



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/>

Phase 3:

Role of STAKEHOLDERS IN INITIAL 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 INITIAL VET as these following here:

- companies
- general schools
- VET-centres/VET-schools
- 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)
- parents (when people in initial training of minor age. i.e. < 18 years old (legal age))
- SOKA Bau (funding association for Initial Training in construction in Germany)

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) General schools: no direct or immediate task for them, because they do apply the educational frameworks. When BIM becomes obligatory by this they become stakeholders in initial vocational training adapting BIM. Role is currently passive in tendency.
- 3) VET-centres / VET-schools: quite similar as for general schools. Optional offers and services for conveying BIM come up but so far are quite limited. Roles semi-active as service providers.
- 4) 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.
- 5) trade associations / employers associations: should have an interest to promote BIM courses, but very seldom so far. Role: adapting market needs.

- 6) trade unions: no comment. Role: unclear.
- 7) Ministry for Education and Research of Germany (BMBF) / Federal Institute for Vocational Education and Training (BIBB): both institutions are aware of the 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 initial training. As there is a consensus process in innovating the VET curricula, this can take some time. Role as an innovator.
- 8) parents (when people in initial training of minor age. i.e. < 18 years old (legal age): no direct stakeholder for VET/BIM, thus no role present.
- 9) SOKA Bau (funding association for Initial Training in construction in Germany): as SOKA-Bau is monitoring VET-centres of the construction branch in terms of quality of teaching theory and practice as well as on methods in the Dual System they will be interested in BIM being at least an optional part of the VET-process. But BIM is not a formal quality aspect to be assessed so far. Role is to promote BIM as innovative aspect in initial training.

Work based learning – WBL

- 1) Companies: WBL (in the German VET-system of the construction branch “Handlungsorientierte Lehrlingsunterweisung” – HOL) is the principle that defines VET in the company. As all apprentices are employed by the companies, they are “workers in training”. Hence, they do work under real work life situations from the very beginning. All company work is based on assignments and/or subcontracting, which always shows the trainee in initial VET the 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) general schools: the VET-schools have the task of conveying WBL while apprentices are attending at their facilities. It is more theoretical to explain the method and principle. Role unclear.
- 3) VET-centres / VET-schools: beside the companies the trainers in the VET-centres and teachers in VET-schools teach and moderate learning the WBL principle. As apprentices stay substantial periods in the VET-centres next to VET-schools and their companies, these organisations support apprentices in understanding in a practical way how to apply WBL in different small projects which they conduct in a pre-defined period of time. Role as users of WBL.
- 4) chambers for skilled crafts and industry (HWK / IHK): The Chamber of Craft as well as these for Commerce and Industry monitor the correct conduct of VET-curricula in companies and VET-centres. VET-schools are subject to the Ministries of Schools of the respective state (16 in all) in

Germany. The chambers have a strong interest that WBL as the main methodological principle in the VET of the construction sector is implemented correctly. Role is monitoring the appropriate practicing WBL.

- 5) 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 initial training which is oriented at practical needs in the sector in daily work, copes with their interests. Role as promoters.
- 6) trade unions: for a high quality VET and thus for the qualification of the apprentices – as part of the workforce – the trade unions also represent the interests of the sector. Role is monitoring WBL in the interest of apprentices.
- 7) Ministry for Education and Research of Germany (BMBF) / Federal Institute for Vocational Education and Training (BIBB): BMBF and BIBB are the developing, the improving, monitoring and controlling stakeholder of WBL in Germany. They have all curricula for more than 300 professions in the initial training under their control. Role is mainly innovator, monitor and promoter.
- 8) parents (when people in initial training of minor age. i.e. < 18 years old (legal age): no direct interest and role.
- 9) SOKA Bau (funding association for Initial Training in construction in Germany): as SOKA-Bau is monitoring VET-centres of the construction branch in terms of quality of teaching theory and practice as well as on methods in the Dual System they will be interested in WBL being an obligatory part of the VET-process. WBL is a formal quality aspect to be assessed. Role is monitoring and promoting.

Digitalization

- 1) Companies: They have, should have or do not have a particular interest in their apprentices 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 initial VET. The ones, who do not apply too much digital aspects, have a tendency to not require digital issues for their apprentices (be it working with smart devices or learning from digital contents). An apprentice will not have too many applications to work with during his/her apprenticeship, but immediately after having successfully finished this and being a skilled worker, the companies demand these digital skills from him/her. Hence, companies should have an interest in youngsters being trained digital issues while being in initial VET. Role as user and provider of demands.

- 2) general schools: they can teach and convey digital issues along their present facilities (number and modernness of computers and/or other digital devices). They rely on curricula and optional possibilities to teach and practically adapt this as well as they rely on the quality of their teaching staff. Role is to convey digital skills and apply software in trainings.
- 3) 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 curricula and optional possibilities to teach and practically adapt this as well as they rely on the quality of their training staff. Role as users, promoters and service providers.
- 4) 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 of curricula and optional possibilities to teach and practically adapt this as well as they rely on the quality of their training staff. Role as users and service providers.
- 5) trade associations / employers associations: They rely of curricula and optional possibilities to teach and practically adapt this as well as they rely on the quality of their training staff, when they have this kind of staff. Role as promoters.
- 6) 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 initial training. Role as promoters and giving guidance for apprentices.
- 7) 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 curricula for initial VET in construction (but also in other branches) by digital contents, methods and practices. There are numerous budget lines and funding programs to develop new approaches for updating, innovating and improving initial VET for the sake of coping with the requirement and demands of the digital era in the construction market. Role as promoters and innovators.
- 8) parents (when people in initial training of minor age. i.e. < 18 years old (legal age): Although most parents facilitate their children with mobile devices from a certain age onwards, these digital skills are mostly informal and thus in least cases be adaptable to formal settings. Parents should be interested that digital skills could be built up even prior to initial training. Role as provider of perspectives.
- 9) SOKA Bau (funding association for Initial Training in construction in Germany): as SOKA-Bau is monitoring VET-centres of the construction branch in terms of quality of teaching theory and practice as well as on methods in the Dual System they will be interested in digital aspects being at least an optional part of the VET-process currently. As soon as digital aspects and contents

become formal in the particular curricula, this will be also subject to auditing by SOKA in terms of a modern and up-to-date media-didactic approach in VET. Role as promoter and monitoring use.

Transition in VET

- 1) Companies: They are the ones usually having the contract with the apprentice/s for at least two years, regularly three years, but sometimes also 4 years. An interest for companies (in particular in times of shortages in qualified work force) should be to hire an apprentice in terms of human resource development and in the best way give him/her a career perspective. The advantage is that own apprentices are trained along the very particularities of the company, but always respecting the formal curricula requirements. 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. Role is providing work life perspectives and career paths.
- 2) general schools: among others, the general school have an interest in demonstrating that a vocational training as apprentice is a good starting point for a qualified job career. This should show the structure and perspective of an initial training in different jobs. Schools in Germany have the obligation to let school classes and pupils have a look into initial training like situations; e.g. school classes come to VET-centres to "sniff" into job, work materials, processes and atmosphere. Their role is to deliver basic insight into initial training as part of the German dual system.
- 3) VET-centres / VET-schools: next to the companies VET-centres/schools have a strong interest in initial training, since it is their core business. By providing a high quality standard in initial training and vocational education they are service providers for companies as partners in the German dual (actually tri-partite in construction) system of VET covering the parts of the apprenticeship which cannot be covered e.g. by small companies (which are the far majority of firms), but which is essential part of the exams, which have to be taken at the end of initial VET, at the chambers of craft or industry. With the initial VET they lay ground for a solid career in construction. Role as facilitator and promoter.
- 4) chambers for skilled crafts and industry (HWK / IHK): strong interest in initial training, which is the basis for individuals' job careers. With a solid initial training professionals can open up further training 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 training (in competition to tertiary / university education), support companies

and individuals in this period of initial VET and showing career perspectives. Role as promoter and given guidance.

- 5) trade associations / employers associations: very similar to chambers. Role is to give guidance and promote career paths.
- 6) trade unions: they do care for workers interest and welfare in their jobs; also for apprentices. Their role in initial VET is to guarantee balanced working conditions and monitoring quality standard in initial VET for the good of the workers. This can be summarized by a social responsibility.
- 7) 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, when not attending tertiary education. In terms of the life long learning BMBF and BIBB have the role to develop, improve, administer and monitor attractive initial training contents and methods (also digital innovations) to attract young people for a vocational job path.
- 8) parents (when people in initial training of minor age. i.e. < 18 years old (legal age): They can and should support youngsters (as they mostly are) while being in an apprenticeship and thus in initial vocational training. Their role is the one of a personal supporter; also in phases, when the son/daughter might be about to quit the contract. Parents fill in the role of a facilitator of job and career opportunities, while sometimes report from own (work life) experiences. They can also help youngster to select from the enormous number of possibilities which the vocational sector provides. Role is motivator, supporter and also mediator if necessary.
- 9) SOKA Bau (funding association for Initial Training in construction in Germany): the role is to monitor and assess (also audit) initial VET in VET centres in Germany. A good audit result by SOKA is relevant for VET-centres for being funded by SOKA, which is the main source of funding in formal initial VET. Role is monitoring and assessing opportunities in the VET-system in construction.



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

Building Information Modelling – BIM

In relation to the BIM methodology, in Spain there are currently multiple, varied and diverse offers. The lack of official certifications or regulated training has facilitated this diversity. The type of training on BIM needed by an individual/student will depend on whether s/he wants to be a BIM modeler, a Bim Manager or a site manager with BIM knowledge.

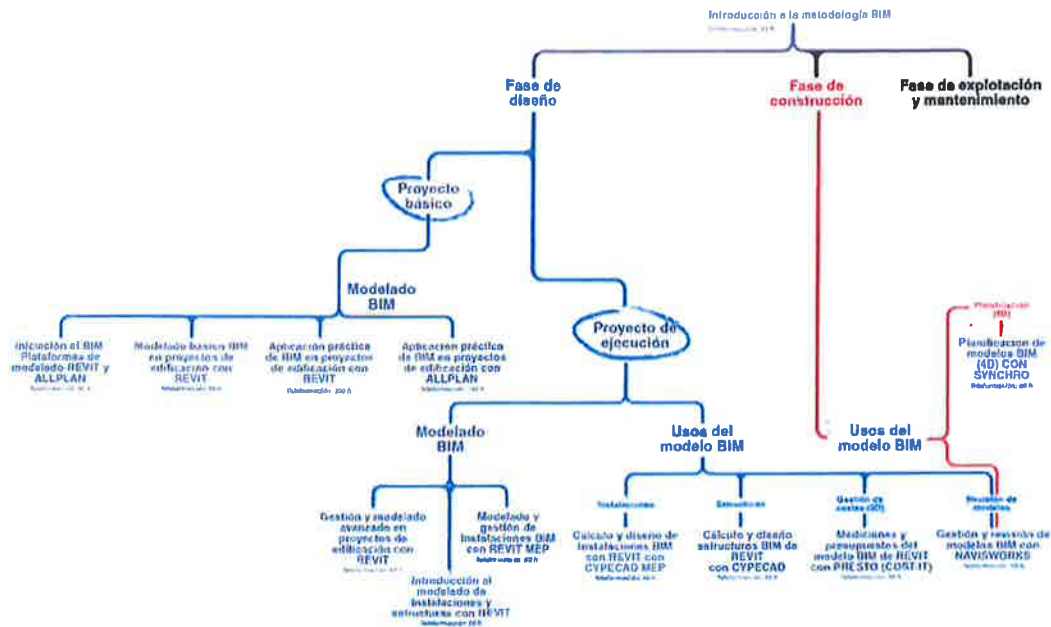
In Spain BIM may be studied in several environments, but most commonly they are University Masters offered in the scope of Higher Education, in universities or training companies that offer Masters on BIM, usually in collaboration with a given university. This type of training is of the higher level, i.e., offered to architects and engineers mainly.

There are other training companies that offer a wide of courses „à la carte“, as well as seminars and/or workshops, which allow the learners to gain knowledge according to her/his needs. Some companies even offer an employment exchange programme for learners, therefore facilitating the transition to a job occupation. They are more in the scope of continuing VET for professionals.

The experts indicate that BIM, as many other practical instruments, is „learnt by doing“, therefore it is important to own an BIM software license. There are online trainings which are much cheaper than a Master (and shorter in terms of training hours) and which, many times, provides the students with a free educational license during a number of months.

Regarding initial VET, there exist the professional family of Building and Civil Works, including 6 cycles divided into the 3 VET levels: basic, medium and higher. In them, the specific training on BIM within the curricula is not fully implemented; there are some projects focused on initial VET and Dual VET that are intending to include BIM as a specific module, but at the moment it is not developed on a broad scale. However, many VET centres are including BIM theory and practice for their students.

Therefore, training in BIM should be done in the scope of the university or in continuing VET as, for instance, the BIM itinerary offered by Fundación Laboral de la Construcción:



Work based learning – WBL

WBL and Dual Vocational Training are currently under development in Spain, representing an attractive political option to facilitate the transition towards employment of young people and adapt their skills to the productive requirements. However, it represents only around 2% of the total of the VET delivery in the country.

The Spanish initial VET system is not considered as dual, according to the terminology commonly used, but as *school-based* since the theoretical and practical training in the company is not alternate. The introduction of the Dual System for VET is relatively recent in Spain, and is regulated by a law launched in 2012: RD 1529/2012 from 8 of November, by which the 'Contract for training and apprenticeship' is developed and the bases for the Dual VET are established. At the present time, dual VET coexists with the traditional VET model, having at the moment a low implementation, although participation has been increased in the recent years.

Since the 90's, there is in Spain a WBL approach in the traditional VET programmes of the Education System, by which an on-the-job learning period is compulsory for any formal VET learning programme. It is carried out once the training in the educational center has been completed, through the so-called "Training in the workplace" module; however, this represents only 20% of the total practical training that students receive during two academic years.

Complexity is a common feature of VET systems, especially in dual systems, due to the variety of actors involved in decision making, management and implementation (public administrations -central and regional-, training centers, companies, social partners –trade unions and company associations-, etc.). Thus, the success and effectiveness of dual VET systems depends, to a large extent, on the development of governance structures that favor the coordination and integration of the different actors involved. This variety of organizations and actors involved respond to the different origins and aims of VET systems integrated in specific societal contexts. The various existing configurations are linked, in turn, to different results, especially in relation to their capacity to favor the labor integration of students.

Unlike countries such as Austria or Germany, Spain presents a statist model with low participation of the companies in the training context, and the social dialogue regarding training is less institutionalised and, consequently, may be altered depending on the political and/or economic situation. This implies that, to a certain extent, the social partners have not been yet assigned some specific functions or are in the process of definition. Also, taking into account their different positions and interests, it is assumed that they can have different and conflicting ideas about the optimal implementation of the system.

On the other hand, according to the abovementioned regulation, WBL may be received in the framework of the Regular Vocational Training (managed by the Ministry of Education) or in the

framework of the Vocational Training for Employment (managed by the Ministry of Employment). Therefore, we can find two state-level administrative bodies that hold legislative and follow up competences. Cooperation between both bodies would make it possible to advance in the achievement of the objective of integrating initial VET (under the Ministry of Education) and VET for employment (under the Ministry of Employment). However, in practice, the participation of the two Ministries has created a model that differentiates two profiles with a different status: that of the student of the initial VET, and that of the "apprentice" that can be hired with the 'contract for training and apprenticeship', subject to labor legislation. Accordingly, trade unions and company associations show differences regarding the recognition and regulation to be applied to the students and apprentices, and to the dual model itself.

The Spanish Educative system is not centralised, and the management and administration competences fall within the departments of education of the Regions, together with the Employment Councils and the Regional Public Employment Services, which must authorize the training activity related to the contract for training and apprenticeship. Thus, the distribution of competences between the two Ministries is also reproduced at the regional level, making coordination and integration of the system difficult. In a similar way to the German model, the Spanish system grants powers to different ministries and councils located at different territorial levels without creating mechanisms for its coordination.

Regarding unity and consistency of the legal framework, it should be noted that the R.D. 1529/2012 coexists with different regional regulations currently in force, in line with the Spanish regulation that allows the Regions to hold regulatory competences for the development of state standards and rules for non-basic elements or aspects of the education system. In some cases, this may imply a comparative grievance between the different types of training and the different profiles of students, that could question the principle of equal rights (for example regarding remuneration or number of hours in the training centre and company).

Thus, there are two different models for WBL in the field of VET:

<p>Model 1 EDUCATION SYSTEM (VET Diplomas) (2000h., 2-3 years)</p>	Dual VET (2 types: possible remunerated scholarship, or Contracts for Training and Apprenticeship, remunerated) Age: 16-25/30 At least 33% of the total time in the company
	Compulsory non-remunerated practices (traditional VET -not Dual-)
<p>Model 2</p>	Dual VET (Contracts for Training and Apprenticeship, remunerated)

EMPLOYMENT SYSTEM (Certificates of Professional Standards)	(max. 75% of the maximum no. of hours according to the collective agreement/legal maximum during 1 st year; max 85% during 2 nd and 3 rd years)
	Compulsory non-remunerated practices (exempt if the student is under a Contract for Training and Apprenticeship)

Currently there is a lack of national cooperation devices between the training centres and the companies; it is being organised at regional levels, using different strategies. This involves the coexistence of different dual VET models and WBL system, depending on the needs and reality of the territory. In general, the training centres have a high degree of autonomy to adapt the new dual training to the local productive environment and the needs of the companies involved in the WBL programmes, especially large companies (for SMEs there are more difficulties to participate in these programmes).

The role of the in-company tutor is legally recognised in Spain through R.D. 1529/2012, however, the persons who carry out this role are not always recognised as such in some companies. Furthermore, there is no official recognition of this role at national level. Different organisations have been interested in developing the profile of the in-company tutor, and different material may be found online. One of the most active entities regarding the promotion of the Dual training in Spain is [Fundación Bertelsmann](#), devoted to the promotion of the social change through innovative proposals. It has developed different projects and initiatives regarding the introduction and broad usage of the dual system in Spain and concretely, it has been a promoter of the Alliance for the Dual Professional Training, which is a national network of more than 500 companies, training centres and institutions committed to the improvement of the youth employment through the development of a quality Dual VET system. It is noteworthy that currently, the Alliance is specifically focused on supporting the VET provided within the Educative System (Ministry of Education), but it is not active in the VET for employment (the one provided by the Ministry of Employment).

Digitalization

In Spain, both enterprise associations and trade unions indicate that Spain is at the bottom in terms of digital talent, and in fact, more than half of Spanish people do not have basic digital skills. These deficiencies prevent the modernisation of the economy and delay the technological development of the productive tissue. Three out of four companies do not offer training activities in digital skills to their employees.

In the 'Annual Employment and Social Developments in Europe (ESDE)', the European Commission emphasises the new challenges for the labour market posed by automation and digitisation, highlighting the role to be played by robots and artificial intelligence. These new technologies will have such an impact on the labour market that the Commission estimates that if applied directly to existing production processes, more than 30% of existing jobs would be fully automated, and a further 25% would be partially automated. Both forecasts assume that more than half of current jobs will be directly impacted by task automation in the next 10 years.

This is precisely where it is necessary to reduce the shortcomings of the Spanish VET systems, because on the one hand, Spanish youth, even if being described as 'digital native', are not sufficiently prepared for a highly technological environment, where programming, data management, creativity, emotional intelligence and interpersonal relations are key and decisive aspects. And, on the other hand, the active workforce does not have enough knowledge or skills to cope with a transition to a new digital world. In fact, 55% of Spanish workers do not have basic digital skills.

In this context, the VET offer must be able to adapt to the new needs of companies, leaving aside the more industrial profile to enter fully into professional families and content directly related to technology. In addition, the image and reputation of VET must be definitively changed in order to increase their capacity to attract new students. It is necessary to integrate the learning of digital technology and skills across all curricula, and develop appropriate teaching methods too. Digital skills should be seen as part of a basic education, just like reading, writing and arithmetics.

VET teachers and trainers agree that the greatest challenges facing VET are digitalisation, change and innovation, soft skills, updating of the teaching staff and flexibility and adaptability to the future. It is necessary that administrations take note of all these needs that require strong economic injections, as well as that the people responsible for education have the necessary vision of the future to plan and execute strategic plans in VET. Schools need hours to carry out innovation and internationalization projects, update material that contemplates the digitalization of all sectors and methodologies in constant updating to face all the changes that VET is already facing.

A serious barrier to developing digital competence is the lack of adequate digital skills and competences in the education systems. 75% to 80% of students are taught by teachers who are not digitally confident. Schools do not have sufficient resources for relevant technological equipment or for updating or upskilling teacher qualifications. There are not enough VET centres that are digitally competent in their teaching or highly digitally equipped.

Recently, the 5th Vocational Training Plan prepared by the Basque Government was presented in the last International Vocational Training Congress held in San Sebastian, with the 4th Industrial Revolution as its central axis, which refers to the new solutions that are being carried out by industrial companies and that are revolutionising markets (Tesla, Joby Aviation, Uber, Airbnb, Amazon, Netflix...). This plan marks the fundamental working lines in which it goes into the changes introduced in recent years with new figures, work teams and technological areas to be further developed.

The plan highlights the creation of new institutes for future learning and talent in VET, as well centres for research and applied innovation in VET. This involves collaboration between schools, administration, teachers and companies; collaboration in which to share knowledge and learning projects.

The congress was also based on the need to be in line with the digitalisation that the world of work imposes on those who work in VET. It is not only a technological revolution (internet of things, robotization, drones, virtual and augmented reality, artificial intelligence...) but also about a revolution that is radically changing modes of consumption.

The message conveyed by the experts of the digital economy implies making a reflection that makes VET to help in this process of digital transformation by rethinking future jobs. It should be analysed each VET cycle and the professional profiles that will be demanded in the future and that do not yet exist in the labour market, and also, think about how will technologies affect the professions that exist today. The latest analyses already detect certain professional families in decline while others grow largely because of this unstoppable process of digitization.

Transition in VET

The initial VET of the Educational System in Spain is composed of 166 training cycles divided into 26 professional families, with theoretical and practical contents in line with the different professional scopes. For each professional family the student may participate in **Basic VET cycles**, **Medium VET cycles** (corresponding to Secondary School) or **High VET cycles** (corresponding to Higher Education), all referring to the National Catalogue of Professional Qualifications.

There are several mechanisms that allow the transition from these cycles to other types of studies:

From...	Mechanism	Transition to....
From an Initial Professional Qualification Programmes (for those students who have not reached the compulsory secondary education level)	Compulsory + voluntary modules	The student automatically reaches the Compulsory Secondary Education level
	Compulsory modules	Medium VET cycle
	Professional Specific Modules	Certificate of Professional Standards
		Access exam for the VET Medium cycle
Basic VET cycle	Passing all the Professional Modules	The student reaches the Compulsory Secondary Education level
	Passing all Professional Modules linked to a	Certificate of Professional Standards (Level 1)

	Competence Unit with a complete Qualification	Access exam for the VET Medium cycle
Medium VET cycle	Passing all the Professional Modules	Secondary High School (<i>Bachillerato</i>)
		Another Medium VET cycle
		Certificate of Professional Standards (Level 2-3)
		Access exam for High VET cycles
High VET cycle	Passing all the Professional Modules	University (through an access exam)
		Another High VET cycle
		Certificate of Professional Standards (Level 3)

It is also possible to move from University to VET; in this case it may also be possible to convalidate some subjects. The procedure for this convalidation is carried out by the Competent Administration.

IN the case of transition from VET to the world of work, there are also several mechanisms: WBL through the contract for training an apprenticeship; internships in companies; labour contract.

The modalities by which the student may be hired are the following:

- Contract for Training and Apprenticeship, by which the apprentice receives a salary, as any other regular worker.
- Internship, which may vary depending on the different Regions.

The following table shows the most relevant differences between both modalities:

MODALITY	TARGET	WORKING TIME	RETRIBUTION	DURATION	OTHER FEATURES
CONTRACT FOR TRAINING AND APPRENTICESHIP	Young people between 16-30 years	Max. 75% of the maximum legal working period during the 1 st year Max. 85% during 2 nd and 3 rd year	Never must be below the minimum wage, (€735,90) according to the number of hours worked	1 year minimum 3 years maximum	Contribution to Social Security 100% incentive for SMEs 75% incentive for larger companies (+250)
INTERNSHIP	Apprentices in general (no specification of age)	Minimum 33% in the company	May vary according to the different Regions (in some of them there is a compulsory minimum wage)	N/A	Contribution to Social Security 100% incentive if registered as external curricular practices for VET students

The young people with Contracts for Training and Apprenticeship (VET for employment) are considered as regular workers, therefore there is a remuneration established in a collective agreement that cannot be lower than the inter-professional minimum wage (€735,90 in 2018) according to the number of hours worked.

For the young people in dual vocational training there is no employment contract, therefore remuneration is not compulsory, although discretionary scholarships may be paid. Students enrolled in traditional VET (not Dual) must participate in a final module with practices in a company, not remunerated but compulsory in order to obtain the certification. From the labour side, students may also be enrolled in the so-called Certificates of Professional Standards, which also include a compulsory non-remunerated practical module.



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

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 IVET with regard to BIM cannot be defined now as they still lack the necessary knowledge, skills and facilities for providing BIM training to VET students and apprentices.

Work based learning – WBL

VET centres are responsible for organising the enrolment of trainees into IVET programmes, making trilateral agreement between VET school, student and company and delivering theoretical training to the trainees at the school-based facilities.

VET providers can take up the following:

- (a) adjust existing programmes (up to 10-20% of the training programme content);
- (b) select and monitor the companies that are eligible to take part in the provision of work based learning;
- (c) carry out information campaigns promoting apprenticeships for employers;
- (d) intensify cooperation with companies and in-company trainers.

The VET school is currently held responsible for all training-related matters, including the coordination of practical training in companies. Many VET representatives find their current resources inadequate for this responsibility of supervising students in companies; further, they receive resources only to ensure the final practice during the last training semester. No additional funding is provided, should they wish to increase the company-based component or take in apprentices from companies.

Most VET centers have their own informal networks of companies that take their students for practice; some have formal agreements. However, there is no system that would support matching learners and companies or provide information about available programmes and placements. Nor is there a queue of companies that could regularly offer apprenticeship places. It is often difficult to find work places for younger students (under 18 years old) and in small towns where the choice and availability of companies is low.

VET providers usually instruct students before they go to companies. This mainly includes explaining them their rights and responsibilities. There is no regulation on what students should know before starting practical training in a company, which causes some dissatisfaction among employers who say that students come unprepared and often do not understand why they are in this company and what they have to do.

The electronic students'diary is used for monitoring learner progress, exchanging feedback and coordinating content among the learning venues and the learners.

A company assumes responsibility for the company-based part of the IVET programme leading to a qualification. According to the existing regulations, a company needs to ensure that the workplace has adequate equipment, tools and other technology for learning and that safety measures are observed. Companies also are responsible for nominating a competent person to supervise students. In-company trainers are usually appointed based on their work experience, education background and communication skills needed to guide and assess the work of an apprentice.

Social partners are involved in VET policy development through the VET Council and the Central Professional Committee; they have the right to initiate development of new qualifications, qualifications standards and VET programmes. Representatives of social partners participate in devising content of VET curricula and assessing VET programmes with regard to their correspondence to labour market needs, organising learners' practical training and in assessing the competences acquired. Since 2003, social partners have been responsible for organising final assessments of qualifications. Since 2012, accredited competence assessment institutions have been organising assessment of competences acquired by learners in formal VET programmes.

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.

Transition in VET

General schools and VET centers: General education and VET institutions are responsible for organisation and provision of guidance services to their learners. They have to appoint a coordinator who manages guidance-related activities of career guidance staff, class or group tutors, teachers/vocational teachers, social pedagogues, psychologists, and other support staff. In 2012, a career education programme was developed, which is implemented in general education and VET institutions from 2013 onwards. The programme aims to help learners develop career management skills. It can be integrated into primary, general lower and upper secondary and VET curricula and can take the form of optional subjects or extracurricular activities.

Learners can acquire career-related information on learning and job opportunities through information systems and various other activities such as study visits, excursions, meetings with representatives of educational institutions, employers and other people and other events. Vocational activation, during which visits to enterprises and lectures are organised, is regarded as one of the most important aspects, as learners are encouraged to experience and learn about different types of work, employment areas, specific characteristics of occupations and career paths and develop the motivation necessary for future employment and lifelong learning, and plan their future careers.

Public authorities: Nationwide vocational guidance is coordinated by the Lithuanian Students' Non-Formal Education Centre. The centre is responsible for methodological assistance and advice to schools and educational support agencies and is involved in training career guidance staff. It ensures accessibility to modern guidance and counselling tools, and participates in nationwide monitoring of guidance services for learners. It is responsible for providing quality information on learning opportunities and career planning on the main national web portal on learning opportunities, AIKOS (<http://www.aikos/smm.lt>). It is an open information, guidance and counselling system, which addresses students, employees as well as guidance and counselling personnel. It informs on education and training programmes, providers, qualifications, occupations, admission rules, classifications, education and employment statistics and gives other information. Other education institutions (pedagogical and psychological services, education support agencies, etc.) are involved in providing guidance services to the extent this is related to their functions and actual guidance needs of learners.



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Phase 3:

Role of STAKEHOLDERS IN INITIAL VET

in

Building Information Modelling – BIM

Work based learning – WBL

Digitalization

Transition in VET



**The situation in
NETHERLANDS
by
Open Universiteit / Netherlands**

Introduction

The secondary vocational education (or MBO) programme in construction is given at regional training centres (ROC) and the courses fall under the Ministry of Education, Culture and Science. Secondary vocational education is regulated in the Education and Vocational Education Act.

Vocational education is aimed at theoretical and practical preparation for the exercise of professions, for which vocational qualification training is required, or may prove useful. Vocational education is complementary to both preparatory vocational education and general secondary education, promoting the general education and personal development of the participants and contributing to their social functioning.

The secondary vocational education programme offers two pathways of learning, both offering equal qualifications and opportunities. These are:-

1. A work-based pathway (referred to as bbl), in which students spend at least 60% of their time in a work placement, where they learn from hands-on practice.
2. A school-based pathway (referred to as bol), which consists of students getting hands-on practice for between 20 and 60% of their course time and spending more time concentrating on theory.

The government is ultimately responsible for the quality of education. The organisation Stichting Samenwerking Beroepsonderwijs bedrijfsleven (SBB) ensures clarity in what you need to learn in your training, so that you are able to practise your future profession, properly. That is why the SBB brings together the business community and secondary vocational schools, to determine the content of a programme. This content is included in a qualification file for each programme, separately. Based on the qualification file, the programme determines what you must do in your programme. Per academic year, they usually describe what you must learn that year, as well as when your exams will be, in their Education and Examination Regulations (OER),

Up until 2015, the knowledge centres for vocational education and business (KBB's) were responsible for the relationship between vocational education and business. They drew up qualification dossiers (which stated what a student should know and could do when they had finished their MBO training) and both recognised and supervised internship companies. After 2015, this task was transferred to the SBB, into which the former KBBs merged.

The SBB performs the following statutory tasks for secondary vocational education and the business community:

- recognises and supervises training companies
- maintains the MBO qualification structure
- provides information about the labour market, professional practice (internships and apprenticeships) and the effectiveness of the training offer.

SBB also advises the Minister of Education, Culture and Science on the connection between vocational education and the labour market.

In addition to the SBB, there are several other interest groups and sector organisations which play a role in Dutch MBO education.

MBO Raad

The MBO Council is the branch organisation of secondary vocational schools and adult education. All schools in the MBO sector which offer funded education are affiliated to the MBO Council. The association

represents the common interests of the members, offers services and undertakes joint activities, related to this interest representation.

The MBO Council strengthens the position of the sector in the following areas:

- in the professional column, vmbo-mbo-hbo;
- in the field of knowledge sharing and implementation of educational innovations;
- in relation to the business community;
- in relation to national and international actors;
- in public opinion.

MBO Quality Network Foundation

The Stichting Kwaliteitsnetwerk mbo is an independent legal entity, established by and for the benefit of the institutions in the mbo sector and aims to promote quality awareness and the quality actions of the affiliated institutions. The network contributes to the promotion of quality at mbo institutions. Other organisations also contribute to better quality education, through their expertise and role. The Stichting Kwaliteitsnetwerk mbo ensures good co-ordination with these partners, including MBO Academy, EQAVET, MBO in Bedrijf and Service Point Examinering.

Bouwend Nederland

Bouwend Nederland, the association of construction and infrastructure companies, has approximately 4300 affiliated construction companies and is the largest employers' organisation in the construction industry.

JOB

JOB is the national youth organisation for mbo students.

JOB has three core tasks: informing, advising and representing mbo students. Through these core tasks, JOB wants to contribute to a better education policy. In order to achieve this, JOB:

- informs and advises MBO students, via the hotline (e-mail and telephone);
- supports student councils, by providing them with training courses and keeping them informed of the latest changes in secondary vocational education;
- represents Mbo students at other educational organisations and the Ministry of Education, Culture and Science.

Different training institutions

A number of leading training institutes in the construction and infrastructure sectors work together within Construction Trainers. They provide:

- a one-stop shop for development, training and career advice
- one platform for finding the right education or training in construction and infrastructure.

Together, they joined forces to provide a coherent, clear and high-quality training and education offer for all levels within a company.

In its annual report (2013), MBO Amersfoort provides the following overview of stakeholders for the institution:

INTERNAL STAKEHOLDERS	EXTERNAL STAKEHOLDERS
Students and parents	Prospective students
Employees	Former students
Works council	Fellow MBOs, MBO board, MBO15
Student council	Resorting and declining schools
Supervisory board	Educational inspection
Professional practice training institutions and companies	Companies and institutions in the region municipalities
	Ministry of Education, Culture and Science

In summary, there are various stakeholders in MBO governance, internal supervision and internal and external stakeholders of MBO institutions, to the MBO Council, and stakeholders at system level, such as the Ministry of Education, Culture and Science, Inspection of Education, Professions and Business (VNO-NCW, SBB), municipalities (VNG), Platform Raden van Toezicht, JOB, Platform medezeggenschap mbo, as well as students, former students and parents.

Role of stakeholders on education

So how do these stakeholders influence VET education and specifically the topics of building information modelling, and digitalization and transition, and work based learning in VET? It's difficult to say, as educational institutions are wholly responsible for both a student's education and the work placement (this is referred to as Bpv).

As the MBO does not have a central exam like in secondary education, the study programme content is determined nationally (in attainment targets or competences), each individual educational institution deciding its preferred method of examination. This could be by way of self-developed tests, or via national organisations' examinations. As already mentioned, the SBB has an important role in the qualification structure and the various organisations, associations and networks all play a role in this.

Desk research forms the general overview and findings in the document. In conclusion, if we want to get good insight into the function of the stakeholders on the topics of building information modelling, digitalization and transition, and work-based learning in VET, we would need more in-depth research, to include interviews with key persons of various educational institutions.

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The situation in POLAND by The Educational Research Institute / Poland

In Poland the IVET is implemented as the vocational secondary education.

The project partners decided that within the phase 3 we will focus on: learning in companies, not at schools; vocational education and training for youngsters entering the labour market; initial on-the-job trainings.

The author of the below description of Polish case tried to bring together those two above mentioned understandings and aims. Polish pupils taking part in the practical vocational training as still students, nevertheless the aim of such training is to prepare them master their vocational skills necessary to work in a given occupation – in most cases it is organised in the end of their education. Therefore the assumption adopted within the project does not stand in contradiction with the Polish meaning of IVET.

1. Organization of IVET and its ongoing reform

The pre-reform vocational upper secondary education sector comprised two types of schools for students holding a lower secondary school leaving certificate:

- 4-year technical upper secondary schools for students aged 16 to 20 years, leading to vocational qualifications and to the maturity certificate providing access to higher education;
- 3-year basic vocational schools for students aged 16 to 19 years, leading to vocational qualifications.

The ongoing reform will change the following:

- Technical upper secondary schools will be transformed into 5-year technical secondary schools for students aged 15 to 20 years starting from the school year 2019/2020. Until then, students will continue their education based on the pre-reform arrangements. Like the existing one, the new 5-year technical school will enable students to acquire vocational qualifications and take the maturity exam.
- Basic vocational schools were transformed into a new type of school, 3-year stage I sectoral vocational school for students aged 15 to 18 years starting from the school year 2017/2018.
- A new type of school, 2-year stage II sectoral vocational school for students aged 19 to 20 years will be established starting from the school year 2020/2021.

Main full qualifications awarded		PQF ¹ /EQF
Education system before the ongoing school education reform	Education system after the ongoing school education reform	Level / ISCED level
Diploma confirming vocational qualifications obtained after finishing a 3-year basic vocational school	Diploma confirming vocational qualifications obtained after finishing a 3-year stage I sectoral vocational school	Level III ISCED 3

¹ Polish Qualifications Framework

Diploma confirming vocational qualifications obtained after finishing a 4-year technical upper secondary school or a post-secondary school	Diploma confirming vocational qualifications obtained after finishing a 5-year technical upper secondary school or a post-secondary school, or a stage II sectoral vocational school	Level IV ISCED 3 and 4
Maturity certificate obtained upon passing the maturity exam in a general or technical upper secondary school	Maturity certificate obtained upon passing the maturity exam in a general or technical secondary school, or stage II sectoral vocational school	Level IV ISCED 3

Source: *The System of Education in Poland 2018*, Ewa Kolanowska, Foundation for the Development of the Education System, Warsaw 2018, p. 15

2. Practical vocational training

Practical vocational training (*praktyczna nauka zawodu*) is regulated by Regulation of the Minister of National Education of 24 August 2017 on practical vocational training (Journal of Laws of 2017, item 1644).

Practical vocational training is organized in the form of practical classes and apprenticeships. Practical classes may take place at companies, on the basis of a dual education system, on the basis of:

- employment contract for the purpose of vocational training, concluded between a juvenile worker and an employer;
- contract for practical vocational training, concluded between the school principal and the employer accepting students for practical vocational training.

Practical vocational training is organized by the school, whereas practical vocational training of juvenile workers by the employer who signed a contract with them. Practical classes are organized for pupils and juvenile workers in order to master their vocational skills necessary to work in a given occupation. Apprenticeships allow students to apply and deepen their knowledge and check vocational skills in real working conditions.

The entity (training center, employer etc) accepting students for practical classes and apprenticeships provides teaching resources, provides health and safety conditions and meets others requirements in accordance with the Ministry of Education Regulation on practical vocational training (from 2017). The scope of knowledge and skills acquired by students during practical classes and apprenticeships as well as their time are determined by school curricula. It should be based on the national core curricula. Places of conducting practical vocational training organized by the school are: workshops at school, in the centers of practical education and at the employer's. Detailed timing of apprenticeship for students are determined after consultation with employers for a given school year. It is a duty of the school manager of practical training.

Stakeholders - Parties of the practical vocational training agreement - rights and obligations:

School

- Oversees the implementation of the practical vocational training program.
- Accepts appointed instructors of practical vocational training and apprenticeship tutors.
- Prepares calculations of the costs of practical vocational training within the framework of the authority carrying financial resources.
- Cooperates with the student-receiving entity for practical vocational training.
- Provides insurance against consequences of accidents.

Employer

- Ensures the conditions for practical vocational training: equipment, clothing, footwear, clothing storage rooms, social rooms and sanitary facilities etc.
- Designates teachers, trainers and tutors in the company.
- Familiarize students with work organization, work regulations, health and safety rules.

- Oversees the course of practical vocational training - cooperates with the school.
- Prepares post-accident documentation.
- Informs the school about the violation by the student (juvenile worker) of the work regulations.

Local government unit

Provides financial resources for reimbursing the following:

- Salaries of instructors of practical vocational training, conducting practical classes with full-time students (teachers salaries).
- Training supplement for instructors of practical vocational training (up to 10% of the average salary).
- Costs of clothing, footwear and health protection measures (up to 20% of the average salary).

Other stakeholders:

Minister of National Education

- Coordinating and implementing national school educational policy.
- Establishing national core curricula for preschool, general and vocational education, and outline timetables for public schools.
- Laying down arrangements concerning admissions to public nursery schools and schools, organisational arrangements for public nursery schools and schools, and for the school year, and for pupil / student assessment and promotion.
- Establishing detailed qualification requirements and remuneration rules for teachers.
- Establishing and administering selected types of public schools (e.g. schools at diplomatic missions, experimental schools...).
- Providing governmental funding for schools managed by local authorities.

Head of the Regional Education Authorities (a government administration unit)

- Implementing national school education policy
- Exercising pedagogical supervision over nursery schools, schools and other educational institutions, incl. evaluation as part of external quality assurance

3. Assessment and Certification

External examinations assess the extent to which a student or learner has acquired the knowledge and skills required for a given qualification, as defined in the national core curriculum for vocational education. Exams confirming vocational qualifications as designed now were conducted for the first time in 2013. An exam is conducted for each qualification separately. An exam confirming vocational qualifications consists of written and practical part. Both the written and practical parts of an exam can take place either at a school or vocational education centre, or at an employer's organisation.

On passing an exam confirming a single qualification, students receive a certificate for the qualification concerned, issued by the **Regional Examination Board**.² Once they have received certificates for all the qualifications required to practise a given occupation and completed the required level of education, they obtain a diploma confirming all vocational qualifications required for the occupation, issued by a Regional Examination Board.

4. Summary

Summarising, there are numerous stakeholders from different levels: national, regional, local, school. Their responsibilities and interests are varied. Their role in IVET and practical training is important and they have relevant influence on practical trainings/apprenticeships. It is obvious that – while fulfilling their tasks - they play a role in the field of building information modelling, digitalization, transition and work-based learning in VET. However, to assess

² Extramural exams are administered by the Central and Regional Examination Boards and are based on the national core curricula for general or vocational education, as appropriate.

such roles and to define the scope of their influence in those files, the more in-depth analysis are needed, including interviews with representatives of such stakeholders.

Sources:

- Act on Education System of 7 September 1991 (Journal of Laws of 2018, items: 1457, 1560 i 1669).
- Regulation of the Minister of National Education of 24 August 2017 on practical vocational training (Journal of Laws of 2017, item 1644).
- *The System of Education in Poland 2018*, Ewa Kolanowska, Foundation for the Development of the Education System, Warsaw 2018.



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Roles of stakeholders in INITIAL VET



Desk research in Finland by Sataedu

Roles of Stakeholder in INITIAL VET

Vocational education training as a workplace/school

The personnel and VET teachers works 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 initial 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_Compentence_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

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

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

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

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



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Phase 3:

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**The situation in
Wallonia
by
Centre IFAPME LHW**

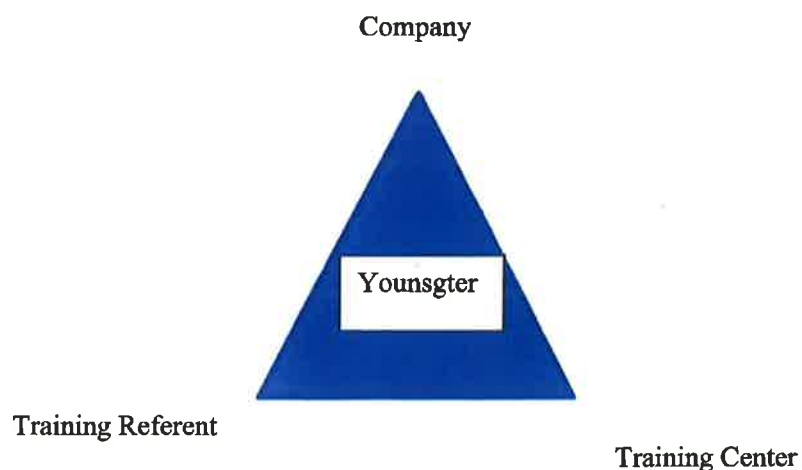
Work based learning – WBL

Dual training: a winning combination between school and working environment

Dual training is a learning process that combines periods of general and vocational training at school - or at training centre, including practical periods training in a company.

It allows learners to train, acquire experience and skills, directly related to the labour market and obtain at the end of the training pathway, an official and recognised qualification, and receive remuneration from the company owner.

This kind of training allows a better match between the world of work and education. It directly meets the skills expected by companies. The employer has the opportunity to train a young person directly in accordance with his needs. The dual training programme is organised by setting up a partnership between an approved training center, a youngster and a company.



The role of the Walloon Public Service: granting financial incentives for dual training

The organization of the training courses is handled by the CEFA or by IFAPME. These training providers approve the companies that host trainees in dual training.

The Walloonian Public Service provides assistance for dual training for companies and young people.

Who can be trained in dual training?

This training courses are open to young people aged from 15 to 25 who have completed the first level of secondary education. Young people wishing to enter the dual training system have to register either with a CEFA (French Community) or with IFAPME (Walloon Region).

With the help of the training provider, the trainee concludes an dual training contract with the company where he is doing his internship. A training plan is established by the training provider and signed by all parts.

Within the operators (IFAPME or CEFA), a "referent" supervises the relations between the trainee and the company. This person plays a key role in the system.

Finally, an extract from the "cooperation agreement" on dual training concluded in Brussels on 24 October 2008 between the French Community and the Walloon Region (for better harmonization) defines dual training as "vocational training that combines practical training at the workplace and training with a training center in general and vocational subjects and is organised in the framework of a partnership between a training operator, a learner and a company, in accordance with precise procedures in terms of duration of training, recognition, certification as referred to in Article 3, supervision, remuneration and social rights".

Digitalization and Building Information Modelling – BIM

Technological know-how is spreading faster among the traditional construction professionals, which have historically been rather resistant to changes, accelerating the use of digital tools. Innovative university programs also train younger generations for jobs related to emerging technologies.

It is necessary to set up a new digital framework for all the working steps, off-site or on-site. This new framework will have to bring together the different systems, businesses and companies, all in a coherent environment. This is the basis for the large-scale implementation of new production technologies.

It is important to stress that digital transformation represents, above all, a source of opportunities in terms of profitability, customer experience and differentiation. The positioning and valuations of market players could be profoundly impacted if today's leaders do not seize the opportunity. The future of the building sector depends also on its digitalization!

A long-term strategy must be adopted to ensure the successful transition to digital technology and its support, which undoubtedly involves initial training and combines phases of awareness and communication as well as training and financial resources to enable operators to set up such training. Likewise, if the training of young people is to be provided, it obviously requires the training of trainers, who are also rather cautious about these technologies. These are the first people to be educated and trained so that they can then pass on these new skills to young people.

It is essential to take the digital model as being at the service of the worker and his productivity and not to cast doubt on the fact that this transition will replace man by machine.

It is about complementarity and the young people who will have taken the train on the road can have a significant added value in terms of employability.

In order to respond to this request, our Centre has hired a BIM expert to develop the topic within our sections, as well as to develop the "BIM Business Manager Coordinator" training which was opened this year with about ten auditors and we are happy of this first

experience. We have invested in infrastructure and softwares, with the help of our regulatory body. As a result, we were able to hire BIM specialists who, when integrated into the teams, can enhance this technology and open the minds of our fellow trainers.

In the electricity sections, we have decided to set up training in "home automation / smart home", in order to also meet the new requirements.

We now hope to be able to integrate specific modules into the learning sections in order to make them aware of the importance of these innovations as soon as they enter our country, so that they can ensure the digitization of tomorrow.

Transition in VET

The Walloon vocational training system significantly improves the chances of socio-professional integration of participants, particularly when it comes to qualifying training.

Many young people leave the education system with few or no diplomas and many of them are therefore unable to enter the labour market, which is why qualifying training is also offered to job seekers, often leading to sustainable socio-professional integration.

Political actors highlight the need to develop partnerships between the various training and integration operators for the same purpose, and to encourage transitions from "pre-qualifying" to qualifying training. In other words, offer the access to qualifying training for those who do not meet the prerequisites. Tools have been developed, notably bridges systems, and the fact of taking into account what has been acquired upstream by potential candidates.

Within our Training Centre, possibilities exist to access the mastercraftsperson training courses. Indeed, through the opening, at the end of the 1990s, of "preparatory" classes.

As the social image of the apprenticeship sections is poorer in our country than in Germany and Austria, we found that system in order to attract young people with higher pre-requrientment (successful secondary school ; failure at university or in a baccalaureate). It was imperative to set up a system to enable these potential candidates to catch up, in one year, the knowledge and skills of the profession acquired during the three years of apprenticeship training. This option was very quickly successful and enabled many young people to integrate into the business world through dual training.



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Phase 3 :

Role of STAKEHOLDERS IN INITIAL VET

in

Building Information Modelling – BIM

Work based learning – WBL

Digitalization

Transition in VET



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

Building Information Modelling – BIM

Companies – Even though BIM is globally perceived as a solution to the management of information during the design, construction and operational phases of the asset lifecycle of a building, micro to medium-sized construction companies (representing more than 95% of the construction industry) are still struggling with the concrete use of BIM tools. Indeed, construction SMEs are slowly embracing the digital transformation of their sector and are then not yet in a definite position to positively influence IVET programs in many European Member states. Construction SMEs lack the necessary knowledge and hands-on experience up to this point. One of the reasons for this is that especially small and micro companies are often engaging in “small projects” for which the use of BIM is not yet cost effective. However, with 92% of the EU construction sector made up of micro enterprises, it is imperative that these players are not left behind in the definition and in reaping the benefits of updated IVET curricula, to avoid new mismatches in the era of digital construction. Important is the development of an education in BIM tools that are accessible and easy to use for entrepreneurs and SMEs (e.g. entrepreneurs and SMEs only have to engage with information that is important for them according to their profession and do not need to be “BIM masters”). Furthermore training in interconnected BIM tools, e.g. interoperable with financial and management software, is important and could show added value to entrepreneurs. 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.

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 of youth 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 IVET curricula.

Students – EBC believes that students and 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. Regarding IVET, BIM and other digital tools may play a key role on the number of young people and women enrolling into construction training programs.

Work based learning – WBL

Companies – In spite of good practices existing in a few European countries, WBL needs to be further promoted in all EU Member states. When existing, work-based learning programmes will benefit from a continuous and better involvement of construction enterprises, at all levels, when designing or updating IVET curricula. Indeed, construction companies are already endorsing responsibilities for the training part on-site but should have their say on the whole programme. It is already the case through sectorial/national social partners in several countries, however social dialogue processes are not always covering the most relevant actors for VET issues. 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.

Students – Work-based learning simplifies the transition to the real labour market in the construction sector, as it offers the opportunity to young people to test their knowledge and assess how to adapt their skills 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 – Only a few construction SMEs and craftsmen already handle digital tools, such as big data, BIM, cloud storage, artificial intelligence etc., others are afraid of the impact on their everyday activities, but also the time and money investments related, many simply have no interest in those tools because they do not yet touch upon their daily work or are unaware of their existence. However, most of them are aware that at some point they will have to address and adapt to a digitalised construction sector. Many small companies do not have the capacity or the budget to learn to deal with digital training, however, being responsible for 80% of the construction industry output, small companies must be the main focus of digital processes in Europe. At European level, 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. Micro to medium-sized construction companies need the support from large contractors, architects, manufacturers and other actors in the value chain so as to establish genuine cooperation in the construction value chain. Paired with supportive European and national regulatory and financial frameworks, digital transformation may become a reality.

Trainers – VET centres, construction trainers and on-site mentors are now facing the pressure exerted by digital tools and methods on their usual habits. Some are open to innovation, others 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.

Students – An increasingly digital industry means new and updated skills and competences. However, the construction sector is already suffering from a lack of workforce; in this context, digitalisation may help facing the lack of interest of the youth, women and other profiles for the construction sector by showing them the evolution of different trades.

Transition in VET

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

Trainers –The role of VET centres and trainers is crucial for the social sustainability of the sector as they need to demonstrate that VET leads to fulfilling careers, even more so as IVET is their core activity.

Students – Target group, that needs to be enough attracted by the different characteristics of the construction sector in order to join the industry. Students need adapted and updated pedagogical support to face the construction labour market with relevant skills.



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