Training Needs of SMEs in the Skilled Crafts and Trades Regarding Dual Education

WP T2 Innovation and quality in dual education

D.T2.2 SME needs assessment report

New Design University / Austria

Julia Pintsuk-Christof, M.A.

Univ.-Prof. (NDU) Mag. Stefan Moritsch

September 2019

Content

1. Introduction

Policy makers and stakeholders at national and EU level recognise the important role of dual education in addressing difficulties in the transition phase from education to work, in improving the skills supply and in fostering entrepreneurship and innovation. However, countries in Europe and the Alpine Space are in very different starting positions. Even well performing dual education systems face challenges, such as engaging employers, inclusion of marginalized groups, demographic change, and innovation and adaptation to new professional realities. One of the strengths of the Alpine economy is a strongly rooted tradition in the skilled crafts and trades sector. In order for SMEs to remain competitive in this sector, they need a skilled workforce that is able to keep up with technological, social, business and design innovations. Yet, SMEs in this field find it increasingly difficult to get new apprentices.

DuALPlus will go new ways to address these challenges and to increase the attractiveness of dual education for skilled crafts and trades in the Alpine Space. The outputs and results of the project will directly benefit young individuals that decide for a career in the skilled crafts and trades sector. They will also benefit SMEs, tutors and master craftsmen that want to upgrade their teaching and technical skills. DuALPlus pursues three objectives. First, the project will improve the career guidance of youngsters and the public recognition of dual education as valuable learning path. Second, it will promote innovation and quality in dual education. And finally it will improve the framework conditions for innovation by increasing the horizontal and vertical permeability of the dual education system.

The project brings together SMEs, educational institutions, business support organisations such as handicraft clusters and chambers of commerce, universities and design institutes and regional public authorities from six Alpine countries: Regional Development Vorarlberg eGen (AT), New Design University (NDU), St. Pölten (AT), Technical University of Applied Sciences, Rosenheim (DE), Chamber of Trade & Crafts for Munich and Upper Bavaria (DE), Autonomous Province of Trento (IT), Ivh-Education and Service cooperation (IT), Chamber of Craft and Small Business of Slovenia, Auvergne-Rhône-Alpes Regional Chamber of Crafts (FR) as well as School of Art and Design, Valais (CH).

The objective of work package T2 is to innovate and increase the quality of dual education. Key factors in dual education are the teachers, in-company trainers and mentors. They need to be supported to continuously update their skills and competencies in order to respond to new technological and social realities. Training programmes will be co-developed and evaluated with the users (T2.4). The communities of practice (T2.1) will be involved in career guidance (T1) and will be the link for continuous education programmes (T3).

This report provides an alpine wide perspective on the training needs of SMEs in the skilled crafts and trades regarding dual education, with particular focus on the perspective of the trainers. To generate a complete picture, we combined the data collection for the needs assessment analysis (activity.T2.2) with the evaluation of existing dual education formats within activity T2.3. So, the online surveys addressed to SMEs as well as the expert interviews with trainers covered issues of both activities. To maintain this integral view, this report will present results and findings of activities T2.2 and T2.3.

2. Dual education in the Alpine Space

For a contextual understanding of the results of the surveys and expert interviews, it is necessary to give a short insight in the dual education systems of the partners' countries.[1]

2.1. Austria

Austria is constituted by nine Regions, which have a certain level of autonomy. In view of the vocational education system, the federal government is main responsible.

The success of the dual system is the result of a process involving many institutions and bodies at different levels. At the federal level, there are the Ministry for Digital and Economic Affairs (BMDW) as well as the Ministry for Education, Science and Research (BMBWF). Latter defines the curriculum and partially finance the vocational schools. Each region has an Apprenticeship Office, placed at the Regional Economic Chamber (WKO), but subordinate to the Federal Ministry of Economy (BMDW).

Regional governments provide the financial resources for building and maintaining the vocational schools, for purchasing equipment, machinery and teaching materials and (together with the Federal Government) co-fund the salaries of teachers and trainers. The participation of companies and workers in the dual system is provided through several bodies.

At local level, enterprises hire apprentices. The on-the-job training is delivered through authorised trainers or instructors. Vocational schools provide general and theoretical training as well as some practical training.

Before they can hire trainees, the enterprises have to show they meet the legal requirements, in terms of suitable machinery and equipment, as well as of the skills of the trainers or instructors providing the on-the-job training. The trainer can be the entrepreneur him- or herself or another employee appointed by him or her. Trainers are required to have a professional expertise in the trade, or in a similar one, and to have passed the initial training instructor examination.

Enterprises can choose to train apprentices within the framework of training alliances with other companies as well. Since 2009, it is possible to carry out the apprenticeship through a supra-company training model (ÜBA), if a student is not able to find a placement in a company.

Beyond the on-the-job training, the trainees have to attend a vocational school for one day or a day-and-a-half per week, i.e. for 20% of the time. The organisation of the learning at the vocational school can also be blocked, e.g. continuously for eight weeks per year[2]. Curricula of vocational schools contain mainly basic knowledge and skills related to the chosen occupation. Though the curricula are defined at federal level, the schools are allowed to have a certain degree of autonomy.

[1] Source: INAPP (2019) Dual systems in the Regions of the Alpine Space. Final report. Trento.
[2] Scheduled in certain periods of the year for particular trades with a high seasonality

The apprenticeship period ends with a leaving (practical as well as theoretical) examination, which verifies that the trainee has properly acquired the required skills.

2.2. Germany

Germany is constituted by 16 Regions and three city-states, which have a certain level of autonomy. While education is regulated by the ministries of the regions, vocational and on-the-job training is more a federal-level responsibility.

Multiple bodies are involved in the dual system. At the federal level, there are the Ministry for Education and Research (BMBF), which has a coordination role in order to ensure a consistent system, the Federal Ministry for Economic Affairs and Energy (BMWE) respectively other sector ministries in agreement with the Ministry for Education and Research. The dual system is also supported by the Federal Institute for Vocational Education and Training (BIBB).

Further, chambers of industry and commerce, of handicrafts as well as of agriculture assure the success of the dual system. They are associations with a compulsory membership of the sector companies, established at a regional level with organisation acting at a federal level, as the association of German Chambers of Commerce and Industry (DIHK) and the German Confederation of Chambers of Skilled Crafts (DHKT).

The competent bodies supervise the functioning of the dual system at sector and territorial level.

Before hiring apprentices, enterprises have to meet certain requirements, assessed by competent bodies. They have to be able to make trainees develop all the skills included in the training regulation, so relevant working processes and equipment have to be available. Further, there has to be an instructor with appropriate professional and pedagogical skills. Instructors are required to have professional expertise in the trade, or in a similar one, and to have passed an aptitude examination.

For the on-the-job training, there is generally a detailed training plan elaborated, being based on prescriptions by the Training Regulation. Enterprises can integrate additional subjects and skills as well as provide additional qualifications. While large companies sometimes establish company training centres for their apprentices, instructors of small and medium companies often deal with apprentices in addition to their work. Competent bodies monitor the on-the-job training progress and offer counselling and support services for instructors.

In addition to the on-the-job training, trainees acquire the necessary theoretical and practical skills for their occupation at vocational schools as well. They attend school one or two days per week or in blocked weeks during the year. The general curriculum is agreed at federal level, but can be adapted.

The apprenticeship period finishes with a leaving examination with the goal to obtain the qualification certificate.

2.3. Italy

Regarding Italy, we take a closer look at Type-1 apprenticeship, which is based on multi-level governance. The main institutional actors are, at national level, the state, the Ministry of Education, University and Research (MIUR) and the Ministry of Labour and Social Policies (MLPS) as well as the Regions and Autonomous Provinces of Trento and Bolzano.

The state defines basic principles as well as minimum training standards, which have to be met by the Regions in the execution of their specific competences related to the vocational education and training system. The cooperation between MLPS and MIUR ensure the general coordination, monitoring and assessment of the implementation of strategies and objectives set out in Type-1 apprenticeship legislation.

Regions have a simultaneous legislative power for education and an exclusive one for vocational training. The Regions as well as the Autonomous Provinces of Trento and Bolzano are responsible for the Type-1 apprenticeship. Social partners are important as well, so they are appointed in tripartite commissions which define strategies and programmes concerning education and labour policies.

Before hiring apprentices, employers have to meet certain requirements, such as structural capacity, technical capacity as well as training capacity. Latter includes the availability of one or more on-the-job tutors (instructors). However, there is no defined accreditation procedure for the enterprises yet.

The apprenticeship training is organized in on-the-job training periods and off-the-job training periods. Curricula agreed by the training institutions as well as the employers, are designed in view of specified national standards together with regional standards, and implemented following the prior agreement. The training institutions and companies elaborate the Individual Training Plan (ITP).

The length of the training at the training institutions is prescribed by law. For regional vocational education and training paths, the off-the-job training cannot be more than 60% of the timing established for ordinary courses for the first and the second year, and 50% for the third and the fourth year.

The apprenticeship leaving examinations as well as the issue of qualifications and certificates are done in accordance with the legislation on the respective ordinary upper-secondary school and regional vocational education and training paths.

2.4. Slovenia

In Slovenia, the governance of the vocational and technical education programmes involves, at national level, the state's central administration, the Ministry of Education (MoESS28), the Ministry of Labour (MoLFSAEO29), the Ministry of Economic Development, Chambers of Commerce, Industry and Craftsmanship, trade unions as well as enterprises and schools at local level. The Council of Experts of the Republic of Slovenia, and in the Sector Committees for Occupational Standards act as social partners.

As basis for vocational education, occupational standards are updated any five years in relation with the needs of the labour market. Normally, a vocational education programme refers to more than one standard and integrates general subjects as

well. According to INAPP (2019), there is a disagreement between the school and enterprise sectors on this aspect.

Slovenian Institute for Vocational Education and Training (CPI) is another body entrusted with important functions in the field of apprenticeship by the 2017 law, which is working in cooperation with experts on training and work. It is in charge of tasks such as the definition of system solutions for the development of the apprenticeship, the coordination of the drawing up of the catalogues of knowledge and skills, the promoting of development and the dissemination of teaching materials or the monitoring and evaluation of the effectiveness of the system and the quality of the vocational training.

To guarantee the quality of the training, vocational schools and enterprises cooperate. So, employers are responsible for the quality of the on-the-job training, while the schools are responsible for the quality of the school training.

On-the-job-trainings can be partially provided by inter-company training centres, which are organised by professional schools to allow students and local enterprises to improve their technical capacities and skills. These centres could be especially important, when trainees are not able to develop all the required skills on workplaces. Enterprises and vocational schools design training plans for the apprentices in cooperation as well as define the cooperation ways.

The training's length cannot be longer than 8 hours per day and 36 hours per week. During school holidays, trainees have the possibility to attend the on-the-job training, provided that the employers must ensure for the apprentices at least six continuous weeks of summer holidays and at least eight days of holidays throughout the year.

Though the apprenticeship training takes place in several learning venues (school classrooms and laboratories, company, inter-company training centres), the training institutions are responsible for the final examinations. They are planned on the basis of the reference legislation on vocational education and training.

2.5. France

In France, the apprenticeship system is regulated by state, Regions, trade unions and employers' associations, jointly with other actors and intermediaries, such as the Chambers of Commerce and Industry, Chambers of Craftsmanship and Agriculture as well as the bodies collecting taxes intended to fund the apprenticeship. According to INAPP (2019), the collaboration among these bodies, as well as the mechanism of collection and provision of the resources dedicated to the apprenticeship, are considered very complex, heterogeneous and dysfunctional.

The 2018 reform act has acted deeply changing the governance and management system of vocational training and apprenticeship. Further, the funding system of apprenticeship has been simplified and centralised. New bodies will have the function to fund training centres according to the number of apprentices participating in training and will have to enhance their provision of technical support to sectoral social partners as well as to companies.

The strategic framework and the policies for the development of vocational training and guidance will be still defined in the Contrat de Plan Régional de Developement des Formations et de l'Orientation Professionnelles (CPRDFOP), at regional level,

having a multiannual validity and being structured on annual basis. Such contracts are developed in the framework of the Regional Employment and Vocational Training Coordination Committee (CCrEFp), composed by state representatives, representatives of Regional Assemblies, trade unions and employers' organisations, as well as Regional Chambers of Agriculture, Commerce, Industry, and Craftsmanship. Trainees are required to take part in a training period in both an enterprise as well as a training centre for apprentices (CFA).

Before hiring apprentices, companies have to complete a declaration, by which they certify the adequacy of the facility, equipment and security conditions on the basis of the needs for the apprentice's training. Within this declaration, they also have to confirm that there's an apprenticeship instructor within the organisation or an équipe having the pedagogical and professional skills required to play a mentoring role for the trainee.

Each apprentice has to be compulsorily trained by an instructor, who can be either the entrepreneur or an employee of the enterprise, with the task to ensure the coordination of the training team and the relationship with the CFA. The instructor has to be able to guide the trainee in the enterprise as well as and to transfer to her/him her/his own expertise.

According to the 2018 reform act established that the trainees' number of hours for the external training at a CFA is equal at least to 25% of the total apprenticeship period.

Regarding the training plan, CFAs and training enterprises are responsible for making the standards of qualification an operational reality. At the end of the apprenticeship period, trainees have to pass an examination to achieve their qualification.

2.6. Switzerland

Switzerland is constituted by 26 Cantons, which have a certain level of autonomy. Cantons are the primary responsible bodies for education; the federal recognition of A-level certificates is governed by a Confederation-Cantons agreement. The Confederation, in consultation with Cantons and economic sector, is entrusted with the legislative competence on vocational training. The federal training competence is assigned to the Secretariat for Training, Research and Innovation (SEFRI). Cantons join in the definition as well as implementation of training policies through the Conference of Cantonal Ministers of Education (EDK).

The Vocational Training Act (BBG), in cooperation with the Ordinance on Vocational Education and Training, constitutes the legislative framework regulating the whole basic and tertiary vocational training and the lifelong training.

At cantonal level, there are 26 Offices in charge of the vocational training implementation, which coordinate their activities in the framework of the Conference of Swiss VET Offices (SBBK). Cantons manage vocational schools offering opportunities of apprenticeship, full-time training programmes, and preparatory courses for vocational baccalaureates.

The Swiss dual system includes training in the training enterprises hiring the apprentices, training in the vocational schools as well as an additional training in sector inter-company courses.

Before offering apprenticeship opportunities, companies have to meet requirements such as suitable environments for the training, instructors meeting the requirements prescribed by the Regulations as well as the attendance of the 40-hours training course. Additional requirements can also be provided for the accreditation issue at cantonal level.

The objectives and contents of the on-the-job-training are established in the on-the-job training plan, drawn up on the basis of the Regulation. Instructors share the individual learning objectives with the trainees, reporting them in a report.

The vocational schools' curricula provide basic training and vocational knowledge as well as workshops for practical training. The apprentices receive evaluation notes, reported on the school diary, in each semester. These evaluations are important for the final examination.

3. Research interest and approach

The objective of this report is to provide an alpine wide perspective on the training needs of SMEs in the skilled crafts and trades regarding dual education, with particular focus on the perspective of the trainers.

Our aim is

- To tend this training to become as much compulsory as possible
- To get it as much attractive as possible

The goal of the SME needs assessment analysis (activity T2.2) is to highlight, what kind of educational skills and knowledge is needed by the tutors to deliver quality dual education. It takes into account the new social, technological and organisation realities in SMEs and their impact on dual education.

The evaluation of dual training programmes (activity T2.3) aims at the collection of existing initiatives, reports respectively best practice collections of dual education training (see in the best practice collection report) as well as the evaluation of existing training programmes in the PP's regions. This will be a possibility to critically reflect on the achievements, together with the users, and thus also establish a process of continuous improvement and adaption.

To generate a complete picture, we combined the data collection for both activities. All partners agreed on a joint methodology, we will shortly present in chapter 4.

The results of this report will be basis for the handbook (activity T2.5). Certain partners will use them for the revision respectively development of dual training formats in their region within activity T2.4 as well.

4. Research process and method

As work package leader of WP T2, NDU (PP2) developed guidelines for a joint methodology all partners agreed on. This methodology included an anonym online survey addressed to master craftsmen/craftswomen respectively trainers and tutors in SMEs (as the assessment pays particular attention to their perspectives) as well as qualitative expert interviews with SME's trainers and tutors.

Online surveys have many advantages, e.g. higher anonymity of the respondents, minimal costs as well as an increase in response rates. So they provide the highest level of convenience for the respondents because they can answer the questionnaire according to their own pace, chosen time, and preferences. Qualitative interviews are useful to obtain more deep and detailed information about experiences, perceptions and opinions. They allow more detailed questions to be asked, ambiguities can be clarified and incomplete answers followed up. That's why we agreed on this mix of quantitative and qualitative methods.

We focused on SMEs that already launched and experimented dual education schemes as target group for the survey and expert interviews. For the expert interviews, we agreed on talking to SME's trainers and tutors in decision making positions in training, like masters in higher positions, if possible in the partner's region.

For the online survey, each partner strived for at least 35-40 responses; for the expert interviews, at least seven to ten SME's trainers and tutors were interviewed. We aimed at a possible heterogenous group of experts in relation to professional sector, years of experience in dual training, gender and age. In some partner regions, it was promising to do some of the expert interviews with members of the respective community of practice (activity T2.1).

NDU developed English and German proposals for the survey and interview requests sent out to the SMEs as well as the questions for the online survey and the expert interviews in both languages. Partners translated the questions in French, Italian and Slovenian. The questionnaires and guidelines for the expert interviews in English are contained in the appendix.

The online surveys for each partner were created on Lime Survey[3]. The surveys as well as the expert interviews contain questions concerning experiences with trainees, qualification and needed skills of trainers and trainees, attractiveness of dual education, strenghts and challenges about existing dual education formats and recommendations for innovation in dual education systems.

For the analysis of the online survey, we focused on frequencies and qualitative content analysis. To open up new issues and themes, we used qualitative content analysis (e.g. Mayring 2000) for the analysis of the open questions. Inductive coding allows winning categories from the data material itself. The material is worked through and categories are tentative and step by step deduced. The categories are revised, eventually reduced to main categories and checked in respect to their reliability. For the expert interviews, we focused on a kind of simple topic analysis. We mapped out the issues and different positions brought up for each question and described them as detailed as possible.

[3] Lime Survey is an online tool for online surveys: https://www.limesurvey.org.

All partners conducted the data collection and analysis for their region. The results of each region were presented in intern partner reports sent to the work package leader. In the following, the results of the surveys and expert interviews will be presented in a transnational view with regard to the Alpine Space.

5. Results

5.1. Online Survey

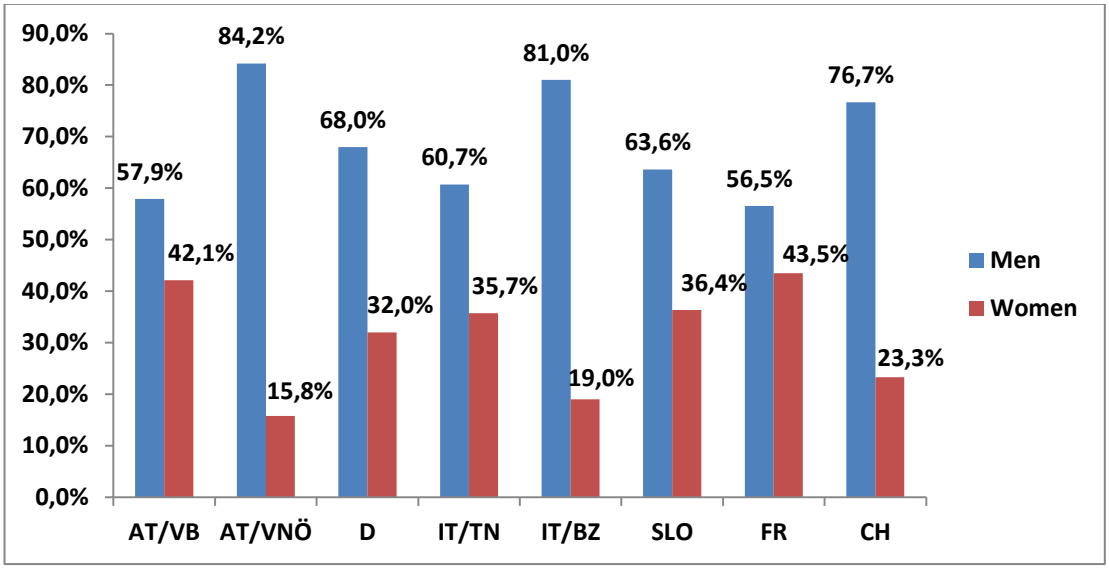
All partners sent the requests with the links to the survey in their language(s)[4] out to different SMEs.

In total, 533 anonym representatives of SMEs in the Alpine Space started the survey, 342 (60.8%) finished it.[5]

5.1.1. General demographic data of the sample

In total, 72.4% male and 27.6% female SME's representatives finished the online survey.[6] While the amounts of men and women are closer in France and the Austrian region Vorarlberg, the differences are most obvious in the Austrian regions Vienna and Lower Austria as well as the Italian autonomous province Bolzano.

Figure 1: Gender distribution of participants



Source: Lime Survey, own computation, values as percentages. AT/VB = Austria/Vorarlberg, AT/VNÖ = Austria/Vienna-Lower Austria; D = Germany, IT/TN = Italy/Trento, IT/BZ = Italy/Bolzano, SLO = Slovenia, FR = France, CH = Switzerland.

The participants were 41.5 years old on average. The youngest respondent was 16 (Bolzano), the oldest 68 (Slovenia). The participants mainly occupy higher job positions (e.g. master craftsmen and director) in SMEs in such diverse fields as

[4] German: Austria, Germany, Italy (Bolzano), Switzerland; Italian: Italy (Trento, Bolzano); Slovenian: Slovenia; French: France, Switzerland.

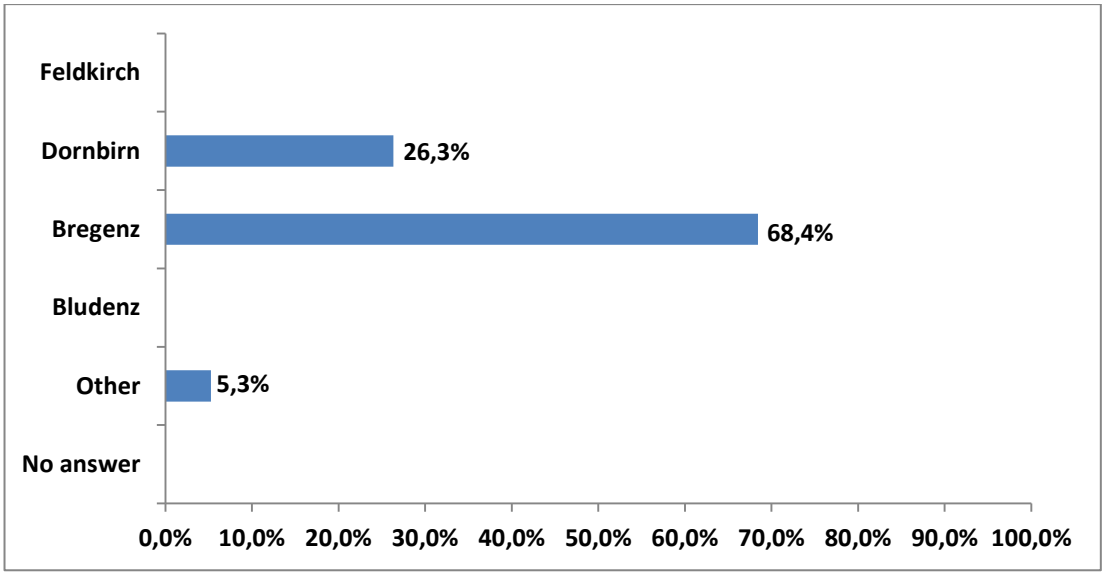
[5] Austria/Vorarlberg (AT/V) n = 19; Austria/Vienna and Lower Austria (AT/VNÖ) n = 38; Germany/Bavaria (D) n = 25; Italy/Trento (IT/TN) n = 28; Italy/Bolzano (IT/BZ) n = 116; Slovenia (SLO) n = 22; France (FR) n = 46; Switzerland (CH) n = 30.

[6] n = 342.

carpentry, metalwork, construction industry, painter, florist, hairdresser, food service, health care or office administration.

The following figures give a short overview of the geographical distribution of the participants in each project partner's region.

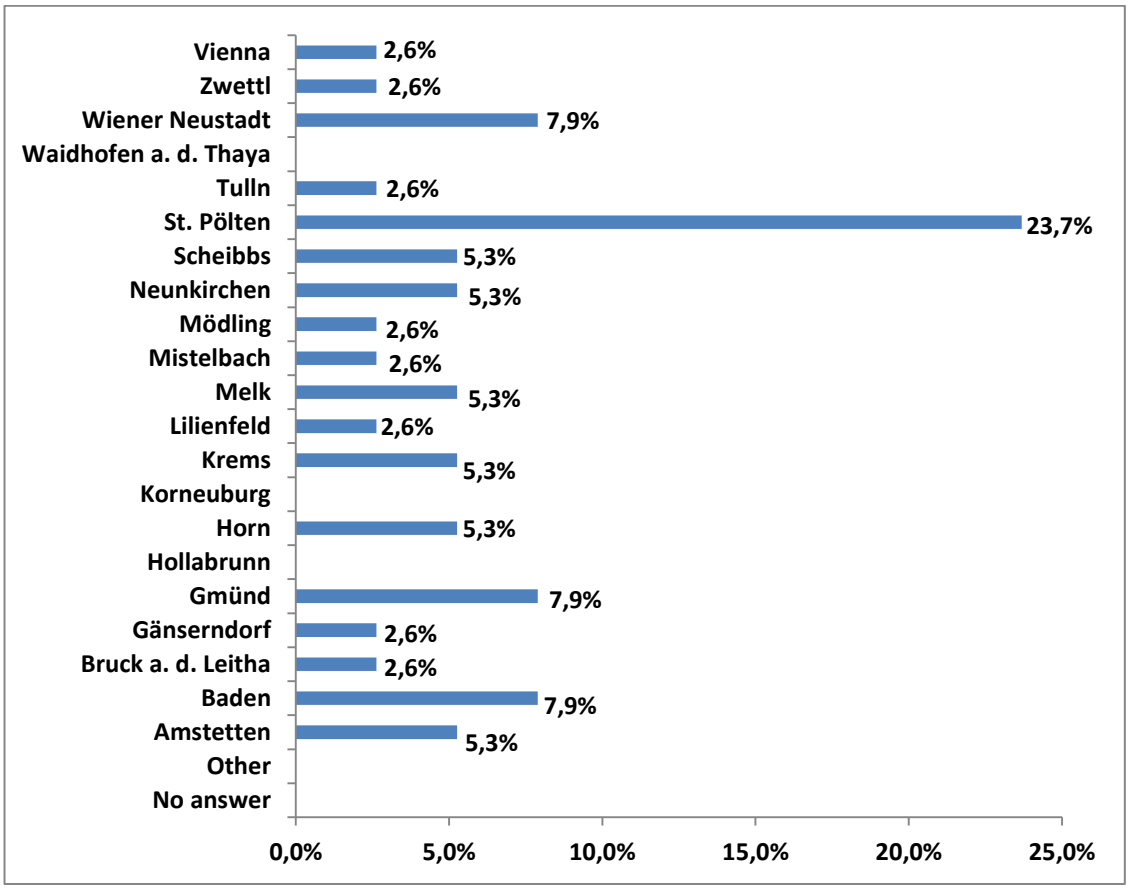
Figure 2: Participating SMEs in Austria/Vorarlberg



Source: Lime Survey, own computation, values as percentages.

The SMEs of **Vorarlberg**'s participants are located in primarly Bregenz (68.4%) and Dornbirn (26.3%) districts.

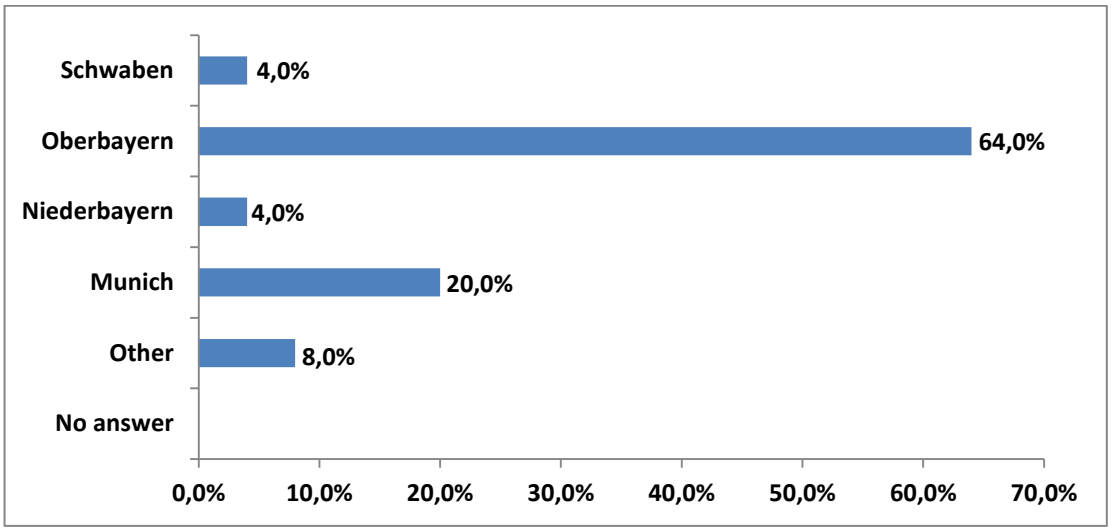
Figure 3: Participating SMEs in Austria/Vienna and Lower Austria



Source: Lime Survey, own computation, values as percentages.

In **Vienna and Lower Austria**, around a quarter (23.7%) of the respondents' SMEs is located in St. Pölten, around a tenth (7.9%) in each case in Baden, Gmünd and Wr. Neustadt districts.

Figure 4: Participating SMEs in Germany

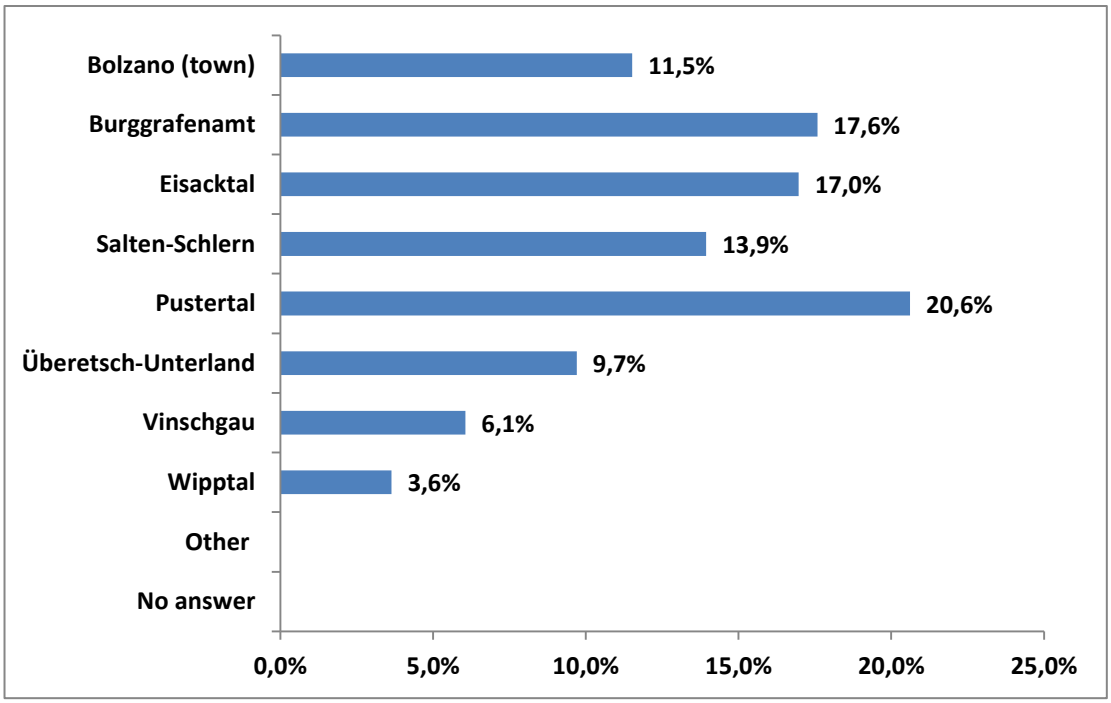


Source: Lime Survey, own computation, values as percentages.

Around two third of the **German** respondents' SMEs (64.0%) are located in Oberbayern, one fifth (20.0%) in Munich.

In Italy, SMEs located in the autonomous provinces Trento and Bolzano were contacted. For **Bolzano**, related regions were recorded.

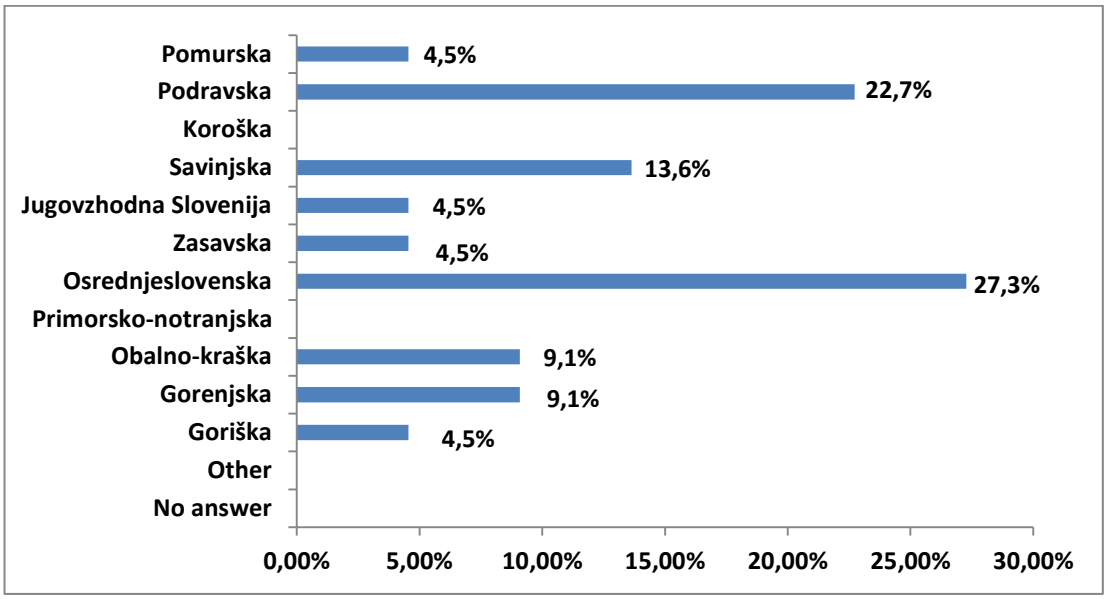
Figure 5: Participating SMEs in Bolzano



Source: Lime Survey, own computation, values as percentages.

One fifth of the respondents' SMEs from Bolzano are located in Pustertal (20.6%), about one fifth in each case in Burggrafenamt (17.6%) and Eisacktal (17.0%).

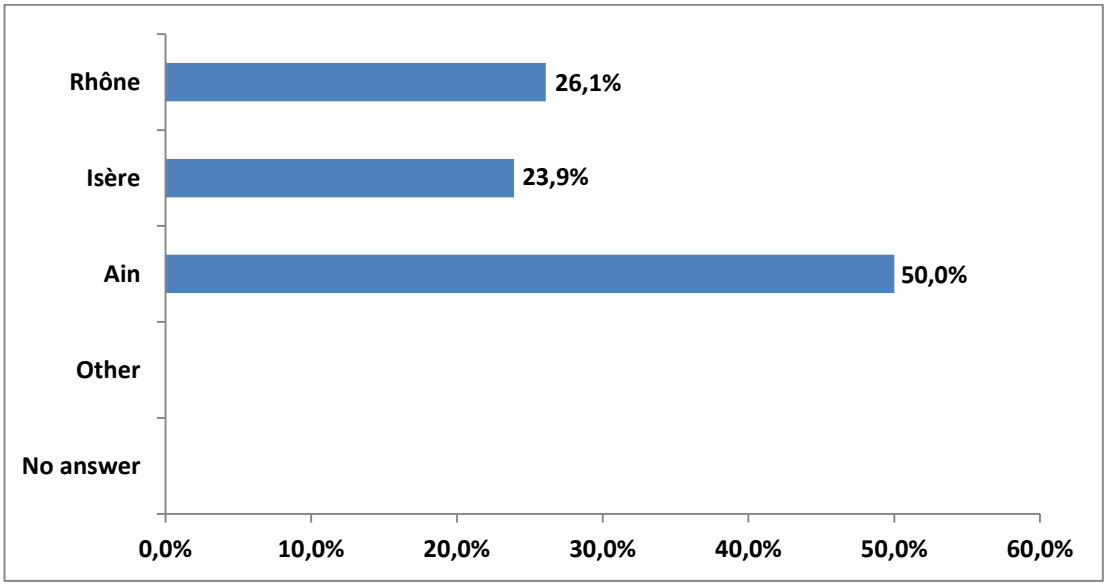
Figure 6: Participating SMEs in Slovenia



Source: Lime Survey, own computation, values as percentages.

Slovenian respondents that participated in the survey, come from different regions, most of them from the central region (27.3%) and Podravska (22.7%).

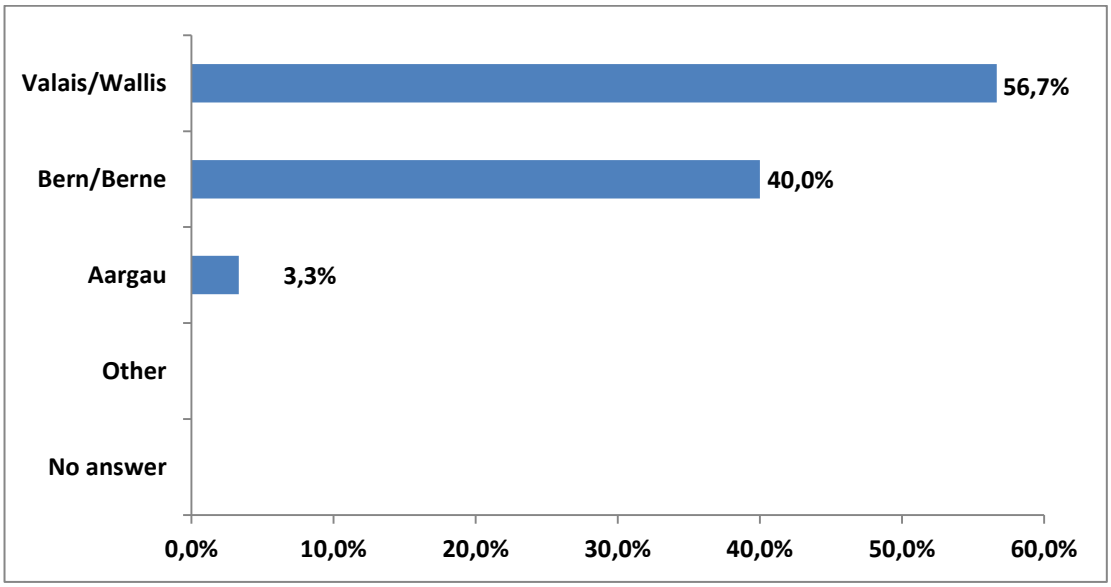
Figure 7: Participating SMEs in France



Source: Lime Survey, own computation, values as percentages.

Half of the **French** participants' SMEs are located in Ain (50.0%), more than a quarter in Rhône (26.1%).

Figure 8: Participating SMEs in Switzerland



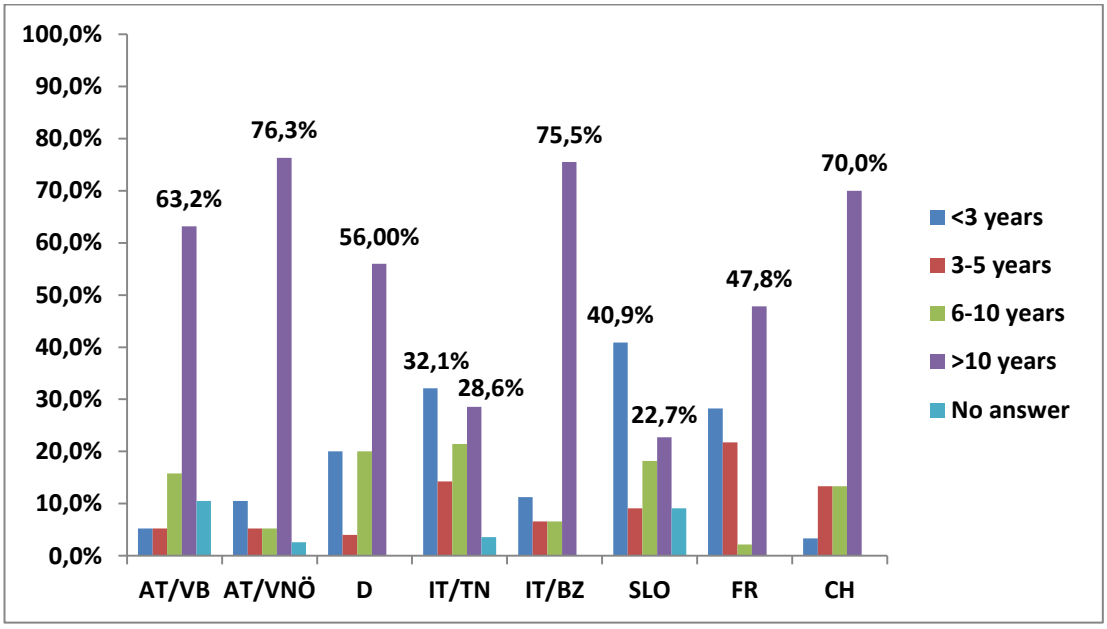
Source: Lime Survey, own computation, values as percentages.

The SMEs of **Switzerland**'s participants are located in primarily the cantons Valais (56.7%) and Berne (40.0%).

5.1.2. Experiences in training

The vast majority of the representatives of the selected SMEs in the Alpine Space (average 55.0%) have over ten years' experience in training apprentices respectively students.

Figure 9: Participants' training experiences



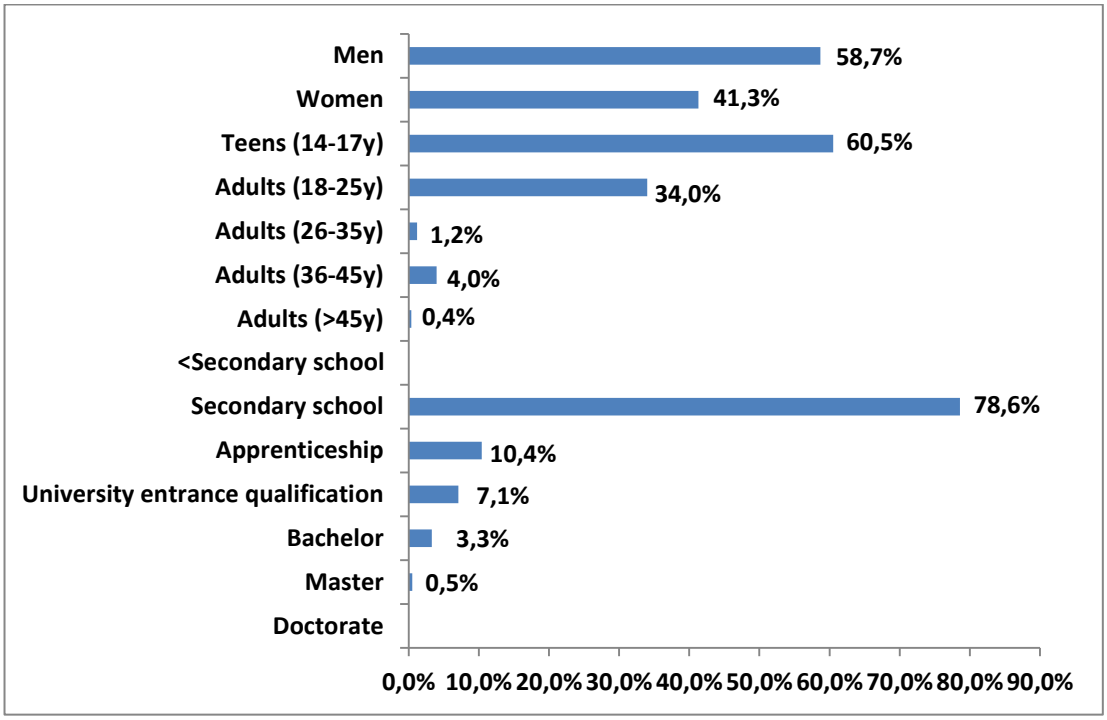
Source: Lime Survey, own computation, values as percentages. AT/VB = Austria/Vorarlberg, AT/VNÖ = Austria/Vienna-Lower Austria; D = Germany, IT/TN = Italy/Trento, IT/BZ = Italy/Bolzano, SLO = Slovenia, FR = France, CH = Switzerland.

In the autonomous province Trento and Germany, the distributions of the amounts were more mixed. As well, there were more people with less than three years of training experience.

In the case of Trento, it has to be considered, that, formally, dual education has been introduced no more than four to five years ago. So it is possible, that the respondents were thinking about different forms of internship or apprenticeship, which were not yet "dual system" as we consider it today.

In total, the respondents of the partners' regions estimated their trainees to be mainly men respectively between 14 and 17 (Austria, Slovenia, and France) or 18 and 25 (Germany, Italy, and Switzerland) years old. They mainly have completed the second or third school level as highest education.

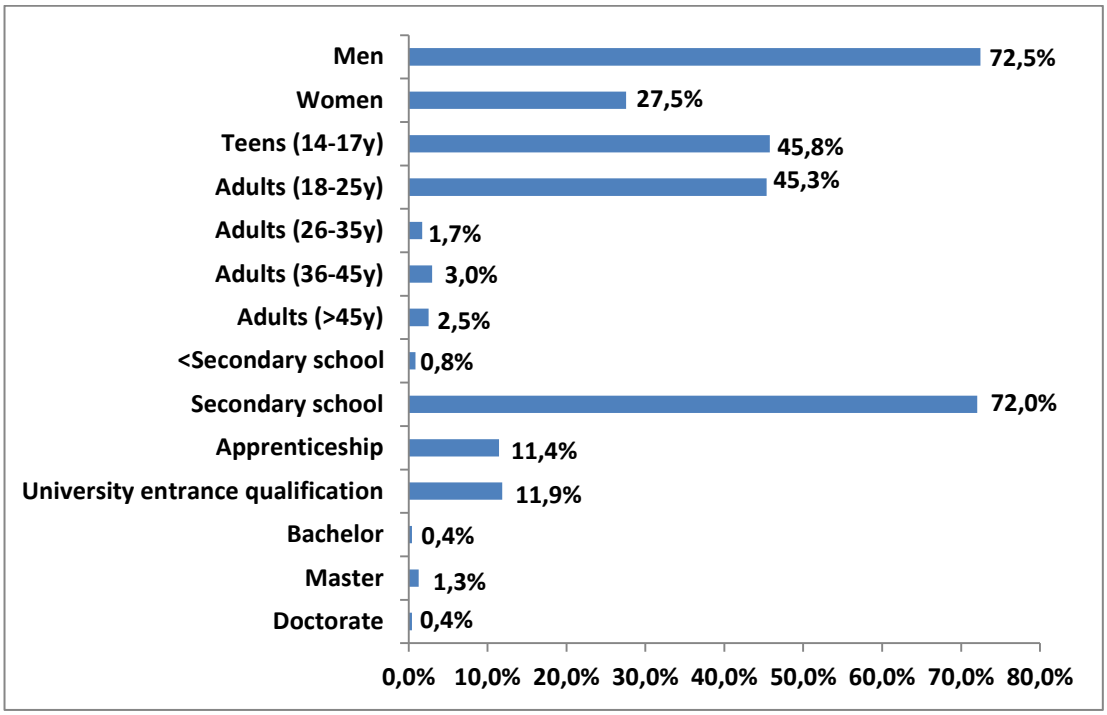
Figure 10: Estimation of the trainees' distribution in Austria/Vorarlberg



Source: Lime Survey, own computation, values as percentages.

According to the respondents of **Vorarlberg**, their trainees are primarly men (58.7%), teens between 14 and 17 years (60.5%) respectively people who have completed secondary school (78.6%) as highest education.

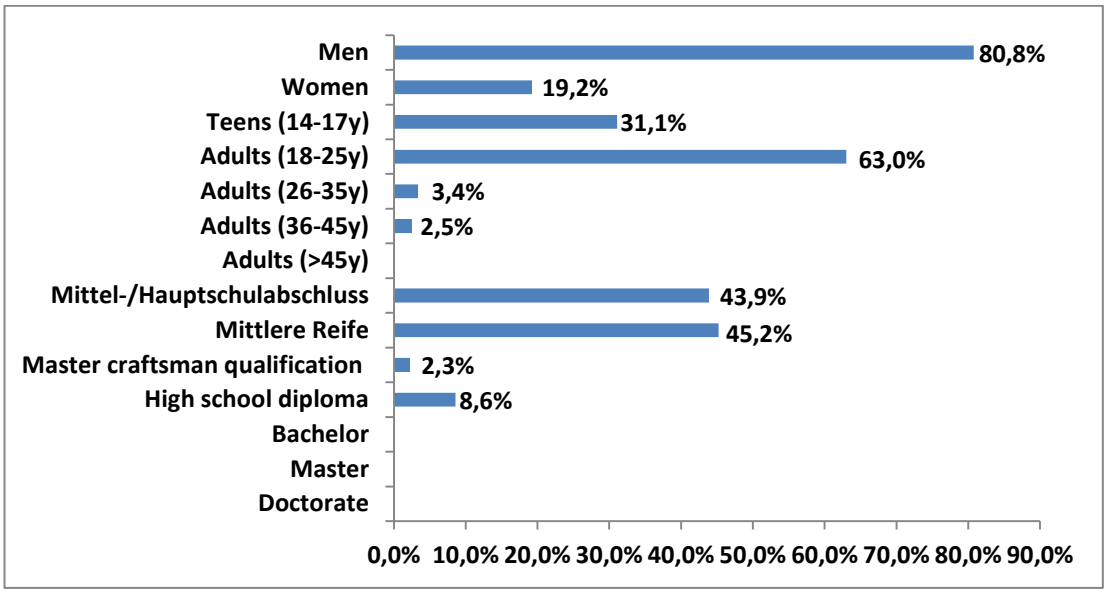
Figure 11: Estimation of the trainees' distribution in Austria/Vienna and Lower Austria



Source: Lime Survey, own computation, values as percentages.

In **Vienna and Lower Austria**, about three quarter (72.5%) of the trainees are male, one quarter (27.5%) is female. In each case the half is between 14 and 17 (45.8%) or 18 and 25 (45.3%) years old. Most trainees have completed secondary school (72.0%) as highest education.

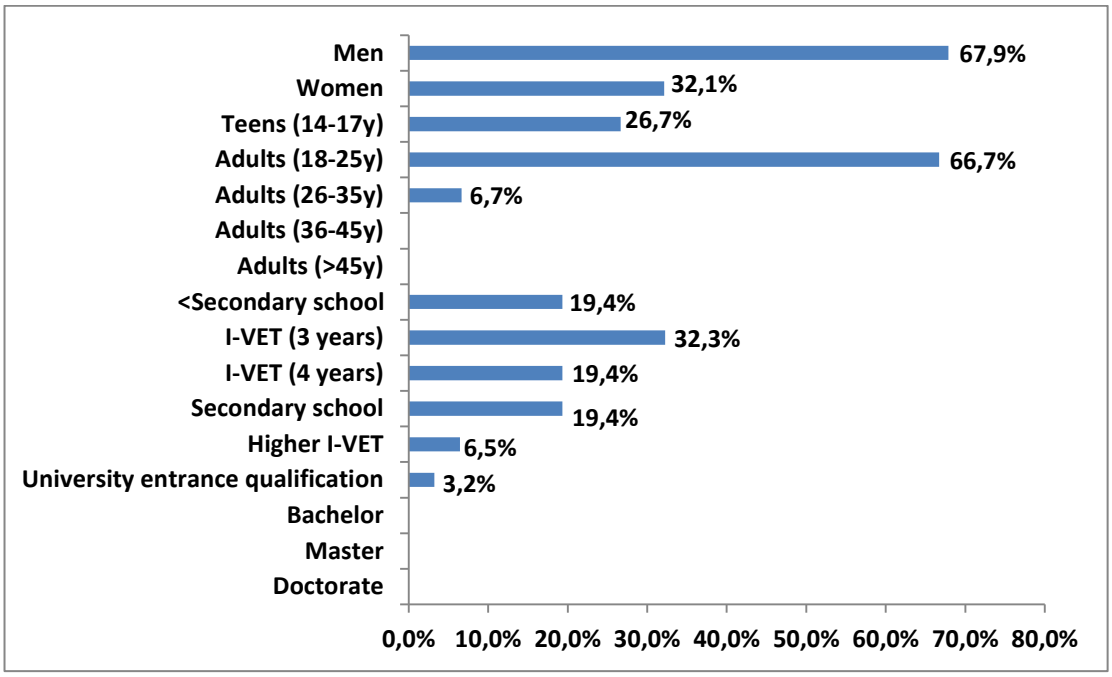
Figure 12: Estimation of the trainees' distribution in Germany



Source: Lime Survey, own computation, values as percentages.

In **Germany**, four fifths of the trainees are male (80.8%), around two thirds (63.0%) are between 18 and 25 years old. Most of them either have completed “Mittlere Reife” (45.2%) or “Mittel-/Hauptschule” (43.9%) as highest education. Both are secondary schools, the first one usually takes a total of ten years, the latter nine years.

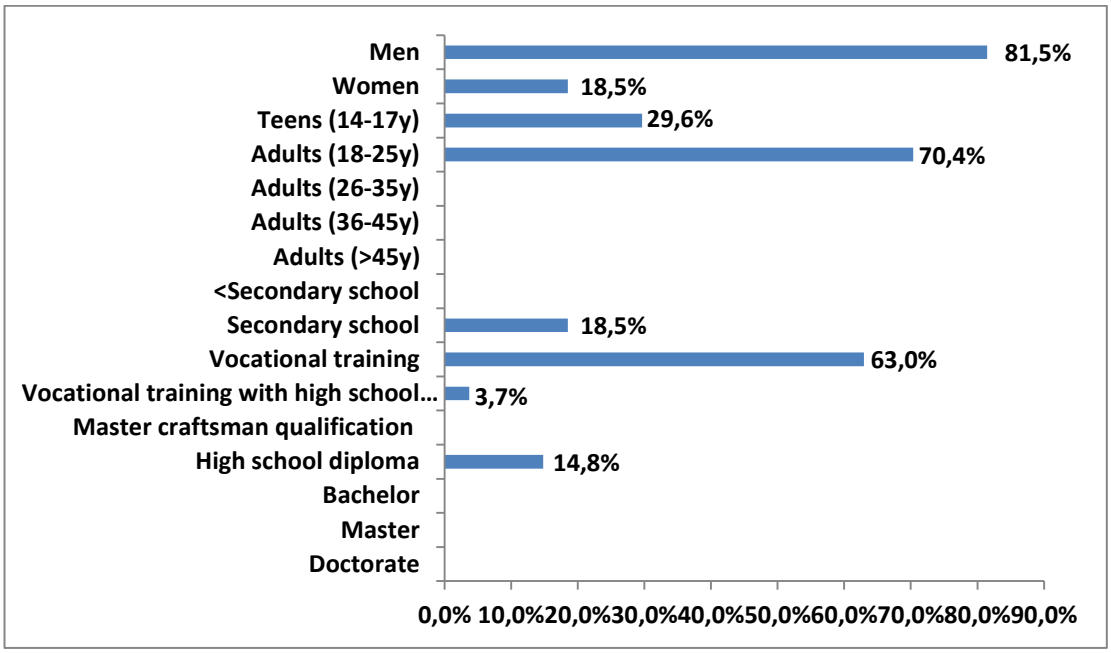
Figure 13: Estimation of the trainees' distribution in Italy/Trento



Source: Lime Survey, own computation, values as percentages.

The trainees of the respondents from the autonomous Italian province **Trento** are mainly male (67.9%), between 18 and 25 years old (66.7%) respectively have completed I-VET (three years) as highest education. These are general or vocational education and trainings, carried out in the initial education system, before entering working life.

Figure 14: Estimation of the trainees' distribution in Italy/Bolzano[7]

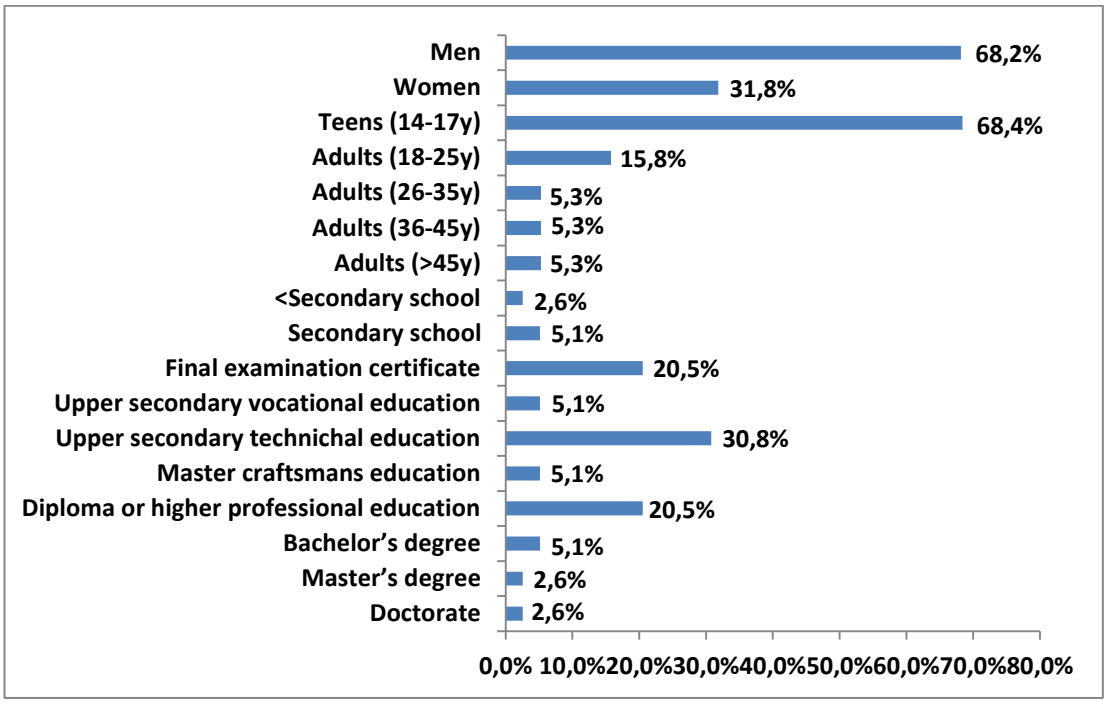


Source: Lime Survey, own computation, values as percentages.

The respondents from **Bolzano** described their trainees as primarly male (81.5%) respectively between 18 and 25 years old. They estimated that about two thirds (63.0%) of the people they train have completed vocational training as highest education.

[7] n=11.

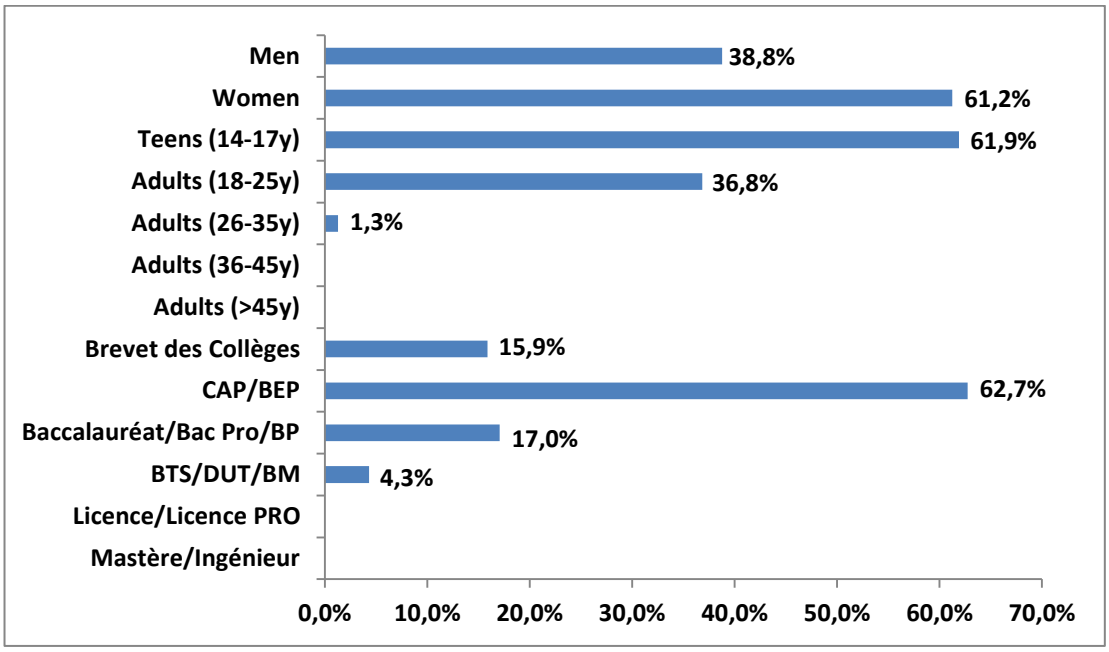
Figure 15: Estimation of the trainees' distribution in Slovenia



Source: Lime Survey, own computation, values as percentages.

In **Slovenia**, in each case more than two thirds of the trainees were estimated to be male (68.2%) respectively teens between 14 and 17 years old (68.4%). About one third (30.8%) of all trainees has completed the upper secondary technical education respectively in each case one fifth (20.5%) has completed a higher professional education or has purchased a final examination certificate as highest education.

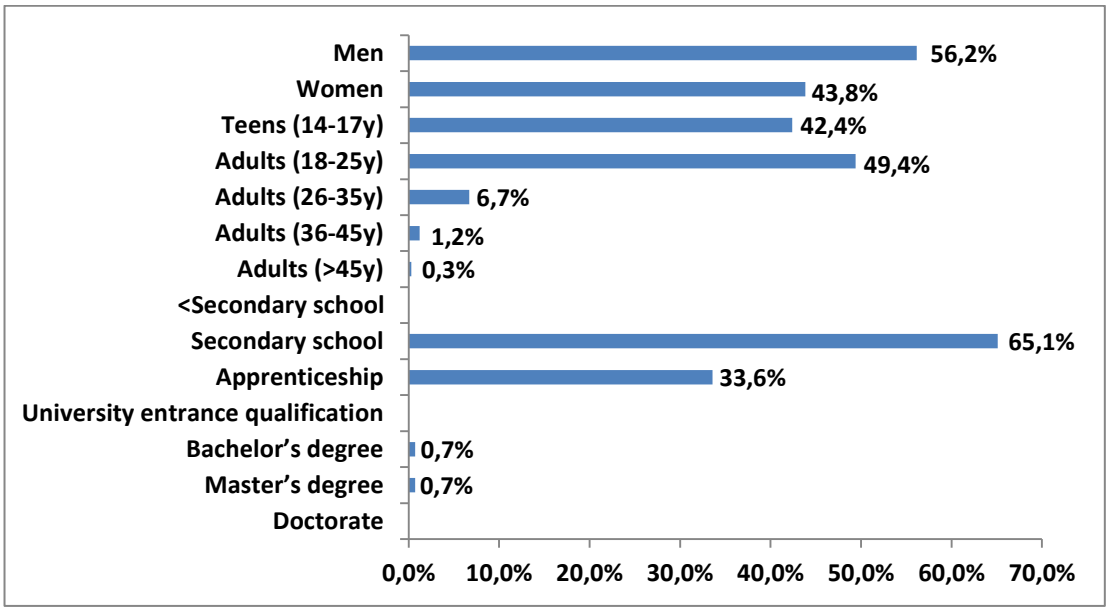
Figure 16: Estimation of the trainees' distribution in France



Source: Lime Survey, own computation, values as percentages.

French trainees are mainly female (61.2%), between 14 and 17 years old (61.9%) respectively have completed CAP/BEP (62.7%) as highest education. That's a first level professional certificat as well as the first diploma of the professional career in France.

Figure 17: Estimation of the trainees' distribution in Switzerland



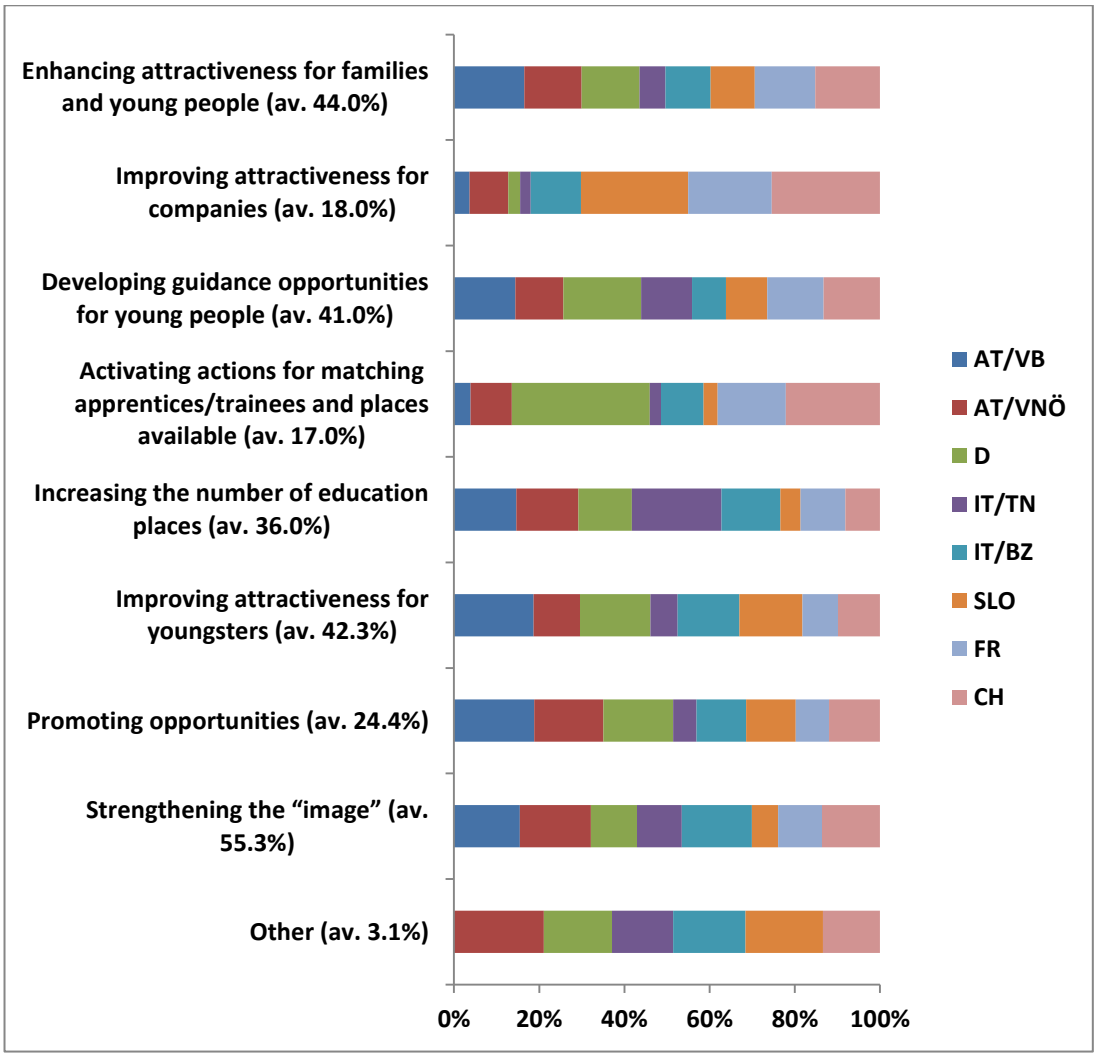
Source: Lime Survey, own computation, values as percentages.

Swiss respondents estimated their trainees to be mainly male (56.2%) respectively between 18 and 25 years old (49.7%). Most of the trainees have completed secondary school as highest education.

5.1.3. Attractiveness of dual education in the Alpine Space

In the questionnaires as well as the expert interviews (chapter 5.2.) image problems of dual education in the Alpine Space were frequently discussed. The value of particularly vocational training in crafts seems to be underestimated in the partner's regions, parents and youngsters prefer higher educations (see work package report T1.1). Considering this issue, the SME's representatives were asked which could be actions to work on to improve the attractiveness of dual education.

Figure 18: In order to improve the attractiveness of apprenticeship / dual education system, which could be actions to work on? (Multiple answers possible)



Source: Lime Survey, own computation. AT/VB = Austria/Vorarlberg, AT/VNÖ = Austria/Vienna-Lower Austria; D = Germany, IT/TN = Italy/Trento, IT/BZ = Italy/Bolzano, SLO = Slovenia, FR = France, CH = Switzerland.

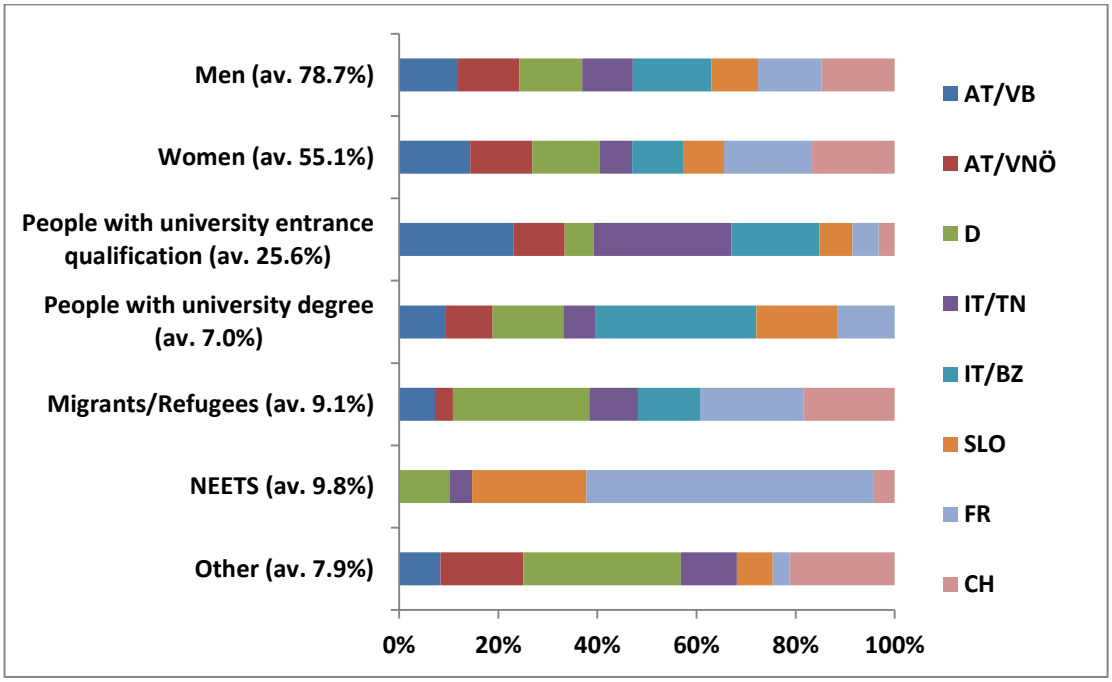
The priority actions are similar in the partner's regions. The strengthening of the image respectively value of dual education (average 55.3%) goes hand in hand with

enhancing the attractiveness of dual education for families and young people (average 44.0%) as well as improving the attractiveness for the youngsters (average 42.3%) in particular. The participants made a few suggestions for possible actions to increase the attractively of dual education, such as the enabling of possibilities of vocal training in combination with higher education (e.g. high school diploma), higher promotion of job information events and fairs, web portals for dual education formats or vocational orientation (e.g. as school subject) in schools (level 1 respectively 2). Furthermore, it could be promising to work on the guidance for students in the transition between different school levels. Not at least, presentations of success stories as well as case studies of e.g. successful craftswomen or craftsmen could lead to a more positive image of dual education.

Increasing the number of education places is central in mainly the autonomous provinces Trento (60.7%), Vorarlberg (42.1%) as well as in Vienna and Lower Austria (42.1%). The development of guidance opportunities for young people is an issue in especially Germany (60.0%), France (43.5%) and Switzerland (43.3%). Promoting opportunities for dual education is central in particular Vorarlberg (36.8%), Germany (32.0%) and Vienna respectively Lower Austria (31.6%).

Improving the attractiveness for companies to train young people is an issue in primarly Switzerland (36.7%), Slovenia (36.4%) and France (28.3%). Respondents suggested offering SMEs more financial incentives for providing themselves as training companies.

Figure 19: Are there any target groups which should be particularly more addressed in your SME in the future? (Multiple answers possible)



Source: Lime Survey, own computation. AT/VB = Austria/Vorarlberg, AT/VNÖ = Austria/Vienna-Lower Austria; D = Germany, IT/TN = Italy/Trento, IT/BZ = Italy/Bolzano[8], SLO = Slovenia, FR = France, CH = Switzerland.

The representatives of the SMEs wish to generally win more people over as trainees in the future. Trainees with university entrance qualification (e.g. high school diploma) (average 25.6%) are the most inquired target group after men (average 78.7%) and women (average 55.1%). They are primarily demanded in Trento (57.1%), Vorarlberg (47.4%), Bolzano (36.4%) as well as Vienna respectively Lower Austria (21.1%).

The demand on trainees with university degree is below 10.0% in almost each partner's region, with the exception of Bolzano (18.2%). Migrants respectively refugees were hardly mentioned as target groups in the Alpine Space. They are primarily demanded in Germany (20.0%), France (15.2%) and Switzerland (13.3%).

People, who are neither in education, employment or training (so called NEETS), seems to be the least attractive target group for most of the respondents. While they are demanded by about the half of the French participants (45.7%) and about a fifth of the Slovenian (18.2%), they were only mentioned by a marginally amount of SMEs' representatives from Germany (8.0%), Trento (3.6%) and Switzerland (3.3%).

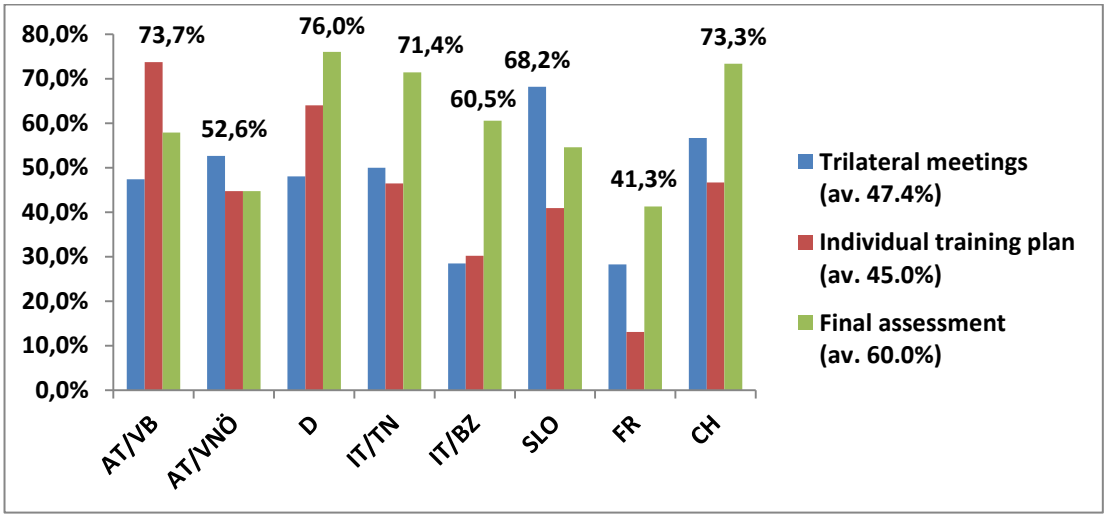
However, some respondents emphasized in the comment section that they would not care about a certain target group as long as the potential trainee is interested and competent.

[8] n=11.

5.1.4. Dual education procedure in the Alpine Space

To get a full image of the evaluation and demands of SMEs in the Alpine Space, it was important to take issues about the dual education procedure as well as of the cooperation between companies, schools and trainees into account.

Figure 20: Dual education procedure in the Alpine Space



Source: Lime Survey, own computation, values as percentages. AT/VB = Austria/Vorarlberg, AT/VNÖ = Austria/Vienna-Lower Austria; D = Germany, IT/TN = Italy/Trento, IT/BZ = Italy/Bolzano, SLO = Slovenia, FR = France, CH = Switzerland.

On the average, 60.0% of the respondents are involved in the final assessment of their trainees, 47.4% participate in trilateral meetings between companies, schools as well as trainees and 45.0% are involved in the development of individual training plans.

As the dual education procedures are pretty different in the partners' regions, the results are presented on a national level in the following.

Most respondents from the Austrian region **Vorarlberg** participate on trilateral meetings and describe the communication between the companies, schools and trainees as mainly well. But it would be desirable if the parents of the younger trainees were integrated more.

In the case of difficulties, the local chamber of economics gives sufficient support. Educational support (e.g. coaching) can be organized by the chamber as well. A main challenge for SMEs is the lacking interest of many parents in the training of their children.

For the respondents, it would be enriching to get more insight into the training in other companies. SMEs could exchange experiences and broaden their perspectives. Some companies offer their trainees an individual training plan and expand them with regard of the needs of the labour market. Most of them try to make the training as attractive as possible, e.g. by offering bonus for good performance in the SME or school.

Beside an encouraged exchange with other companies, the respondents suggested to create a platform, where all information and material relating to vocational training is available. Furthermore, there should also be the opportunity for counseling meetings.

About the half of the respondents from **Vienna respectively Lower Austria** participates on trilateral meetings (52.6%), are involved in the development of individual training plans (44.7%) respectively in the final assessment of the trainees (44.7%).

Within the survey, there were mentioned some difficulties relation to the cooperation between SMEs and trainees respectively their parents. Some handicraft trades (e.g. orthopaedic shoemaker) are less known, more traditional professions (e.g. carpenter) have a greater visibility among in particular teenagers. Another problem in Vienna and Lower Austria is the negative image of dual education in general and training in crafts specifically. So, many parents seem to assume that their children need a higher education to find a secure and well paid employment. School teachers often share this attitude and show little interest in the information and promotion of vocational training.

Besides that, the respondents described a declining educational level in vocational schools, especially concerning mathematics. From the view of the SMEs, the teaching contents in the schools are hardly coordinated with the needs of the companies. Another problem mentioned was the lack of support for teenagers with language barriers.

Other mentioned concerns relate to the dual education system in Austria. First, the value of the training is depending to a significant degree to the technical equipment of the SMEs, the professional and persona competency of the employees as well as of the human resource managers. Second, the Austrian law on the protection of workers greatly limits the performance of activities. So, teenagers are not allowed to use certain machines or tools whose handling would be essential for the training in particular professions.

About half of the respondents (48.0%) from **Germany** participate in trilateral meetings. They mentioned three main difficulties relating to the cooperation of companies, schools and trainees. First, the educational level in vocational schools is declining. Second, there is a gap between education on the job in companies and block teaching at professional schools. Third, small companies are unable to pay the same salary (training compensation) as large companies, more support is needed if problems incur during dual educations with the apprentices e.g. by the training of refugees.

The respondents stated that they would require better education at secondary school level (“Mittelschule”), as well as supportive education offers for apprentices who are still in the asylum procedure or whose asylum application was rejected. As measures to meet these needs, they recommend aligning the secondary school to the skills requirements in dual education. Supportive educational offers for refugees should be financially covered by the regions and information on the generation Z/Alpha could be provided in a webinar.

From the perspective of the German respondents, the Ministry for Culture and Education does not fulfill its obligations to deliver suitably skilled graduates from the

"Mittelschule". The level of education and the standard at vocational schools should be raised.

About two thirds (64.0%) of the respondents are involved in the development of an individual training plan. Almost all respondents declared that they do not encounter any difficulties, since there is an official training plan for each trade prescribed by the Chamber of Skilled Crafts and Trades. Only two respondents stated that it is a problem that the block training at the vocational schools and the training outside the company have increased. This represents a burden for the effective in-company training, since there is too little time spent in the companies. Another respondent encountered difficulties with setting up a training plan for migrants given the language barrier.

Most respondents stated that they do not require any further training in this regard. The others mentioned that they would like to be further trained, particularly with regard to practical customer and project oriented learning material. A few respondents stated that they would welcome an exchange between in-company tutors/companies on this subject and higher standard wages.

Three strenghts of the current process of the development of individual training plans were mentioned. First, the respondents described a well-balanced practical and theoretical education. Second, there is a closely linked vocational school and practical in-company training. Third, the respondents described a tailored training and education with regard to the machines and parts present at the company as well as the intensity of the training.

There were also weaknesses stated. First, the requirement level is seen as partially very high, particularly in the mathematical field. Second, the vocational school and enterprises are not on the same level. Third, the trainees work too little time in the companies, but the quality of the training outside the company is too low. Respondents referred here to lack of innovation and too many repetitions. Fourth, SME's workshops are available but the theoretical and practical training material is not available or has been produced by the company. This is described as taking a lot of time. Fifth, the wages are low and there are just a few seminars outside the company.

Three quarters of the German respondents (76.0%) are involved in the final assessment of the trainees. They mentioned three main difficulties with its process. First, the vocational preparation period is not considered in the final assessment of the apprentices. Second, it is a challenge to design the assessment questionnaire respectively evaluation sheet in a way that all participants are satisfied with it. Third, apprentices often cannot understand the interrelations of the assessment.

Some of the respondents wish to have more information and training with regard to the motivation of trainees, targeted support for tackling the weaknesses of the trainees as well as assessment criteria and subjects of assessment. They suggested inhouse-trainings for all apprenticeship supervisors as well as more time for deepening the knowledge, instead of internships abroad.

The respondents mentioned three strengths of the evaluation process in Germany. First, they stated the independence of the training company. Second, they referred to broad basis training. Third, in addition to the vocational school, guild and construction site, trainees also found it good to have the opportunity to work on

theoretical and practical topics in the learning workshop and to deepen these with the trainer on the construction site.

In this context, there were also some challenges stated. First, the real qualification of a trainee is seen to only become apparent at the end of training. Second, there seems to be no possibility for youths with learning difficulties to complete a "training light". Third, the assessments are often superficial. Fourth, there is no tight time management with regard to the material to be conveyed and the consolidation of it. Fifth, weak pupils are seen to slow down stronger ones, which often result in the disinterest of the latter. Sixth, there are too few opportunities to demand the strongest students, since there is only one class teacher and large classes.

In the Italian autonomous province **Trento**, the final assessment is the most shared activity between SMEs' and schools (71.4%). Moreover, this seems to make sense, because SMEs' produced a considerable part of the students' learning during the training period. This is what we can call the presence of the SMEs' in the implementing phase. This presence is more lacking in the previous ones: designing and planning the learning activity (at least from a formal and theoretical point of view) is a matter of schools mostly.

In the autonomous province **Bolzano**, about two thirds of the respondents (60.5%) are involved in the final assessment of the trainees. They advocate that the training companies should be allowed to give marks to the trainees too, not only the vocational schools.

About one third in each case is involved in the development of individual training plans (30.2%) respectively participates on trilateral meetings (28.5%). Concerning the training plan, it is seen as challenging to develop individual training plans in terms of time resources. SMEs' representatives are partly satisfied with the cooperation with schools; some stated that the coordination between them regarding the school curricula should be improved.

In **Slovenia**, more than two thirds (68.2%) of the respondents participate on trilateral meetings. While they approve the cooperation with the schools, they mentioned some suggestions for the adaption of the education system. First, the students should come to employers sooner to start learning earlier. Second, they suggested ensuring direct vertical transition of the education system to the higher schools. Third, they argued for increasing the duration of the apprenticeship, tax exceptions for apprenticeships, promoting staff scholarships combined with individual apprenticeship contracts. Forth, they suggested that actions to increase the awareness about dual education should start in basic school. According to the received answers there is necessary to improve the system for vertical movements in Slovenia.

Two fifths of the Slovenian respondents (40.9%) are involved in the development of individual training plans. To improve the procedure, the SMEs need better information and guidance in practice. So, the respondents mentioned uncertainties concerning the needs of training plans.

In **France**, the participation of SMEs on trilateral meetings, the development of individual training plans as well as the final assessment of the trainees is relatively low. Apprenticeship is regulated at national level. The majority of the graduates prepared by the dual system are graduates of National Education. At the regional

level, it is seen as impossible to intervene on the curriculum, the assessment and rating system.

In **Switzerland**, the majority of respondents participate to trilateral meetings (56.7%) and final assessments (73.3%).

They encountered some difficulties with the cooperation procedure such as lack of apprentice's motivation, lack of knowledge of SME's professions by the whole sector or lack of apprentices focusing. From the view of the respondents, many trainees do not assume responsibility. Further, practical requirements do not always meet the expectations of the school. Not at least, a lot of youngsters give up their apprenticeship.

To counter these problems, the Swiss respondents stated suggestions such as spending more time with trainees, offering a better school supervision, giving more information to students during lower secondary school, planning assignments for apprentice or motivating high level student for VET schools. Furthermore, they suggest improving the exchange between schools and SMEs in order to better target the expectations of SMEs and those of future apprentices. Moreover, they referred to intense advertising campaign for apprenticeship as well as to enhance the image of dual education among guidance counsellors.

Relating to the development of individual training plans, they mentioned three main difficulties. First, a lack of information (e.g. news, rules) for masters respectively trainers. Second, SMEs cannot always apply new law about VET. Third, the goals of dual education are not in line with the reality of the working world. The respondents suggested that training site should be able to compare itself, and a monitoring body should be set up to control it.

Swiss respondents also encountered difficulties with the final assessment of trainees. First, it is seen as challenging to adapt to the defined requirements of bureaucrats. Second, the requirements are not known well enough. Third, the respondents described lack of interest of the state. Fourth, the files for assessment are complicated. Fifth, the trainees' parents are seen as overprotecting. Sixth, the respondents mentioned the lack of apprentices' motivation. Seventh, there seems to have been too much change, thus trainers and teachers don't know what is needed for the assessment.

The respondents stated that they would favour self-assessment. Further, they suggest keeping assessments as simple as possible and not taking into account parents' opinions. From their point of view, a main issue is that the Swiss dual education seems to be designed by people with only theoretical experience.

On a **transnational level**, the following issues should be considered to improve the dual education procedure in the partners' regions:

- Public awareness raising of the value of dual education
- Improvement of the dual education the system for vertical movements
- Stronger public (e.g. financial) support for SMEs, schools and potential trainees
- Enhancement of the coordination between SMEs and schools
- Adjustment of the curricula with regard to labour market's as well as SMEs' needs

- Public or school support of trainees with language barriers respectively refugee status
- Encouragement of the involvement of younger trainees' parents
- Improvement of the exchange between SMEs
- Offering a region- oder nation-wide platform, where all information and material relating to vocational training as well as contacts for personal consultations are available
- Explicit regulations of the procedure of the development of individual training plans as well as the final assessment of trainees but at the same time enough autonomy to fulfill the needs of SME's, schools and trainees

5.1.5. Innovation in dual education systems

Beside the perception of the dual education procedure, the SMEs' representatives were also asked to describe the key strengths and weaknesses of dual training in their regions.

Respondents from **Vorarlberg** described the direct connection between theory (vocational schools) and practice (SMEs) as main strength of the Austrian dual education system. Trainees are looked after more or less personally, mentors are able respond to their individual strenghts and skills. The dual training is comprehensive and holistic; the trainees can study the subjects in more depth. Moreover, their social competencies (e.g. ability to work in a team) are encouraged. Not least, they have good job chances after finishing their training.

However, there are also some challenges to consider. Apprenticeship is little appreciated in the public eye as well as by some schools, teachers and parents. Another issue is the statutory duration of apprenticeships which is too short for certain professional fields. Challenging is the low school education of trainees which leads to excessive demands. Further, the increasing performance pressure creates uncertainties. The constant change of the digitalization is another challenge for SMEs, vocational schools as well as trainees. Another issue is the age of the trainees. From the view of the respondents, teenagers with secondary education are usually too young to make career decisions. If a trainee does not perform her or his duties, the training SMEs cannot do much about that. Mostly trainees are just informed about their rights, not their duties. Not at least, SMEs are often unable to create the same career opportunities as larger companies.

SMEs' representatives from **Vienna and Lower Austria** also extolled the combination of theory and practice in dual training. Young people are introduced to their future profession. They are able to start working during their education, have a greater personal responsibility as well as good chances for a secure job. Moreover, they usually have career opportunities in their training company and can make use of a wide range of further training opportunities. In vocational schools, they are able to exchange with trainees from different SMEs and job sectors. From the view of the SMEs', another main strength is to train the own future professionals.

Beside the low public appreciation, the respondents mentioned the lack of coordination between vocational schools and SMEs as main weakness of dual education in Vienna and Lower Austria. Other challenges are inflexible school days, the temporal and financial effort for SMEs, the lack of training coordinators and the low starting age of trainees. The existing range of training places is partly pretty low

as well as the apprentice's wage. Further challenges are the statutory rules for teenagers concerning how long and with which kind of tools they are allowed to work. Not at least, training companies are poorly founded.

German respondents stated the acquisition of competences in the practical and cognitive field as well. Further, they described an optimal induction and identification with the company. So, the trainee gets to know how to practical work in the company, gains practice orientation, self-confidence as well as team consciousness. Besides that, there is a comprehensive training at vocational schools, where broad basic knowledge is imparted.

A central weakness of the dual education system is, that feedback from the schools hardly takes place. The cooperation between schools and companies is sometimes made difficult by too different approaches and knowledge levels. Further, there is no fixed training standard in the company. Lowly motivated companies seem to see trainees only as cheap auxiliaries. The basic school knowledge of the trainees is partly low. Moreover, there is too little attention paid to individual operations. Other challenges are the prescribed school days. From the view of the respondents, they are unfavourable laid, there is only time for practical training. Further, the age of trainees is to be considered. Young people change so much over the years that it would not be clear which employee SMEs will end up with. Not at least, the respondents experienced problems with finding trainees.

SMEs' representatives of the Italian autonomous provinces **Trento** as well as **Bolzano** mentioned the high practical and theoretical relevance of the dual training. The trainees gain work experiences and are highly qualified. Challenges are the low public image of apprenticeship, the bureaucracy of the dual training as well as the lack of basic knowledge and motivation of the trainees.

Slovenian respondents described that the more practical training lead to better job opportunities. Young people are included in work processes, they gain practical experiences. The trainees are encouraged to develop self-discipline as well. The dual education system provides workers for deficient professions; allow to find and to educate prospective staff.

The main challenges of dual training in Slovenia are the lack of incentive for SMEs and trainees. The system doesn't bring any novelty. There seems to be an inability to recruit young talented people after apprenticeship in the public sector. Another issue is, that trainees only work in certain jobs in lager companies. From the view of the respondents, the trainees seem to lack on interest as well as on motivation. Not at least, there is no financial support for training companies.

The main strenghts of the **French** dual education systems is the opportunity to learn a trade and get to know the labour market. The financial aid is positive as well. Challenges are the lack of communication between the employees and training centres, the small number of potential trainees as well as the lack of motivation of the candidates.

The respondents from **Switzerland** mainly mentioned the link between theory and practical experience, the basic knowledge transmission of a specific trade as strenghts of their dual education system. From their point of view, youngsters become more autonomous and independent. SMEs train future qualified workers. The trainers were described as high professional and competent. Another central

strength of the Swiss dual education system is the collaboration between actors responsible for dual training.

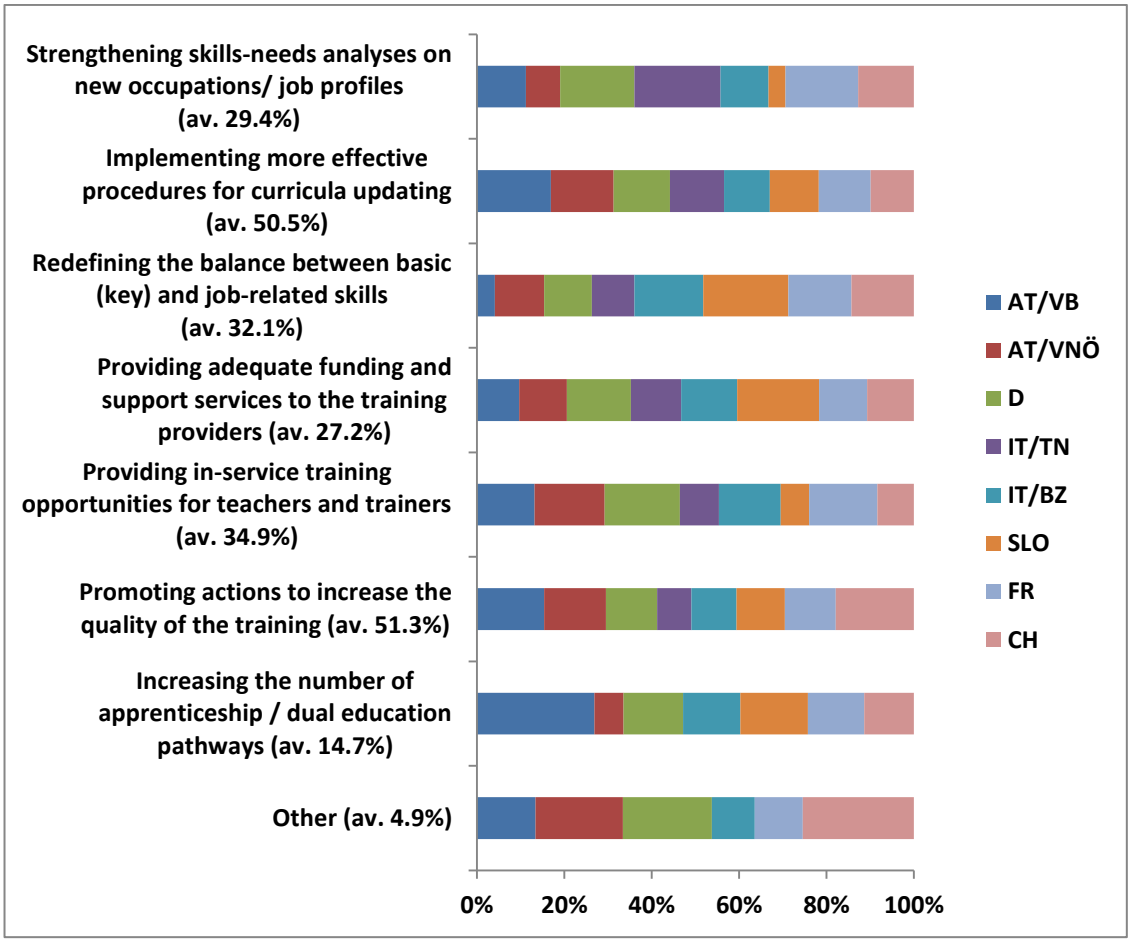
Swiss respondents stated some weaknesses and challenges as well. A central issue is the bad reputation of apprenticeship for society. There is not enough advertising for apprenticeship. Further, there are too much apprentices with a low level of basic knowledge. Low level apprentices are disadvantaged. There are not enough places to work; trainees are often underpaid as well. Moreover, requirements of trade associations are too high, there is not enough support. Respondents also stated a lack of interaction between vocational schools and SMEs.

Despite partly pretty different dual education systems, there are some central challenges which should be considered on a **transnational level**. They go hand in hand with the issues described above (chapter 5.1.4.).

- Low value of dual education and in particular crafts in the eye of the public, schools as well as parents respectively students
- Limited familiarity of certain professions
- Lack of coordination as well as cooperation between schools, SMEs and parents respectively trainees
- Lack of interest and motivation on the part of trainees, parents and schools
- Vocational schools' curricula don't respond to SMEs' needs
- Low level of basic education of students from vocational schools
- Low range of training places for potential trainees
- Low wages of trainees
- Lack of balance between bureaucracy respectively standardization and autonomy concerning dual training
- Poorly stately support of dual education as well as training companies

To ensure the quality of the dual education system, especially in the light of changes in the production systems and the labour markets, the respondents of the partner's regions mentioned certain actions to work on.

Figure 21: Which could be actions to work on to ensure the quality of the dual education system in the light of changes in the production systems and the labour markets? (Multiple answers possible)



Source: Lime Survey, own computation. AT/VB = Austria/Vorarlberg, AT/VNÖ = Austria/Vienna-Lower Austria; D = Germany, IT/TN = Italy/Trento, IT/BZ = Italy/Bolzano, SLO = Slovenia, FR = France, CH = Switzerland.

The priority actions are similar in the partner's regions. So, the promotion of actions to increase the quality of the training (average 51.3%) as well as the implementation of more effective procedures for curricula updating (average 50.5%) are especially relevant in all partner's regions. Other often mentioned needed actions were providing in-service training opportunities for teachers and trainers (average 34.9%) as well as redefining the balance between basic (key) and job-related skills (average 32.1%).

Strengthening skills-needs analyses on new occupations respectively job profiles is central in mainly Trento (46.4%), Germany (40.0%) and France (39.1%). Providing

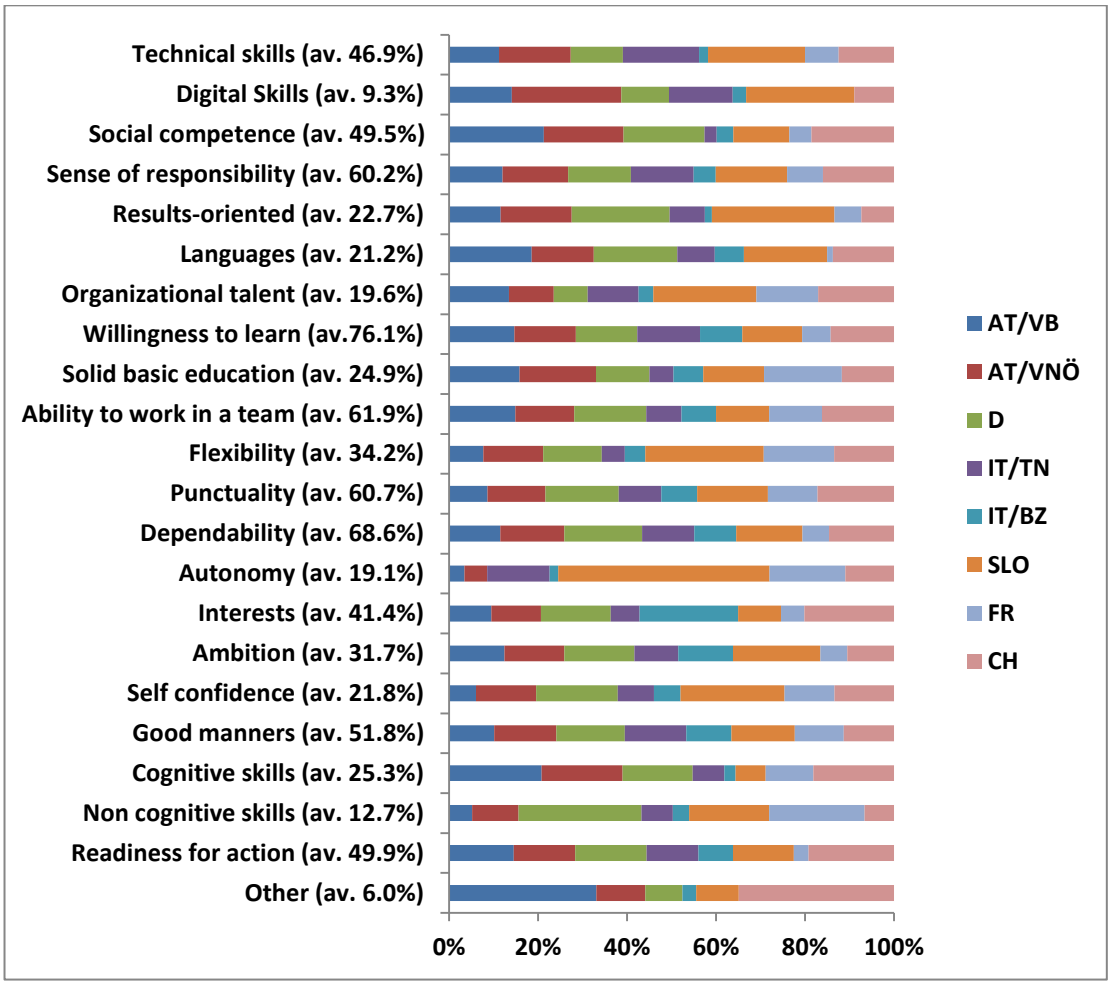
adequate funding and support services to the training providers is an issue in primarly Slovenia (40.9%), Germany (32.0%) and Bolzano (27.9%). Increasing the number of dual education pathways is central especially in Vorarlberg (31.6%), Slovenia (18.2%) and Germany (16.0%).

Other measures included higher financial support of training companies, stronger promotion of training in the regions, revision of school curricula with regard to SMEs' needs as well as the strengthening of handcraft trades.

5.1.6. Trainees' skills and competences needed by SMEs

Not least, the skills and competences of (potential) trainees are an important issue to generate a complete picture of the SMEs' needs in the partners' regions.

Figure 22: What kind skills are you looking for during the recruitment phase? (Multiple answers possible)



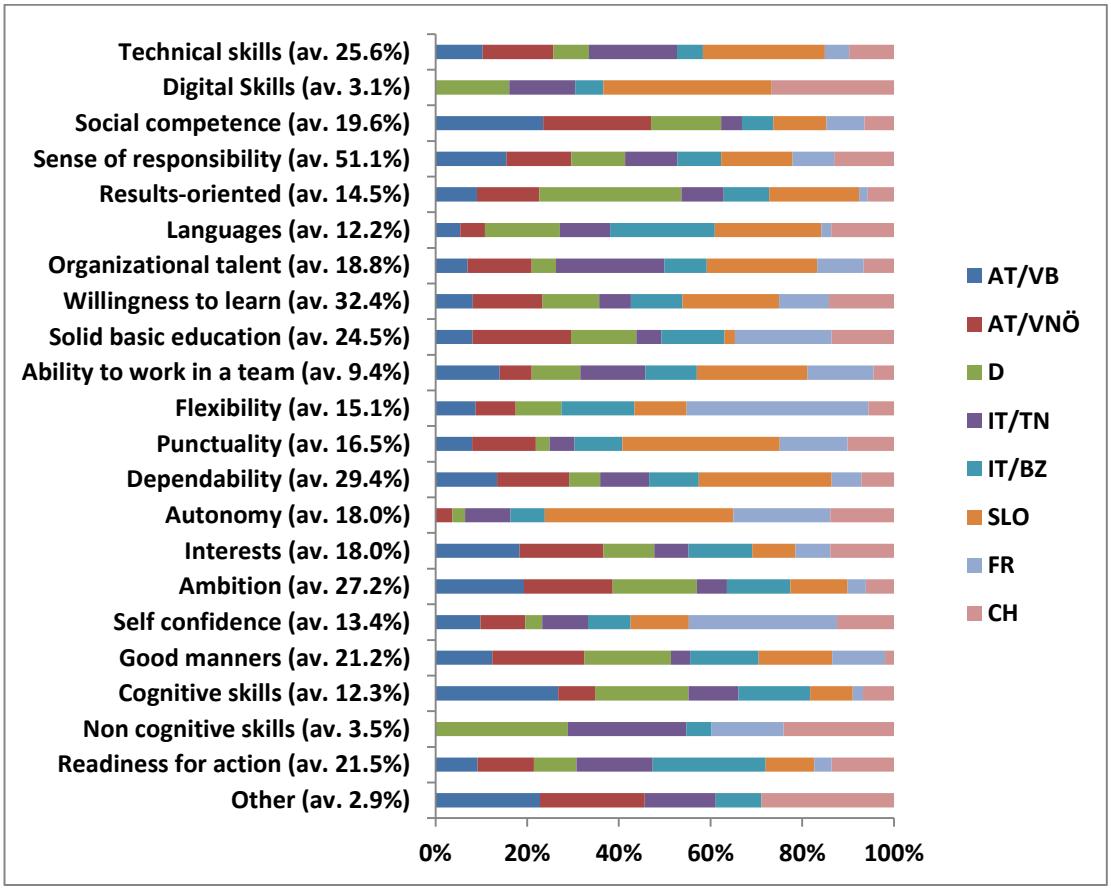
Source: Lime Survey, own computation. AT/VB = Austria/Vorarlberg, AT/VNÖ = Austria/Vienna-Lower Austria; D = Germany, IT/TN = Italy/Trento, IT/BZ = Italy/Bolzano, SLO = Slovenia, FR = France, CH = Switzerland.

During the recruitment phase, three quarters of all respondents (average 76.1%) are looking for the willingness to learn of the potential trainee, two thirds (average 68.6%) for the candidates' dependability and three fifths (61.9%) to their ability to work in teams. Further, the SMEs' representatives attach importance mainly to punctuality (average 60.7%), sense of responsibility (average 60.2%) and good manners (average 51.8%) as well as the candidates' readiness for action (average 49.9%), their social competences (average 49.5%) and technical skills (average 46.9%).

The relevance of the candidates' interest was mentioned by mainly SMEs' representatives from Bolzano (73.3%), Switzerland (66.7%) and Germany (52.0%). Flexibility of the potential trainees is important in primarly Slovenia (72.7%) and France (43.5%) as well as in Vienna and Lower Austria (36.8%). The ambition of potential trainees is central in primarly Slovenia (50.0%) and Germany (40.0%) as well as in Vienna and Lower Austria (34.2%).

Other needed skills mentioned included the candidates' respect for trainers, their mathematical knowledge as well as their motivation to work in the SME where they have applied.

Figure 23: What skills do you miss mostly on the candidates or enrolled trainees/apprentices? (Multiple answers possible)



Source: Lime Survey, own computation. AT/VB = Austria/Vorarlberg, AT/VNÖ = Austria/Vienna-Lower Austria; D = Germany, IT/TN = Italy/Trento, IT/BZ = Italy/Bolzano, SLO = Slovenia, FR = France, CH = Switzerland.

More than a half (average 51.1%) of all respondents misses mostly the sense of responsibility on their candidates or trainees, about one third in each case their willingness to learn (average 32.4%) and their dependability (average 29.4%). Further, the SMEs' representatives of the partners' regions mainly miss ambition

(average 27.2%) on their candidates or trainees, technical skills (average 25.6%) as well as a solid basic education (average 24.5%).

The readiness for action is primarly missed by respondents from Bolzano (42.3%), Trento (28.6%) and Switzerland (23.3%). The lack of good manners of candidates respectively trainees is an issue mainly in Vienna and Lower Austria (34.2%), Germany (32.0%) and Slovenia (27.3%). Social competences are primarly missed by SMEs' representatives from Vorarlberg (36.8%), Vienna and Lower Austria (36.8%) as well as Germany (24.0%). Missing organizational talent is central in primarly Slovenia (36.4%), Trento (35.7%) as well as Vienna and Lower Austria (21.1%).

Other missing competencies mentioned were mathematical knowledge, communication skills, determination, voluntary commitment as well as certain social skills such as helpfulness.

The SMEs in the Alpine Space use different recruitment tools to win candidates, such as their own website, newspaper and online ads, social media, open days or employment service centres. Potential trainees are also recruited by recommendations by third parties or unsolicited applications. Frequently internships are converted into a contract, sometimes trainees are taken over from other companies as well.

For respondents from **Vorarlberg**, educational fairs as well as open days respectively company tours in regards to vocational orientation of students are the most important ways to find new trainees. Further, recommendations by third parties seem to be promising. Despite of the presence of social media in teenagers' everyday life, they have been hardly successful for the recruitment of trainees.

In **Vienna and Lower Austria** successful recruitment methods include primarly calls via the SMEs' websites, open days, social media, recommendations by third parties and unsolicited applications. The least successful seem newspaper respectively magazines ads.

In summary, it can be said that classical advertising, the company homepage, unsolicited applications, placement agencies and recommendations by third parties and the hiring of interns are the most successful ways for **German** SMEs to attract trainees. The use of new media and instruments, such as online advertising, social media, open days, job speed dating and placement by the employment agency, seem to be less successful or have been little used so far.

The most used recruitment tools in **Trento** are the individual application, the passage from internship to employment, personal recommendations, and private and public employment agencies. Honestly, these were typical ways of recruitment in the last century (in Italy was quite common to have a personal recommendation as a killer device to found out a job). In terms of efficacy, public employment services, recommendation and from internship to employment and individual application are the most valued for SME' (the same most used). It seems that the need to know in advance the students' main traits to release trust it is possible only through classical methods: asking for others for a guarantee (employment service) or found the trust directly with people (individual application, recommendation, from internship to employment)

In **Bolzano** successful recruitment methods include mainly recommendations by third parties, internships and unsolicited applications. The least successful ways to

find candidates respectively trainees seem via employment service centres and placement agencies.

In **Slovenia**, the system of the company operates on the basis of propagation of the dual study with potential candidates for this type of study, depending on the size of the company.

In large and medium-sized enterprises, the HR department produces personal career programs for selected candidates - that is, employees who stand out in results regardless of their level of education. Then, on the basis of annual interviews with selected candidates, a personal career program is developed, which also includes further general and specialist education. The sum of the necessary training is the basis on which the human resources department sends appropriate dual study programs to its selected employees. When enrolled in dual studies, they are allowed to undertake full-time studies by paying tuition fees, they are granted the right to use free days intended for the preparation for the exams, as well as to obtain them gathering of additional information they need in their studies. Of course, there are also welcomed instances where an individual chooses to dual study and apply independently. In the case of determining the suitability of the course of further education, the same bonuses are then granted as for the selected candidates for whom the application was regulated by the human resources department.

In smaller companies, the human resources department is not organized in such form, so it is the usual way of initiative of an individual who wants to gain further education. In the event that the direction of further education is determined by the company, they are granted bonuses in the form of payment of tuition fees, are granted the right to use their free days intended for the preparation for the exams, and if necessary they are also allowed to obtain additional information they need in their studies.

In **France**, many companies trust in training centres or their chamber of craft to recruit trainees. In the handicraft, social networks are not or hardly used.

There is no clear consensus about the effectiveness of recruitment tools in **Switzerland**, but it seems that conversion of an internship into an apprenticeship as well as recommendation by third parties are the most successful actions. Social media and placement agencies are not used.

The results of the online surveys were mirrored in the experiences of the interviewed experts. In the following, we focus on the issues brought up in the expert interviews. In chapter 6, recommendations will be outlined on basis of the SMEs' evaluation of the dual systems in the Alpine Space as well as their described needs.

5.2. Expert interviews

All partners conducted interviews with representatives of SMEs in their region. In total, 51 experts were interviewed: eight persons from Vorarlberg, eight from Vienna respectively Lower Austria, eight from Germany, six from Trento, eight from Slovenia, nine from France as well as four persons from Switzerland. The interviewees are mainly male and occupy higher job positions (e.g. master craftsmen, director) in SMEs in such diverse fields as carpentry, metalwork, glass technology, plastics processing, bearing technology, building services, automotive industry, body work, printing office, painter, food service or health care. In Germany and Trento, representatives of dual education institutions and chambers of handicrafts were also interviewed.

The partners oriented their expert interviews on the guideline's questions as well as on the needs and interests concerning their regions. So, not all issues of the guideline were brought up in each region.

5.2.1. Changes of dual training

Austrian SMEs' representatives described a loss of importance respectively value of dual education respectively apprenticeship in the public eye during the last decades. Todays' parents as well as teachers advise teenagers to gain a higher level education, which is associated with job security, higher career chances as well as higher salary. Moreover, parents seem to prefer desk jobs for their children towards physical jobs. Another issue in this context is that primary weaker students choose a dual education.

The low image of apprenticeship and certain professions is seen as reason for the current lack of trainees as well as skilled workers in some professional fields. So, the students' interest in traditional handicraft trades (e.g. plumber, painter) is considerably smaller these days than it was years ago. Furthermore, some trainees are not genuinely interested in completing their apprenticeship and seem to consider it only as a kind of stopover on their career path.

Moreover, the interviewees have noted a decline of the general education in vocational schools, especially regarding technical knowledge and mathematics. Further, there is partly a lack of integration of new media and material (e.g. concerning digitalization) in school curricula, though they are crucial for present job requirements.

A positive perceived change is the broader development opportunity in dual education. So trainees can learn to link traditional and modern handicraft technologies, they can specialise in manifold professions or can gain higher education. The problem here is that many people, in particular youngsters and their parents, are unaware that these possibilities even exist.

The experts have perceived changes in the communication between trainers and trainees as well. A few decades ago, the relationship was more characterized by hierarchy and authority. Nowadays it has become more important to show consideration for the trainees, to address their specific needs. This includes aspects such as a more personal interaction or repetitive showing of work steps.

Most of the **German** experts said that the apprenticeship models have not changed significantly since they started training apprentices. Nevertheless, due to recent conditions and technical developments rules have been modernized. Furthermore, there are new combinations possible, e.g. dual courses (dual vocational training plus bachelor's degree), vocational- "Abitur" (gaining A-level ("Abitur") while doing an apprenticeship), "abi+auto" (apprenticeship as a mechanic and title as a master craftsman ("Meister"). Even if these options make the educational system more complex and it is more difficult to teach these smaller groups, new efficient groups are now reachable. Some companies changed their educational system, e.g. introduction of a rotation between different departments, so communication and team work within the company have been improved. Concerning carpenter apprentices, separate subjects have been concentrated in learning fields. Therefore, strengths and weaknesses of students are not perceptible anymore.

In **Trento**, it is not possible to match the present situation with a past scenario. Dual system is just starting now, so they have no more than four to five years of experience in this field. Considering the present situation about the dual process, people interviewed said that sharing information among school and SMEs', learning on the job, the development of non-cognitive skills of students, recruitment of students are considered as the main dual system characteristics to consider today. There are issues also to consider carefully: the prevalent emphasis of schools on formal learning, the recruitment and all the support needed by students.

Most interviewees from **Slovenia** think that training methods or training programs have not changed significantly, perhaps only in the field of digitalization (e.g. more demanding machines, data processing, drawing plans). Progress is observed in the apprenticeship system, since practical work with the introduction of apprenticeship has been extended, which means more practical knowledge and experience. Young people have more time to get to know the work process in the company, gain good practical experience, and gain a lot of new skills and experience.

The experts see difficulties in the field of computer training, education and training have become more demanding, and high-quality staffs (students/apprentices) in this field is getting harder to get. The education and training system itself seems to be good, but they are unanimous in the fact that young people are hard to keep after schooling.

Those, who were educated and thus acquired new skills, also gained opportunities to take on more responsible tasks in companies. The study bonuses (payment of tuition fees, study leave) made it easier for them to obtain additional education, and many of the topics covered were already learned through the performance of their tasks in the company, so they only upgraded this knowledge.

The system of "companies as subscribers" attracted interested personnel who wanted to advance personally and professionally. Through the dual study system, upon completion of their studies, they were immediately adequately trained to take on more challenging tasks within the company - they did not need the additional introduction that is usually required for full-time students after completing full-time studies.

5.2.2. Qualification profiles of trainers

Besides professional and technical as well as didactic competences, **Austrian** interviewees emphasized the importance of social skills - such as openness, tolerance, empathy and conflict ability - but also a certain degree of authority to be a good trainer or mentor. Further, professional experiences in different fields as well as continuing education are advantageous to keep an integral view.

Most experts feel up to the current challenges of dual education. From their perspective, regular advanced training for trainers is crucial to keep up to date with new trends (e.g. digitalization) and prosper in the face of competition. In this context it is important to be supported by the management concerning financial and time resources.

A frequently mentioned challenge was the communication and cooperation between SMEs, vocational schools and parents, which require an extensive commitment. Therefore, courses as well as support in the field of communications training would be desirable. Further, the interviewees experience the psychological engagement with young people as challenging. Due to the increasing proportion of migrants, language barriers become an issue as well.

German experts told to recognize a big change for trainers according to digitalization and using computers. Besides, now there are new teaching models, concepts and methods. All of them think that social competence and soft skills get more and more important. Also the need of psychologic knowledge rises. A master craftsman respectively master craftswoman should be relaxed, open-minded, have a high tolerance of frustration and be on good terms with the recent young generation. Moreover, one should be able to deal with conflicts and different cultures.

The interviewees are convinced that the qualification of a master craftsman respectively master craftswoman as a trainer is still adequate and that they can manage new challenges. These are e.g. language barriers with asylum seekers or EU-foreigners. For teachers, it is difficult to teach with simple language and to include students with different educational backgrounds (refugees, students from middle school to grammar school). Moreover, more girls and women should be convinced of doing an apprenticeship, also with technical subjects. Programs, such as “strong for apprenticeship”, which gives pedagogical and psychologic trainings, are necessary to keep trainers up to date.

In **Trento**, there is no formal training for trainers inside the SMEs’. Usually, trainers are people expert in a specific professional field inside the SMEs’. The Province organize systematically meetings and seminars for trainers (they call them “tutors”; internal tutors are inside the SMEs', while schools tutors are inside the schools). In general, people interviewed said that trainers have a low level of knowledge on the learning process, low level of skills to teach to students on the job properly, and often, trainers have no previous experience on dual education.

Slovenian experts agreed that the mentors must fully master all work processes and understand the circumstances of the work, because only that way they can successfully transfer knowledge to young people. Primarily, the trainer needs pedagogical skills and social sense for young people, as well as the necessary experience, creativity, responsibility, reliability, technical inventiveness, accuracy, target orientation, communicativeness, organizational skills and computer knowledge (machines are changing and it is necessary to follow development). Further,

materials, machines, diagnostic processes are constantly changing, so continuous training and knowledge renewal is required.

Interviewees see the greatest danger in the area of injuries at work and in the challenges of transferring their knowledge and experience to young people. There is much more patience and persistence required and there always have to be new ways of motivation (apprentices need more and more encouragement to remain in the profession). They also see the challenge in the relationship between the mentor and the apprentice (knowledge needs to be carried in a relaxed and friendly atmosphere, while remaining professional).

According to the majority, the qualification conditions are still appropriate for the moment; the independent training of mentors is influenced by the pressure of the market itself. The respondents are unanimous in order for mentors to need additional and high quality pedagogical and possible psychological training to help young people get better. Experts also suggest better cooperation and exchange of experience, skills and knowledge among individual mentors. The needs of the market and the ways of transferring knowledge to young people are constantly changing with the development. They expect greater support from the state in co-financing the training of students/apprentices.

Small business owners can only educate one or more trainee at the same time; they see the problem in having not enough time to properly educate trainees.

In the future, experts see opportunities for more girls in traditional male professions, but fear that most girls will not remain in the profession after schooling.

5.2.3. Distribution of the trainees and reaching the target groups

In **Austria**, traditional “male handicrafts”, such as plumber or painter, are still dominated by men. This is mirrored in the gender distribution of the trainees. Most apprentices are between 15 and 17 years old and have completed secondary school, only a few choose apprenticeship as second career path at a later age.

The interviewed experts mentioned primarly students with higher education as desired target group, especially students with a diploma of a higher vocational school. Candidates over teenage age would be desirable as well, because youngsters often lack of maturity and technical knowledge from the perspective of the interviewees.

To reach a broader target group, it would be necessary to improve the public image respectively value of apprenticeship as well as handicraft. The interviewees suggest to introduce and present the diverse professional fields, success stories as well as to show the career and further education possibilities of dual education. Moreover, students should have the chance to get to know a handicraft better, to try out different techniques.

From the view of **German** experts, to make the dual vocational education more attractive, it is important to aim especially girls and women, but also A-level graduates, that should do an apprenticeship before they start studying at university.

They can be reached through special marketing campaigns, like events as fairs, open doors days, advertisements, offering of internships. Doing an apprenticeship has a quite bad reputation. The problem is based in society: the aim is to get most

possible graduations. Therefore, also parents and teachers should be concerned. In the trade sector, it is quite difficult to find apprentices. Reasons for that are unattractive working hours, low payment and bad image of tradesmen. For some occupations exist only a few training schools which are often far away from the companies or the apprentices' homes, so that they are not willing to do that apprenticeship.

In **Trento**, the main issues in reaching target groups is guidance process, gender issues, learning on the job opportunity, and the development of non-cognitive skills. About guidance, it is not always clear how students are "guided" to choose dual system instead of regular training courses: in some cases schools are guiding students towards dual system (based on vocational, interest based decisions, an often on special education needs); on the other hand are students themselves asking schools to have the access to dual system, because their personal knowledge of SMEs' managers, or because SMEs are inside their social capital networks (e.g. parents, friends). Empowerment suggestions for students on dual systems are on pre-recruitment assessment and guidance, information release, and constant support for students. A pivotal point for the guidance process is the learning on the job process, which is seen as more close to students' needs. Learning on the job has, indeed, a sort of 'double side of the gun.' For example, learning on the job is considered by people interviewed as a positive thing respectively resource, with the possibility of personalizing the learning for students, in the process of skills acquisition. On the other side, learning on the job could be a threat also, because there is no chance, for SMEs, to 'try' students before the beginning of the formal period of the traineeship. SMEs are quite critical about this point, because the students are also 'workforce', and it would be quite complicated having people 'unfitting' their needs.

Due to the nature of work and the insufficient number of girls that enrol in the process of education in secondary vocational and technical schools, most of the **Slovenian** experts' trainees are male, and between the ages of 15 and 20.

The Slovenian interviewees agreed that apprenticeship is the right path, as it allows the apprentice to immediately enter the profession. They are unanimous that the biggest motive is still earnings and spare time, only then they can have love for the profession and a reputation gained by the acquired profession. Therefore, they propose a dialogue with a country that would help turn the profession through adequate taxation of work. When looking for an appropriate audience, they do not see some other smart solution. Successful companies and good mentors can be the main contributor to the dual education system's reputation, which would be enthusiastic about the profession of young people. The advantages of the dual education system contribute to increasing the reputation of the profession, as students who successfully complete their education have a better job opportunity, most are lacking in the workforce and employers are ready to pay more for a good worker. In raising the reputation, it is necessary to be inspired by successful foreign countries, who have managed to present the apprenticeship as something good and recognized, and to raise the reputation of certain professions, so it is necessary to find examples of good practices and implement them in Slovenia.

5.2.4. Qualification profiles of trainees

Interviewed representatives from **Austrian** SMEs require that their trainees should possess a profound general education, especially mathematical basic knowledge. Further, technical and digital competencies, logical thinking, accuracy and precision as well as perseverance are important. Apprentices should be interested in the professional field they are trained, willing to learn and be able to self-reflection. Moreover, social competences are crucial, such as the ability to work in a team, responsibility, dependability, punctuality, conflict ability and ability to communicate as well as polite manners. Not at least, a basic knowledge of the (German) language is required for an expedient knowledge transfer.

German experts primary expect interest and motivation from potential trainees. These two factors are most important followed by basic school knowledge, soft skills, conflict management, self-responsibility and stress resistance. Moreover, it is important to be adaptable to recent situations, working under pressure and in teams, and have knowledge in presentation, communication and IT. For the trade sector, first experiences (e.g. internship) and technical understanding are useful. German language and grammar are indispensable and English skills are quite important as well. The company representatives say that future apprentices should have realistic expectations to their apprenticeships and workdays as well as self-assessment.

From the perspective of **Slovenian** interviewees both manual skills and mental abilities are needed, as is the design sense, the knowledge of computer science, the knowledge of foreign languages, the ability to communicate, and, last but not least, the joy for the work.

Most skills, such as autonomy, work habits, teamwork, reliability and accuracy can be trained and accepted by an apprentice within the company itself, and basic knowledge must be provided by schools that need to have programs tailored to the needs of businesses and the labor market.

For **Swiss** experts trainees' responsibility is really important. Apprentices play a decisive role in SMEs. Thus they need to be responsible. Contract for apprentices is important to empower the young person and to make them responsible but not essential for dual education in vocational school. In Switzerland dual training can be done in a SME or in a vocational school if there are not enough SME able to train apprentice for a specific trade. The interviewees prefer that dual education is done in a SME, because there the apprentices learn „on the job", and are immediately confronted with e.g. co-workers and clients.

In Switzerland there are some inter-SME courses. The goal of these courses is that all apprentices of a specific trade should have the same basics. It means that trade associations have to dispense some courses to all apprentices of a specific trade. These inter-SME courses are effective according to experts but courses organization is very complex and challenging. Experts recommended taking care about complexity of these courses because complexity can make the courses ineffective and costly. They also stated that apprentices need a high level of motivation and some abilities to work in team during their apprenticeship. Motivation comes from a good orientation of youngsters, because the more they like, what they are doing, the more they are motivated.

5.2.5. Cooperations with schools or other educational institutions

Austrian interviewees have partly experienced lack of interest of vocational schools in the coordination as well as cooperation with SMEs (e.g. concerning the curricula), depending on region and professional field. Training plans are developed by the committee of the regional chamber of commerce, but trainers support apprentices with their portfolio (what I have learned, what I have to learn). Some interviewed experts are actively involved in the final assessments of trainees and cooperate with vocational schools in this context.

To plan apprenticeships and exchange information between schools, apprentices and companies in **Germany**, there are some meetings arranged: carpenter teachers meet up regularly with regional companies to coordinate contents (at the moment, syllabuses are overloaded, so companies and schools have to pass knowledge parallel), employees of Chamber of Handicrafts take part in regularly meetings of a working group called “Work and Economy”, cooperations within the examination board, parents ´evenings and closing sessions. Due to lethargy of industry, it is difficult to draw up a framework plan all over Germany. At Chamber of Handicrafts, employees were teached to improve apprenticeship plans. In general, these plans are drawn up by the person named in indentures and are propped to contents of school. Department heads are completely involved in judging the apprentices for the work they did in their department but not in their final review. Most companies do not have any problems with feedback or review conversations and are also willing to write an employment certificate. In comparison, the examined social education worker thinks that organisation meetings do not exist in SMEs; individual apprenticeships were drawn up only sometimes und reviews are not structured at all.

In **Trento**, schools and SMEs collaborate together to organize in the field activity for students. Few people interviewed said that there is less participation of SMEs in the dual education design phase (which is mostly a schools affaire), and a less useful information on dual system/process for SMEs. In terms of issues, so the design of dual education is considered more given by the schools. About threats in managing the dual system activity, the “synchronicity” between schools and SMEs' timing (i.e. the necessity to follow the ‘natural' time of work of SMEs, that has, during a year, more busy months of work, and periods in which there is basically nothing to do for apprentices) are often lacking.

The questioned **Slovenian** companies cooperate with schools in defining programs, but most of the companies cannot offer respectively teach everything that program requires, because of the amount of required knowledge and the limited number of companies with suitable machines and knowledge in certain fields, so interim coordination with schools is necessary. Three of the interviewees do not participate respectively communicate directly with schools, but they are satisfied with the presented programs and students. No one is facing problems with this, but they think that the agreements are going well, as well as the adjustment and coordination of programs.

5.2.6. Mobility of trainees

Interviewed experts from **Austria** support the mobility of their apprentices. Current projects mentioned were temporary practical trainings abroad as well as the interchange of trainees with German, Czech, British or Spanish companies. Such programs allow broadening trainees' personal as well as professional perspective and advancement. But the experience of the interviewees shows that especially teenagers often hesitate to go abroad because of language barriers and the physical distance to their parents. The interviewed experts suggest encouraging them to join mobility projects via stronger awareness rising. Further, (more) mobility programs for skilled workers could be useful as well.

In **Germany**, international mobility projects are mostly offered in bigger companies with subsidiaries abroad. The problem with that is that the apprentices are not always excused from work. The most popular program is ERASMUS PLUS. One respondent tells that a regional company offers a yearly apprentices exchange with a company in France (15 apprentices from each company). Moreover, apprentices are sent to Romania, England or they are able to participate in an exchange with the USA. Challenges are language barriers, incompatibility of the vocational education systems[9], strong economic situation in Germany (so companies need their apprentices), insufficient knowledge of apprentices and trainers which companies abroad offer desired apprenticeship contents, lack of knowledge about the vocational system in Germany. If you stay abroad longer than three months abroad, the apprenticeship in Germany has to be extended, because the German system does not accept all experiences you gained in a foreign country. An apprenticeship as an "international businessman" includes a three-weeks-stay in England but it is expensive: 1300 EUR have to be paid by oneself even it is supported.

In **Trento**, there is not a proper "mobility program" for the dual systems. Of course students are free to move from one institution to another inside the local system, but this is often a matter of individual and personal choices. In some cases, training institutions have structured relations with organizations outside the province, in Italy or even in foreign countries. Based on these connections, students can have periods of visiting in SMEs or training institutions outside the province.

Most **Slovenian** interviewees have heard about mobility projects, but they do not participate in them, so the concept is not known to them completely. Given the fact that it is difficult to acquire apprentices locally, mobility projects are fundamentally supportive, but the experts highlighted the issue of compatibility (programs, the labor market) with students from other countries.

Interviewed SMEs' representatives from **France** showed lack of awareness of the European mobility of apprentices. They seem not to be interested in the French trainees leaving, but indeed in receiving trainees from abroad. So, foreign apprentices are seen to "work better and faster".

[9] e.g. USA: education only in school, no combination with companies

5.2.7. Strenghts and challenges of current dual education systems

Strenghts and challenges of the current education systems were discussed in mostly all partners' regions.

Austrian interviewees depicted the dual system in **Austria** as high valued in an international comparison. So, the trainees are able to gain theoretical knowledge in vocational schools and practical know-how in SMEs. Furthermore, there is a wide range of further training courses.

However, there are some weaknesses respectively challenges, which have to be considered. Apprenticeship is little appreciated in the public eye as well as by some schools, teachers and parents. According to common understanding, higher education, such as high school diploma or university degree, seems to be the key for a secure and well-paid job. Another issue is the low awareness of certain professions, e.g. orthopaedic shoemaker. A central challenge is the low coordination between vocational schools and SMEs. The curricula as well as the teaching material (e.g. books) and tools (lack of digitalization) are often outdated and fail to comply with the needs of the SMEs and the current labour market in general. Moreover, there is a broad gap between the curriculum of vocational schools and higher vocational schools (diploma). So SMEs often prefer graduates from the latter. Further, vocational schools are oriented toward teenagers and shut themselves off to potential older trainees. Another central issue is the regional rigidity of school and training company. This limits the ability of companies and trainees to choose vocational schools whose teaching contents would comply more with their needs. With regard to the range of further training courses, experts mentioned that these is only partly used by trainees.

The main advantages of the dual vocational system in **Germany** are as follows: it ensures a good transition from school to job. The apprentices are introduced to work step by step. So, they learn to act responsible and enter ties with the company. Because of intercompany lessons, employment in all kinds of companies is possible. The advantages of this system can also be seen in the low youth unemployment rate.

Primary Weaknesses of the dual vocational systems are that companies see apprentices as fulltime workers, that they have to do tasks, which do not relate with their apprenticeship, and quality of the apprenticeship varies from company to company. The challenges are to keep job outlines up to date and to keep apprenticeships attractive in comparison to alternative educational paths. Moreover, companies' expectations from school lessons are quite high. The biggest problem is over all the image of the dual educational system. This causes a lack of apprentices.

Considering the present situation about the dual process in **Trento**, information, learning on the job, the development of non-cognitive skills, recruitment, and SMEs' time issues are considered as resources. Threats are the emphasis of schools just on formal learning, the recruitment step, and all the support needed by students.

In terms of issues, about resources, the design of dual education is considered the primary resources are given by the school. About threats, the information delivered on dual education and the synchronicity with SMEs' timing, i.e. the necessity to follow the 'natural' time of work of SMEs, that has, during a year, more busy months of work, and periods in which there is basically nothing to do for apprentices.

The empowerment of companies is about administrative activity, the necessity of letting the SMEs more aware and participative in the formal side of students learning (schooling), and last but not the least having more information for SMEs on the dual education system and functioning. The threats are about the lacking in the participation of SMEs in the dual education design phase, and the lacking useful information on dual system respectively process for SMEs.

The theme resources for students are about guidance in dual education, gender issues, learning on the job opportunity, and the development of non-cognitive skills. Threats for the development of dual education for students are mainly related to assessment, learning on the job, non-cognitive skills development, SMEs' time constraints, and the availability of support for students. Empowerment suggestions for students on dual systems are on assessment, information, and support.

Learning on the job is considered by people interviewed as a positive thing respectively resource, thank the possibility of personalizing the learning for students, thanks to the process of skills acquisition. On the other side, learning on the job could be a threat also, because there is no chance, for SMEs, to 'try' students before the beginning of the formal period of the traineeship. SMEs are quite critical about this point, because the students are also 'workforce', and it would be quite complicated having people 'unfitting' their needs.

Concerning the tutors' training, there seems to be a low level of knowledge on the learning process, low level of skills to teach to students on the job properly, and often no previous experience on dual education.

Respondents from **Slovenia** don't see any major weaknesses of the dual system of education, but more needs to be done on the visibility of individual professions and the rise of their reputation. The problem is seen mainly in the minds of parents and children regarding professional schools, therefore most children, even after the completion of a professional or technical school, do not remain in the profession. More than weaknesses, the interviewees see the benefits of a dual education system.

The interviewed SMEs' representatives feel that it is necessary to highlight the advantages of a dual education system and encourage employers to take apprentices in the educational process. They think that the system and the structure of education are good (even compared to previous practical training programs), but schools should devote more time to teaching technical knowledge to students (material specifics, hardware elements, technical drawing, computer knowledge), and practical knowledge will be provided by companies. They also believe more training programs, for both teachers and mentors, are needed.

In **France**, for reasons related both to the lack of knowledge of the craft sector and to the demographic decline, the orientation towards an apprenticeship training centre is by default towards what is presented as a technical sub-education.

As a result, business leaders see a drop in the level of education of young people who are not motivated. The initial level of young apprentices in basic skills (reading, writing, counting, communicating orally, identifying themselves in space and time), does not always correspond to the expectations of companies and the prerequisites of the trade.

The interviewed experts referred to a lack of knowledge of jobs. So, many jobs are no longer identified in the environment of young people who are unaware of their working conditions. The media coverage of certain professions (cooking, baking) influences the choice of young people by sometimes disconnecting them from reality. From the view of the interviewees, only the positive aspects seem to be seen.

Further, the apprentice goes directly from the status of pupil to the status of employee. This is sometimes difficult to experience in an environment, where the image and value of work have changed; where the majority of young people retain student status until an increasingly advanced age; as well as where young apprentices abruptly spend their time on an organization very different from that of other young people.

Another challenge is that the rhythm of the dual system is frozen «ex-ante» and cannot be adapted during the contract. Moreover, the craftsmen respectively craftswomen are less available for the guidance and the vocational and social integration of the youngsters, whereas the development of recruitment and the current difficulties of craft enterprises (e.g. labour, working time) require more investment.

Other weaknesses stated are the duration of contracts and pace of alternation ("somewhat rigid legislative framework") as well as the rules of apprenticeship, which are very centralized. So these rules are decided by the state and apply throughout the French territory.

From the view of interviewed Swiss SMEs' representatives the dual education system of **Switzerland** is one of the best in the world. The balance between practical training, theoretical course and practical course (inter-SME courses) is good. The experts did not have recommendations to change the dual education system itself but more about improving dual education image among students and society in general, and youngsters' orientation. Dual education seems not particularly highlighted by first and secondary school and in general in society, in contrast to academic education. People with good grades are encouraged to follow higher education at a university. Thus those who have a high intellectual potential tend to choose an academic path rather than a dual education.

From a **transnational view**, we can sum up the following strenghts and challenges of dual education in the Alpine Space. It should be noted, that the strenghts, the interviewed experts stated, refer to strenghts for the trainees, the mentioned challenges primarly to challenges for SMEs.

<u>Strenghts</u>

- Link of theoretical (vocational school) and practical learning (SME)
- Earlier entry in the labor market
- Gaining work experiences and sense of responsibility

<u>Challenges</u>

- Low public value of dual education respectively apprenticeship
- Lack of awareness of career and further training possibilities with dual education respectively apprenticeship

- Low public reputation of certain professions respectively trade industries
- Lack of coordination and cooperation between vocational schools and SMEs
- Bureaucracy and standardization of the dual training
- Lack of autonomy of training SMEs
- Ability to deal with teenagers
- Outage of trainees during school times
- Dual education systems' primary orientation on youngsters
- Transition from school to dual training respectively work

6. Recommendations

In spite of their different dual education systems, the partner regions partly struggle with similar challenges, which give insights in SMEs' needs in the Alpine Space. While representatives of companies emphasized the **link of theoretical and practical learning**, the **possibility of an earlier entry in the labor market** as well as of **gaining work experiences and sense of responsibility** at a younger age as positive aspects respectively strengths of dual education, they also referred to several critical issues and weaknesses. In the following, the key issues are presented and recommendations are derived from a transnational point of view.

Image respectively value of apprenticeship

The main issue discussed in each partner's region, was the low public image of dual training in general and in particular of handicraft. In several countries, an increase of the academization can be observed, indirectly supported by school teachers and parents who encourage youngsters to aim at a higher education. Third level education respectively university degrees are considered as guarantee for a secure and well-paid job as well as manifold career possibilities. Furthermore, there is a low public reputation of certain professions respectively trade industries. Especially teenagers are not familiar with diverse professions. As a result, in e.g. Austria primary weaker students choose a dual education; while more committed ones make high school diplomas respectively attend universities. Another issue in this context is the lack of interest in completing an apprenticeship, described e.g. by SMEs' representatives from Slovenia and Austria. So, the education seems to be considered more as kind of stopover on career paths by some trainees.

<u>Recommendations:</u>

- Improvement of the public image of apprenticeship and especially handicrafts by public as well as medial visibility (e.g. of certain initiatives, apprentice competitions)
- Creating awareness of the value of dual training as well as handicrafts by actions addressed to especially teenagers, schools and parents (e.g. presentations of career as well as further education options at schools or job fairs)
- Higher promotion of job information events and fairs, web portals for dual education formats or vocational orientation in schools (level 1 respectively 2)
- Encouragement of companies to invite students to get to know handicrafts better as well as to try out different techniques (e.g. on open days, internships, pre-apprenticeship)
- Raising range of training places for potential trainees
- Enabling of possibilities of vocal training in combination with higher education (e.g. high school diploma)
- Raise of the apprentice wage

Quality of the dual education systems

The SMEs' representatives are mainly satisfied with the dual training system in their regions. Challenges are seen in the partly lack of cooperation and cooperation between vocational schools and companies, the level of bureaucracy and standardization as well as the limited lack of government support.

The current dual education systems are primary oriented at youngsters. SMEs' representatives mentioned that their trainees are mainly male, between 14 and 25 years old, but predominantly teenagers. Most of them completed the second or third school level as highest education. Candidates over teenage age as well as trainees with university entrance qualification are the most inquired target groups. But the majority of SMEs' representatives wish to generally win more people over as trainees in the future.

Recommendations:

- Reformation of vocational school curricula with regard to the present needs of the labor market as well as companies (e.g. upper general education, improvement of technical skills, usage of modern equipment)
- Redefinition of training objectives aligned with the demands of the labor market as well as companies (e.g. balance between basic and job-related skills)
- Greater balance between standardization of dual education and autonomy of companies (e.g. concerning the limited choice of vocational schools in Austria)
- Support of talented students respectively trainees who are socially deprived
- Support for apprentices with language barriers
- Providing adequate funding and support services to the training providers (e.g. higher financial support, support in administrational issues)
- Providing in-service training opportunities for teachers and trainers
- Increasing the number of dual education pathways
- Improvement of dual training possibilities for adults and potential candidates with higher education
- Improvement of mobility programs for apprentices as well as encouraging them to broaden their perspectives and work skills abroad
- Development of mobile programs for trainees in adult age as well as skilled workers

Improvement of the dual education procedure

The majority of the SMEs' representatives are involved in the final assessment of their trainees, about the half in each case participate in trilateral meetings between companies, schools as well as trainees; respectively are involved in the development of individual training plans. Recommendations for the improvement of the dual education procedure go hand in hand with the advices given above.

Recommendations:

- Stronger public (e.g. financial) support for SMEs, vocational schools and potential trainees
- Enhancement of the coordination between SMEs and schools
- Adjustment of the curricula with regard to labour market's as well as SMEs' needs
- Public or school support of trainees with language barriers respectively refugee status
- Encouragement of the involvement of younger trainees' parents
- Improvement of the exchange between SMEs as well as trainees
- Offering a region- oder nation-wide platform, where all information and material relating to vocational training as well as contacts for personal consultations are available
- Explicit regulations of the procedure of the development of individual training plans as well as the final assessment of trainees but at the same time enough autonomy to fulfill the needs of SME's, vocational schools and trainees

Trainees' skills and competences needed by SMEs

The majority of SME's representatives miss mainly the sense of responsibility on their candidates or trainees, their willingness to learn, dependability, ambition, technical skills as well as a solid basic education. Further missing competencies mentioned were mathematical skills, communication skills, determination, voluntary commitment as well as certain social skills.

From the view of the SMEs' representatives, the following competences can be outlined in the following qualification profile of candidates respectively trainees:

- Solid basic education (especially mathematics)
- Technical skills
- Motivation
- Willingness to learn
- Dependability
- Punctuality
- Sense of responsibility
- Social competences
- Good manners
- Ability to work in teams
- Readiness for action

Qualification profile of trainers

Today's dual educational systems as well as the needs of vocational schools, of apprentices and of the labor market highlight certain competences required of trainers:

- Professional and technical as well as didactic competences
- Professional experiences in different fields
- Social skills, such as openness, tolerance, empathy and conflict ability, as well as a certain degree of authority
- Continuing education to remain up-to-date concerning the professional field, dual training and technical innovations
- Courses as well as support in the field of communications training (trainees, employees, generational respectively cultural conflicts)
- Improvement of cooperation and exchange of experience, skills and knowledge among trainers

This report provides an alpine wide perspective on the training needs of SMEs in the skilled crafts and trades. The comprehensive results serve as basis for the handbook (activity T2.5) as well as for the revision respectively development of dual training formats in some regions (activity T2.4).

List of figures

I. Appendix

I.I. Questionnaires addressed to SMEs

Policy makers and stakeholders at national and EU level recognise the important role of dual education in addressing difficulties in the transition phase from education to work, in improving the skills supply and in fostering entrepreneurship and innovation.

However, countries in Europe and the Alpine Space are in very different starting positions. Even well performing dual education systems face challenges, such as involving employers, inclusion of marginalized groups, demographic change, and innovation and adaptation to new professional realities.

One of the strengths of the Alpine economy is a strongly rooted tradition in the skilled crafts and trades sector. In order for SMEs to remain competitive in this sector, they need a skilled workforce that is able to keep up with technological, social, business and design innovations. Yet, SMEs in this field find it increasingly difficult to get new apprentices.

DuALPlus will go new ways to address these challenges and to increase the attractiveness of dual education for skilled crafts and trades in the Alpine Space. The outputs and results of the project will directly benefit young individuals that decide for a career in the skilled crafts and trades sector. They will also benefit SMEs, tutors and master craftsmen that want to upgrade their teaching and technical skills.

The project brings together SMEs, educational institutions, business support organisations such as handicraft clusters and chambers of commerce, universities and design institutes and regional public authorities from six Alpine countries.

In the course of the project, it is essential to evaluate existing training programmes in alpine regions as well as figure out what kind of educational skills and knowledge is needed by SME's trainers and tutors to deliver quality dual education. Therefore, we developed an online survey which is addressed to master craftsmen/craftswomen respectively trainers and tutors.

All information collected will remain anonymous and will only be used for research purposes. Disclosure of the data to third parties is out of the question.

We thank very much for your collaboration. If you need any clarification and / or further information, you can freely refer to XXX [email of PP].

Sociodemographic data

Gender

☐ Male

☐ Female

☐ Other / not specified

Age

Region [drop-down selection / country's regions]

Sector of institution/organization

Occupation/ role

How long have you been training apprentices/trainees?

☐ Less than 3 years
☐ From 3 to 5 years
☐ From 5 to 10 years
☐ More than 10 years

Distribution of apprentices/trainees

1. Who are the people you train currently? Please estimate their number by…

Total

- Gender

Male

Female

- Age

<14 years

14-17 years

18-25 years

26-35 years

36-45 years

>45 years

- Highest educational achievement

<Secondary school certificate: *Level 1/ 8th grade or lower (e.g. X*☐

Secondary school certificate: *Level 2/ 9th grade, end of compulsory education (e.* ☐ *XXX)*

Apprenticeship certificate: *apprenticeship diploma* ☐

General university entrance qualification: *Level 3/ 12th/13th grade; diploma, which qualifies for university (e.g. XXX)* ☐

Bachelor's degree ☐

Master's degree ☐

Doctorate ☐

Note: All PPs as well as the respondents should have a **common understanding of the levels of the educational achievement**. Therefore, each PP/country should fill in **examples of specific schools/labels of the levels** (e.g. secondary school) in the parentheses (XXX).

<Secondary school certificate: *Level 1/ 8th grade or lower* (e.g. elementary school/secondary school/junior high school)

e.g. Austria -> <Pflichtschule: Level 1/ 8. Schulstufe oder niedriger (z.B. Volksschule/Neue Mittelschule/AHS Unterstufe)

e.g. Austria -> Hochschulreife: *Level 3/ 12./13. Schulstufe; Abschluss, der für Universität/Fachhochschule qualifiziert* (z.B. Matura/Reife- bzw. Diplomprüfung/Berufsreifeprüfung)

For clarification: with **apprenticeship certificate** we mean that a person has **already finished a specific vocational training** (e.g. carpentry apprenticeship, mechanic apprenticeship).

Attractiveness of apprenticeship / dual education systems

2. Are there any target groups which should be particularly more addressed in your SME in the future?

Choose a maximum of 3 groups from the list

☐ Men

☐ Women

☐ People with university entrance qualification

☐ People with university degree

☐ Migrants/Refugees

☐ NEETS

☐ Other: ☐

3. In order to improve the attractiveness of apprenticeship / dual education system, which could be actions to work on?

Choose a maximum of 3 topics from the list

☐ Enhancing the apprenticeship / dual education's attractiveness for families and young people, through information and dissemination activities, as well as promotional campaigns, Skills Championships and career fairs
☐ Improving the apprenticeship / dual education's attractiveness for companies, promoting actions to strengthen the corporate social responsibility
☐ Developing guidance opportunities for young people and pre- dual education programs in order to promote awareness on the professional choices
☐ Activating actions for matching apprentices/trainees and places available for apprenticeships / dual education
☐ Increasing the number of apprenticeship / dual education places available for trainees/students, even targeted to specific groups of young people, through the provision of economic incentives and business support services to the enterprises
☐ Improving the apprenticeship's / dual education's attractiveness among young people by providing incentives and / or other economic benefits to the trainees/students
☐ Promoting opportunities – pathways, tools and accompanying measures - to increase the number of apprentices/trainees participating to higher education
☐ Strengthening the "image" of the dual education through the dissemination of best practices and success stories and sharing experiences also in an European perspective
☐ Other: _____

Apprenticeship / dual education procedure

4. Do you take part in "trilateral" meetings (schools-SMEs-apprentices) for the planning of the whole educational path/scheme?

☐ Yes
☐ No

Note: add a condition here: if a person answers **No**, then he/she is not shown the sub questions a-d and is **directly redirected to the question 5!**

4a. Have you met any difficulties? Which?

_____

4b. Do you need any further information/training? What kind of?

_____

4c. What kind of proposal would you suggest?

4d. What are strenghts and weaknesses of the procedure?

5. Do you take part in the drafting of "individual training plan" (document detailing the learning outcomes of the apprentices/trainees)?

☐ Yes

☐ No

Note: add a condition here: if a person answers **No**, then he/she is not shown the sub questions a-d and is **directly redirected to the question 6!**

5a. Have you met any difficulties? Which?

5b. Do you need any further information/training? What kind of?

5c. What kind of proposal would you suggest?

5d. What are strenghts and weaknesses of the procedure?

6. Do you take part to the final assessment of the apprentices/trainees?

☐ Yes

☐ No

Note: add a condition here: if a person answers **No**, then he/she is not shown the sub questions a-d and is **directly redirected to the question 7!**

6a. Have you met any difficulties? Which?

6b. Do you need any further information/training? What kind of?

6c. What kind of proposal would you suggest?

6d. What are strenghts and weaknesses of the procedure?

Strengths and weaknesses of the apprenticeship / dual education system

7. What are the main strengths of the apprenticeship / dual education system in your region?

Identify a maximum of 3 strengths (in order of importance)

1.
2.
3.

8. What are the main weaknesses of the apprenticeship / dual education system in your region?

Identify a maximum of 3 weaknesses (in order of importance)

1.
2.
3.

Innovation in the dual education system

9. Which could be actions to work on to ensure the quality of the apprenticeship / dual education system in the light of changes in the production systems and the labour markets?

Choose a maximum of 3 topics from the list

☐ Strengthening skills-needs analyses on new occupations/ job profiles and new skills in existing profiles
☐ Implementing more effective procedures for curricula updating in relation to the new skills needed
☐ Redefining the balance between basic (key) and job-related skills in apprenticeship / dual education curricula
☐ Providing adequate funding and support services to the training providers for machineries and equipment renovation and/or for the implementation of specific projects dealing with innovation issues
☐ Providing in-service training opportunities for teachers and trainers on the new skills needed by the labor market

☐ Promoting actions to increase the quality of the training in relation to the new skills needed by the labor market with particular attention to SMEs
☐ Increasing the number of apprenticeship / dual education pathways awarding tertiary education qualifications
☐ Other: [ ]

Orientation needs of apprentices/trainees

10. What kind skills are you looking for during the recruitment phase?

☐ Technical skills
☐ Digital Skills
☐ Social competence
☐ Sense of responsibility
☐ Results-oriented
☐ Languages
☐ Organizational talent
☐ Willingness to learn
☐ Solid basic education
☐ Ability to work in a team
☐ Flexibility
☐ Punctuality
☐ Dependability
☐ Autonomy
☐ Interests
☐ Ambition
☐ Self confidence
☐ Good men
☐ Cognitive skills (ability to make complex thought connections)
☐ Non cognitive skills (haptic, smell, hearing, sight, taste)
☐ Readiness for action
☐ Othe[ ]

11. What skills do you miss mostly on the candidates or enrolled trainees/apprentices?

☐ Technical skills
☐ Digital Skills
☐ Social competence
☐ Sense of responsibility
☐ Results-oriented

☐ Languages
☐ Organizational talent
☐ Willingness to learn
☐ Solid basic education
☐ Ability to work in a team
☐ Flexibility
☐ Punctuality
☐ Dependability
☐ Autonomy
☐ Interests
☐ Ambition
☐ Self confidence
☐ Good men
☐ Cognitive skills (ability to make complex thought connections)
☐ Non cognitive skills (haptic, smell, hearing, sight, taste)
☐ Readiness for action
☐ Other: _____

12. How is recruitment working in your company and how successful were these recruitment tools in past?

☐ Newspaper/Magazines advertisements
☐ Online advertisements
☐ Open Days / Job Speed Dating
☐ Own website
☐ Social Media (Facebook, LinkedIn, Xing, etc.)
☐ Placement agencies
☐ Employment service centres (public employment services and portals, etc.)
☐ Associations
☐ Unsolicited application
☐ Conversion of an internship into an apprenticeship/trainee contract
☐ Recommendation by third parties
☐ Takeover from other company
☐ Other: _____

Note: For each option there will be five success indicators (always successful, mostly successful, partially successful, no success, never used)

13. Who is applying?

☐ The apprentice/trainee itself -> empirical value in percentage

☐ The parent/a third person -> empirical value in percentage

14. Do you have any further comments to the apprenticeship / dual education system from your position as trainer/tutor as well as from the position of apprentices/trainees?

We thank you very much for your cooperation!

I.II. Guidelines for expert interviews

1. Before we start, could you tell a bit about your work? What is your professional position there? How long have you been training apprentices/trainees in your SME?

2. Have the training models changed since you started to train apprentices/trainees? How far? What is positive, what is negative about these changes?

3. How would you describe your own change as master/trainer through the years? What are the skills a master/trainer requires the most for training apprentices successfully in 2019 (E.g. professional skills, social skills)?

4. Is the master's/trainer's qualification still appropriate? Do you feel capable of handling new challenges? Which particular challenges do you see for masters/trainers in 2019 (e.g. amount of girls/women, integration of NEETS, migrants)? Which further competencies/qualifications/supports are needed to meet these challenges?

5. Who are the people you train? What's their distribution by gender, age and educational background?

6. How could dual training/apprenticeship become more attractive for a broader target group? Are there any target groups which should be particularly more addressed in your SME in the future (e.g. women, migrants/refugees, NEETS)? How could they be reached better? What could masters/trainers contribute to increase the attractiveness of dual education?

7. What kind of skills do you expect from the people you train? Which skills do they need to survive in your SME as well as at today's labor market in general? (E.g. professional skills, social skills) Why?

8. Do you respectively your staff take part in "trilateral" meeting (schools-SMEs-apprentices) for the planning of the whole educational path/scheme? Do you respectively your staff take part in the drafting of "individual training plan" (document detailing the learning outcomes)? Do you respectively your staff take part to the final assessment of the trainees/students?

If yes: Which difficulties you respectively your staff met in this tasks? What kind of information/training would you respectively your staff need further? What are the strengths, what are the weaknesses of the procedure?

9. Now let's talk on a more general level: what are main strengths of today's apprenticeship / dual education system in X [your region/country]? Why?

10. What are the main challenges and main weaknesses of the apprenticeship / dual education system in X [your region/country]? Why?

11. Referring to the governance mechanisms and structures of the apprenticeship / dual education system, which could/should be actions to work on? (E.g. on a national, regional, local level) E.g.: Does the training need to be provided in a classroom (traditional way)? Is the signature of the contract the only appropriate time to be trained?

12. Which actions could/should be set to improve the attractiveness of apprenticeship / dual education? (E.g. on a national, regional, local, institutional level)

13. How could/should the quality of the on- and off-the-job training be improved? (E.g. on a national, regional, local, institutional level)

14. Do the needs of production systems and the labor market correspond with the contents of the dual training programmes? Where are potentials for improvement? Which actions could/should be set to ensure the quality of the apprenticeship / dual education system in the light of changes in the production systems and the labour market? (E.g. on a national, regional, local, institutional level)

15. Are there apprentices/trainees in your region/SME participating in mobility projects? What are main challenges and main obstacles in developing apprentices/trainees' mobility? Which actions could/should be set to promote the apprentice's/trainee's mobility?

16. Considering what you have experienced so far on strengths and weaknesses of the apprenticeship / dual education system in your country/ region and the actions taken or planned to promote the governance, attractiveness, quality, innovation and mobility, you are asked to describe at least one good practice.