A summary should also be drawn up of the technology used at the vocational schools, in companies and in the inter-company courses. The aim here would be to encourage "transfer and a broader acceptance of technologies" (ibid., p. 21).

b. Cantons

The cantons are accorded a particular key role in the implementation of VPET. Because of the responsibility they bear in areas such as the vocational schools and the development and coordination of cantonal education and training provision, they are of especial significance within the context of digitalisation of media equipment and the training of teaching staff. A multitude of activities exists in these areas (see box on p. 26).

In connection with the topic addressed by the project, i.e. the role of the stakeholders and the interplay between them, a selection needs to be made from the wide range of activities to emphasise those which seek to achieve improved cooperation between the cantons (1) and between the stakeholders in the cantons (2).

- (1) Despite the constitutional remit of harmonising their education systems, the cantons pursue very different approaches and strategies with regard to digitalisation. A “digital disharmony” prevails (KRUMMENACHER 2019). Nevertheless, the Swiss Conference of Cantonal Ministers of Education (EDK) adopted a national digitalisation strategy for the education system in the summer of 2018 (EDK 2018). The EDK is seeking to assume responsibility for tasks which require national coordination. One example of this is the FIDES Project (*Federation of Identity Services in the Swiss Education Area*), which aims to facilitate central access to online services for pupils, teachers and administrative staff in educational institutions.

In some cases, the cantons themselves are aware of the need for closer networking of cantonal activities (NYDEGGER 2018). A company which operates in seven cantons has to complete seven different forms for the vocational guidance Internet portal (as at October 2018). There is also a feeling that the professional organisations are not, unlike at the federal level, always sufficiently involved at the cantonal level. Accelerating processes is also recommended. It is suggested that occupations in rapidly changing sectors such as information technology should be revised more frequently than once every five years. The new occupation of Chemical and Pharmaceutical Practitioner, which was developed within a few months, is cited as a positive example (ibid.).

The conflicting relationship between the cantons and the Confederation becomes visible within this context. While the Confederation is taking on a stronger role with regard to coordination, any interference in the educational sovereignty of the cantons is rejected.

- (2) Here are two examples of cooperation and harmonisation between cantonal stakeholders:
 - a. A relevant strategy was developed in order to standardise the establishment of ICT at middle and vocational schools in the Canton of Zurich. This strategy aims to ensure that basic ICT provision is in place in both types of school, the objective being to encourage new forms of teaching and learning which use digital tools.¹⁷ The ultimate aim is to achieve and maintain a uniform technical standard in all schools.
 - b. The *optima* programme was initiated by SFIVET and the SBFI in order to simplify the exchange of data between VPET stakeholders. A further goal is for the programme to serve as a platform for the coordination of specific projects by all VPET actors. The cantons, the Confederation, professional organisations and further stakeholders are all involved.¹⁸

17 For further information on ICT, see: <https://www.zh.ch/internet/de/aktuell/news/medienmitteilungen/2019/zeitgemaesse-und-standardisierte-informations-und-kommunikationstechnologie.html>, accessed on 22.04.2020.

18 For further information on the *optima* programme, see: <https://berufsbildung2030.ch/de/projekte/21-projekte-de/60-optima>, accessed on 22.04.2020.

Examples of digitalisation approaches, projects and initiatives in the cantons

The Cantons of Bern, Lucerne and Zurich are pursuing different approaches to fostering digitalisation in VPET. The Canton of Bern, for example, is planning to set up a new Centre of Excellence and to encourage the use of digital tools in teaching. The Canton of Lucerne introduced a digital portal entitled "Vocational Training"¹⁹ in order to support companies providing training, whilst the Canton of Zurich stipulated a strategy for the digital shift in middle and vocational schools in the canton and also launched the Digitalization Initiative of the Zurich Higher Education Institutions (DIZH).

Bern

The policy guidelines of the government of the Canton of Bern for the period 2019 to 2022 set out various projects and approaches for promoting digitalisation. The new TecLab Burgdorf Education and Technology Centre is, for instance, scheduled to open in 2023. It will act as a leading centre of excellence to promote education and training in STEM subjects across all school levels and is being jointly established by the Bern University of Applied Sciences and Bern Technical School working in conjunction with the Bern University of Teacher Education. Further project ideas laid out in the guidelines include supporting the digital transformation at all institutes of higher education in the Canton of Bern and in tertiary-level professional education as well as creating one or more centres of excellence for digitalisation and public management at institutes of higher education. A further objective is to encourage support from digital tools in the classroom with the specific goals of fostering autonomous learning, facilitating new types of teaching and reducing face-to-face teaching time. The idea is to establish location-independent school operations as one possibility of delivering teaching. This should help achieve a regional balance, particularly in the case of higher trade and technical schools, most of which are based at only one site (REGIERUNGSRAT DES KANTONS BERN 2019).

Lucerne

When the Canton of Lucerne passed its legislative programme, which runs until 2023, the education goals stipulated included aspects such as funding STEM subjects and embracing digitalised forms of learning. In addition to this, a digital portal for VPET was introduced in 2019. This is in particular aligned towards companies providing training.²⁰ Six further cantons and one principality are involved in the portal, and other cantons are also interested. Nevertheless, the Canton of Lucerne has provided lead development management and has invested around CHF 30,000. Companies offering training can use the portal to administer apprenticeship vacancies themselves. They can also draw up apprenticeship contracts digitally and submit these for approval and management online. A total of 2,216 companies providing training (46%) use the portal in Lucerne (as at: December 2019)²¹ (KANTON LUZERN 2019; RADIO LUZERN 2019; STADLER 2019).

Zurich

In 2019, the Government Council of the Canton of Zurich adopted a strategy for the digital shift at middle and vocational schools. This was drawn up on behalf of the Department of Education by the Office for Middle Schools and VPET. The strategy has two main focuses. The first is for it to assist in ensuring that middle and vocational schools have modern and effective basic ICT equipment at their disposal. The second is to support new forms of teaching and learning using digital tools.

The Digitalization Initiative of the Zurich Higher Education Institutions (DIZH) represents a further approach being pursued by the canton. The scheme was developed in conjunction with the University of Zurich, the Zurich University of the Arts and the Zurich University of Teacher Education. The DIZH comprises a research cluster, an innovation programme and an educational support element. The objectives are to expand research capacities in the field of digitalisation, to assist cooperation

19 Web portal: https://beruf.lu.ch/grundbildung/Portal_Berufsbildung, accessed on 30.08.2020.

20 For further information on the digital portal for VPET, see: https://beruf.lu.ch/grundbildung/Portal_Berufsbildung, accessed on 12.10.2020.

21 For further information, see: https://newsletter.lu.ch/inxmail/html_mail.jsp?params=0MbEWlotGA9x-BGBUVHMeKkBiMvBY13dNTDJ9RVULsWLLZwdZ1kAhaSFsv5dTK5%2BiojouHnPKFYuE7exEK4upIRAZW3xd-Qw9hs5SJ2i5sTSo%3D (as at: December 2019).

between institutes of higher education and the private and public sectors, and to develop digital learning content and innovative forms of VPET. One of the intended purposes behind creating digital teaching and learning content is to create a bridge between the Federal Vocational Baccalaureate and courses of study at universities of applied sciences. The programme in particular plans to support the areas of big data, artificial intelligence (AI) and machine learning. The cost framework for implementation has been estimated at CHF 300 million over a period of 10 years. A total of CHF 191.7 million of this will be sourced from the institutes of higher education, whilst the canton of Zurich will provide the remaining CHF 108.3 million (KANTON ZÜRICH BILDUNGSDIREKTION 2019; KANTON ZÜRICH: BILDUNGSDIREKTION MITTELSCHUL- UND BERUFSBILDUNGSAMT 2019; SCHENKEL 2019).

St. Gallen

The Canton of St. Gallen has launched a project mission entitled “IT Training Campaign – Focus II Education” aimed at bringing about reforms in the areas of IT competence, networking between education and training partners, flexibilisation of training and digitalisation of learning content. The main emphases as far as VPET is concerned are on the development and piloting of modern forms of teaching and learning to strengthen digital competencies, on the establishment of a continuing training programme for teaching staff, and on a pilot project for engineering, electrical engineering and metal working occupations which will allow new modular and flexible training concepts to be trialled (KANTON ST. GALLEN BILDUNGSDEPARTEMENT 2020).

c. Examples of the attitudes of the professional organisations or employer organisations

Employer organisations act as a “filter” for the communication of common interests. They are “opinion formers”, and one of their tasks is to reconcile their members’ interests (WETTSTEIN/SCHMID/GONON 2014).

Numerous professional organisations are members of the Swiss Association of Small and Medium-Sized Enterprises. From this influential position, endeavours are made in the field of VPET to strengthen the collaborative partnership of the professional organisations and to secure their “thematic leadership” (SCHWEIZERISCHER GEWERBEVERBAND 2018c, p. 8).

A lack of cooperation and an absence of mutual understanding have been identified in the collaborative partnership (ibid., p. 10). One complaint is that “the authorities” view the professional organisations, which are responsible for training and examinations, as being “ever less of an equal partner in terms of significance, competence and responsibility”. Indeed, they are being increasingly dismissed or downgraded as mere “executive assistants”. The professional organisations do not wish to be seen as “recipients of orders” (SCHWEIZERISCHER GEWERBEVERBAND 2016). They are demanding more flexibility and an autonomous approach to the way they structure their activities. The general statutory conditions should not be constrained by rigidly worded handbooks or guidance texts issued by the SBFI, by the mandatory enlistment of “so-called education and training experts” or by differing interpretations by the cantons (SCHWEIZERISCHER GEWERBEVERBAND 2017b, p. 9/14). The sgv makes it clear that governance of the VPET system does not mean that “the Confederation can dictate to the professional organisa-

The Swiss Association of Small and Medium-Sized Enterprises (sgv) is the largest umbrella association in Swiss trade and industry and represents the interests of SMEs in the country. It encompasses 230 associations and around 500,000 companies. The cantonal trade associations, the professional and sector associations and trade promotion organisations all belong to the sgv. A total of 99% of all companies in Switzerland are SMEs, i.e. have fewer than 250 employees. SMEs provide 70% of jobs and train 80% of learners (SWISS ASSOCIATION OF SMALL AND MEDIUM-SIZED ENTERPRISE 2018a). All the SMEs together account for around 60% of value creation in the Swiss economy (as at: August 2020).

tions what should be taught and learned in an occupation and how this teaching and learning should take place". The point is that the professional organisations should decide on content and on materials which are relevant to the examination (ibid., p. 3/14).

Primacy for educational and training policy must rest with trade and industry, especially if technological innovations are to be dealt with effectively (SCHWEIZERISCHER GEWERBEVERBAND 2018b). Demands were made as early as 2017 that the professional organisations should be integrated into the *Digitalisation Action Plan* from the very outset rather than being bypassed (SCHWEIZERISCHER GEWERBEVERBAND 2017a). Another criticism which is raised is that the Confederation likes to speak constantly about strengthening VPET but in many ways actually gives preference to school education, such as with regard to financing. The *sgv* supports placing greater emphasis on STEM subjects during mandatory schooling and, in the light of the technological shift, believes that the promotion of lifelong learning is an urgent necessity (SCHWEIZERISCHER GEWERBEVERBAND 2017b).

The **Swiss Employers' Confederation (SAV)** is the umbrella organisation of Swiss trade and industry. Its members include around 90 regional and sector-specific employer organisations alongside individual companies. It represents approximately 100,000 companies and just under two million employees across all branches of the economy (as at: August 2020). See <https://www.arbeitgeber.ch> (as at: 28.08.2020).

Because of structural changes on the labour market, the Swiss Employers' Confederation (SAV) is of the view that action is required in the area of employee competencies (FOUNDATION CH 2048 2018; SCHWEIZERISCHER ARBEITGEBERVERBAND 2017). Two key areas identified by the Association in which future action will be needed are retraining employees in occupations in which there is a high proportion of routine tasks and progression to Tertiary B education and training after completion of basic vocational training. Especially given the new technologies and constant changes in the world of work, continuing education and training is designated as a crucial

factor for the employability of individual workers and for the competitiveness of companies (SCHWEIZERISCHER ARBEITGEBERVERBAND 2016). Although lifelong learning is primarily the responsibility of each individual, companies should support their employees in the best way possible.

The SAV's Internet platform *lifelonglearning*²² was launched in conjunction with the organisation *digitalswitzerland*.²³ The website provides a summary of the comprehensive course provision available in regard to further digital skills training. The SAV also uses the site as a component of its lifelong learning campaign. The SAV believes that the dual training system and the social partnership needs to be consolidated and developed further. The proximity of VPET to the labour market is viewed as a particularly important pillar of Switzerland's economic success (ibid.). However, permeability between vocational and academic education must continue to be ensured. The SAV is of the opinion that action is needed in the area of vocational, study and career guidance and proposes drawing up a national strategy (SCHWEIZERISCHER ARBEITGEBERVERBAND 2019, p. 21).

Stakeholder structure is also addressed, however. The SAV believes that the teaching of knowledge needs to be scrutinised on an ongoing basis and adapted to the needs of trade and industry. It poses the question of whether the inclusion of numerous stakeholders, such as professional associations, federal departments and cantons, might not be inhibiting reform. This makes it more difficult to react to the challenges of digitalisation in a timely manner. The some-

22 Web portal *lifelonglearning*: www.lifelonglearning.ch, accessed on 22.03.2020.

23 For further information on *digitalswitzerland*, see: www.digitalswitzerland.com, accessed on 22.03.2020.

what imprecise view that the opportunities afforded by digitalisation might not be “nipped in the bud because of unwise regulations” is also offered (SCHWEIZERISCHER ARBEITGEBERVERBAND 2017, p. 8).

The engineering, electrical engineering and metal working industry in Switzerland is organised within the *Swissmem* association. Swissmem believes that the dual VPET system and the higher education sector form the foundations of Switzerland’s success along with three other factors. In connection with Industry 4.0, Swissmem has listed five policy building blocks which it considers to be important for Switzerland’s future success. One of these relates to the area of education and training, research and innovation. Its remarks include an indication that the role of dual VPET needs to be strengthened and that the system should be able to react to changes in a more flexible way. However, Swissmem rejects direct state financing of companies via a vehicle such as a state fund (SWISSMEM 2019). It calls for “innovative models” in the area of continuing education and training and retraining, but also points out that securing the effectiveness of the labour market is a joint task for employers, employees and the Confederation. The social partners and the public sector need to join forces to create new instruments.

Swissmem has developed a training initiative. The aims are to facilitate occupational mobility and to improve the use of the domestic skilled worker potential. The association believes that the education and training system is well equipped to deal with training in a traditional occupational area but is not able to cope with radical shifts in occupational areas (ibid.). Swissmem’s concept focuses on adults acquiring second qualifications in a new occupational field. This also includes persons with higher level (i.e. tertiary) qualifications. The concept is aligned to existing education and training opportunities, although these would need to be structured in an “adult appropriate” manner. It may also be necessary to create new provision. The courses should take place on an in-service basis, be designed in a modular and practically oriented way, and lead to partial qualifications in the form of a sector certificate. Credit transfers could be given for these, and subsequent accumulation could result in a national certificate at basic, Tertiary B or higher education level, or in a qualification recognised by the sector (ibid.).

Swissmem is the leading association for SMEs and major companies in the engineering, electrical engineering and metal working sector in Switzerland. It also represents other related technology-oriented sectors and has around 1,100 member companies.

The association itself states that its **Swissmem Vocational Training Division** is the largest organisation in Switzerland which is solely devoted to the development of occupational profiles, teaching tools and services for VPET (as at: August 2020). See <https://www.swissmem.ch/de/index.html> (accessed on 04.05.2020).

The primary aim of this form of modularisation is to help make occupations more flexible. Accordingly, VPET needs to be organised in such a way as to be able to guarantee flexibility via more rapid adaptation possibilities in the system (interview partner CH_ODA_1). Financing would need to be in accordance with the principles of dual VPET and would require contributions from the person willing to undergo retraining, from the Confederation, from the cantons and from companies. These contributions would vary depending on the individual case. This initiative has been discussed with “experts”, and consultations have shown that the retraining model can only be successful if trade and industry, the educational and training institutions, and state organisations collaborate in a spirit of partnership: “The structural shift requires action by all stakeholders” (SWISSMEM 2018).

The professional association ICT-Berufsbildung Schweiz has fully modularised the VET ordinances it developed itself, a case in point being the occupation of Mediatician.²⁴ The aim is that the modules are to adapt training content on an ongoing basis. The association believes this will afford trainees greater flexibility as to content and time. The modules can then be de-

ICT-Berufsbildung Schweiz is a professional organisation which was founded in 2010 and operates right across the country in the occupational field of ICT. It develops ICT qualifications and conducts federal professional examinations at levels 1 and 2. See <https://www.ict-berufsbildung.ch> (accessed on 14.04.2020).

ployed in a new or updated form at any time following completion of an advanced or continuing training qualification. They can also be integrated into the VET ordinances of other professional organisations (ICT-BERUFSBILDUNG SCHWEIZ 2018). The organisation believes that the rigid general conditions which apply in public schools constitute a significant barrier to the necessary changes. Its view is that it is currently “virtually impossible to completely redesign processes at a public vocational school” (AEBISCHER 2016).

d. Trade unions

The areas of education and VPET are an important topic for Travail.Suisse. This is reflected both within the organisation and in its self-defined remit. Travail.Suisse is represented in expert groups and on extra-parliamentary committees and uses so-called consultation procedures to

Travail.Suisse is an independent umbrella trade union with a membership of 10 associated unions. These associations represent 150,000 members from various branches and areas of the private and public sectors. Travail.Suisse was formed from existing associations in 2003. The aim was to offer an alternative to the Swiss Confederation of Trade Unions (SGB) and to avoid having a single trade union model. See www.travailsuisse.ch (accessed on 22.03.2020).

comment officially on all amendments to the law which affect employees. The union is in a position to launch initiatives and referenda, and this ensures its political influence. The main points of criticism levelled by Travail.Suisse relate to financing in the education sector and to the implementation of the Continuing Education and Training Act of 2017. It believes that the scope and size of the funding which the Confederation provides to the cantons are too small or inappropriate (WEBER-GOBET 2016; WEBER-GOBET 2019).

A downwards trend in VPET is feared due to a reduction in the VPET budget and saving measures by the cantons. It also proposes that the financial transfer made to the cantons by the Con-

federation should take greater account of activities undertaken by the latter in the area of continuing education and training rather than merely being based on the number of people in VPET. In connection with the 2017 Continuing Education and Training Act, Travail.Suisse has warned that care needs to be taken to reach low-skilled workers in particular. It is also of the view that responsibility for retaining labour market effectiveness rests very largely and even exclusively with individual workers. An investigation undertaken by Travail.Suisse arrived at the conclusion that nearly half of employees feel under-supported by companies in their continuing training endeavours (TRAVAIL.SUISSE 2019; WEBER-GOBET 2013; interview partner CH_Gew). In the light of technological change, Travail.Suisse is also calling for greater value to be placed on vocational, study and career guidance, especially in respect of continuing education and training planning. It believes that responsibility should rest centrally with the Confed-

²⁴ For further information, see: <https://www.ict-berufsbildung.ch/berufsbildung/ict-weiterbildung/mediatikerin-efa/>, accessed on 14.04.2020.

eration rather than with the cantons in order to prevent a hotchpotch of measures and regulations. Travail.Suisse embraces the need for more nationally coordinated services for adults and companies (WEBER-GOBET 2018).

The Swiss Confederation of Trade Unions (SGB) is the largest employee organisation in the country. The SGB is also calling for a stronger level of activity on the part of the cantons and employers in the area of continuing education and training, especially with regard to the creation of provision.²⁵

The **Swiss Confederation** of Trade Unions (SGB) encompasses 19 individual trade unions representing around 370,000 members (as at: August 2020). See <https://www.sgb.ch> (accessed on 28.08.2020).

e. Other stakeholders

Besides the collaborative partners, whose governance responsibility is stipulated by law despite constant debate around how their specific role should actually be defined, there are also other stakeholders who have an important part to play in the implementation of VPET. Although the interests of the vocational schools and of training staff are effectively co-represented via the competencies and responsibility assumed by the cantons within the group of collaborative partners, both of the former and, indeed, learners/trainees also have their own perspective. As is apparent from the views of the stakeholders presented thus far, the prevailing opinion is that particular action needs to be taken in respect of equipment in schools, yet particular effort is also being made to address an appropriate and responsible didactic and pedagogical approach.

Trainees are facing new challenges, too. Some of these are being created because new digital platforms/forms of communication are increasing personal distance between them and training staff. Other challenges are arising owing to the changing role of trainers, and this is leading to greater self-responsibility and self-directed learning. The need for ongoing continuing and adaptation training is raising the expectation that employees will take charge of retaining their own employability and of familiarising themselves with the relevant continuing education and training opportunities, which they may also be required to finance.

For this reason, a summary of the recommendations and demands of training and teaching staff and of the role played by learners is presented below.

Training and teaching staff

From the perspective of teaching staff at vocational schools, challenges are emerging in respect of two aspects in particular: new digital teaching and learning methods, which impact on the design of teaching and on competence acquisition, and the closely related matter of continuing training for teachers (THOMANN 2019).

The BCH-FPS believes that there is an urgent need for specialist continuing didactic training for teaching staff, especially as regards digitalisation. The BCH also proposes a greater degree of modularisation in curricula. If the content of all occupations were no longer developed in parallel, it holds, this could provide a vehicle for creating urgently required synergies for teach-

BCH-FPS (Vocational Education and Training Switzerland) is an umbrella association of teaching staff in VPET. Although it acts as a separate body, the BCH-FPS is also allied to the LCH (National Association of Swiss Teachers). The LCH represents teachers in general issues of educational policy. See <https://www.bch-fps.ch> (accessed on 28.08.2020).

²⁵ See <https://www.sgb.ch/themen/arbeit/detail/die-digitalisierung-muss-den-berufstaetigen-nuetzen>, accessed on 02.10.2020.

ing in schools and on inter-company courses. Cross-cutting teaching would then be an easier proposition. This in particular applies to specialist areas affected by digitalisation. A positive effect would also be exerted on the usability of teaching materials. Modern digital teaching tools are particularly expensive to develop and produce (ibid.).

The National Association of Swiss Teachers (LCH)²⁶ is calling for coordinated implementation of the digital strategies of the cantons (DACHVERBAND LEHRERINNEN UND LEHRER SCHWEIZ (LCH) 2018). It is of the firm view that individual cantons cannot cope with digitalisation in schools on their own. This assessment is also shared by some at a political level. In June 2018, the CVP Parliamentary Party submitted a motion to the Swiss National Council in which it called for an impetus programme by the Confederation in order to pool and coordinate digital endeavours (DIE BUNDESVERSAMMLUNG – DAS SCHWEIZER PARLAMENT 2018).

The trade union vpod also speaks out on behalf of teachers, especially with regard to which competencies should be imparted in future and what future forms teaching should take (VPOD BILDUNGSPOLITIK 2018; Zeitschrift Bildungspolitik: Bildung in Zeiten der Digitalisierung, [Educational Policy Journal – Education in Times of Digitalisation], 2018). vpod is of the opinion that a useful expansion of digital competencies should not, under any circumstances, take place at the expense of general education and social competencies. vpod also points out that new concepts are needed in order to be able to teach digital competencies in schools and insti-

The trade union **vpod** represents workers in the public sector, and its membership also includes teaching staff at schools and institutes of higher education. It is organised as an association and has around 34,000 members (as at: August 2020). See <https://vpod.ch> (accessed on 28.08.2020).

tutes of higher education. It has also expressed the view that this task should not be imposed on teaching staff and has announced that it would be producing a thesis paper on this subject. vpod is also calling for additional funding for the school infrastructure and for the continuing training of teaching staff. Like Travail.Suisse, vpod emphasises that responsibility for continuing education and training should not be borne by individuals alone, and it also criticises the tendency towards self-financing (ibid.).

Teaching staff at vocational schools in the Canton of Zurich (LKBZH) believe that continuing training provision and fair general conditions are both necessary. They feel that a time frame must be made available so that teachers do not have to undertake continuing training in their leisure time or at their own expense. Other issues addressed include the lack of infrastructure in schools. Other criticism includes entirely practical matters such as an insufficient number of sockets as well as aspects including dependency on software suppliers. In addition to this, there are explicit calls for a right of co-determination, so that “staff on the ground, the teachers who are directly affected” can bring their expertise and concerns to bear in future project groups, particularly at cantonal level (LEHRPERSONEN KONFERENZ BERUFSFACHSCHULEN KANTON ZÜRICH (LKB) 2018, p. 2).

The **LKBZH** is a representative body for teaching staff who work in state or state-recognised vocational schools, in apprenticeship workshops, or in residential and special schools. See <https://www.lkbzh.ch> (accessed on 28.08.2020).

Other criticism includes entirely practical matters such as an insufficient number of sockets as well as aspects including dependency on software suppliers. In addition to this, there are explicit calls for a right of co-determination, so that “staff on the ground, the teachers who are directly affected” can bring their expertise and concerns to bear in future project groups, particularly at cantonal level (LEHRPERSONEN KONFERENZ BERUFSFACHSCHULEN KANTON ZÜRICH (LKB) 2018, p. 2).

26 For further information on the National Association of Swiss Teachers (LCH), see: <https://www.lch.ch>, accessed on 28.08.2020.

Trainees/learners

Interestingly, learners' co-determination rights is an issue which is directly addressed in Article 10 of the BBG, which stipulates that host companies and VET schools must ensure that the rights of learners to be consulted are respected. That said, there are no formal committees or institutions at the learner level which would be able to assert this right (WETTSTEIN/SCHMID/GONON 2014).

Some responses from other stakeholders refer to the fact that the perspective of the learners is absent. One example here is the comment made by the LKBZH (on 18.03.2018) regarding the "Digital Shift in Upper Secondary Schools" project. This strategy does not address learner's needs for personal relationships nor does it make any mention of the "weakest" learners, who can only obtain "self-control", "self-responsibility" and "self-motivation" if they receive close support from teaching staff. The President of the BCH also believes that too little consideration is given to learners. He points out that the 2030 Vocational and Professional Education and Training Strategy mainly focuses on the world of work and its general conditions. The core area, the learning process of learners, is clearly not afforded sufficient attention (THOMANN 2019).

This point of view is also confirmed in an interview with a board member of the organisation of teaching staff in VPET (BCH; interview partner CH_BP). The board member believes that the consequences of digitalisation for training and the issue of changing competencies are absent from the discussion, even though "human competence" remains a key aspect for teaching staff. He also indicates the major problem area of cost-cutting measures, which means that teaching staff need to rely on their own initiative in order to pursue continuing training measures. The board member calls for automatic continuing training for teachers in the form of a professional mandate. Despite new teaching and learning methods, the importance of speaking to learners directly and of providing individual motivation should not be forgotten. The board member feels that schools are reacting too sluggishly. He therefore proposes that teaching staff should undertake regular company placements. In overall terms, this interviewee thinks that vocational schools are afforded insufficient opportunity to be involved in cantonal processes and committees.

New societal organisations

A greater need for harmonisation and coordination in areas such as the development of teaching and learning concepts and the equipping of schools is generally emerging in the wake of technological development. This is creating space for new societal organisations, which are making their presence felt. One example is the *Metropolitan Conference of Zurich*²⁷ which was founded in 2009. This project takes in various cantons and around 120 towns, cities and local government areas within the region and was set up in the form of an association. The principal aims are to continue to improve quality of life and to promote the region as an economic location. In 2017, the association commissioned the Lucerne University of Applied Sciences and Arts with creating an online platform and with drawing up recommendations so that the VPET system can predict changes to occupational profiles more effectively and address new technological developments more rapidly and in a more coordinated way (METROPOLITANKONFERENZ ZÜRICH 2017).

With the involvement of the educational establishments, the professional organisations, the universities of applied sciences and the companies providing training, the "Digitalisation in Vocational Education and Training" project has systemised occupational profiles based on

27 For further information on the *Metropolitan Conference of Zurich*, see: <https://metropolitanraum-zuerich.ch/ueber-uns/>, accessed on 28.08.2020.

the influence of digitalisation and has sorted them into 10 clusters. Existing curricula have been scrutinised to identify potentials for improving digital competencies, and cluster-specific recommendations have been drawn up. The results are available on an interactive platform.^{28 29}

3.1.3 Summary and evaluation

a. Main thematic focuses of the recommendations and demands

The thematic areas addressed by stakeholders in connection with technological developments and its consequences for VPET display a high degree of conformity. All the stakeholders emphasise the importance of cooperation between the collaborative partners as a guarantee for the flexibility of VPET. Both the issue of matching VET ordinances with the changing demands of the labour market and the question as to whether processes exhibit sufficient flexibility are raised. Other topics which are addressed are equipment at vocational schools, digital teaching and learning tools, dealing with these resources in an appropriate and useful way, and the new didactic approaches thus facilitated. The future role of teaching and training staff is mentioned. The continuing VET of employees in general and of teaching staff in particular also plays a major role in the spectrum of themes covered. Topics are related to varying degrees to the issue of financing.

b. Reference to stakeholder structure and the role of the stakeholders

The stakeholders' respective perspectives and vested interests are, nevertheless, reflected in specific recommendations and proposals, and similar demands are sometimes accentuated differently.

Although the collaborative partners fundamentally agree on the importance of governing VPET in a spirit of partnership, and despite the fact that this is confirmed by virtually all the interviewees, this does not mean that no criticism is levelled at partners because of their perception of the role and the nature of their relationship with other partners.

This applies both to the relationship between the Confederation and the cantons and to relationships between professional organisations and the Confederation and cantons. The manner in which the stakeholders work together to shape the VPET system is constantly called into question, discussed and reviewed, and this scrutiny certainly also extends to the level of policy and strategic cooperation. The existing structure of the joint committees and of the harmonisation processes at the various governance levels is already finely nuanced, and this also forms an object of commissioned research and an issue to be tackled within the scope of the joint 2030 Vocational and Professional Education and Training Strategy. This structure will be changed if necessary, and it was in fact recently expanded when a new governance body was established at the technical/strategic level. Suggestions for improvements are being seized upon, and joint implementation is taking place.

This readiness to communicate and cooperate forms the foundation of flexibility in the Swiss VPET system. The benefits go beyond basic training and are also felt by the VPET system as a whole, including tertiary-level professional education, universities of applied sciences, and continuing VET in the widest sense of the term. The entire governance perspective becomes very readily visible in the numerous and diverse project topics tackled in the 2030 Vocational and Professional Education and Training Strategy. The role and representation of the vocational schools in these processes is a rather controversial issue with regard to stakeholder

28 Web portal: www.berufsbildungdigital.ch, accessed on: 27.08.2020.

29 Within the scope of the project, it was not possible to develop a comprehensive overview of comparable initiatives which are emerging or have emerged outside the formal framework of the VPET system.

structure. On the one hand, calls are being made for vocational schools and teaching staff to enjoy a greater right of co-determination in future, including with regard to strategic decisions. On the other hand, the advice is that further stakeholders should not be included in governance committees. Nevertheless, there is a particular realisation of the significance of education and training providers, and proposals are being made for the establishment of dialogue forums or expert commissions at the technical/operational level. Within the context of stakeholders' integration into the process of drawing up VET ordinances, employers are warning that reticence should be exercised in respect of the involvement of more actors. They take the view that too many stakeholders are already taking part and that this is leading to delays in the update process. The role of companies is considered from an academic research perspective, and proposals have been made that companies which are particularly oriented to research and innovation should be more closely involved in the development of VET ordinances so that they can bring their expertise to bear (RENOLD/CAVES/OSWALD-EGG 2019). EMMENEGGER/SEITZL (2019) support the idea that companies should have a stronger voice as regards the governance of VPET and also suggest that this should be facilitated within the scope of an extra-parliamentary expert commission.

The initiative undertaken by the employer association *Swissmem* is worth mentioning here, as it provides an example of a stakeholder which is expanding its traditional field of activity. This initiative is using existing training opportunities within the VPET system to create precisely tailored training pathways which allow companies to cover their own skilled worker requirements. The aim is to make it easier for adults to obtain a second formal vocational qualification. In pursuing this initiative, *Swissmem* is extending its radius of action out into the VPET system by opening up new training pathways. ICT-Berufsbildung is doing the same, to a certain extent. Professional organisations have grasped an initiative with regard to changing the structure of their VET ordinances by introducing modularisation. To this extent, they have set new benchmarks. They believe that this will help to make regulatory instruments flexible. For more on various approaches towards modularisation and greater flexibility, see also SEUFERT (2018).

A critical view is taken of the situation regarding support for employees' continuing training activities. Trade unions in particular are calling for companies to do more. The same goes for teaching and training staff. The teachers' union has also addressed the issue of the financing of continuing education and training. Because of the increasing need for continuing vocational training, the various perspectives of the social partners will come to the fore and greater emphasis will be placed on potential continuing training participants' interests.

One notable aspect is the commitment of new stakeholders, such as societal groups at a regional or local level. One example here is the *Metropolitan Conference of Zurich*, which is getting involved in the education and training system in order to optimise the implementation of VPET or to pool interests. New stakeholders or interest groups are also emerging from outside the "formal political and administrative apparatus" (GONON et al. 2016, p. 16). These actors are working from within their respective spheres of influence to deliver impetus for changes to the VPET system.

3.2 Germany

3.2.1 The legal starting point of the stakeholder structure

a. State responsibility for governance of the education system

One major difference with regard to political governance of the VET systems in Germany and Switzerland is the way that responsibility is constitutionally regulated. Whereas responsibility for vocational training in Switzerland rests with the Confederation (see Chapter 4.1), the German Basic Law (GG) stipulates that state tasks and competencies in the area of cultural and educational policy are a matter for the 16 federal states (Article 30 GG). The federal states are in charge of governance of the school and higher education system.

This principle is referred to as “educational federalism”. Federalism Reform I (which entered into force on 1 September 2006) strengthened the concept of educational federalism even further by introducing a so-called ban on cooperation. This prohibits the Federal Government from permanently providing the states with money for certain educational policy measures. It is only permitted to contribute to the financing of particular projects in the area of academic research. Federalism Reform I also abrogated Article 91b of the GG, which had previously stipulated that educational planning was a joint task of the Federal Government and federal states. This joint task encompassed all institutions and levels within the education system. It covered pre-school provision, the whole of general schooling and the higher education system and also included advanced training, continuing training and adult education. Preparation, data collection, forecasts and the evaluation of measures across the entire education system were all deemed to form part of the joint task (DEUTSCHER BUNDESTAG – WISSENSCHAFTLICHE DIENSTE 2009).

The ban on cooperation was an object of criticism from the outset and was relaxed in 2014. Since then, the Federal Government has been allowed to provide institutional support to institutes of higher education without limitation of time. Finally, in 2019, Article 104c of the GG was also amended to enable the Federal Government to join forces with the federal states and agree the so-called Digital Pact for Schools. It was then permitted to make €5 billion in financial aid available over a period of five years.³⁰ The federal states and the local authorities provide their own financial contribution of around 10% of the funding amount. The aim is that these funds will be used to equip schools with the necessary digital infrastructure.

The constitutional decision to transfer educational sovereignty to the federal states has a marked impact on the governance of VET and on the role of the stakeholders. Just as in Switzerland, dual training forms the backbone of VET in Germany. Dual training constitutes the central vocational training system in Germany and combines company-based learning with learning in vocational schools. The main focus is on company-based learning, which makes up around 70% of learning time. Regulatory competence for this company-based element of training lies with the federal states. In accordance with Article 74 (1) no. 11 of the GG, the legislative power of the Federal Government includes both responsibility for laws relating to economic matters in the strictest sense of the term and jurisdiction over occupational laws which are aligned to economic policy. This legislative responsibility forms the constitutional foundation of the Vocational Training Act (BBiG). In addition to this, the Federal Government has regulatory responsibility for continuing training and also holds so-called competing legislative competence in the area of admission to higher education and higher education qualifications. It is, for example, responsible for the German Higher Education Act.

³⁰ For further information on the *Digital Pact for Schools*, see: https://www.bmbf.de/files/VV_DigitalPaktSchule_Web.pdf, accessed on: 28.08.2020.

This division of responsibility inevitably hampers overarching governance of the education system and would seem to require detailed cooperation and harmonisation between the two stakeholders, the Federal Government on the one hand and the 16 federal states on the other. Governance of VET works comparatively smoothly thanks to tried-and-tested practices which have been in place for many years in areas such as the development of training regulations to act as a regulatory foundation for dual training. Nevertheless, there are visible difficulties in achieving coordination at the edges of the various education sectors. Questions regarding areas of responsibility arise as soon as the focus is on the development of hybrid qualifications or on permeability, recognition and credit transfer between general, higher and vocational education. Decisions and developments within an education sector – for example the policy of increasing the numbers of young people completing their upper secondary school leaving certificate by signalling that this constitutes a higher education entrance qualification or the introduction of practice-oriented programmes of study – have an impact on the educational decisions taken by young people and therefore also on VET within the overall setting of the education system (HIPACH-SCHNEIDER 2018; HIPACH-SCHNEIDER/SCHNEIDER 2018; HIPACH-SCHNEIDER et al. 2017). The challenges of coordinated governance are rendered apparent by the strong growth in the number of universities of applied sciences and in particular in the dual courses of higher education study they offer, which enable both a vocational qualification and a bachelor's degree to be acquired (BUNDESINSTITUT FÜR BERUFSBILDUNG 2017c).

Germany has no formal committee at ministerial level which is charged with the task of coordinating cross-cutting educational issues and ensuring institutionalised harmonisation between the Federal Government and the federal states. The activities of the Federal Government/Federal State Commission for Educational Planning and Research Promotion (BLK) ended on 31 December 2007, when the body was also abolished. The BLK was founded in 1970 based on an administrative agreement between the Federal Government and the federal states. It was a government commission at ministerial level which collaborated closely with the relevant federal state ministries. Especially within the area of VET, the BLK acted as an important provider of impetus and as an initiator of pilot projects.³¹ The Joint Science Conference (GWK) is considered to be its successor body, although the remit of the former focuses exclusively on strengthening science, research and teaching.³²

Awareness of the problem certainly exists at a federal policy level. There was a reason why the idea of creating a National Education Council was adopted in the Grand Coalition Agreement of 2018 (CDU/CSU/SPD 2018). The aims were to improve transparency, quality and comparability in the education system, to reach an understanding on future objectives and developments, and to foster cooperation between the policy levels involved in structuring education and training provision. The establishment of an Education Council was welcomed by the trade unions (DEUTSCHER GEWERKSCHAFTSBUND (DGB) 2019b; GEWERKSCHAFT ERZIEHUNG UND WISSENSCHAFT (GEW) 2018) and the employer side also believes national coordination of the education sector makes sense (BUNDESVEREINIGUNG DER DEUTSCHEN ARBEITGEBERVERBÄNDE (BDA) 2018b). The cause of the disputes which led to an Education Council being rejected by the federal states of Bavaria and Baden-Württemberg was the upper secondary school leaving certificate. According to Bavaria's Prime Minister Markus Söder, the fear is that a central upper secondary school leaving certificate will be imposed "from Berlin" (SÜDDEUTSCHE ZEITUNG 2019). His counterpart in Baden-Württemberg, Winfried Kretschmann, considers the body to be "as useful as a hole in the head" (HEILBRONNER STIMME 2019) and points to the federal

31 For further information on the projects, see: http://www.blk-bonn.de/ueber_uns.htm, accessed on 27.03.2020.

32 For further information on the Joint Science Conference (GWK), see: www.gwk-bonn.de, accessed on 27.03.2020.

states' constitutional responsibility for educational matters and to the coordinating function of the Standing Conference of Ministers of Education and Cultural Affairs (KMK) (see below). A treaty between the Federal Government and the federal states will, however, probably remain on the agenda. The goal of such a treaty would be to make it easier to compare the school systems of the different federal states. It could provide a basis for the development of joint standards for school qualifications or for standardised and binding teacher training regulations (ibid.).

The federal states, which are responsible for schools (incl. vocational schools), currently coordinate their activities via the KMK.³³ Uniformity and comparability of certificates and qualifications are a prerequisite for mutual recognition, for the securing of quality standards and for cooperation between educational establishments, and these tasks form the core remit of the KMK. The KMK was established back in 1948 on the basis of Article 30 of the GG.³⁴ Federal Government/federal state agreements concluded pursuant to Article 91b of the GG provide specific assistance through jointly coordinated initiatives and funding programmes (DEUTSCHER BUNDESTAG – WISSENSCHAFTLICHE DIENSTE 2016). The Article makes stipulations regarding educational planning and research promotion and enables the Federal Government and the federal states to conclude agreements regarding cooperation in these areas. One example is the funding of qualifications for education and training staff, including vocational school teacher training.

The Alliance for Initial and Continuing Training is another form of cooperation. Here, the four main stakeholders for the governance of VET – the Federal Government, the federal states and the two social partners – formed a consortium on the basis of an agreement.³⁵ A so-called National Pact for Training and Young Skilled Workers was created as early as 2004, although the objective pursued at the time was an entirely different one and the trade unions were not involved. The reason for its establishment was a shortage of training places³⁶ at a time when the trade unions were calling for a training place levy. The focus of the Alliance, on the other hand, is directed towards making the vocational training pathway more attractive, and it thus also concentrates on combating the shortage of skilled workers in some sectors.³⁷ A new agreement was signed in August 2019 for a term to run until the end of 2021.

The Alliance for Initial and Continuing Training acts as a policy platform with the aims of bringing together all relevant VET stakeholders at a federal level and of developing possible joint solutions to the main challenges which VET policy is facing. In the years leading up to

33 For further information on the KMK, see: www.kmk.org, accessed on 27.03.2020.

34 The Federal Government/Federal State Coordination Committee for Vocational Education and Training (KoA) is another body which seeks to achieve harmonisation in the field of VET (<https://www.bmwi.de/Redaktion/DE/Artikel/Ausbildung-und-Beruf/beschluesse-bund-laender-ausschuss-10-2007.html>, accessed on 01.04.2020). The KoA is also a non-statutory body which has its basis in a Federal Government/federal state agreement. It comprises representatives of the ministries responsible for vocational school teaching in all 16 federal states, of the Federal Ministry of Education and Research (BMBF) and of the relevant ministries responsible for the respective training regulations (usually the Federal Ministry for Economic Affairs and Energy, BMWi).

35 For further information on the partner of the Alliance for Initial and Continuing Training, see: <https://www.aus-und-weiterbildungsgallianz.de/AAW/Navigation/DE/Partner/partner.html>, accessed on: 28.08.2020.

36 The Pact was extended on several occasions (https://www.bmbf.de/files/ausbildungspakt_2010.pdf, accessed on 14.04.2020). Each time, however, objectives were amended and adjustments were made to take account of changes on the training market.

37 For further information on the Alliance for Initial and Continuing Training, see: <https://www.aus-und-weiterbildungsgallianz.de/AAW/Navigation/DE/Home/home.html>, accessed on 08.04.2020.

2023, the aim is to achieve the following objectives in particular (ALLIANZ FÜR AUS- UND WEITERBILDUNG 2019):

- ▶ To bring more companies and young people together and retain them in training.
- ▶ To continue to increase the attractiveness and quality of dual training, to promote VET together.
- ▶ To strengthen advanced vocational training and drive forward higher/tertiary VET.

This national agreement is reinforced by individual agreements and by initiatives at federal state level.

A further example of a type of cooperation between the Federal Government and the federal states is a joint competition entitled “Advancement through education and training – open institutes of higher education”.³⁸ This contest aims to promote concepts for in-service higher education study and for lifelong scientific learning, particularly for employers, people with family commitments and job returnees. The objectives are to open up a pathway to institutes of higher education for those with vocational qualifications via the vehicle of lifelong learning and to achieve a closer interlinking between vocational and academic education.³⁹ However, especially with regard to the dissolving borders between education sectors (for examples, see above) – which are indeed desired in educational policy terms within the context of keywords such as “permeability” and “lifelong learning” – the question arises as to whether these forms of harmonisation and cooperation will be sufficient in future to strengthen the entire education system whilst at the same time weighing up and inter-relating the consequences of innovative further developments in the different education sectors.

b. Legal foundations for the stakeholder structure in VET

The legal basis for governance of the company-based part of VET is provided in the Vocational Training Act (BBiG). In contrast to the BBG in Switzerland, the stakeholders involved in structuring the VET system at a national level in Germany are not explicitly listed. Neither is there any express indication of any *joint responsibility* for VET. The so-called competent bodies are not mentioned until section 71 of the BBiG. These are usually the respective chambers, whose areas of responsibility include the individual occupations or occupational groups. The chambers of crafts and trades and the chambers of commerce and industry are particularly relevant in this regard. The competent bodies take on specific monitoring, quality assurance and consultancy tasks (section 76 (1) BBiG).

The participation of the so-called social partners (i.e. employer and employee representatives) is stipulated at individual points in the Act. For example, they need to be involved in the VET committees which the competent bodies/chambers are required to establish (section 77 BBiG). These committees consult on legal regulations relating to the *implementation* of VET. Teachers at vocational schools also sit on these bodies, but in an advisory capacity only (section 77 (1) BBiG). There is also a requirement for representatives of the social partners and of the vocational schools to be involved in the examination boards of the chambers (section 40 (2) BBiG) (see below).

Some of the tasks performed by the chambers are sovereign in nature, i.e. the state has delegated remits. The latter also include the issuing of by-laws and administrative decisions. In

³⁸ The competition was launched in 2011 and is now in its second round of funding, which runs until mid-2020.

³⁹ For further information on the contest, see: <https://www.wettbewerb-offene-hochschulen-bmbf.de/>, accessed on 02.04.2020.

The **chambers** are so-called entities under public law. This means that they can only be established by the state via an act of parliament or a legal ordinance. They thus differ from associations, which can be set up by citizens at any time. The chambers are organised regionally and across sectors. Membership is compulsory for all individuals or organisations exercising certain occupations. Membership is fee-based.

Formal political responsibility for training regulations – the role of the Federal Government and federal states

The federal states first agree the length of the process with the Federal Government (usually limited to one year). The federal states are involved in the development and harmonisation phase, during which their experts work with experts from the Federal Government to draw up draft skeleton curricula. They also participate in the procedure for enacting the training regulations. The new training regulations and the skeleton curriculum are approved during this phase by the so-called Federal Government/Federal States Coordination Committee for Training Regulations/Skeleton Curricula, which includes representatives from the BMBF and from the ministries responsible for the respective training regulations and from the ministries responsible for vocational school teaching in all 16 federal states. The federal states either adopt the skeleton curriculum directly or else implement it in the form of a federal state-specific curriculum.

the field of VET, for example, they conduct final examinations. They establish the relevant examination boards to that end (section 39 BBiG, see above).

The chambers also monitor the suitability of training centres and the personal and professional aptitude of trainers within the scope of dual training (section 32 (1) BBiG). They record the number of training agreements, i.e. the training contracts concluded between trainees and companies providing training, and other statistical data relating to training activities (section 34 BBiG). The chambers also act as commercial enterprises. They provide preparatory courses for advanced VET, for which fees are charged. But they also offer numerous different continuing training programmes.

The BBiG⁴⁰ forms the legal basis for the training regulations, which in turn act as the foundation for company-based training in the dual system in Germany.⁴¹ Under its constitutional decision-making powers (see above), the BBiG stipulates that the Federal Government, or more precisely the specialist ministry in charge of the sector in question, is responsible for the development of training regulations (Article 4 (1) BBiG). In the case of the craft trade occupations, for instance, this is the Federal Ministry for Economic Affairs and Energy (BMWi).⁴² The specialist ministry responsible is required to notify the federal states in a timely manner of plans to update training regulations. This coordination between the Federal Government and the federal states, which traverses the whole of the development process of training regulations and is stipulated at all levels of the procedure (Bundesinstitut für Berufsbildung 2017b), is crucial to the drawing up of matching skeleton curricula for vocational schools, the second learning venue in the dual training system.

In terms of content, the initiatives and proposals of the social partners are of crucial significance from the very beginning of the process.

40 The Trade and Crafts Code (HwO) applies in the craft trades sector.

41 The training regulations are not the precise equivalent of Switzerland's VET ordinances. The latter also include requirements relating to "professional education institutions" (Article 29 (2) BBG).

42 Under section 25 of the Trade and Crafts Code (HwO), the Federal Ministry for Economic Affairs and Energy (BMWi) is responsible for acting in agreement with the Federal Ministry of Education and Research (BMBF) when it comes to drawing up training regulations for the craft trades sector.

They will usually initiate the development of new training regulations or the updating of existing regulations as soon as they note that occupations need to be revised. They are also responsible for setting essential educational policy benchmarks for regulatory measures. Cooperation between the state and social partners takes place within the scope of a so-called consensus method from the outset of the development process. The social partners play a key role during the whole procedure of processing or drawing up training regulations.

The BBiG also stipulates that a VET institute must be established, the Federal Institute for Vocational Education and Training (BIBB) (sections 89ff. BBiG). However, unlike the Swiss Federal Institute for Vocational Education and Training⁴³ (SFIVET) (Article 48 BBG), BIBB's primary remit is not the training and continuing training of teachers. It focuses, instead, on a range of other tasks, including the preparation of training regulations and of the Report on Vocational Education and Training. VET research and the implementation of trial or pilot projects are two tasks which are common to both institutes.

In terms of the regulations set out in the BBiG, however, the establishment of a Board at BIBB (sections 91ff. BBiG) is of particular relevance to the question of governance of the VET system. As well as stipulating guidelines for work undertaken by BIBB, the Board also “advises the Federal Government in fundamental matters relating to vocational education and training” (section 92 (1) no. 2 BBiG). This approach means that the social partners are able to exert a formal influence on the structuring of VET. The Board includes eight representatives each of the employers and employees. These members are joined by eight representatives of the federal states and five representatives of the Federal Government, although the latter have eight votes. This provides a body which brings together the main stakeholders involved in shaping VET in Germany, the so-called four “benches” (BUNDESINSTITUT FÜR BERUFSBILDUNG 2020). A glance at the list of member organisations reveals that the chambers are also represented on the employer side through their umbrella organisations. The German Confederation of Skilled Crafts (ZDH) acts for the chambers of crafts and trades, whilst the Association of German Chambers of Commerce and Industry (DIHK) speaks for the chambers of commerce and industry. The *Board* is not bound by any instructions in the execution of its tasks (section 92 (10) BBiG).

The *Board* can adopt recommendations or issue official statements. It is not, however, permitted to make educational policy decisions. To this extent, it is comparable at a national level to the *Federal Commission for Vocational and Professional Education and Training* (EBBK) in Switzerland, which also exercises an advisory function. Notwithstanding this, the remit of the EBBK stretches beyond that of the *Board*, in that the former is expressly accorded statutory

Content structure of training regulations – the role of the social partners

In the development and harmonisation phase of training regulations, both a general training plan for companies and a skeleton curriculum for vocational schools are drawn up. BIBB invites the umbrella organisations of the social partners to appoint Federal Government experts, who then work in conjunction with BIBB to develop the paragraph and the general training plan. The Federal Government experts nominated by the social partners then go on to work with experts of the federal states on the development of a skeleton curriculum to be used for vocational school teaching. This draft is submitted to the BIBB Board (see below), which presents a positive response to the Federal Government. BIBB's response also constitutes a recommendation that the training regulations should be enacted in the form proposed.

⁴³ In November 2019, the Swiss Federal Council presented a draft law which places SFIVET on a new statutory foundation. Its proposals include according SFIVET the status of an institute of higher education.

responsibility for coordination and harmonisation with general educational policy (Article 70 (1) a BBG).

On very specific occasions, however, the Board has issued recommendations which transcend the direct area of VET. One example is a statement issued by the Board in November 2011 in which it sharply criticised the resolution adopted by the KMK in October 2011 that the upper secondary school leaving certificate should be aligned to the German Qualifications Framework (DQR) reference level 5 (and therefore also receive equivalent status in the European Qualifications Framework, the EQF). This put the upper secondary school leaving certificate one level above the majority of vocational qualifications in the dual system (BUNDESINSTITUT FÜR BERUFSBILDUNG 2011). The Board believed that such a move undermined endeavours to promote the equivalence of sectors within the education system. A second example relates to dual courses of higher education study, which are characterised by a combination of vocational and academic training content. In some cases, they lead to a double qualification, i.e. a vocational qualification and a bachelor's degree (see above). In a recommendation issued by BIBB in June 2017, writing in its capacity as a "vocational education and training stakeholder" (NB: the Board conferred this designation on itself in this recommendation), the Board welcomed the development of dual higher education programmes. Nevertheless, it believed that there was a need to provide "guidance" to the stakeholders involved in dual courses of higher education study, such as the participating institutes of higher education, companies and partners from the field of practice (BUNDESINSTITUT FÜR BERUFSBILDUNG 2011). The Board presented its own understanding of duality, relating this to dual VET, and recommended that "formats accompanied by higher education study (in-service or integrated into training or practice) should no longer be designated or promoted as 'dual'" (ibid.).

The work of the Board is supported by a large number of committees, panels and working groups, in which the four "benches" (see above) of the Board are represented. The Federal Government-Federal State DQR Coordinating Point (B-L-KS DQR) was, for example, established to coordinate work undertaken in connection with the DQR. The B-L-KS DQR takes on the function of a National Coordinating Agency for the implementation of the EQF in Germany and was established in May 2013 on the basis of a joint resolution adopted by the Federal Government and the federal states. A DQR Working Group (AG DQR) was founded under its auspices, and the circle of participants was extended to include the social partners in particular. In this group, B-L-KG and social partner members are joined by representatives of the institutes of higher education and by further experts. This means that all education sectors are represented. Cooperation within the group takes place on the basis of the principle of consensus. The idea is for members to feed work results back to their respective institutions/committees: "The aim is to work in a cross-cutting way across education sectors in order to arrive at joint terminology and a DQR that is fit for practice" (DEUTSCHER BILDUNGSSERVER 2014). The BIBB Board has also formed its own working group to look into this thematic area.⁴⁴

These two examples – dual courses of higher education study and the DQR – are fields of activity which are located at the "edges of VET" or at points where various education sectors overlap. This generates a need for cross-cutting harmonisation. No joint formal committee for achieving such coordination exists at a national and cross-federal state ministerial level.

The critics of this situation include the Confederation of German Employers' Associations (BDA): "In order to face up to the future challenges created by demographic development and by the worlds of work and life that are undergoing ever more rapid change, Germany needs an educational strategy coordinated between the Federal Government, the federal states and lo-

⁴⁴ For further information on the working group, see: <https://www.bibb.de/dokumente/pdf/gremienliste.pdf>, accessed on: 01.04.2020.

cal government authorities and which encompasses nursery and school education, school and training, higher education, and continuing training” (BUNDESVEREINIGUNG DER DEUTSCHEN ARBEITGEBERVERBÄNDE (BDA) 2020). The BDA points out that targeted interaction which respects the overall state objectives of the education system is necessary at all state levels if the federal system is to unleash its positive power (ibid.). The employers have produced an educational policy paper entitled “Focus on Education 2030”, which calls upon the Federal Government, the federal states and local government to agree an education strategy, including action plans, and to implement these rapidly (BUNDESVEREINIGUNG DER DEUTSCHEN ARBEITGEBERVERBÄNDE 2017). They are also prepared to make their own contribution to this.

3.2.2 The main recommendations and initiatives of the stakeholders involved

We will follow the same procedure as was adopted for Switzerland above by presenting proposals and recommendations made by the individual stakeholders in connection with digitalisation which explicitly impact upon or may impact upon the role distribution established thus far or upon tried-and-tested coordination processes. The many other individual suggestions made by the stakeholders regarding a wide variety of different topics will only be mentioned tangentially if this is necessary in order to illustrate contexts.

a. Federal Government

The Federal Government has launched numerous programmes and initiatives to bring and keep education in general and VET in particular up to speed as regards digitalisation (BUNDESMINISTERIUM FÜR BILDUNG UND FORSCHUNG (BMBF) 2019; BUNDESMINISTERIUM FÜR BILDUNG UND FORSCHUNG (BMBF) 2020; HUISMANN 2020).

The Federal Ministry of Education and Research (BMBF) in particular is involved, but the Federal Ministry of Labour and Social Affairs (BMAS) also feels there are fields of activity in its own remit which affect education or VET at least indirectly. One of the themes which the BMAS is focusing on is the question of which competence and training needs will emerge in future because of technological developments on the labour market (BUNDESMINISTERIUM FÜR ARBEIT UND SOZIALES (BMAS) 2017; BUNDESMINISTERIUM FÜR ARBEIT UND SOZIALES (BMAS) 2019; ZIKA et al. 2019b). This topic has considerable overlaps with the topics of what consequences will emerge for VET, what competencies and skills will need to be taught within VET, and the extent to which occupational fields will change. Possible matching problems between the labour market and the VET system are being investigated. Cooperation is ongoing in this regard between the Institute for Employment Research (IAB), which comes under the auspices of the BMAS, and BIBB, which operates within the area of responsibility of the BMBF (ZIKA et al. 2019a; ZIKA et al. 2019b).

The BMBF’s recommendations, initiatives and programmes cover a whole range of aspects. These include training the trainers, a joint initiative pursued with BIBB on the topic of Vocational Education and Training 4.0, which is looking at skilled worker competencies of the future, a strategy for training at SMEs in times when a digital shift is occurring, digitalisation of learning venues and of inter-company training centres in particular, changes in occupational learning with regard to issues such as the integration of digital media, the implementation of new forms of teaching and learning, and, finally, the role played by AI in learning in quite general terms (see Bibliography in the Annex).

The area of continuing training is a particular object of a number of central and comprehensive initiatives undertaken by the Federal Government. The *Act to Improve Opportunities for Training and to Offer Greater Unemployment Insurance Protection* (Skills Development Opportunities Act) entered into force in January 2019, and forms the heart of the Federal Government’s

National Skills Strategy. One of its provisions stipulates that employees are to receive the fundamental right to access continuing training funding regardless of their qualification, age and company size if they have a continuing training need as a result of the digital structural shift or if they are affected by structural change in another way. Financial support for upgrading training was also extended (by an amendment to the existing Upgrading Training Assistance Act (AFBG), in force since March 2020). The aim of this federal act is to expand and facilitate higher VET. Those taking part in upgrading training measures⁴⁵ are now to receive even better financial support in the form of contributions to the cost of the training measure itself and to their living costs. A National Continuing Training Strategy (NWS) has also been launched. As it is an agreement involving the social partners rather than a regulation promulgated under federal law, it will be presented briefly below. It is an example of a *public-private partnership* in the area of VET and, like the Alliance for Initial and Continuing Training (see above), once again shows the relevance of the social partners when it comes to developing possible strategic solutions.

The National Continuing Training Strategy – Federal Government, federal states and social partners

The launch of a National Continuing Training Strategy (NWS) was already decided upon under the 2018 Coalition Agreement (CDU/CSU/SPD 2018). Its objective is to strengthen VET.⁴⁶ The Federal Government, the federal states and the social partners came together in the NWS and jointly agreed 10 objectives. These include improving the transparency of continuing training opportunities, closing funding gaps, networking continuing training guidance and monitoring quality assurance. A Federal Government/federal state committee has been set up to coordinate guidance and funding measures. Each of the aims outlined is being substantiated through proposals and projects by the involved partners (BUNDESMINISTERIUM FÜR BILDUNG UND FORSCHUNG (BMBF) 2020b). The numerous and various approaches and activities of the participating stakeholders are brought together under a single umbrella. One dedicated objective is to “strengthen the responsibility of the social partners”. This aspect reflects the significance of *company-based* continuing training, which is accorded a key role within the context of advanced and continuing VET and is crucial in terms of covering skills requirements at companies.

Virtually the whole of the emphasis is placed on the role of the trade unions and the works councils, on the significance of the social partnership, and on the “tried-and-tested principle of consensus”. The importance of the companies immediately suggests itself within this context, because entrepreneurial responsibility for company-based continuing training rests with them (BUNDESVEREINIGUNG DER DEUTSCHEN ARBEITGEBERVERBÄNDE (BDA) 2018a, p. 17). But then it seems to have been deemed necessary to highlight the role of the other social partner at this juncture. Nevertheless, it is also not surprising that lines of conflict are emerging between the partners in the NWS, and there is explicitly no consensus between the social partners with regard to the participation of the works councils in particular (ibid., p. 13).

Digital Pact for Schools – A competence shift in favour of the Federal Government

The so-called Digital Pact for Schools is of particular interest when it comes to the question as to whether and to what extent the roles of the stakeholders are changing against the background of profound technological developments. Because of the so-called ban on cooperation (see above), an amendment to the German Basic Law was necessary before the Federal Government was permitted to share the costs of expanding the technological/digital infrastructure

⁴⁵ Upgrading training also incorporates initial VET.

⁴⁶ The strategy runs from June 2019 to December 2023.

in schools, including vocational schools. The intention was that the Federal Government was also to make a contribution to investment in school equipment which was urgently needed. One especially contentious issue in the debate around the *Digital Pact for Schools* was the extent to which the Federal Government should be allowed to steer and control the use of the funding (BUNDES RAT 2018). A compromise was found in the administrative agreement concluded between the Federal Government and the federal states. It merely permitted the Federal Government to request reports showing that funding has been used for its intended purpose and to require documentation to be submitted as and when required. The Federal Government was not given access to the decision-making process regarding specific fields of investment for the funding it provided (FEDERAL GOVERNMENT; FEDERAL STATES 2019). The implication of the *Digital Pact for Schools* under constitutional law makes clear just what extraordinary strains are being put on the education sector as a result of digitalisation. These can also lead to changes in formal areas of responsibility. Even if this case “only” involved expanding the financing opportunities of the Federal Government.⁴⁷

Legislature – Committee of Enquiry on Vocational Education and Training in the Digital World of Work

The question of how to structure VET in the age of digitalisation is also a matter for the legislature. In June 2018, the Bundestag, the German Lower House of Parliament, set up a *Committee of Enquiry on Vocational Education and Training in the Digital World of Work*. The Committee was constituted following a request made by the CDU/CSU, SPD, FDP and Linke parliamentary groups in the Bundestag, i.e. on the basis of an application made by a large majority of the Bundestag. The Committee aims to analyse development prospects in initial and continuing VET against the background of digitalisation. It will also examine areas of potential for social and economic modernisation and develop specific policy recommendations. A further objective is to strengthen the equivalence of vocational and academic training (DEUTSCHER BUNDESTAG 2019b). To that end, the Committee will investigate the areas in which VET needs to be adjusted in order to meet the demands of the digital world of work. It will also scrutinise how the strengths of the system can be consolidated and how possible barriers to access can be removed.

The committee members comprise 19 Members of the Bundestag from all parties represented and 19 experts from the area of practice, from associations and from the field of academic research (see above). This means that stakeholders on the BIBB Board, i.e. the employers and trade unions (see above), and specialists from teacher training and schools are all involved in the work of the Committee. Various areas of VET are being explored and discussed across a total of seven project groups. Further relevant external experts are being consulted, and the general public is also involved. The aim in involving the public is to obtain information about expectations and experiences via an online platform.⁴⁸ Interested parties are able to proffer their opinion on vari-

Project groups exist in the following thematic areas.

- Challenges of digitalisation in VET
- Requirements for company-based training
- Requirements for vocational schools
- Continuing training, dual higher education study, and lifelong learning
- Increasing the attractiveness of VET
 - equivalence and permeability
- Access and transition points – matching, vocational orientation, securing a supply of skilled workers, integration of particular groups
- Initial and continuing training financing

⁴⁷ The administrative agreement for the Digital Pact for Schools is in force from 2019 to 2024.

⁴⁸ For further information on the online platform, see: <https://www.zukunftsdiallog-ausbildung.de>, accessed on 15.04.2020.

ous issues. The idea is that these views will be evaluated and will then help to inform the work of the Committee. Two trainees also attended one of its sittings. Submission of a Final Report including recommendations has been scheduled for the end of the 19th electoral term (summer 2021) (DEUTSCHER BUNDESTAG – WISSENSCHAFTLICHE DIENSTE 2019b).

The establishment of committees of enquiry has formed part of the rules of procedure of the Bundestag since 1969. The institute of the so-called committees of enquiry enables Members of the Bundestag to tackle complex and politically significant topics in a systematic way with external experts. A comparison of the issues addressed by committees of enquiry since 1990 makes it clear just how great a degree of significance parliamentarians accord to the topic of VET and digitalisation (DEUTSCHER BUNDESTAG 2018).

This initiative also reflects the political parties' interest in VET and in the challenges being created in the wake of the changes to the world of work caused by digitalisation. This is, for example, also made apparent by an application made to the Bundestag by the FDP Parliamentary Party on 6 November 2019 (DEUTSCHER BUNDESTAG 2019a), in which it calls for statutory regulations for the establishment of a "second education system". The idea behind such a second education system is that it would follow on from vocational training or higher education study and make it possible to "undertake training programmes in general and vocational education in a simplified way irrespective of educational attainment or work experience" (ibid.). The "Future of Work" working group established by the CDU/CSU parliamentary group in the Bundestag has also proposed a digital platform to cover the whole of continuing training.⁴⁹

b. Employers

In its capacity as an umbrella association, the **BDA** organises the social and economic policy interests of all of German trade and industry. The member associations represent numerous branches and sectors, including industry, commerce, finance, transport and the service sector. There are a total of 48 specialist umbrella associations and 14 regional associations (as at: February 2020). See <https://www.arbeitgeber.de> (accessed on 28.08.2020).

The Confederation of German Employers' Associations (BDA) expresses views on all education sectors (BUNDESVEREINIGUNG DER DEUTSCHEN ARBEITGEBERVERBÄNDE 2017). It makes a number of cross-cutting demands, including the teaching of digital methodological competencies in relation to general education, the integration of relevant teaching and learning methods using an appropriate cross-subject pedagogical concept, the introduction of information technology as an optional or key subject in all schools, targeted continuing training of teaching staff, and the presence of adequately trained technical staff in schools. For this reason, the BDA supports the *Digital Pact for Schools*, which enables additional

financing to be provided by the Federal Government (see above) (BUNDESVEREINIGUNG DER DEUTSCHEN ARBEITGEBERVERBÄNDE 2018a).

The BDA stresses to both the federal states and the Federal Government that the *vocational schools* must be involved in investment and funding programmes in the same way as general schools. It sees vocational schools as an indispensable pillar in the dual training system and as important partners for companies. For this reason, the priority accorded to equipping them with human, material and financial resources, including for digital training, must be high or very high in every single federal state and local government area (ibid., p. 15).

⁴⁹ For further information on the digital platform, see: <https://www.cducsu.de/video/milla-die-digitale-lernplattform>, accessed on 14.04.2020.

Satisfaction prevails in overall terms with regard to the current validity of training regulations. The BDA views these as flexible. They define a minimum standard which leaves sufficient scope for adaptation to different company requirements and technological developments. Any need for updates could be achieved rapidly via the close links which exist with the social partners (ibid., pp. 14ff.). This flexibility and ability to react quickly are underlined by the mention being made of the development of an entirely new training occupation in the commercial sector. In 2018, new training regulations were drawn up for the occupation of Management Assistant in E-Commerce.⁵⁰ There are calls at the same time for the creation of additional technical qualifications or training modules in the area of digitalisation (BUNDESVEREINIGUNG DER DEUTSCHEN ARBEITGEBERVERBÄNDE 2017, p. 34). These could help to make training even more flexible. The *role of trainers* in companies is also addressed. Because of the use of digital, networked and virtual learning opportunities, the perception is that their role needs to be more closely directed towards supporting and assisting the learning process.

The commitment shown by firms within the context of *company-based continuing training* is highlighted, but there is also a feeling that employees could do more in this regard and might need to sacrifice a greater proportion of their leisure time than is commonly the case (ibid., p. 17). The employers' view is that continuing training should be a matter of shared responsibility between employees and companies. Employees should be prepared to increase the amount of leisure time they devote to continuing training courses to up to 10% (ibid., p. 62; continuing training see below).

The need for the *targeted interlinking of education sectors* is emphasised. This would include piloting⁵¹ and implementing joint provision of vocational and academic training, facilitating the mutual credit transfer of competencies acquired and driving forward access to higher education for those with vocational qualifications who do not have an upper secondary school leaving certificate. With regard to the VET and general education sectors, the demand is that there should be an expansion of provision integrated into training which leads to the acquisition of a general higher education entrance qualification (BUNDESVEREINIGUNG DER DEUTSCHEN ARBEITGEBERVERBÄNDE 2017, p. 40).

The German Confederation of Skilled Crafts (ZDH) formulates various action requirements for the best possible realisation of areas of potential for digitalisation in craft trade companies. The ZDH calls for a holistic understanding of digitalisation and notes that the process of digitalisation in SMEs in the craft trades sector extends beyond the policy notion of "Industry 4.0". In the area of development of initial and advanced training regulations, timely action should be taken to take digital competencies into account and digital equipment in training centres and centres of excellence in the craft trades should be in line with the latest status of technology. The ZDH also believes that action needs to be taken to expand nationwide broadband coverage and network neutrality and to finance company dig-

The German Confederation of Skilled Crafts (ZDH) brings together 53 chambers of crafts and trades and 52 other specialist umbrella associations at a national level. It also encompasses further institutions of trade and industry and other craft trade bodies in Germany. Germany has around one million craft trade companies employing approximately 5.2 million staff. Approximately 370,000 apprentices enter training at such a firm. About 12% of Germany's labour demand works in the craft trades sector, which is also home to 28% of the country's trainees (<https://www.zdh.de>, accessed on 28.08.2020).

50 For further information on the new training occupation (Management Assistant in E-Commerce), see: https://www.bibb.de/de/pressemitteilung_73772.php, accessed on 02.03.2020.

51 Keywords here include "*study-integrated training*" and "*dual higher education courses*" (BDA 2017, p. 42).

italisation strategies in the light of the digitalisation of state administration and the ongoing development of the European Single Digital Market.

The Centre of Excellence for Digital Craft Trades is intended to provide support to craft trade SMEs as they seek to tap into areas of technical and economic potential. This centre forms part of the “SME 4.0 – Digital Production and Work Processes” funding initiative, which is being financed by the Federal Ministry for Economic Affairs and Energy (BMWi) within the scope of the main funding focus “The Digital SME – Strategies for the Digital Transformation of Company Processes”. Craft trade companies are being kept informed of the opportunities afforded by digitalisation and of ways in which the attendant challenges can be overcome. The Centre of Excellence is helping craft trade companies to restructure company procedures and develop online-based service provision and business models. This is relevant to VET because around 28% of trainees complete their training in a craft trades company (ZENTRALVERBAND DES DEUTSCHEN HANDWERKS (ZDH) 2020).

The members of the **Association of German Chambers of Commerce and Industry (DIHK)** essentially comprise the 79 German chambers of commerce and industry (IHKs). The DIHK works on behalf of and in consultation with the IHKs to represent the interests of the German public sector vis-à-vis the Federal Government, government administration and the public.

In 2019, around 770,000 young people completed company-based training in trade and industry and in the services sector (as at April 2020).

See <https://www.dihk.de> (accessed on 28.08.2020).

The demands made by the Association of German Chambers of Commerce and Industry (DIHK) are similar to those of the ZDH. One of the activities undertaken by the DIHK was to draw up a list of 12 core issues relating to digitalisation as requirements for the Federal Government. The main demands to emerge are driving forward nationwide expansion of the digital infrastructure in a way that prioritises commercial and industrial sites, improved teaching of digital competencies, revision of the general legal conditions for the data economy, facilitation of secure electronic business transactions, creation of legal certainty, and the establishment of a climate of innovation which fosters the broad-based use of AI. With regard to the use of big data technologies in companies, IHK organisations are involved in an investigation into how IT training

occupations, school curricula and relevant initial and advanced training courses for teachers and vocational school teachers can be adapted.

DIHK-Bildungs-GmbH, a private-sector education and training company organised by the DIHK, is working within this context to develop practical training courses to provide continuing training opportunities for employees. The IHKs also use events and initiatives to give SMEs experience in the possibilities of developing new business models and increasing their awareness of the changes which are taking place in the wake of the digital transformation (DEUTSCHER INDUSTRIE- UND HANDELSKAMMERTAG (DIHK) 2018; DEUTSCHER INDUSTRIE- UND HANDELSKAMMERTAG (DIHK) 2019; ZENTRALVERBAND DES DEUTSCHEN HANDWERKS (ZDH) 2016).

c. Trade unions

Various trade unions are involved in the structuring of VET (see Members of the Board). Many of the publications produced by bodies in the trade union sector, such as the German Trade Union Confederation (DGB),⁵² the Industrial Metal Workers’ Trade Union (IG Metall), the Unit-

52 For further information on the German Confederation of Trade Unions (DGB), see: <https://www.dgb.de>, accessed on 28.08.2020.

ed Services Trade Union (ver.di),⁵³ and the German Education Union (GEW),⁵⁴ focus on the areas of equipment in vocational schools, further training for training staff and the teaching of digital or media competencies. One opinion expressed is that there is “plenty of room for improvement” in those companies providing training (DEUTSCHER GEWERKSCHAFTSBUND (DGB) 2019a, p. 4), and IG Metall holds a similar view (IG METALL 2016). The DGB further emphasises that Training 4.0 is not merely a matter of technological change and digitalisation. Educational equality and fairness are also at stake. It calls for access to education and training provision to be improved. According to the DGB, one way of achieving this would be a higher degree of readiness on the part of companies to provide training (ibid., p. 4).

It is made clear that employers bear basic responsibility for their employees’ continuing training. Employers need to release staff from their duties whilst continuing to pay them and also need to finance the measures themselves (see section on *Continuing training* below). If employees request to use working time for continuing training, then an additional right to state financing of the measure or loss of earnings should also take effect (DEUTSCHER GEWERKSCHAFTSBUND (DGB) 2019c, p. 3). In connection with the reform of the BBiG, however, the proposal is also made that social partners’ participation in regulatory work, i.e. updating initial and advanced training occupations, should be enshrined in law (PATUZZI 2018).

IG Metall stresses the need to improve and intensify continuing training of training staff both in vocational schools and in companies (IG METALL 2017). It also believes that it is important to realign vocational schools in which continuing and advanced VET is a key element. Vocational schools should expand their tasks in this direction. Other issues are new forms of teaching and learning and the ways in which these are changing the role of teaching staff. It is pointed out that the relevance of continuing training will grow strongly in future. In this context, IG Metall alludes to the fact that the areas of initial and continuing training are increasingly coalescing in companies (IG METALL 2016).

With regard to the flexibility of training regulations, IG Metall believes that there is sufficient scope to adjust these to company practice. Nevertheless, there may be a need for training to include additional IT competencies and content relating to data security (ibid., p. 9).

The German Confederation of Trade Unions (DGB) is a conglomeration of eight member unions with a total of around six million members (as at: April 2020). The tasks of these member unions include negotiating improvements to collective wage agreements with employers and representing their members in companies. The DGB has designated education and VET as one of its key policy areas.

IG Metall has 2.27 million members and is Germany’s largest trade union. It represents workers in the metal working, electrical, steel, textiles and clothing, wood and plastics, and ICT sectors. IG Metall is a member of the DGB.

The United Services Trade Union (ver.di) is a member of the German Confederation of Trade Unions (DGB). It has around two million members and is the second largest trade union in Germany after IG Metall.

53 For further information on the United Services Trade Union (ver.di), see: <https://www.verdi.de>, accessed on 28.08.2020.

54 For further information on the German Education Union (GEW), see: <https://www.gew.de>, accessed on 28.08.2020.

IG Metall also expresses an explicit view regarding the role of stakeholders. When it comes to technological changes, it believes it is important for works councils and young people's and trainee councils to succeed in positioning themselves as "key stakeholders for industry and Vocational Education and Training 4.0" (ibid., p. 54). The aim here would be to implement areas of potential for "humanisation" (ibid., p. 3).

The **German Education Union (GEW)** is the largest education union in Germany and has around 280,000 members. It is also a member of the DGB. The members of the GEW work in teaching, social education and academic research occupations in various types of schools. They are also employed in child day-care centres, young people's homes, institutes of higher education, research institutes etc. (as at: April 2020). See <https://www.gew.de> (accessed on 28.08.2020).

The German Education Union (GEW) also addresses the issue of which steps are necessary in order to strengthen VET. One step it has taken is to launch an initiative to support "better learning and working conditions and more money for education and training".⁵⁵ One particular focus within the scope of this campaign, which is entitled "Education. Thinking Ahead!", is digital equipment for vocational schools. The GEW points to the need for extensive investment of the type which the Digital Pact for Schools aims to deliver and to the "Equipment Campaign for Vocational Schools", which was included in the 2018 Coalition Agreement (CDU/CSU/SPD 2018).

In respect of continuing training, the GEW, IG Metall and *ver.di* have adopted a joint position in that they have all called for a specific federal law to be enacted. They feel that such an act to promote continuing training or education and training would underline the systemic correlation between the various segments of continuing training. Aspects that legislation of this sort should include would be the establishment of a fund for the financing of company-based continuing training, the right to be released from work duties for purposes related to training, the introduction of uniform national minimum standards for the quality of continuing training, the creation of a nationwide advisory network, simplified skills certification, and the establishment of regional regulatory bodies. Nevertheless, these unions have also signalled their willingness to compromise and that they would also welcome "smaller scale" solutions and the introduction of individual instruments. There is a clearly perceived need for coordination at a national level. The establishment of a National Continuing Training Council is proposed. This would take on a range of tasks, but should in particular perform an advisory function for the Federal Government and the federal states (GEW/IG METALL/VERDI 2017).

d. Federal states

At the 2016 Standing Conference of Ministers of Education and Cultural Affairs in the Federal Republic of Germany (KMK), the federal states came together to develop a strategy for "Education and Training in a Digital World" (KULTUSMINISTERKONFERENZ (KMK) 2016).⁵⁶ Under this strategy, digitalisation is seen as both an opportunity and a challenge for the education system. The federal states believe that there are six functional fields of activity, each of which requires different responses in the various education sectors: curricula; initial and continuing training of teaching staff; infrastructure and equipment; educational media; e-government and school administration programmes; and general legal and functional conditions.

⁵⁵ For further information on the initiative, see: <https://www.gew.de/weiter-denken/>, accessed on 08.04.2020.

⁵⁶ For further information on the KMK's recommendations in connection with digitalisation, see: <https://www.kmk.org/themen/bildung-in-der-digitalen-welt.html>, accessed on 08.04.2020.

The VET sector is closely intertwined with changes to work and organisational processes in companies, and the KMK believes it is necessary for vocational schools to build on developments triggered in the world of work. For this reason, there is a particular perceived need for vocational schools to be equipped with “real devices and equipment that are typical to the occupation” and with sector-specific software (ibid., p. 36). The federal states have, however, drawn up their own dedicated concepts for the strengthening of vocational schools. Two examples are the Bavarian *Centres of Excellence*⁵⁷ and the *Smart Factory Models* in Lower Saxony.⁵⁸ Baden-Württemberg’s *learning factories 4.0* represent a particularly innovative model in terms of scope and cross-stakeholder approach.

Baden-Württemberg has decided to introduce digitalisation to vocational schools by creating and financing these “learning factories 4.0”. Twenty-one such learning factories in vocational schools were already being funded by December 2018.⁵⁹ Regional trade and industry is closely integrated into this concept.

The learning factory 4.0 is a laboratory which resembles industrial automation processes in terms of structure and equipment. It teaches the basic principles of practice-related processes. Engineering and electro technology are, for example, linked using professional production control systems. As well as delivering benefits for the training of future skilled workers, the hope is that the system will be able to offer information and opportunities for continuing training and research to regional companies and institutes of higher education. The learning factories 4.0, therefore, also target those taking part in advanced and continuing training programmes provided by SMEs rather than merely being aimed at trainees in dual training occupations. A further aim is for the learning factories to serve as a platform for individual projects. It is also felt that they can provide greater tangibility and visual support for career choice orientation in private sector technical occupations and within the context of Industry 4.0 in particular.

The various measures are being offered by the vocational school development associations and through cooperation agreements with organisations of trade and industry, universities of applied sciences and the Baden-Württemberg Industry 4.0 Alliance. This approach highlights the benefits of adopting a cross-stakeholder strategy, including in respect of the school-based element of VET. The need to respond to technological changes has an impact on cooperation between schools and companies at a local, municipal and regional level. The involvement of universities of applied sciences means that this type of cooperation gains an additional academic element. To this extent, the latter constitutes a kind of new stakeholder which organises and secures knowledge and competence transfer between several established stakeholders.⁶⁰

A continuing training platform known as the *Advanced Training Network* was also launched in Baden-Württemberg back in 2011. Thirty-one regional networks comprising a total of 1,450 public and private education and training providers from right across the state are organised within the *Advanced Training Network*.⁶¹ They receive support and financial assistance from

57 For further information on the *Centres of Excellence*, see: <https://www.km.bayern.de/pressemitteilung/11441/nr-189-vom-14-09-2018.html>, accessed on 08.04.2020.

58 For further information on the *Smart Factory Models*, see: <https://www.mk.niedersachsen.de/startseite/aktuelles/presseinformationen/bbs-fit-fuer-40--kultusministerium-und-wirtschaftsministerium-geben-startschuss-fuer-vier-smart-factories-an-berufsbildenden-schulen-in-niedersachsen-148362.html>, accessed on 08.04.2020.

59 For further information on funded learning factories, see: https://wm.baden-wuerttemberg.de/fileadmin/redaktion/m-wm/intern/Dateien_Downloads/Innovation/Lernfabriken_4.0_Neue_Foerderperiode.pdf, accessed on 08.04.2020.

60 For further information on the learning factories in Baden-Württemberg, see: <https://wm.baden-wuerttemberg.de/de/innovation/schluesselfabrik/industrie-40/lernfabrik-40/>, accessed on 31.08.2020.

61 As at: May 2020. The database includes 27,300 programmes by 1,480 providers, 490 contributors and lecturers and 860 items of editorial content.

the Baden-Württemberg Ministry of Economics, Labour and House Building. The continuing training provision covers all sectors and occupations.⁶² The objectives of this initiative are to facilitate access to continuing training and to strengthen activities. The initiative is an example of how digital platforms can be used to improve cooperation and coordination between a large group of stakeholders in the education sector, in this case education and training providers.

e. Further stakeholders

Schools and teaching and training staff

There is no separate, formal lobbying group for schools in general and vocational schools in particular. At a federal state level, the opportunities and challenges arising in connection with digitalisation are communicated via the relevant state ministries and school authorities which are responsible for managing education and training content and the continuing training of teaching staff. Recommendations and demands relating to the further development of vocational schools are also formulated by teacher organisations such as the Association of Teachers at Vocational Schools in Bavaria⁶³ or the Vocational Teachers' Association of Baden-Württemberg.⁶⁴ The Federal Association of Vocational Education and Training Teachers (BvLB) is also active at a national level in this regard.⁶⁵ However, the social partners also point out that investments in vocational schools are an urgent necessity (see above).⁶⁶ The federal states took national action on the continuing training of teaching staff in 2013 when it joined forces with the Federal Government within the scope of the Joint Science Conference (GWK) to conclude a Federal Government/federal state agreement which laid the foundation for a "Campaign for Quality in Teacher Training". This agreement aims to assist institutes of higher education which provide teacher training.⁶⁷ The institutes of higher education are, for example, able to apply for funding by submitting relevant support concepts. In 2019, a further funding guideline was agreed for "Digitalisation in Teacher Training" and/or "Teacher Training for Vocational Schools".⁶⁸

The **Federal Association of Vocational Education and Training Teachers (BvLB)** represents the professional interests of around 38,000 VET teachers. It was formed in 2018 as the result of a merger between two predecessor organisations (as at: April 2020).

The BvLB is calling for vocational schools to be equipped in accordance with adequate technical standards and also wants to ensure that teaching staff are able to deal with and manage existing digital media and systems. It believes that the relevant human resources for schools need to be planned and/or made available additionally (BUNDESVERBAND DER LEHRKRÄFTE FÜR

62 For further information, see: www.fortbildung-bw.de, accessed on 12.05.2020.

63 For further information on the Association of Teachers at Vocational Schools in Bavaria, see: <https://www.vlbbayern.de/>, accessed on 14.04.2020.

64 For further information on the Vocational Teachers' Association of Baden-Württemberg, see: <https://blv-bw.de/>, accessed on 14.04.2020.

65 For further information on the Federal Association of Vocational Education and Training Teachers (BvLB), see: <https://www.bvlb.de/>, accessed on 14.04.2020.

66 Germany also has a Federal Association of German Vocational Trainers (BDDBA). This organisation has not, however, expressed any views on digitalisation; <https://bdba.de/index.php?id=7>, accessed on 15.05.2020.

67 For further information, see: <https://www.gwk-bonn.de/fileadmin/Redaktion/Dokumente/Papers/Bund-Laender-Vereinbarung-Qualitaetsoffensive-Lehrerbildung.pdf>, accessed on 14.04.2020.

68 Article 91b of the GG provides the constitutional basis for the agreement between the Federal Government and the federal states; see <https://www.bmbf.de/foerderungen/bekanntmachung-2097.html>, accessed on 14.04.2020.

BERUFSBILDUNG (BvLB) 2019a; BUNDESVERBAND DER LEHRKRÄFTE FÜR BERUFSBILDUNG (BvLB) 2019c).

In connection with the reform of the BBiG in 2019 and regarding the role of the vocational schools, the BvLB remarked that “the focus in VET matters at federal level is too strongly directed at companies in their capacity as a dual partner” and made reference to the obligation which learning venues are under to cooperate. For this reason, “greater expression should be lent” to joint responsibility for training when the law is updated (BUNDESVERBAND DER LEHRKRÄFTE FÜR BERUFSBILDUNG (BvLB) 2019b). This demand was, however, not implemented.

The *Association of Teachers and Nursery School Teachers (VBE)* has also expressed its dissatisfaction with the role and representation of teaching staff in educational policy governance processes. Within the context of the debate around the creation of a National Education Council, the VBE is also calling for teachers’ interests to be considered and for associations to participate (VERBAND BILDUNG UND ERZIEHUNG (VBE) 2018). Regular surveys of professional dissatisfaction amongst teachers conducted by the VBE show that the majority of school headteachers (82% in both 2020 and 2018) feels that a burden is placed upon them because politicians do not take sufficient account of actual everyday life in schools when making decisions (FORSÄ 2018; FORSA 2020). It can be assumed that the assessments for the vocational schools are comparable.

The **Association of Teachers and Nursery School Teachers (VBE)** is a trade union which represents the interests of around 164,000 education professionals. It operates in all federal states and has members in the pre-school, primary, lower secondary, upper secondary and teacher training sectors (as at: April 2020). See <https://www.vbe.de> (accessed on 28.08.2020).

This was also indicated in an interview conducted with the principal of an education centre, which brings different types of school together under one roof. The principal also believes, however, that digitalisation will create further challenges for vocational schools. One issue he mentions is the question of the “right” and appropriate technical equipment. This in particular also depends on the needs of companies in the region where trainees are attending vocational school. The principal also feels that solutions need to be found to the training of teaching staff and the new and additional tasks teachers are facing as a result of their increasing workload. It is virtually impossible for teachers to succeed in combining their own advanced and continuing training with the increased need to cooperate and communicate with companies and trainees whilst at the same time working the same number of hours. He also says that much depends on the initiative of teachers themselves. This interview partner outlines an initiative undertaken by his school to integrate companies in the region more closely and to improve communication between the school and companies providing training. There has, however, been little to no take-up of this provision (interview partner D_BP).

In overall terms, technological developments in companies and vocational schools is making it more urgent to step up cooperation and communication between vocational schools and other stakeholders involved in the implementation of VET (HENKE/WILLMANN/BÖHNE 2018). This also includes cooperation with other vocational schools and the establishment of school-based centres of excellence in areas such as mechatronics and robotic systems. There is a view that many companies are still finding their own way of dealing with technological changes. As a result, better communication and information networking is useful for both training partners (interview partner D_BP).

One interview with a member of staff in a local education authority included a question regarding the degree of satisfaction with cooperation within the scope of the development or reorganisation of training occupations. This particular employee had been involved in the de-

velopment of the new training occupation of Management Assistant in E-Commerce in her capacity as a representative of education and school side. She believes that she certainly enjoyed “equal status with the Federal Government side”. Her side had been effectively integrated into the process at an early stage, and indeed this was also the norm. New training occupations in particular enjoyed differing degrees of acceptance and popularity in vocational schools, but the occupation of Management Assistant in E-Commerce had been gladly offered by many vocational schools. Generally speaking, the implementation of changes to training regulations in schools is not seen as being problematic (interview partner D_L1).

Trainees/learners

“The experiences of young people, particularly those of Generations Y and Z, are often a blind spot in German educational debate,” said Dr Stefan Kaufmann, Member of the CDU/CSU Parliamentary Group in the Bundestag, Chair of the Bundestag’s Committee of Enquiry (DEUTSCHER BUNDESTAG 2019b). For this reason, the Committee of Enquiry on Vocational Education and Training in the Digital World of Work set up by the Deutsche Bundestag (see above) also sought to gain greater insight into the points of view, expectations and experiences of the trainees themselves. Interested parties were able to express their opinion on various issues on the online platform “zukunftsdialog-ausbildung”.⁶⁹ The idea is that these views will be evaluated and will then help to inform the work of the Committee of Enquiry. There are also plans for individual trainees to attend one of its sittings.

The Youth Branch of the German Trade Union Confederation (**German Trade Union Youth/DGB-Jugend**) represents the interests of young people within the context of training, practical placements and internships, and employment. All the young members of the eight DGB unions are organised within the DGB-Jugend. Membership currently stands at approximately 500,000 young people aged up to 27 (as at: April 2020). See <https://jugend.dgb.de> (accessed on 28.08.2020).

Otherwise, the trade unions in particular regard themselves as representatives of the interests of trainees and employees when it comes to continuing training. Neither trainees nor other “learners” have their own formal association or lobbying organisation. Within the scope of their involvement in the structuring of VET, the trade unions also lay claim to representing trainees, for example through the Youth Branch of the German Trade Union Confederation (German Trade Union Youth/DGB-Jugend).

The trade union youth representatives list a large number of demands with regard to preparing training programmes for digitalisation and its associated challenges. Although it accepts there

is a need to adapt training content and to restructure occupations, the DGB-Jugend clearly opposes modularisation (“narrow-track training programmes”) and the idea of expanding two-year training occupations. It believes that both companies providing training and vocational schools need to provide modern teaching and learning measures and high-quality training conditions. Care should be taken in this context to ensure that theoretical teaching takes place at the same level as technical development in companies. In addition to this, the perception is that there is an urgent need to investment in vocational schools themselves (by renovating school buildings, modern technical equipment, expanding the digital infrastructure, providing digital learning media, sufficient human resources). These needs are expressed in the results of an evaluation of training quality. The majority of trainees believes that the aspects of digitalisation and automation in their training are either “very important” (24.7%) or “important” (54.5%). Only 2.7% of respondents attach no significance to these topics. Only half (54.1%) of

⁶⁹ See <https://www.zukunftsdialog-ausbildung.de> (accessed on 15.04.2020).

those participating in the survey stated that they were given targeted training in how to use digital technologies. This view is also clearly reflected in the assessment of technical equipment in vocational schools. Almost a third of respondents perceives digital facilities as being “adequate” or “deficient” (DEUTSCHER GEWERKSCHAFTSBUND (DGB) 2019a).

Youth and trainee representatives (JAV) are also actors involved in supporting the interests of trainees at a company level. A group of this kind at the specialist machine tool and laser manufacturer Trumpf, for example, produced a concept entitled “Vision – Training 2025”, which used discussions and one-to-one interviews to identify the trainee perspective and to set out what needs to change in the area of training within the scope of Industry 4.0. The trainees describe themselves as a “digital generation with its own wishes” (IG METALL 2016, p. 19). They call for joint projects to be initiated with trainees and students and for the role trainers play as a mentor and coach to be reinforced (ibid.; DEUTSCHER GEWERKSCHAFTSBUND (DGB) 2019a). There is an overall demand for bodies representing young people and trainees to be allowed a stronger influence (IG METALL 2016, pp. 18ff.).

Under sections 60ff. of the Labour Management Relations Act (BetrVG), the Young People and Trainee Council (JAV) represents young people aged under 18 and those under 25 who are employed in a company or government authority in Germany for the purpose of VET (trainees, interns, working students) (as at: April 2020).

f. Changes to processes and instruments to improve the flexibility of VET – agile procedures and additional qualifications

Against the background of profound and dynamic changes to work processes caused by digitalisation, particular focus is, as in Switzerland, being placed in Germany on the matter of matching training occupations to the needs of the labour market (CONEIN/ZINKE 2019; ESSER et al. 2016; ZINKE 2018b)⁷⁰ and on the extent to which structural and adjustment processes are sufficiently dynamic and flexible.

The social partners have investigated the responsiveness and flexibility of the process for updating training regulations by undertaking a so-called *agile procedure* (see below (1)). Additional flexibilisation of initial VET facilitates *additional qualifications* (see below (2)). Both developments can exert impacts on the previous stakeholder structure.

Training regulations fundamentally use technologically neutral wording, and to this extent they are flexibly structured. This means that it is frequently not necessary to spend time and money on updating occupations. There are also additional opportunities for achieving greater flexibility and adapting to changes in company processes and to further technological developments. Amendments can be made to occupational profile positions, and it is also possible to create additional short-term differentiation of training via elective and additional qualifications (see below).

(1) In 2016, the social partners in the metal working and electrical industries concluded an agreement which they used as a basis to develop joint recommendations on training and qualifications within the context of Industry 4.0 (GESAMTMETALL et al. 2017). This cooperation led the social partners to note that modern, process-oriented and openly struc-

⁷⁰ For information on occupation screening, see: <https://www.bibb.de/de/119072.php>, accessed on 12.05.2020. As part of an occupation and sector screening process, an investigation was carried out into the changes which have occurred in the wake of digitalisation in a total of 14 training occupations in the period from 2016 to 2018. Recommendations were then drawn up.

tured training regulations and school-based skeleton curricula were already in place in the metal working and electrical engineering sector. Nevertheless, they believe that numerous companies still need to be provided with information in this regard. They further take the view that practical guides will be necessary to enable companies to implement their skills requirements in training. There are also calls for greater emphasis to be placed on the general issue of digital work, digital tools and digital approaches in regulatory instruments, i.e. in training regulations and skeleton curricula (GERDES 2017; MÜLLER 2018).

In order to ascertain whether there is any need to update and adjust the basic curricular principles of initial VET in the metal working and electrical engineering occupations, the social partners have agreed that regular monitoring will take place and that standards will be scrutinised on an annual basis (GESAMTMETALL et al. 2017, p. 15). This type of agreement represents an innovative development within the field of social partnership and underlines the view the social partners have of their role and responsibility.

The 2017 social partnership agreement also provided a foundation and starting point for updating all 11 of the occupations in the metal working and electrical engineering sector in a way which does not correspond to the usual procedure for the revision of training regulations. An “agile procedure” was carried out to that end. This was in particular characterised by independent self-organisation on the part of the social partners and by other aspects such as an absence of the usual stipulation that the formal expertise of BIBB should be involved (GERDES 2017; MÜLLER 2018). This so-called agile procedure clearly indicates the structural sovereignty of the social partners over training content.

It remains to be seen whether and to what extent other sectors will adopt a comparable approach. However, the interview partner who is a trade union member stated that no such plans currently exist (interview partner D_Gew).

- (2) Depending on the sector in question, digitalisation in some cases has grave consequences for formal training and especially as regards the issue of revising existing training occupations or developing new or newly modified occupations (BECKER/WINDELBAND 2018; ZIKA et al. 2019a; ZINKE 2018a). The current challenge is to keep pace with the speed of change in the technologies applied in companies and in work processes. Updating procedures takes time, and the training occupations which are already in place still exist. One possible proposed solution is a step-by-step approach (ZINKE 2018a). Additional qualifications have an important part to play in this regard by addressing the companies’ skills requirements and thus increasing flexibility in training. They allow firms to expand training at short notice and in a nationally standardised manner (ibid.). According to ZINKE (2018a), additional qualifications will in future become necessary core skills and will form part of the foundations of an occupation. This means that a new quality will be ascribed to additional qualifications in accordance with section 5 (2) no. 5 of the Vocational Training Act (BBiG), to which little attention tended to be paid in the past. The Confederation of German Employers’ Associations (BDA) also believes that additional qualifications represent an important instrument for ensuring that training content can keep up with digital changes on the labour market (BUNDESVEREINIGUNG DER DEUTSCHEN ARBEITGEBERVERBÄNDE (BDA) 2017).

An additional qualification can be developed by any VET stakeholder, including companies, firms, chambers, education and training providers. Although a quality check needs to be conducted when drawing up these qualifications (JOBSTARTER 2017), there are no formal stipulations in respect of the procedure itself or the parties which need to be involved. As a matter of principle, state bodies in particular do not play any role at the start. The time frame, the examination procedure and the examinations themselves can all be individually and flexibly regulated. The only important aspect is that there needs to be an additional

qualification, and this can be defined in any way. If additional qualifications play a key role in future when it comes to keeping the content of training up to date, this means that the stakeholder constellation will shift away from a formalised process for developing training regulations and move towards strengthening a process which is largely unregulated and dominated by chambers, associations and individual major companies. This would have a restrictive effect on the part played by state stakeholders in the VET system, since they would not initially be formally involved in the development of additional qualifications.

The force of the possible impacts on stakeholder structure can vary depending on what sort of additional qualification the development planning has defined as its objective. BECKER/WINDELBAND (2018) differentiate between “codified” additional qualifications and other much more numerous additional qualifications which relate to initial VET and tend to represent a stand-alone specialisation or thematically related supplementary training. The former are designated as elective qualification units or elective qualifications and are closely related to the training occupation. Codified additional qualifications, which trainees would be mandatorily required to complete alongside their training, could result in the need for different vocational school capacities or for new inter-company training establishments because of the large number of trainees which would be affected. This is a consequence which would have an impact on the federal states and on the Federal Government in terms of financing. It is also conceivable that major firms would avail themselves of this structural option and create a shift within the company or employer camp which would be to the detriment of SMEs.

3.2.3 Summary and evaluation

a. Main thematic focuses of the recommendations and demands

Stakeholders in Germany also mention a broad range of aspects relating to VET which are affected by technological changes and which give rise to areas in which they believe action needs to be taken. The same aspects are predominantly addressed. The overlap is extensive and similar to that seen in Switzerland (see above). The recommendations and demands in particular relate to expanding continuing training, advanced training for teaching staff, equipment in education and training establishments, digital teaching and learning methods, and new didactic approaches. The issue of future occupational competencies is also addressed. The question posed is whether and to what extent the set of competencies acquired in VET will need to be changed and adapted. When it comes to the structure and organisation of initial VET, the main points raised concern the flexibility of training regulations and of the regulatory instruments in overall terms and the role which additional qualifications might play as a possible instrument for increasing flexibility. The broad consensus is that the technologically neutral wording of the training regulations generally affords sufficient flexibility and allows everyday training to be adapted to technological changes.

No fundamental disputes or contrary positions are visible amongst stakeholders, with two exceptions. The first of these relates to the field of educational federalism. Sensitive controversies between the Federal Government and the federal states are emerging both with regard to the topic of the National Education Council and in respect of the debate around the Digital Pact for Schools. Differing positions held by the social partners are discernible in relation to the strengthening and expansion of company-based continuing training. These lead to the conclusion that there is potential for future conflict as regards the distribution of the financial burden. Both companies on the one hand and employees on the other are directly affected by this.

b. Reference to stakeholder structure and the role of the stakeholders

At the level of national governance of the education system, the Digital Pact for Schools has not brought about any change in the federal states' content responsibility for the school system, despite the amendment to the Basic Law. The accompanying debate, however, has made it clear just how much technological changes have increased the pressure on the education system to adapt and have underlined the fact that the individual stakeholders at state level and at implementation level in schools will only be able to overcome the consequences of digitalisation if they work together. The Digital Pact for Schools has allowed the Federal Government to make the necessary investments in schools. The Federal Government has thus gained in competence. The attempt to set up a National Education Council failed because of the federal states' resistance.

The trade unions in particular feel there is still a need for more closely institutionalised cooperation at a national level. In the field of continuing training, an area to which the recommendations of all stakeholders attach great significance, they are calling for the establishment of a National Continuing Training Council.

For the first time ever, the legislature has also considered an educational topic within the scope of a committee of enquiry.⁷¹ A committee of enquiry mainly enables parliament to acquire specialist research and societal expertise on major and complex issues. Unlike regular committees, the task of a committee of enquiry is to shed light on divergent views in selected areas and to raise public awareness rather than to prepare its own decision. The Committee of Enquiry on Vocational Education and Training in the Digital World of Work⁷², which was constituted by the Bundestag in June 2018, reflects the societal relevance of both VET and digitalisation. Although its recommendations are not binding on the executive and are in particular not mandatory for the federal states and social partners, they are significant in terms of being the official voice of parliament within the scope of the public discourse on fundamental policy decisions.

The social partners in the metal working and electrical industries have demonstrated their central role in the development and updating of training regulations in a unique manner. In a departure from the previously established process, they adopted a so-called agile procedure to investigate the adaptability of VET content in the relevant training occupations. This joint approach underlines the structural power of the social partners and, according to one interviewee, has also created a new form of mutual trust (interview partner D_Gew).

Over the course of the debate around the strengthening and expansion of continuing VET, it has become apparent that employees need to increase the number of continuing training activities they undertake in order to retain their employability. Responsibility for maintaining that employability first and foremost rests with each individual. This means that transparency of the largely unregulated continuing training market and securing the quality of provision have become areas in which action is even more urgently required. This "obligation" to pursue continuing training can only usefully be met if it is possible to identify appropriate and quality-assured provision. At federal state level, for example, there is the *Advanced Training Network* in Baden-Württemberg, launched in 2011, which aims to facilitate access to continuing training and to strengthen continuing training activities.

⁷¹ An educational topic has become the object of a committee of enquiry of the German Bundestag, the Lower House of Parliament, for the first time since 1969, when an amendment of the rules of procedure permitted such committees to be formed. In total, there have been 29 committees of enquiry since 1969.

At the same time, this increasing responsibility is intensifying the need to pool and represent the interests of continuing training participants. At present, this role is in particular being assumed by the trade unions. However, companies also have a vital interest in highly trained staff with contemporary vocational skills who are also prepared to make their contribution too. The future division of the financial and time burden remains an object of controversial debate between the social partners. The trade unions also see themselves as representing the interests of trainees and of the bodies representing young people and trainees in companies. They are committed to ensuring that trainees are perceived as players in Industry and Vocational Education 4.0.

The role of vocational schools in the wake of digitalisation is a further issue being addressed in Germany. Both in connection with the reform of the BBiG in 2019 and within the context of the debate on a National Education Council in the same year, teachers' associations in particular called for stronger direct involvement by education staff in educational policy decisions.

There are a number of initiatives at federal state level which are looking at how vocational schools can keep up with technology. The Baden-Württemberg Learning Factory 4.0 model is notable in terms of the role of stakeholders. It is a cross-cutting initiative which relates to the vocational school-based element of dual training. It networks this school-based part with practice to provide a kind of additional practical link within a system which already has that focus. However, the learning factories do not merely bring two or three stakeholders together. A multitude of actors can be involved, depending on the regional economic/company facts and circumstances, and the learning factories are also open to cooperating with universities of applied sciences. Learning factories 4.0 are a new type of conglomeration of stakeholders within the context of vocational schools, and they also map the need to enter into new forms of cooperation, including making arrangements which extend beyond the boundaries of education sectors in order to overcome the multifarious challenges which technological changes are creating for VET.

4. Comparison of results Germany/Switzerland

The role of the state stakeholders and the social partners

In contrast to the situation in Switzerland, legal competence and political responsibility for governance of the education system in Germany rests with the federal states rather than with the Federal Government. Only the company-based element of dual training and continuing training falls within the remit of the Federal Government. Nevertheless, there are numerous instruments which facilitate cooperation in educational matters between the Federal Government and the federal states below the level of constitutionally governed educational federalism (for examples, see above).

Professional organisations are key stakeholders when it comes to structuring VET in Switzerland. In Germany, the employer associations and trade unions are the two non-state partners and together with the state actors they make up the three collective governance stakeholders (EBNER/NIKOLAI 2010). The social partners are represented at all VET policy levels and on all VET governance bodies in Germany.⁷² The term “*social partnership*” used in VET in Germany is not identical to the notion of “*collaborative partnership*” in Switzerland.

Social partners are also integrated via a multitude of joint initiatives. These forms of cooperation along the lines of a *public-private partnership* are signs of the involved stakeholders’ readiness to pursue joint goals. There are prior reconciliation processes, during which various interests are weighed up against each other and compromises are negotiated. The outcomes represent a self-obligation freely entered into in statutory terms. Nevertheless, this also generates a certain amount of pressure on other partners to fulfil the duties they have embraced. In the area of VET, where the social partners’ structuring role is enshrined in law,⁷³ this type of cooperation has been tried and tested for decades via such vehicles as the Training Pact or the Alliance for Training (see above). This opportunity to collaborate ensures that the system is particularly flexible. The two state stakeholders, i.e. the Federal Government and the federal states, and the social partners reach agreement on joint positions and educational policy objectives against the background of shifting general conditions. The National Continuing Training Strategy is one example of this within the context of digitalisation. Nevertheless, new approaches are constantly being embarked upon in order to institutionalise or consolidate the harmonisation of educational policy decisions in new national committees. Keywords in this regard are the National Education Council or the demand of the trade unions that a National Continuing Training Council be set up.

In Switzerland, too, structural cooperation between stakeholders in VPET at a national level is regularly monitored and investigated in order to scrutinise its effectiveness. Educational policy governance has its foundations in a collaborative partnership between the Confederation, the cantons and professional organisations. Their significance is underlined by the prominent way in which they are mentioned at the very start of the BBG. The role of the Confederation in particular is regularly called into question. While it is perceived as being too dominant, a lack of action is also identified. Despite a continuous critical appraisal of the forms of contact within the collaborative partnership and although roles need to be interpreted and adjusted

72 The term “social partnership” has its origins in the context of the social market economy in the sense of the overcoming of the class struggle at the start of the 20th century. Today, it describes cooperation between employer and employee associations in their capacity as partners to collective wage agreements in connection with the shaping of general working and remuneration conditions.

73 At the same time, governance of VET in a spirit of partnership is secured in formal statutory terms via the BIBB Board, although its decisions only have the status of recommendations.

accordingly, cooperation between the three stakeholders is driven by a conviction that this joint responsibility lays the foundations for the success of VPET in Switzerland. Particular emphasis was placed on this in all the expert interviews.

The strength of the Swiss governance approach becomes particularly visible in the *2030 Vocational and Professional Education and Training Strategy*. As well as serving as a platform for the monitoring of governance mechanisms, this strategy also enables a diverse range of topics relating to VPET to be addressed and discussed. It forms the basis for numerous projects and expands the group of stakeholders beyond the collaborative partners to embrace academic research, educational and training establishments, and the general public.

With regard to the education system as a whole, the *2030 Vocational and Professional Education and Training Strategy* facilitates the so-called BFI Strategy. This is a coherent approach which encompasses education, research and innovation, and allows nationally coordinated consideration and analysis to take place beyond the limits of the education sectors. The correlations between the education sectors and the interfaces and links these have with the fields of research and innovation make it easier to deal with mega trends such as digitalisation and its impacts in a focused way.

In Germany, many activities are conducted within the context of the thematic association between VET and digitalisation. At almost the same time as work was ongoing on updating the BBiG, which ultimately entered into force in January 2020, a Bundestag Committee of Enquiry on Vocational Education and Training in an Age of Digitalisation (*Berufliche Bildung in der digitalen Arbeitswelt*) was set up in the summer of 2018. The views of experts from all sectors of VET and from companies and schools and the opinions of academic researchers from Germany and abroad are all being canvassed as part of the Committee of Enquiry. Trainees themselves were also invited to use a digital platform to state their thoughts. An opinion-forming process focusing in particular on legislative procedures also took place within the context of the updating of the BBiG.

A National Continuing Training Strategy was developed, and numerous funding programmes were launched. The aim was that these would strengthen VET directly or indirectly, for instance by providing support to SMEs and the craft trades sector. Nevertheless, harmonisation or coordination of activities is only possible to a limited extent at the national level and needs to be rooted in the federal states' and the Federal Government's willingness to cooperate. A strategy paper produced by the BMBF in 2016 certainly formulates cross-cutting approaches and announces initiatives which extend across VET sectors, such as the expansion of a general programme entitled "Digital Media in Education". At the same time, it is made clear that the federal states need to act within the scope of the KMK to draw up their own strategy for "Education in the Digital World" which focuses on the school and higher education sectors (BUNDESMINISTERIUM FÜR BILDUNG UND FORSCHUNG 2016). A cross-cutting approach is adopted within the framework of the Digital Pact for Schools on account of financing being provided for all educational establishments, including vocational schools.

In overall terms, coordinated national governance of the education system permits reciprocal effects between sectors to inform decision-making processes at an early stage. Cross-cutting decisions in particular are needed "at the edges" or at points where some of the boundaries between education sectors are starting to dissolve. This is, for instance, visible in the case of the dual courses of higher education study. Another example is the wording used in the 2018 Coalition Agreement: "[...] we will bring together higher education and vocational learning in joint training provision and thus achieve a better structure of the transitions between vocational and academic education" (CDU/CSU/SPD 2018). National coordination would appear to be desirable against this background in order to be able to develop and implement a sustainable and appropriate educational policy strategy.

The role of companies in the structuring of VET ordinances is openly addressed in Switzerland. There is a proposal that more systematic use should be made of the expertise of companies which are closely involved in research and innovation (see p. 16 in this book). It remains unclear whether and how this will be implemented, but professional organisations are bound to be involved in the decision-making process by dint of their status as key stakeholders for the structuring of education and training content. The role which large companies with considerable resources should play in the training sector is also a question which arises in Germany. Instruments such as additional qualifications afford such firms the opportunity to extend the scope which they already enjoy thanks to the technologically neutral wording of the training regulations. In contrast to small companies providing training, they have the capacities to adjust their company-based training more closely to the changing skills requirements and the ability to ensure continuous further training for their staff (for information on the influence of company size on the nature of VET systems, see EBNER/NIKOLAI 2010). The innovative approaches which are created can deliver impetus on how to structure training regulations in future. On the role of the automobile sector, see ZINKE et al. (2017).

The role of trade unions in VET in Germany is firmly established. As one of the “social partners”, they are involved in all relevant committees and public-private partnership initiatives at a national, regional and local level. Participation in central structural processes and in the development of training regulations in particular is not the least of their functions. Things are, however, somewhat different in the area of dual courses of higher education study. This sector has boomed in recent years. In the field of initial study, growth has been driven by practice-integrated programmes and by private universities of applied sciences (BUNDESINSTITUT FÜR BERUFSBILDUNG 2017a; 2018). Structural control of study content rests with providers, which frequently cooperate with companies. In respect of the main field of activity of trade unions, company and management policy, a particular challenge has also arisen which enables them to shore up their strength and influence. The economic structural shift requires trade unions to expand their presence in those sectors and companies to which large parts of employment have relocated. This especially applies to certain parts of the service sector and to SMEs involved in manufacturing (HAIPETER 2019).

The role of trade unions in VET as a mouthpiece and lobbyist for trainees may increase in significance in both Germany and Switzerland. During their training, trainees are directly affected by technological changes in companies and they need to come to terms with new and different forms of teaching and learning. They do not have their own representative body. Highly divergent degrees of digitalisation in companies providing training could lead to the widening of the gap between trainees’ learning outcomes and skills profiles. Although the training regulations ensure minimum standards in terms of company-based training and despite the fact that inter-company training centres mitigate any possible drop in this level, trainees still have a considerable interest in action to ensure that this gap does not widen too significantly.

Trade unions are, however, a particularly important employee representative body when it comes to the growing need for continuing training. This does not merely apply in the case of companies with trade union representation in the form of works councils or else co-responsibility via collective wage agreements. It is also especially important in companies without a works council or collective bargaining ties where employees do not have their own representation of interests. Because the assumption has to be that the significance of continuing training for maintaining employability will grow further, topics such as quality assurance and transparency on the private-sector continuing training market are gaining in urgency, as are the questions of financial support and paid release for employees taking part in continuing training.

The role of schools and of teaching and training staff

All stakeholders believe that action is urgently required with regard to vocational schools. Areas cited include technical equipment, teaching and learning concepts which will make digital learning useful and successful, the development of vocational schools into centres of excellence, and continuing training for teaching staff. In Germany, their interests are represented by the school authorities at federal state level, the teachers' associations and the relevant trade unions. The situation is similar in Switzerland. The BIBB Board includes members from both the federal states and trade unions, meaning that it at least indirectly represents the interests of vocational schools. Proposals made by representatives of the federal states also help to inform regulatory work, i.e. new or amended regulations for training occupations (BUNDESINSTITUT FÜR BERUFSBILDUNG 2009; 2020).

Nevertheless, the role of vocational schools is viewed as problematic: "The vocational schools are on the sidelines in educational policy terms," says RAUNER (2017), for example. He criticises the fact that vocational schools are seen as the "junior partner" of dual VET. However, it also needs to be remembered that approximately 70% of learning time in dual training is spent in a company. Successful training also depends on functioning cooperation between learning venues and on ensuring that vocational schools operate effectively (see above for the interviewees' assessments).

The *learning factories 4.0* initiative in Baden-Württemberg is an example of attempts being made by the federal states to strengthen vocational schools. Networking with firms, companies and universities of applied sciences in the respective region and the formation of joint teaching and learning platforms facilitate direct and mutual innovative impetus. There are also comparable approaches in the Swiss cantons.

Concluding remarks

The question of the strengths and weaknesses of national governance mechanisms of education and VET systems is nothing new. Neither is it a topic which arose together with digitalisation. However, these issues are of particular and current importance in times when we are experiencing far-reaching and lasting technological and societal changes, migration being a keyword in the case of the latter. How are the systems responding? Are they flexible? Are they changing, and if so how? In the case of both Germany and Switzerland, there is no expectation and no discernible sign that governance structures will undergo fundamental change. Both systems are deemed to be particularly successful, and this view is in particular reflected in the high rate of participants in dual/triple VET. The positive reciprocal effect which takes place with the economy is also a strong indicator of a well-balanced form of governance which includes the four major stakeholders in the form of the Federal Government, the federal states or cantons, employers and trade unions. The roles of these four stakeholders are, however, arranged differently. Both youth unemployment and overall unemployment are at present extremely low in the two countries studied.

However, there is an awareness that action needs to be taken in order to ensure that the attractiveness and competitiveness of the systems are maintained in future. Within the scope of the present project on the role of stakeholders in times of digitalisation it was possible to identify an intensification of cooperation combined with a discussion centring on readjusting the part played by these actors.

Both in Switzerland and in Germany, the common denominator of numerous VET governance activities and initiatives within the context of digitalisation is increased networking between the involved stakeholders. The size of the challenges faced has led to numerous initiatives on the part of the individual stakeholders, but has also led to the realisation that these

challenges can only be overcome together. The *2030 Vocational and Professional Education and Training Strategy* in Switzerland is an impressive example of cooperation between stakeholders which goes beyond the small group of formal legal participants (Confederation, cantons, professional organisations). In Germany, an amendment to the Basic Law brought about jointly by the Federal Government and the federal states has expanded the former's opportunities to provide financing in the education sector. Nevertheless, the failure to set up a German National Education Council has also made it clear that there are limits to their willingness to cooperate.

Strengthening co-determination rights and thus also the role of teaching and training staff, of vocational schools and of individual innovative large companies is an issue which is being addressed in both countries. The “*agile procedure*” in Germany is one example of the way in which the social partners are seizing the initiative to make joint use of their structural role and to show their willingness to help shape the system. The cantons in Switzerland are developing new common communication platforms for vocational schools, for companies, for inter-company courses and for trainees, and are also undertaking further endeavours to achieve greater harmonisation of their education and training initiatives. At the same time, individual stakeholders are creating initiatives which generate systemic impetus for VET and which are leading to greater adaptability of the VET system. Examples include the retraining scheme launched by the employer association *Swissmem* and the modularisation strategy being pursued by *ICT-Berufsbildung* in Switzerland. An example in Germany is the *learning factories 4.0* in Baden-Württemberg. These multifarious innovative approaches need to be systematically embraced. The focus must be on analysing their potential and on expanding their sphere of influence at a systemic level.

State governance power is differently distributed in the VET systems in Germany and Switzerland. However, both cultivate extremely close cooperation between state stakeholders on the one hand and employers and trade unions on the other. Such an approach allows the systems to be shaped and implemented by impetus emerging from practice. It also ensures a high level of flexibility when it comes to addressing economic, technological and societal changes and adapting VET accordingly. The same applies in respect of the challenges being created by digitalisation. Minor changes in the respective stakeholder structures appear to be sufficient. Non-state stakeholders are each developing their own initiatives within the context of digitalisation. These are being supported, supplemented or even launched by overarching state-funded education, labour market and economic policy schemes which display a greater or lesser degree of coordination. The involvement of various state and non-state stakeholders creates a structure which is flexible in overall terms. This seems capable of securing the sustainability and attractiveness of VET and can be viewed as one of the two systems' particular strengths.

Nevertheless, the coordination of educational policy measures in Germany requires a higher degree of political good will and coordination effort than is the case in Switzerland, where the idea of thinking about the education system in collective terms is firmly established both institutionally and within society. Especially in times in which new cross-cutting education and training provision is emerging and sending a positive signal of dynamism and adaptability, the reciprocal effect of measures means that coordinated and systemised cooperation by state stakeholders across education sectors is becoming more urgent.

5. Digression – the role of consultancy firms, foundations and technology companies

Further stakeholders have also entered the stage to a particularly high degree within the context of digital development. While these actors are not necessarily new, their level of activity, their strong media presence and their growing educational policy significance through their participation in public-private partnership activities certainly is. They include private-sector companies such as consultancy firms, and the involvement of foundations is also growing. These stakeholders are increasingly addressing topics relating to education and training. One question which arises here is the legitimacy of bodies such as major foundations which are taking on the role of educational policy stakeholders (HÖHNE 2012) and the problems associated with such involvement. KÜNZLI/WEBER (2016) address the topic of the rise of “policy-related academic research” in general terms. They take the view that this sector has grown in significance across all areas. The same applies to education. It is gaining in importance within the scope of so-called evidence-based policy-making because this field requires basic research information and reliable statistical data. In the authors’ opinion, educational monitoring has over a period of years become an indispensable instrument and this has to do with the increasing emergence of academic researchers as stakeholders in administrative and educational policy governance bodies. The authors believe that the academic research sector’s rise to the status of stakeholder is connected to the declining relevance of the political public or of public opinion formation for essential governance processes. In Switzerland, this has led to a “substantial change in mentality in educational policy and administration, which has traditionally had its basis in democracy and has operated via committees staffed by laypersons” (ibid., p. 128).

According to FÖRSCHLER (2018), stakeholders such as foundations and lobby groups usually work outside formal political structures. Their influence is, therefore, not very visible. Instead, it takes its effect via “expert knowledge” provided in the form of studies, specialist reports etc. which help to set the agenda in public or technical discourses. However, they also make an actual intervention in education systems by financing or supporting initiatives and thus become involved in shaping their structure. In overall terms, this author has observed a sharp increase in the number of conferences, projects and publications by these “new” non-state intermediary stakeholders since 2016.

Influential networks of state and non-state or commercially aligned stakeholders have emerged in the wake of digital developments (see summary) (FÖRSCHLER 2018, p. 43). One example is the Alliance for Education (BfB, founded in 2012), a not-for-profit association which has set itself the goal of “supporting the digital shift in teaching and learning” (BÜNDNIS FÜR BILDUNG (BfB) 2020). The umbrella of the BfB brings together (IT) companies (e.g. Microsoft, Intel, HP Inc., Didacta Verband e. V., Bechtle AG, LEGO Education), publishing houses (e.g. Cornelsen, Ernst Klett Verlag GmbH), start-ups, associations (e.g. the Association of Teachers and Nursery School Teachers, the Educational Media Association, the ZAU Centre for Teacher Training, the Bavarian Association of Philologists) and educational institutes and public-sector representatives (e.g. the Berlin Senate Department for Education, Young People and the Family, the Finance Ministry of the State of Saxony-Anhalt, Nuremberg City Council), all of which “show a particular commitment to the development and implementation of standards and reference solutions for education and infrastructures in teaching and learning environments”. The BfB is considered to be the largest and most media-active network in the area of digitalisation of education. Because of the expertise it pools, the network has become an active partner in the structuring of education and is involved at both a school and a policy level. It

draws up employment-oriented guides for schools and teachers to assist with the development of media-pedagogical concepts and it participates in school activities (FÖRSCHLER 2018, p. 45).

The so-called Digital Education Pact, launched by Microsoft in 2015, is similar to these guides. It unifies the BfB, the Didacta Association, the German Informatics Society, the D 21 Initiative and a number of individual state stakeholders such as the German Association of Towns and Municipalities (DStGB). It sees itself as a strategic body seeking to “make a digital economic miracle possible in Germany” (DIGITALER BILDUNGSPAKT 2020). The network members engage in extensive media activities, including by publishing press releases, study results and position papers.

The Forum Education and Digitalisation (fbd)⁷⁴ was established in 2016 by its founding members Robert Bosch-Stiftung, Siemens Stiftung, Deutsche Telekom Stiftung and Bertelsmann Stiftung and has since acquired numerous further institutions. It also has large resources at its disposal for the involvement of experts and for media work. The fbd was able to demonstrate its direct influence via a mention in the BMBF’s Campaign for Education,⁷⁵ by means of which the Ministry is seeking to develop “joint solutions and practicable concepts”. Technology companies in particular have a major role to play in this process. The education technology, or EdTech, industry is increasingly creating links with the education sector by making its products available in schools, providing teaching and learning materials, and developing product-related certificates which are of relevance to the labour market.

The Munich and Upper Bavaria Chamber of Commerce and Industry is cooperating with Google in order to strengthen digital competencies in companies.⁷⁶ The Düsseldorf Chamber of Commerce and Industry, the trade union ver.di and the Fraunhofer Institute for Industrial Engineering are all involved in a project called *Zukunftsoffensive: Basisbox*.⁷⁷ These forms of cooperation are welcomed and actively pursued by state stakeholders. Both the KMK and the BMBF have expressed the intention of working with the private sector whilst availing themselves of the expertise of numerous non-state organisations such as in the academic research sector, trade and industry, associations and foundations (BUNDESMINISTERIUM FÜR BILDUNG UND FORSCHUNG (BMBF) 2016; KULTUSMINISTERKONFERENZ (KMK) 2016). There is a realisation that coordinated action by all stakeholders is necessary.

The involvement of and influence by non-state stakeholders is nothing new, especially in the area of VET. Companies, employer associations, chambers and trade unions all work together in a spirit of partnership to determine training content. Forms of *public-private partnership* are an inherent part of VET in both Germany and Switzerland. Firms and companies make their IT technologies and equipment available as company-based learning instruments. Especially in technology-oriented companies, the result of this is that trainees are able to work with up-to-date hardware and software and can integrate themselves directly into new digitally organised work processes.

On the other hand, inter-company training establishments and vocational schools need to ensure that trainees in companies which are more technology-remote are also able to acquire

74 For further information on the Forum Education Digitalisation Foundation, see: <https://www.forumbd.de>, accessed on 28.08.2020.

75 For further information on the BMBF’s Campaign for Education, see: https://www.bildung-forschung.digital/files/Bildungsoffensive_fuer_die_digitale_Wissensgesellschaft.pdf, p. 31, accessed on 28.08.2020.

76 For further information on the cooperation, see: [https://www.ihk-muenchen.de/de/Presse/News/News-Detailseite-\(überregional\)_23424.html](https://www.ihk-muenchen.de/de/Presse/News/News-Detailseite-(überregional)_23424.html), accessed on 25.05.2020.

77 For further information on the Zukunftsoffensive: Basisbox project, see: <https://learndigital.withgoogle.com/zukunftswerkstatt/courses/initiative/basisbox>, accessed on 25.05.2020.

the basic principles of the new so-called digital competencies. The vocational school sector is therefore facing the same challenges as general schools. This is another area which gives rise to the question as to whether the stakeholder structure will change as a result of the influence of the necessary expertise of EdTech companies which supply teaching and learning materials, provide advanced training for teaching staff or act as sponsors of digital projects and other activities.⁷⁸ Non-state stakeholders may possibly be accorded a new and privileged role which makes the technological shift in education possible in the first place or else accelerates change. The need for a Digital Pact for Schools has made it clear that the state resources required are limited, at least at the level of the responsibility borne by the federal states, and that these resource requirements must be covered in a different way.

⁷⁸ Regarding Microsoft, for example, see: <https://www.microsoft.com/de-de/education/school-leaders/default.aspx>, accessed on 15.07.2019.

Annex

Overview of interview partners

Germany

Actor	Institution	Code
Federal state	North Rhine–Westphalia	D_L1
Federal state	Lower Saxony	D_L2
Teaching staff	Federal Association of Vocational Education and Training Teachers e. V. (BvLB)	D_BP
Trade union	German Trade Union Confederation (DGB)	D_Gew
Employers' association	Confederation of German Employers' Associations (BDA)	D_AG
Chamber of crafts	Koblenz Chamber of Crafts (HWK)	D_AG/K
Industrial Metal Workers' Union	IG Metall	D_Gew
Federation	Federal Ministry of Education and Research (BMBF)	D_B

Switzerland

Actor	Institution	Code
Association/organisation of the world of work (OdA)	Swissmem	CH_OdA
Canton	Canton Bern	CH_K
Canton	Canton Lucerne	CH_K
Association	Swiss Association of Small and Medium-Sized Enterprises	CH_OdA
Employers' association	Federal Association of Swiss Employers' Associations	CH_A
Association/organisation of the world of work (OdA)	ICT-Vocational Education and Training Switzerland	CH_OdA
Teaching staff	BCH (Vocational Education and Training Switzerland)	CH_BP
Trade union	Travail.Suisse	CH_Gew

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Abstract

In both Switzerland and Germany, stakeholders in vocational education and training (VET) are responding to the serious technological changes with numerous initiatives and programmes. This report examines the impact on the respective national governance structures and steering mechanisms by analysing the role of the actors and the form of their cooperation. It can be stated that despite many similarities between the systems, the differences in the distribution of state steering power, especially in the coordination of education policy decisions, are clearly noticeable in this context.



In both Switzerland and Germany, stakeholders in vocational education and training (VET) are responding to the serious technological changes with numerous initiatives and programmes. This report examines the impact on the respective national governance structures and steering mechanisms by analysing the role of the actors and the form of their cooperation. It can be stated that despite many similarities between the systems, the differences in the distribution of state steering power, especially in the coordination of education policy decisions, are clearly noticeable in this context.

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