



## Network for future innovation of major competences in vocational education and training in construction

project number: 2017-1-DE02-KA202-004118

project website: <https://sites.google.com/site/netconvet/>

## Role of STAKEHOLDERS IN FURTHER VET (project phase 4)

### Aggregated results of project partners





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in vocational education and training in construction**

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## **Phase 4:**

### **Role of STAKEHOLDERS IN FURTHER VET**

in

**Building Information Modelling – BIM**

**Work based learning – WBL**

**Digitalization**

**Transition in VET**



**The situation in  
GERMANY  
by  
Bildungszentren des Baugewerbes e.V. / Germany**

Preliminary note: The BZB Krefeld define the most important and influencing stakeholders in FURTHER VET as these following here:

- companies
- VET-centres/VET-academies
- chambers for skilled crafts and industry (HWK / IHK)
- trade associations / employers associations
- trade unions
- Ministry for Education and Research of Germany (BMBF) / Federal Institute for Vocational Education and Training (BIBB)

These stakeholders have the roles in the particular topic hereafter:

**Building Information Modelling – BIM**

- 1) Companies: The companies apply BIM; the big players have their training on this issue conducted for their staff by own training departments or academies. The small ones in majority rely on VET-centres to get their people trained. As big assignments can require BIM from the big stakeholders the necessity for also applying BIM for smaller stakeholders could be relevant and hence SMEs are also asked to apply BIM, not only the big players. Companies in role of users.
- 2) VET-centres / VET-academies: Quite rarely they are offering services to sensitize and introduce BIM, but the facilities and curricula for conveying BIM are so far quite limited. Roles as semi-active service providers, because the demand by companies is seldom.
- 3) chambers for skilled crafts and industry (HWK / IHK): should have an interest to promote BIM courses, but very seldom so far. Role: adapting market needs.
- 4) trade associations / employers associations: should have an interest to promote BIM courses, but very seldom so far. Role: adapting market needs.
- 5) trade unions: no comment. Role: unclear.
- 6) Ministry for Education and Research of Germany (BMBF) / Federal Institute for Vocational Education and Training (BIBB): both institutions are aware of the non-formal VET-situation in the construction sector. Coping with the market situation and with particular legal requirements of

new building projects being above a certain budget line, they know that BIM should become a part of innovative curricula for non-formal further training.

## **Work based learning – WBL**

- 1) **Companies: WBL (in the German VET-system of the constructions branch "Handlungsorientierte Unterweisung" – HOL) is the principle that also defines further VET in companies, which send their staff to VET-centres and VET-academies to gain job-related – and thus action/process oriented – new skills and competences. All company works are based on assignments and/or subcontracting in evolving markets, which always brings the staff in need of permanent further VET (in the sense of life long learning) in order to work in a customer oriented work process. All the practical learning in the company is based on the defined working steps, which are necessary on site. Role: user of WBL on a daily basis.**
- 2) **VET-centres / VET-academies: beside the companies the lecturers (mostly practitioners and experts from the construction branch) in the VET-centres and in VET-academies teach and moderate further training the WBL principle, as far as it is realistic. Role as conveying actors.**
- 3) **chambers for skilled crafts and industry (HWK / IHK): The Chambers of Craft as well as these for Commerce and Industry indirectly monitor the correct conduct of VET-curricula (where it is formal further training like in crafts master classes or for practical site supervisors). When it comes to non-formal trainings, they can only recommend procedures and contents, but they do not have a legal instrument to oblige training centres and the very academies to perform in a pre-defined way. Role as regulative in formal settings.**
- 4) **trade associations / employers associations: acting on behalf of the companies, these stakeholders support a high quality WBL, because their principals, i.e. the companies, need a good and well-trained work force for being competitive also in the future. And, an further training which is oriented at practical needs in the sector in daily work, copes with their interests. Role as promoters.**
- 5) **trade unions: for a high quality VET and thus for the qualification of the employees the trade unions also represent the interests of the sector. Role is monitoring WBL in the interest of skilled staff.**
- 6) **Ministry for Education and Research of Germany (BMBF) / Federal Institute for Vocational Education and Training (BIBB): Role is mainly innovator, monitor and promoter.**

## **Digitalization**

- 1) **Companies:** They have, should have or do not have a particular interest in their staff being taught in digital skills. This depends on the reality in the companies themselves. The ones, who realize digital processes in their daily work are more open for working with digital methods and contents also in further VET. The ones, who do not apply too much digital aspects, have a tendency to not require digital issues for their staff (be it working with smart devices or learning from digital contents). An skilled worker will have certain applications to work with during his/her job, the companies demand these digital skills from him/her. Hence, companies should have an interest in staff being constantly trained in digital issues. Role as user and provider of demands.
- 2) **VET-centres / VET-schools:** they can teach and convey digital issues along their present facilities (number of computers and/or other digital devices). They rely of formal curricula and optional non-formal possibilities to teach and practically adapt this as well as they rely on the quality of their lecturers. Role as users, promoters and service providers.
- 3) **chambers for skilled crafts and industry (HWK / IHK):** they can teach and convey digital issues along their present facilities (number and modernness of computers and/or other digital devices). They rely on formal curricula and non-formal optional possibilities to teach and practically adapt this as well as they rely on the quality of their lecturers. Role as users and service providers.
- 4) **trade associations / employers associations:** They rely on formal curricula and non-formal optional possibilities to teach and practically adapt this as well as they rely on the quality of their lecturers, when they have this kind of staff or engage external experts. Role as promoters.
- 5) **trade unions:** They represent the working staff and do sign for good working conditions also when it comes to work with digital devices and the pre-requisites which are necessary; e.g. well balanced further training. Role as promoters and giving guidance for working staff.
- 6) **Ministry for Education and Research of Germany (BMBF) / Federal Institute for Voactional Education and Training (BIBB):** BMBF and BIBB have a strong interest (currently) to enrich formal curricula and non-formal further VET in construction (but also in other branches) by digital contents, methods and practices. This is seen from a transnational competition of economies and work force. There are numerous budget lines and funding programs to develop new approaches for updating, innovating and improving further VET for the sake of coping with the requirement and demands of the digital era in the construction market. Role as promoters and innovators.

## **Transition in VET**

- 1) **Companies:** They are the ones having the contract with the employees for a limited or unlimited period. An interest for companies (in particular in times of shortages in qualified work force) should be to hire or keep staff in terms of human resource development and in the best way give him/her a career perspective. The advantage is that own staff is further trained along the very particularities of the company. The human resource development which starts with apprentices in initial vocational training, probably continues with extending the work relation as a skilled worker (after successful apprenticeship) with limited/unlimited working contract and thus gathering more work experience. Then, based on engagement in initial training, the companies can "develop" their own staff by additional and upskilling further training. Role is providing work life perspectives and career paths.
- 2) **VET-centres / VET-academies:** next to the companies VET-centres/academies have a strong interest in further training, since it is their core business. By providing a high quality standard in further training and further/higher vocational education they are service providers for companies. With the further VET they lay ground for people pursuing a solid career in construction; in particular, when e.g. Craft Master courses are at stake or special higher-VET courses or even specialists in legal-administrative topics related to construction, which oblige them to have certificates or re-newed certificates, when legally required. Role as facilitator and promoter.
- 3) **chambers for skilled crafts and industry (HWK / IHK):** strong interest in further training, which is the basis for individuals' job careers or maybe even entrepreneurial careers. With a solid initial plus further training professionals can open up career paths up to opening their own business, which eventually allows employing staff and being allowed to (again) train apprentices. So, the role of the chambers is on the one hand to promote initial and in line further training (in competition to tertiary / university education), support companies and individuals in this period of initial/further VET and showing career perspectives. Role as promoter and given guidance.
- 4) **trade associations / employers associations:** very similar to chambers. Role is to give guidance and promote career paths.
- 5) **trade unions:** they do care for workers interest and welfare in their jobs. Their role in further VET is to guarantee balanced working conditions and monitoring quality standard in further VET for the good of the workers. This can be summarized by a social responsibility.
- 6) **Ministry for Education and Research of Germany (BMBF) / Federal Institute for Vocational Education and Training (BIBB):** apart from being educated in ordinary schools, initial VET is the starting point of professional career paths which can easily be followed by various further VET. In terms of the life long learning BMBF and BIBB have the role to develop, improve, administer

and monitor attractive further training contents and methods (also digital innovations) to attract young people for a vocational job path or even entrepreneurial perspectives.



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**The situation in  
SPAIN  
by  
Fundación Laboral de la Construcción (FLC)**

Building Information Modelling – BIM

In 2015, the Ministry of Public Works promoted a BIM Commission to promote its implementation in the construction sector, sensitize public administrations in the European recommendation in the BIM demanding within projects developed with public funds. Training is attractive for three profiles: BIM modeler, a Bim Manager or a site manager with BIM knowledge. However, and as it was mentioned in Phase 3, BIM does not count on an official certification nor training.

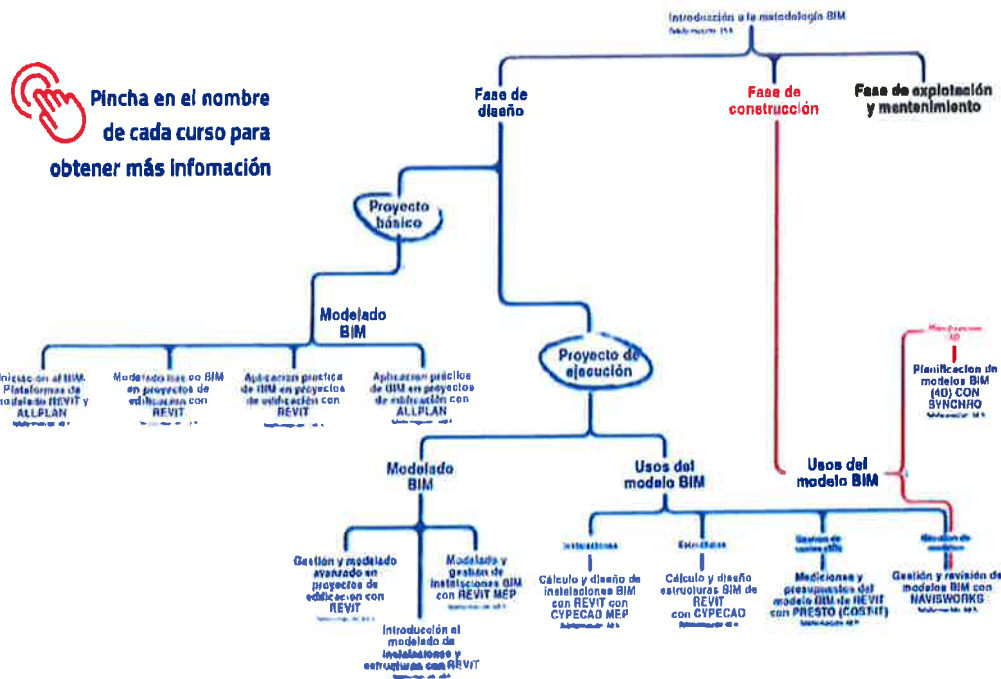
Spanish VET system is composed by: a) formal vocational training, regulated by the Ministry of Education and b) national training system for the employment, regulated by the Ministry of Employment. This last one and has the aim of training and skill people for the labour market and update their lifelong learning. And FUNDAE (National Foundation for On-the-job Training) is the organisation that channels and manage the national funding for the updating of employers and workers in the skills that prepare them for changes in the labour market and productive sectors, to promote access to free, quality training for all workers (active and unemployed).

According to the current offer training ("formación de oferta") managed by FUNDAE, only one BIM course is oriented to public administration, and the 122 remaining courses are led to unemployed (55 delivered by Fundación Laboral de la Construcción).

The majority (115) are attendance-based courses, 6 are on-line courses and only 1 is a blended course. Regarding the length of these courses, it is highlighted that, in spite of the high grade of speciality that BIM requires, only 6 courses are above 100 hours. The most common duration are 15/20/30 hours for introductory courses and 40 and 70 hours for some specific BIM area.

Regarding further VET, Fundación Laboral de la Construcción is one of the reference in BIM training. The organisation has developed a training itinerary with the aim of updating construction workers, improving their skills in their integral project management. The training is adapted to all professional profiles and to each stage of the construction process, for which software currently exists.

Besides, Fundación Laboral counts on a guidance service through a person contacts and gets the customize training, according to his/her motivations and work requirements. The itinerary follows the next scheme:



At the time when this report is drafted, Fundación offers 26 type of training calls, mainly oriented to: calculation and design of structures, measurements and budgets, management and modelling and practical application in models besides introductory courses. Some of the programmes used are REVIT, CYPECAD, PRESTO, NAVISWORKS, ALLPLAN, SYNCHRO and TCQ.

Experts says that it is not easy to manage further VET courses in BIM, due to the scarce implantation of BIM in the construction sector as a whole: on the side of the Public Administration, there is a lack of clear and concise guidelines and, on the part of the market, there is the classic resistance to change. On the other hand, there is a fear of the costs of implementing these highly specialised courses.

The courses given by FLC usually have some assistants with technical level jobs (site manager, technical office staff, etc.), although the aim is to transfer these courses to the site staff: how to use mobile devices on site, use of plug-in and digital models, as well as the updating the information of "As built" model.

Work based learning and further education in Spain are wide terms, understanding that it is all the training out of the formal training (in Spain, Dual VET is only included within formal training). In this document, it is explained different situation that may occur, including combinations between who is funding the training and the place where the training is delivered.

#### **Private courses**

The less common courses in further education are those that a company or a training center offers as non-formal training as a own initiative and the attendee has to pay the taxes without any funding.

In the construction sector, it is not usual this type of training. However, there are few experiences in big companies, that assume specific training costs for special needs of the smaller companies that work for them.

#### **Founded courses**

In Spain, Law 30/2015, 9 september, regulating the VET System for employment; that has the purpose is to regulate, within the general framework of the National System of Qualifications and Vocational Training, the planning and financing of the system of Vocational Training for Employment, among other functions.

Under this regulation, there are several training initiatives, such as training programmed by companies; training for occupied workers, training for unemployed people, etc.

Another initiative that rules this law is Apprenticeship, only for programmes that combine training practice in companies managed by the Public Service of Employment; that can be of two types:

- Contract for training and apprenticeship (RD 1529/2012. See phase\_03 Report), where the companies would have a bonus in a % of the working day.
- Public employment- training programmes, with a limited concurrence to promoters and following specific normative.

- *Apprenticeship*

It is not common to combine classroom and company training in further education in Spain. Current employees are the target group of a little less than half of the national budget allocated to further training, and this training does not include apprenticeship.

Apprenticeship usually use to be in this type of training, linked to public calls. It is, a public organisation launches a training call, and the training centre that applies for, must be supported by some companies' commitment of hiring a percentage of students attending to these courses.

- *Workshops*

In Spain and in the construction sector, the most common way to put in practice what is learnt in a classroom is the workshop.

For example, in Fundación Laboral de la Construcción, workshops are present in this way:

- More than half of the training delivered has to do specifically with health and safety at work, since this training is mandatory for all workers hired under the construction Collective Agreement. Although this training is usually theoretical, some of the training centers have a special area built in place where trainees can practice.
- Around 25% of the training are to train in construction skills. This courses are usually work based learning, and trainees practice what is learning in a workshop

## Digitalization

The National Observatory of the digital economy and society launches a Sectorial Analysis of ICT Implementation in Spanish Companies every year. For 2017, its sectorial analysis of the implantation of ITC in construction companies says there are important differences in digital resources between micro-companies (less than 10 workers) and the rest of construction companies.

Although the percentage of micro-enterprises with computer or website availability is increasing year after year, the difference is quite significant. 30% of micro-companies do not have computers in their companies and only 24% have access to internet and corporate website.

Experts say that construction sector has one of the lowest ratio of workers working on the operability and maintenance of the ICT systems or their applications. 9.8% of SMEs and large companies as opposed to 0.5% for microenterprises.

According to the study, of the global computation of the expenditure of all companies on ICT, that of construction companies represents only 1.4%.

Digitalization of the construction sector would have impact, in general, on the need workers with digital skills, able to know how to use mobile devices, read digital models or take orders through digital programmes (i.e. EPC Tracker).

Trades also will change, not only regarding the above, but their work service. With domotics, areas of construction traditionally addressed individually, will be connected through one programme. In this manner, the future windows installer not only will know how to install (efficiency) a window, but s/he should know how to parameterize the advantage and connect it to the heating systems, curtains, air conditioning, lights ... and user management from her/his mobile.

Within this approach, digitalization will have impact in the social relationship and social dialogue in the sector. To mention some challenges:

- Automation and Robotization. New construction processes that would imply the increase of productivity and less need of workers; and the more individual responsibility of the worker, generation of less intermediate commands.
- BIM will generate a cultural change: cost savings, traceability of the production process throughout the life of the entire company, higher qualification, better working conditions, job stability, lower size of subcontracting chains, etc.

- Other applications that improve management and control on site.
- Problems with the control and protection of data, and protection of workers' privacy.
- Collaborative platforms: Social dumping.

This challenges will have impact in the need of upskilling and retraining of construction workers, since it is expected more use of digital tools on site, reality augmented, domotics, etc.

Anyway, the digitalization of the sector is actually in an initial phase, many of novelties explained above are still being tested; and their implementation and commercialization can not be as immediate as in other sectors. Further education answers to the current labor market needs, and training centers should be updated in novelties at the same time they have to respond of companies requirements.

From this last approach, and according to the Erasmus+ Project ConstructyVET (2015-1-FR01-KA202-015054), there is a *mismatch between the expectations of the companies and the nature of trainings for middle management on sites...* And there are *difficulties in recruiting team leaders and sites managers, not because of the shortage of manpower in general, but often for lack of training sufficiently adapted to the evolution of these functions*

In their study of analysis of skills needed by building companies concerning team leader and worksite supervisor and a definition of a general profile (among France, Germany, Belgium, Spain, Italy, Poland, Portugal and the United Kingdom), they identified the following tasks:

- For the worksite supervisor: she/he has to get used to more process details in digital form, and take over presenting tasks (digital literacy).
- For the team leader; has to cope with a higher digitalization.

From another point of view, we can address digitalization from the **use of technology in the delivery of training**. Some of the digital resources that are available for training, for example, in Fundación Laboral de la Construcción:

- Simulators:



- On-line simulators



- Augmented

reality



- Training apps/game based learning



## Transition in VET

In Spain, there is not a direct bridge between further training and Initial VET training. However, we should take into account that further training, as it has been already mentioned, aims at training and updating people for work and updating their knowledge and competences in lifelong learning.

Thus, the impact that further training has in the labour experience has to do with the transition to VET, in the way that the normative that rules IVET does consider validation of experience regarding VET training, mostly in cases of people that only have get primary studies:

- 1) They have the opportunity to access IVET through an exam.
- 2) They can pass through a validation proceeding that validate their competences through the experience.

Besides, compulsory health and safety training by construction Collective Agreement (20 hours) is included within the VET training curricula, besides a higher level of health and safety training ("basic level", 60 hours).



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**The situation in  
LITHUANIA  
by  
Viešoji įstaiga Vilniaus statybininkų rengimo centras / Lithuania**

**Work based learning and Transition in VET**

In Lithuania further VET is delivered as both *formal* and *non-formal* training. Formal adult education and training is a corner stone of second-chance education, while non-formal education and training is mainly job-related (re-)training and often sponsored by employers. Formal further training leads to the next level of qualification, which is vital for finding a good job, advancing in a career or when changing career path by obtaining a qualification in a different field.

Formal further vocational training is provided to persons who already have a qualification, but who want to improve it or acquire another qualification. Non-formal further vocational training can be provided by any VET provider. Non-formal vocational training is provided according to the needs of the individual or employer. In other words,

Formal further VET is designed for people with different education attainment levels; in some cases, a vocational qualification or work experience is a prerequisite. Programmes last no longer than one year and lead to a vocational qualification at EQF levels 1-3, recognised by the State. Formal further vocational training programs are carried out by 5 labor market training centers, adult education departments of VET centers and VET schools, enterprises and other organizations. Practical training comprises 60-80% of the programme, half of it preferably taking place at the enterprise. Formal further VET for unemployed and those notified of dismissal is funded by a voucher system, which allows the unemployed to choose the training provider. The provision of training is based on contracts between the local public employment service, the unemployed and, if applicable, the enterprise. After training, the employer undertakes to employ the person for at least six months.

Non-formal VET is widely applied in further vocational training and is designed for acquisition of a vocational qualification or individual competences. It is carried out in various forms: learning at the workplace, attending non-formal training courses, distance learning, etc. In most cases, the following three forms are used for organising further VET:

a) non-formal training/learning of employees and self-employed persons initiated by the employer. It is organised in various settings, using forms and programmes chosen by the employer. Some companies have their own qualification frameworks or apply internationally-recognised sectoral qualifications and programmes. Such training/learning is funded by a company or agency or a learner. When relevant, tax incentives are used.

- b) training employees funded by the State budget (such as training civil servants and employees in certain economic sectors: healthcare, agriculture, etc.);
- c) training the unemployed and people notified of dismissal funded through a voucher system introduced in 2012 (Section 2.4) to finance training in formal and non-formal education programmes.

Social partners have the right to initiate new qualifications, standards and VET programmes. Since 2003, competence assessment has been detached from the training process and since 2012 has been carried out by accredited institutions. Social partners, enterprises and employers' associations may apply for accreditation. Employer representatives participate in designing and assessing VET programmes according to labour market needs. They are also involved in organising training and may participate in the management of VET institutions and become their shareholders. Currently, social partners, enterprises and municipal authorities participate directly in managing self-governing initial VET providers, which comprise a quarter of all VET institutions.

The main financial incentives and instruments for increasing participation in CVET are tax incentives, grant schemes, paid and unpaid training leave and payback clauses. Tax incentives for individuals for both formal and non-formal VET were introduced in 2008. Persons paying income tax may claim these expenses in their annual tax return. Up to 25% of training expenditure can be deducted. Where a studying resident of Lithuania is not an income tax payer or has no possibility to exercise the right to deduct payments for vocational training or studies from their own income, such expenses may be deducted from their parents' income or other family members. Tax incentives for legal entities have been in place since 2005. The Law on Corporate Income Tax allows deductions for continuing training courses of employees that are linked to their present occupation. The Labour Code sets out training leave conditions for employees who participate in a VET programme. They may be determined in collective agreements or by agreement of the parties.

## **Building Information Modelling – BIM**

**VET-trainers, VET-teachers** possess very little knowledge and skills in BIM, therefore, the topic is covered in the IVET curricula to a very limited extent. Recently the decision has been taken on the national level to introduce mandatory BIM basics into the courses offered by VET providers starting with 2019. Some funding has been allocated for VET trainers to attend a specialised BIM course in order to be ready to update the curricula and transfer the knowledge to the trainees.

**Companies (mostly SMEs), company trainers'** role in further VET with regard to BIM cannot be defined now as they still lack the necessary knowledge, skills and facilities for providing BIM training to VET trainees and apprentices.

## Digitalization

**VET trainers:** Action plan for introducing information and communication technologies into general education and VET for 2016-18 aims at developing digital training opportunities for VET teachers, developing accessible digital curricula and infrastructure, assuring the development of integrated digital literacy competences through learning all subjects and to provide opportunities for more targeted and individualised training of information technologies. For their professional development purposes teachers (both, general education and VET teachers) participate in various continuing professional development courses offered by accredited teachers' training institutions (universities, municipal education institutions). The choice of courses mainly depends on school's and teacher's priorities and needs.

Currently, when developing new training materials, a priority is given to digital resources. In 2012-15, training tools packages (online training tools and digital manuals) were designed for 14 educational areas and disseminated to VET providers to assist their training process.

**VET trainees:** Digital competence is developed through general education and VET subjects of information technologies. Content of occupational information technologies course differs by school. For example, students practice working with Microsoft Word, Excel and other software, apply them in their subject area, develop websites, etc. Generally speaking, digital competence is a part of everyday learning where students search information, use IT to accomplish tasks, prepare and present their projects.

General education plan is approved annually by the Minister for Education. It specifies that students may choose information technologies course as a general education subject (69 hours or 138 hours for extended course in two years). Occupational information technologies (70 hours in 3 years) is an obligatory subject in the area of general VET subjects that may be offered as an individual subject or integrated into other subjects.

**Companies:** Very few companies address the need of digital training of their staff. In many cases, digital training of workers is still perceived as an informal or non-formal way of learning, and the company does not take responsibility for that. Digital training opportunities available on the market usually address higher skilled employees, like site managers, technical supervisors, but not ordinary construction workers.



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# **The situation in NETHERLANDS**

by

**Open Universiteit / Netherlands**

## **Introduction**

The maintenance and expansion of craftsmanship can take place by gaining experience in the workplace. A second important condition, however, is training and further VET. Training employees is useful and legally required. Employers must enable employees to take training courses in order to be able to perform their duties properly. In addition, they must also train them for another job within a company if the position of the employee lapses or he can no longer fulfill it for another reason. This follows from article 7: 611b Dutch Civil Code that has been introduced in the context of the Work and Security Act.

Reasons for continuing education can be;

- Promotion to a new position
- Refresh knowledge in a particular area
- Technical developments and digitisation
- Become an entrepreneur

## **Opportunities for development**

Within the construction there are many opportunities for training and development at all levels. Volandis, knowledge and advice center for construction and infrastructure, offers every employee a DIA under the CAO construction and infrastructure. DIA stands for sustainable employability analysis and means that employees receive periodical occupational health medical examinations once every 4 years, supplemented by a discussion about career opportunities and sustainable employability. This results in an action plan with which the employee can take follow-up steps, such as taking a course. This training is funded by the employee himself via the individual training budget, which has replaced the training fund since 1st January, 2016.

## **Stakeholders**

Working and learning can also be done through a training company in construction. In the Netherlands more than fifty different training companies / partnerships are active. These training companies have been set up by employers to ensure that young people receive a guarantee for work and training. This is to ensure professional training, if it would be less economically and it would be difficult for individual construction companies to issue a work guarantee. The training companies focus on offering MBO BBL courses. These are courses that combine work and learning. They provide MBO BBL training for pupils who have made the choice for a building program.

## **Kader- & Ondernemersopleiding Bouwbedrijf**

The Kader- & Ondernemersopleiding Bouwbedrijf (KOB) is traditionally the training for obtaining the professional diploma for construction or infrastructure, the contractor's diploma. The students choose a career in the construction company as a manager or as an entrepreneur. The courses are: Engineering, Commercial management, Calculation, Work preparation & implementation and Entrepreneurship.

The KOB courses focus on participants who:

Have a diploma MBO BOL 4 (old MTS) education or infrastructure;

Have insufficient or no vocational training in the construction or infrastructure;

Have completed a higher professional education or civil engineering training.

Within the KOB there are two courses of study, namely Civil and Non-residential Building and Infra. Many students choose to follow all KOB courses. Then the average duration of training varies from two to a maximum of four years. A choice for one or more courses is also possible.

## **BOB Training**

BOB has been the training institute for more than 60 years that provides job-oriented vocational training for the Framework and Management in the executive construction and infrastructure.

Together with courses for project and management, social skills training courses and short practical sessions, BOB offers a complete range of more than 200 courses for all sectors in the construction industry. BOB also provides tailor-made in-company training and services such as advice, coaching and assessments.

BOB is expert in approach. Some of the courses and training courses are reimbursed by the Schollingsfonds.

## **Bouwcirkel**

Bouwcirkel is the course institute for and by the construction industry. Bouwcirkel has set itself the goal of organizing and facilitating courses, training and education. The development of professionals for construction and infrastructure is central to this. For the implementation of the course programs a network of professionals from practice is used. In the meantime, Bouwcirkel is formed by 34 joint ventures, with a wide range of courses at locations throughout the Netherlands. It concerns courses in the fields of: Professional Technology, Quality Assurance & Environment, Communication & Cooperation, and Organization, Planning & Automation.

Sources

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[www.bouwcirkel.nl](http://www.bouwcirkel.nl)



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## **Phase 4:**

### **Role of STAKEHOLDERS IN FURTHER VET**

in

**Building Information Modelling – BIM**

**Work based learning – WBL**

**Digitalization**

**Transition in VET**





## **The situation in POLAND**

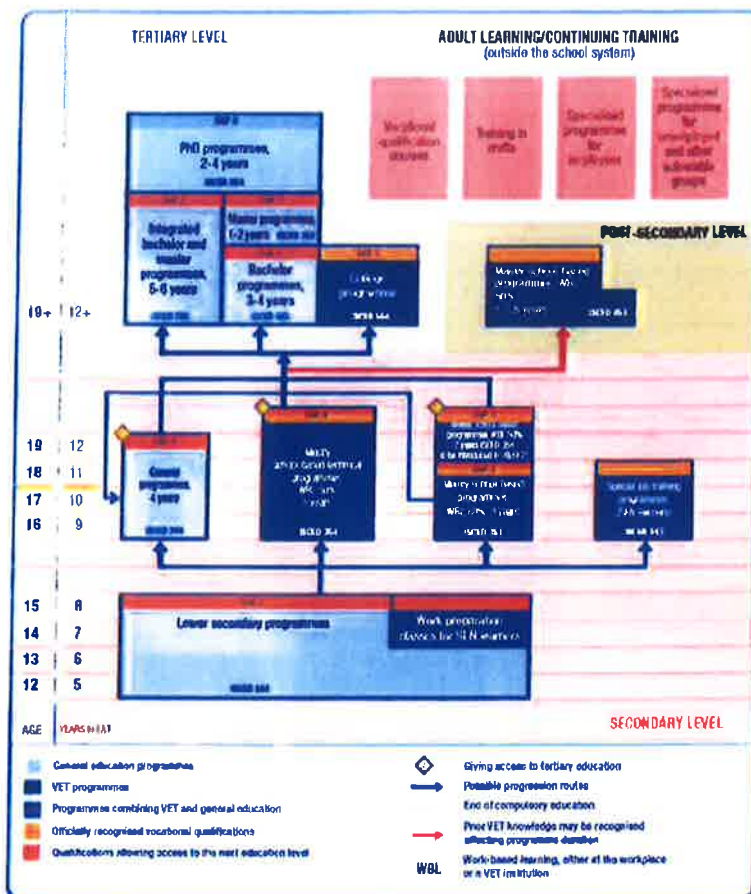
**- prepared by The Educational Research Institute, Poland**

### **Introduction**

Vocational education and training in Poland has three governance levels: national (ministries), regional (school superintendents, mainly in pedagogical supervision) and county [pl. powiat] (governing schools).

In terms of share of tasks and responsibility in the field of VET: the Ministry of National Education is in charge of VET policy at secondary level, supported by other ministries responsible for particular occupations. The Ministry of Science and Higher Education is responsible for higher VET. Additionally, social partners advise policy-makers on necessary changes in VET (Cedefop 2018: 56).

The below scheme presents the VET system in Poland. VET is provided from upper secondary level that are mainly school-based. The legal and institutional framework, key stakeholders and state of play regarding initial VET (IVET) in Poland has been presented in the report from stage 3 of the NETconVET project. This report corresponds to the project stage 4 which is related to **further/continuing VET (CVET)**. We will discuss especially **adult education** since there are mostly working persons, professionally experienced people who participate in CVET because they want to re/upskill and/or their companies are sending them for trainings to gain new skills. Another reason might be the willingness to validate their skills, knowledge and competences that they partially have already.



Source: Cedefop 2018: 57.

### Legal aspects

There is no single Act of Parliament governing adult education as a whole in Poland. Relevant provisions are included in the legislation on school education and higher education. Regulations of the Minister of National Education address selected aspects such as continuing education in non-school settings, accreditation of institutions providing continuing education in non-school settings, and outline statutes of public institutions providing continuing education (FRSE 2018: 7).

### CVET in the context of the LLL Strategy

CVET is important part of the lifelong learning (LLL). Therefore it is mentioned among objectives of the Polish LLL policy – those objectives are based on the *Lifelong Learning Perspective* (adopted in 2013 in response to the European Commission's *Europe 2020 Strategy*). The relevant objectives states:

**Objective:** Adapting education and training to the labour market and social needs

**Measures:** Revised classification of occupations, redefined qualifications for each occupation and related changes in vocational exams; structural reforms, incl. the establishment of sectoral vocational schools; modernisation of core curricula for vocational education (LOs; more robust component developing key competences); practically-oriented vs academically-oriented

programmes in higher education; and greater **flexibility in continuing education** through wider use of non-school settings.

**Objective:** Introducing a new approach to adult learning based on the recognition of the value of learning in the workplace and as part of structured social engagement

**Measures:** Mechanisms for validation of non-formal and informal learning introduced as part of vocational exams and in higher education; **National Training Fund** established in 2014 to support employers investing in continuing the education of their employees; **trilateral agreements (labour office, employer and training institution) introduced for the training of adult learners;** programmes for seniors launched.

### **CVET in Poland**

CVET is a highly diversified sector in Poland – in terms of target groups (learners) and providers (teaching entities). It is provided by various public and non-public institutions, both within and outside the formal education system (FRSE 2018: 79).

**Providers** - formal adult VET is provided mainly by:

- continuing education centres,
- practical training centres,
- further training and professional development centres,
- initial VET schools.

**Programmes** - the following programmes and options of education are available:

- vocational qualification courses (pl. *kwalfikacyjne kursy zawodowe* - KKZ) – they are based on relevant core curriculum for vocational education; it covers one qualification in a given occupation; learners can take the State vocational examination and attain a vocational qualification certificate,
- vocational skills courses - they are based on the core curriculum for VET; they respond to some learning outcomes:
  - group of learning outcomes defined for a given qualification, or
  - learning outcomes common to all occupations within one area of education/training, or
  - learning outcomes common to all occupations relating to the organisation of work in small teams.
- general skills courses based on the general education curriculum,
- courses for juvenile employees in the crafts sector.

There are also skills centres (training institutions included in the Register of Training Institutions kept by Regional Labour Offices) which provides vocational qualification courses and various training courses for the unemployed and job seekers. Additionally, labour market institutions (e.g. labour offices) provides training courses and practical placements for the unemployed and job seekers.

Adults, including the unemployed, may also undertake vocational training through courses provided by **training companies and other non-formal education institutions**. This market is huge, diverse and there are no consistent and verifiable quality assurance mechanisms in place.

However, since 2016, so called “market qualifications” might be included into the **Integrated Qualifications System**<sup>1</sup> and aligned to Polish Qualifications Framework (and to other frameworks via European Qualifications Framework). It might be done after completion of a strict procedure consisted of among the others: qualification development (including describing learning outcomes and validation process) and defining external and internal QA mechanisms. Those market qualifications are entered in the Integrated Qualifications

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<sup>1</sup> See more: <http://kwalifikacje.edu.pl/what-is-the-iqs/?lang=en>

Register by the minister responsible for a given sector. A qualification included in the IQS may be awarded only by an institution which is authorised to certify it. Such an authorisation is granted either by law or by the competent minister. An entity engaged in economic activity may apply for such an authorisation if it meets certain requirements laid down in the national legislation. A certifying institution conducts the validation process in accordance with the legislation (FRSE 2018: 86).

**Market qualifications** - that have a vocational character, are addressed to adults and gives an opportunity for re/upskilling - might be proposed and developed (for the purpose of inclusion into the IQS) by different kind of stakeholders, including:

- private companies (e.g. training companies),
- NGOs as well as
- sectoral associations.

They have a great influence on CVET in non-formal area. Sometimes they create new qualifications that have not been existing before seeing such a market demand. Sometimes they develop qualifications that have been functioning before in the market but e.g. were not described using learning outcomes or have no QA mechanism in place. In both cases the above mentioned entities play an important role – they not only initiate the process but also have to prove the socio-economic need to include particular qualification into the IQS. Such a need must be also confirmed by the relevant ministry. In that way, the role of those stakeholders is to reflect the socio-economic demand in the educational offer within non-formal education (in the form of market qualifications).

As an example, previously the qualification related to managing process of **Building Information Modeling (BIM)** has been proposed. There are also numerous qualifications related to **digitalization**, e.g. “Computer graphics design”, “Creating websites”.

IQS is important in terms of **transition** between different sectors and levels of education. It supports career planning, changing professions and transferring to a different sector. It supports also accumulation and transfer of units/sets of learning outcomes that makes learning pathways more flexible – gaining and validating knowledge, skills and competences step by step.

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**Phase 4:**

**Roles of stakeholders in FURTHER VET**



## **Desk research in Finland by Sataedu**

### **Roles of Stakeholder in FURTHER VET**

Further vocational training includes further and specialist qualifications as well as further training not leading to any specific qualification organised according to the needs of individual students and employers.

In Finland, vocational adult education and training is very much based on the system of competence-based qualifications. A specific benefit of this system is that it makes it possible to recognise an individual's vocational competencies regardless of whether they were acquired through work experience, studies or other activities.

Competence test candidates often participate in preparatory training for competence-based qualifications, which enables them to obtain the necessary vocational skills. Those with sufficient vocational skills may complete a competence-based qualification or an individual qualification unit without participating in preparatory training. It is not allowed to set preconditions concerning participation in training for those participating in competence tests. Nevertheless, the qualifications are mainly completed in connection with preparatory training.

Competence-based qualifications are completed by demonstrating the vocational skills determined in the Qualification Requirements by taking a competence test, which are primarily arranged in authentic production and service situations in the world of work. Each candidate completing a competence-based qualification progresses according to their own individualisation plan. Qualifications are generally completed one unit at a time. A competence test can either be taken at a specific time or it may involve performing a series of tasks over a longer period of time.

Sources:

[https://www.oph.fi/download/131431\\_vocational\\_education\\_and\\_training\\_in\\_finland.pdf](https://www.oph.fi/download/131431_vocational_education_and_training_in_finland.pdf)

Competence tests are arranged by VET providers and they are responsible for supervising competence tests, and award qualification certificates. Evaluation includes representatives of the field's employers, employees and teachers, as well as entrepreneurs as required.

Roles of the stakeholders are the same as for the INITIAL VET:

### Vocational education training as a workplace/school

**The personnel and VET teachers** work according to the goals e.g. strategy, mission and vision of the workplace/school. The employee and teachers should be loyal, active and have a motivation to develop at work. The workplace should provide an opportunity to develop and educate more. Important is to have also a clear job descriptions for the personnel and to the teachers. Development discussions and personnel/teachers research are the tools for taking care of well being. The workplace has to comply with laws and regulations.

**Student's** work in companies or in school (new learning environments like real companies at school) providing further training. Compared to teachers the student's profile is more diverse. Student's should be active, motivated and committed to the learning process. The school should provide high-quality training and the opportunity for individual study paths. Study guidance and versatile learning environments, labor market cooperation and internationality are a prerequisite for the schools operation. The student feedback should be taken annually. Student's should have a possibility to be a part of different kinds of working groups to develop the initial vocational education training.

Sources:

Strategy and annual report of the Sataedu (2017)

[https://www.oph.fi/download/111332\\_Competence\\_framework\\_for\\_VET\\_profession\\_s.pdf](https://www.oph.fi/download/111332_Competence_framework_for_VET_profession_s.pdf)

### Labor market cooperation

The development of education should be open and transparent. There should be clear on the job learning process for the students and for the labor market. The process needs teachers personal contacts from the school and interaction with the companies. Of course it's important that the companies can offer real work tasks for the student's. During the on the job learning period the companies should organize an evaluation discussion on the development of student's competence.

Sources:

Strategy and annual report of the Sataedu (2017)

[https://www.oph.fi/download/111332\\_Competence\\_framework\\_for\\_VET\\_profession\\_s.pdf](https://www.oph.fi/download/111332_Competence_framework_for_VET_profession_s.pdf)

### Customer relationships and the media

Active cooperation and development with student union and trade unions. VET school should be aware of their different educational opportunities, the content of learning, the competence of education, the employment of graduates and student experience in education. VET school has to be active near by the customers such as fairs, various events, leaflets, articles, the applicant's guide and social media. VET school should also keep in good contact with suppliers of goods and services and to the media.

Sources:

Strategy and annual report of the Sataedu (2017)

[https://www.oph.fi/download/111332\\_Competence\\_framework\\_for\\_VET\\_profession\\_s.pdf](https://www.oph.fi/download/111332_Competence_framework_for_VET_profession_s.pdf)



### Support organizations and funding

**Ministry of Education and Culture** is responsible for developing educational, scientific, cultural, sporting and youth policies, with the addition of international cooperation in these fields.

**Finnish National Agency for Education** is an agency under the Ministry of Education tasked with the implementation, monitoring and overseeing of the development in the educational sector.

Source: [http://www.studyinfinland.fi/destination\\_finland/education\\_system](http://www.studyinfinland.fi/destination_finland/education_system)

Most education is publicly funded VET schools providing upper secondary level education are maintained by local authorities or joint municipal consortia. Responsibility for educational funding is divided between the State and the local authorities. VET schools follow the national core curricula and qualification requirements. They also receive **public funding**. The funding for VET schools is based on the number of students reported by the school as well as on the unit prices set by the Ministry of Education and Culture.

Source: [http://www.oph.fi/download/171176\\_finnish\\_education\\_in\\_a\\_nutshell.pdf](http://www.oph.fi/download/171176_finnish_education_in_a_nutshell.pdf)

The reform updates the entire vocational education and training (VET) by 2018. In the future, work life requires a new kind of competence, while there are fewer financial resources available for education. VET has to respond more **swiftly** to the changes in work life and operating environment and to adapt to individual competence needs. VET for young people and adults will be consolidated, forming a single entity with its own steering and regulation system and financing model. The current supply-oriented approach will be refocused into a demand-driven approach.

Education will be competencebased and customer-oriented: Each student will be offered the possibility to design an individually appropriate path to finishing an entire qualification or a supplementary skill set. The primary importance is on what the student learns and is able to do. Digital learning environments and new approaches to pedagogy (e.g. modern simulators) will have a larger role in the future of learning. Learning in the workplace will be increased. In Finland, VET is organised by different types of education providers: municipalities, joint municipal authorities, the state and the private sector. An authorisation to provide education is required. In the future, education is regulated through a single authorisation license, and education providers will have increased freedom in organising their activities.

The reform includes examining the education provider network. VET will be available throughout the country in the future as well. The ministry will ensure that all education providers have sufficient professional and financial resources to provide education. Education providers are encouraged towards voluntary mergers. There are up to 370 different vocational qualifications available in Finland. In the future, the number of qualifications will decrease, and qualification content will be broadened. This supports designing individual study paths and enables more rapid responses to the changing competence needs in work life.

Source:

[https://www.oph.fi/download/177618\\_key\\_projects\\_reform\\_finnish\\_competence\\_and\\_education.pdf](https://www.oph.fi/download/177618_key_projects_reform_finnish_competence_and_education.pdf)



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#### **Phase 4:**

#### **Role of STAKEHOLDERS IN FURTHER VET**

'Which "roles" do different stakeholders in FURTHER VET cover?  
In further VET there are mostly people beyond initial training, who are in their regular work life and have more or less professional experience; they are sent to further VET by companies and/or are looking for individual upskilling. Sometimes further VET is also frequently required to gain prolonged legal allowances.



**BZB**

Bildungszentren des  
Baugewerbes e.V.

**The situation in  
BELGIUM / Wallonia  
Centre IFAPME Liège-Huy-Waremme**

**Introduction:**

In terms of employment and vocational training, Wallonia aims to promote skills for employment through many social and vocational integration or training programmes, to support the training aspect of competitiveness clusters, to stimulate the creation of activities, to support job creation by promoting professional transitions to self-employment as a main activity and by promoting the employment of young people as well as supporting research in the field of research and innovation. To this end, aids are granted, like for example:

- The training voucher (chèque formation): which allows the worker or the self-employed to get trained while working. If the person works in a company with no more than 250 employees or is self-employed as a main or secondary activity, the Training Voucher offers the possibility to cut the company's costs by half.
- The creation check (chèque création): financial assistance to help the future self-employed to learn how to start his own business. The training voucher for business start-up is a financial aid set up by Wallonia to promote job creation. Thanks to this system, the person who wishes to set up as a self-employed person as a main activity or to set up a business, receives assistance before the start of his or her activity. During the phase prior to the launch of their activity, project leaders can benefit from personalised support in the development of their business project (personalised coaching) and adapted training provided by training operators approved by Wallonia.

**Constructiv**, which is the national body representing the sector, also provides benefits to companies and workers wishing to get trained.

Indeed, technical and organisational developments imply the need to organise additional training for workers and employers. In order to support employers, Constructiv offers a diversified range of training courses and also contributes to training and wage costs. On the other hand, in collaboration with Constructiv, workers can obtain the required certificate in the construction field in order to demonstrate their professional skills.

## **Building Information Modelling and Digitalization**

BIM is considered as an important topic to be developed for the near future. For that reason, further VET stakeholders have a big role to play. Indeed, Further Vet stakeholders (especially sectoral associations and further VET providers) have to prepare workers to the new methods and technologies. For this reason, it is crucial to be aware of the trends, evolutions and proceed to a regular technical monitoring and be surrounded by experts in the field they would like to develop. In our case for example, we hired a BIM expert whose main role is to develop the topic, develop IVET and CVET trainings, recruit trainers and organize the networking tasks (contact with partners, organizations, consultants, companies, ... to identify the needs for training, as for example:

- Understand the issues of BIM
- Use a collaborative work platform
- Master the tools of the software "revit architecture, SketchUp BIM, ..."
- Work collaboratively in a BIM project
- Technological intelligence
- Contacts with stakeholders

We are also partners of the project "Jobs @ Skills", which is the collective structure of the Academic Pole Liège-Luxembourg, within the framework of an SCEC project on eco-design and the main topic of the project is focused on BIM. As part of this project, we exchange with companies and universities, each institution having its specificities, the aim being to highlight its strengths and skills to create an innovative training that will allow companies (and workers) to improve their performances.

Communication is essential in further VET, to promote the new topics, technologies, and help the companies to be more performant and competitive (+ inform about the new regulations and compulsory trainings linked). At the communication level: organization of a breakfast on BIM thematic, promotion of our training offer (emailing, website, social networks)

Let's not forget that the digitalization (BIM included) of the sector remains a topic that companies are not always aware of (same for and many workers), which is especially the case for micro

enterprises of the sector that are rather shy about these technologies. Related to BIM, as micro-comp especially work on smaller projects, they do not really see the importance of the topic.

Younger people are quite advanced in digital technology but more for a private use. It is therefore essential to train them as soon as they start the training in order to introduce them to the use of digital technologies in the workplace, and make them aware of the opportunities coming from technologies in the trade.

Training courses are organised at the IFAPME LHW Centre in the field of basic IT technologies, but are not very popular in the sector. Just as our own trainers are not always very eager to use these tools.

Promotion by federations is essential to make workers and entrepreneurs aware of the importance of digital technology.

#### **Work based learning – WBL and Transition in VET**

Further training is more considered as a complement for WBL. In our case, we organize further training for trainers in WBL and trainers of technical schools in order to help them to get updated about new methods et technologies, especially when they are teachers (not in activity anymore). In this way, we train the managers of young apprentices, who can also transmit this new knowledge to the young people.

Until last year, our Competence Centre, Constriform, offered further training (quotations, special techniques,...) to students in full time VET education but unfortunately, these training courses were not open to our apprentices in dual training.

Fortunately, the sector has supported this idea and recently, the young people of our Training Centre will also be able to benefit from further training related to their profession or to assist their employers when they participate and will be financed by public funds.

Speaking of financing, it should be mentioned that employers in the construction sector have various opportunities to finance their lifelong learning pathways. On the one hand, the Walloon

region grants "training vouchers" (cheques-formations) which make it possible to finance training courses. On the other hand, the sector offers the possibility for the workers of the sector to train during the winter period, a period of slower activity, by receiving a bonus.

**Conclusion :**

The problem is still the same, even if the training centers offer interesting training for workers and entrepreneurs in the sector, in general, they only attend them if they are **mandatory** in order to renew a compulsory agreement. But when it comes to further advanced training mainly in relation to management and IT, the lack of time and cost-benefit takes over.



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in**

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**Work based learning – WBL**

**Digitalization**

**Transition in VET**





**The situation in  
BELGIUM (EU-level)  
by  
European Builders Confederation**

**Building Information Modelling – BIM**

Companies – Construction SMEs are slowly embracing the digital transformation of their industry and are thus still developing their reflections on their role regarding FVET BIM programs in Europe. Indeed, only few small companies are not struggling with BIM tools, or even paying attention to them, as the uptake has been slower and more complex than expected. For example, several entrepreneurs consider that digital training for workers should simply focus on software allowing to create a database of client profiles in order to have to coherent price quotations over time. Many already struggle with workers properly using basic MS Office in order to communicate and collaborate with the other actors of the construction process. However, with 94.1% of the EU construction sector made up of micro enterprises, it is imperative that these players are not left behind in reaping the benefits of BIM tools and in the definition of updated FVET curricula. Following this line of thinking, construction entrepreneurs and SMEs need an easy-to-use and collaborative approach regarding the use of BIM in their industry: due to their size and limited resources, small and micro companies need help from the other actors from the value chain to definitively uptake BIM tools and concepts. Construction SMEs still lack the necessary knowledge and hands-on experience to be able to share very specific recommendations regarding FVET on BIM. However, as for IVET, the financial and operative accessibility of BIM tools is important for the education related to their management; also, the interoperability of BIM tools is important and could help convincing entrepreneurs of their added value. On a more positive note, many construction entrepreneurs see BIM and other digital tools as a great way to trigger the curiosity and attract new talents into the sector. Additionally, many also consider that BIM might improve their relation with architects and engineers by indicating clearly the type of works that the SME contractor should carry out. Finally, many SME contractors believe a closer cooperation between the construction companies and the VET world should be established.

Trainers – Trainers are suffering from a lack of training themselves on BIM, whereas they will play an important role regarding the adoption of digital tools like BIM by the sector and the interest for the construction industry. Construction trainers and mentors need proper accompanying measures to help them adapt their training methods to digital tools, in order to get BIM increasingly adopted in FVET curricula.

Learners – EBC believes that workers as well as apprentices will be the main beneficiaries of BIM adoption as the simplified exchanges across the whole construction value chain will enrich their knowledge in the long-run, as long as the education around BIM tools is built around the concrete needs of construction SMEs on the ground (energy renovation, circular economy, etc.). Regarding FVET, BIM and other digital tools may play a key role on the number of new talent enrolling or staying into construction training programs.

**Work based learning – WBL**

Companies – According to small contractors, WBL needs to be further promoted in all EU Member states. Construction companies endorse responsibilities for the training part of a FVET curricula and should have their say on the whole programme. Indeed, work-based learning programmes will benefit from a continuous and better involvement of construction enterprises, at all levels, when designing or updating FVET curricula. Globally, construction SMEs encourage WBL as it may prevent mismatches between what is taught in VET centres and real company needs.

Trainers – VET centres are at the heart of the tripartite structure with companies and students to get successful work-based learning curricula. Within these VET centres, trainers have a major role as they liaise the theoretical

knowledge with what the student learned in the company. To launch or keep successful WBL networks, more connections are needed with employers' representatives in order to identify good spots for WBL experiences.

**Learners** – Work-based learning simplifies the transition to the real labour market in the construction sector. Testing knowledge on real scenarios allows to self-assess how to adapt one's skills and wills to real market needs. To conduct a mission on a construction site is not the same as to be shown or attempt the same mission in an education facility. As WBL has not spread in all EU countries yet, the experience in a company may also be an option to attract new talents into the sector and should be promoted within all EU Member States.

## **Digitalization** [Please see also above section BIM]

**Companies** – Although most of construction SMEs acknowledge the need to address and adapt to a digitalised construction sector, nowadays only a few construction SMEs and craftsmen handle digital tools, while others are afraid of changing their usual methods, as well as of the time and money investments related, or simply show no interest in those tools or are unaware of their existence. Responsible for 80% of the construction industry output, and around 9% of the European Union GDP, micro to medium-sized companies must be the main focus of the digital revolution.

European construction representatives have agreed common terms to promote the digitalisation of the construction sector as a top priority of the EU political agenda, with their national members getting increasingly involved in projects exploring how to better embrace digital tools. However, construction SMEs need the support from the whole construction value chain (large contractors, architects, manufacturers and other), as well as supportive European and national regulatory and financial frameworks, in order to establish a collaborative approach for the digital transformation of the sector and thus make it a reality.

**Trainers** – Digital tools and methods are now exerting pressure exerted by on VET centres, construction trainers and on-site mentors everyday routine. Trainers might be open to innovation, but many resist change. However, if Europe envisages a digital construction sector, notably through BIM, VET centres and trainers need first to be trained themselves on rapidly evolving technologies affecting the sector and all trades, second be given the tools and resources to adapt their way of teaching, and third to act genuinely as promoters of the digital transformation.

**Learners** – The construction sector is suffering from a lack of workforce, to which digitalisation adds additional pressure. New and updated skills and competences, however, also mean that digitalisation may help facing the general lack of interest for the construction sector by showing the evolution of different professions.

## **Transition in VET**

**Companies** – No real role identified for construction companies except for shaping updated VET curricula that might be more attracting.

**Trainers** – The role of VET centres and trainers is crucial for the sustainability of the sector as they need to convince that VET leads to fulfilling careers, with real development opportunities, job security and work-life balance.

**Learners/Young professional** – Target group, that needs to be enough attracted by the different characteristics of the construction sector in order to join the industry. External talents need adapted and updated teaching and reorientation support to face the construction labour market with relevant skills.



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