STATUS REPORT ON FINDINGS OF SKILL GAPS – P3 – IRSVET

SKILLCO

SECTOR SKILLS ALLIANCE FOR TRANSFER OF KNOWLEDGE AND SKILLS OF VET WORKFORCE IN CONSTRUCTION

6/6/2017

PROJECT SKILLCO: Work Package no. 2 – Status report on findings of skill gaps, OUT NO. 2.1

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PROJECT SKILLCO: WORK PACKAGE NR. 2 – STATUS REPORT ON FINDINGS OF SKILL GAPS, OUT NO. 2.1

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MAIN CONCLUSIONS OF DESK RESEARCH

One of the methodologies used in WP2 - Defining skills gaps and training needs was desk research. The main objective of the desk research was to determine what is already known about the field of construction EQF level 4. Sources that were used: national and international freely available databases, publications and surveys` covering skills gaps in the construction sector prepared by key European and World organizations related to VET .
For obtaining data and information, two parallel activities were carried out. Firstly, we have created the database of national, regional and EU target groups (stakeholders, regulators, representative organisations, VET providers etc.). This document has a confidential status. Secondly, this data are the base source for e-mail list creation for attraction of all 4 target groups (their representatives) and integration into project activities and finally for project dissemination activities. With new General Data Protection Regulation (GDPR) directive, we all have to get new approvals related to e-mail list (for sending SKILLCO e-information via e-mail using this list). Majority of PPs are still waiting for the approvals.

During the recession, there was a fall in the numbers of people hired in different occupations, among them also in construction sectors. According to the European vacancy monitor (European Commission 2014) most of the occupations after the crisis era required higher level of skills.

The outlook for European construction is relatively stable. Around 6% of the European labor force is expected to be working in this sector in 2025, similar to 2015. In EU Member States, such as Croatia, Luxembourg and Ireland it is expected that the employment in construction will be higher than the EU average. On the other hand, employment will decrease in Germany, Romania and the UK. In 2025, more than half of the jobs in construction will be for craft and related trades workers (Cedefop 2016: European sectoral trends, The next decade).

Because of the greening of the construction industry and energy efficient buildings, skills needed in the construction sector are likely to change (new materials and technologies) – new green skills. Demand for skilled workers with high level of qualifications could double by 2025. And which are the skills that are and will be fundamental for economic and social success? OECD new study Skills outlook 2017 sais, that one of the most important skills are numeracy and mathematical skills - these skills make technological breakthroughs possible. Other skills are in ICT – they play a key role in improving companies' performance. In addition, besides numeracy and ICT, there is literacy and non-cognitive skills (soft skills – social skills). Many of adults lack in those skills, so the challenge for the future is to educate and train workers, so they will be qualified. "Skills can help countries integrate into global markets and specialize in the most technologically advanced industries (OECD Skills Outlook 2017)".

Interesting topics on skills will also be addressed in July 2017 at the Construction Conference: Let's build changes! The conference is held In Brussels's and it is organized by European Commission. They will address the topics such as sustainability / resource efficient materials… innovation / digitalization. Construction sector has to improve skills in new technology, sustainability, management and communication to stay competitive and sustainable. Project

Skillco is addressing all of the above mentioned skill gaps, with the aim to foster trainees' and workers' mobility.

1. CONSTRUCTION INDUSTRY IN EUROPE

The construction industry is very important to the EU economy, because it provides solutions for social, climate and energy challenges, it also creates new jobs and it drives economic growth. There are about 3 million small and medium sized enterprises in EU, which provide 18 million direct jobs. In the year 2016 jobs in the construction industry represented 6,4% of total employment in Europe and there were 42.9 million workers who depended directly or indirectly on the construction sector.

Because of the economic crisis, the construction sector had many problems. By 2016, construction output was less than half the level it had been prior to the crisis (in 2007) in Slovenia for example -58.3%. Since 2015, the construction industry is recovering (according to data form Eurostat and Euroconstruct). Production of the European construction sector has in compare with 2015 increased by 2,3% in 2016 (highest increases in production were in Slovakia, Spain and Sweden). However, there have also been large decreases, especially in Slovenia, Hungary and Poland. Forecast for employment in construction industry is also positive as it will increase by 3,9% from 2013 to 2025 across the EU. It is anticipated that over 6 million jobs will open during this period, due to retirement and other reasons and new jobs will be created due to the shift in the technology. The construction sector is on the rise in EU. FIEC press release reports that in year 2016 there were for example over 3,683,000 construction businesses (enterprises), companies and sole entrepreneurs, in the EU area with Turkey, Norway and Switzerland included. They supported more than 16,908,000 jobs and contributes 1,528 billions of euros to the broad EU economy.(FIEC: http://www.fiec.eu/en/library-619/key-figures.aspx)

European Commission has set itself a goal to help the construction industry become:

1. **More competitive:**

In 2012, the Commission published a Communication Strategy for the sustainable competitiveness of the construction sector and its enterprises. The document is a part of the Europe 2020 initiative. It focuses on the promotion of favourable market conditions for sustainable growth in the construction sector. Five areas are addressed:

- **Financing**: especially for energy efficient investments in the renovation of buildings and for research and innovation in a smart, sustainable, and inclusive environment
- **Skills and qualifications**: workforce and management training for job creation through up-skilling and apprenticeships to meet demands for new competencies
- **Resource efficiency**: focusing on low emission construction, recycling and valorisation of construction, and demolition waste
- **Regulatory framework**: emphasis on reducing the administrative burden for enterprises, and particularly SMEs

- **International competition**: encouraging the uptake of Eurocodes and promoting the spread of new financial tools and contractual arrangements in non-EU countries.

2. **Resource efficient and**
3. **Sustainable**

One of the important goals in Europe is also promoting green energy with investing in technology in the construction industry. EU has some of the most advanced energy efficient measures for the development of infrastructure and they are all part of the EU strategy to promote eco techniques for development and infrastructure. How does the European Commission plan to achieve all of the above set goals, by:

- quantifying the impacts of EU legislation on the sector
- ensuring the full implementation of the Construction Products Regulation (CPR)
- consolidating the internal market for construction products by developing a common technical language for the performance of construction products
- following up on the Strategy for the sustainable competitiveness of the construction sector and its enterprises (2012) that improves training, tendering and financing in the construction sector
- following up on the Communication on Resource efficiency opportunities in the building sector (2014) that aims to improve design, construction, demolition and recycling of construction products, as well as simplify data in the use of resources to reduce waste
- following up on the Construction 2020 strategy and the Circular Economy Package by introducing the EU Construction and Demolition waste proposal (2016) to increase confidence in the C&D waste management process and the trust in the quality of C&D recycled materials.

1.1 CONSTRUCTION INDUSTRY IN GERMANY[1]

In Germany, the construction industry makes a big contribution to its economy. About 10% of the annual GDP are spent on construction projects. About 74.000 companies, most small and medium sized, are active in main construction trades and 260.000 companies are active in finishing trades. German construction industry employs 1.1 million workers. 90% of companies are small businesses (less than 20 employees) and they are focused on residential construction, while large building companies generate most of their turnover abroad.

German construction industry is increasingly focusing on environmental research. When it comes to developing new building materials and technologies, they quickly offer a solution. They are also very innovative in the areas of digital planning and construction, and in the field of the use of IT applications in construction.

[1] European **Construction Sector** Observatory: **Country profile** Germany – March 2016

Despite the crisis the number of companies in German construction sector has increased by 12,5% since 2008. The outlook for the future remains positive.

Despite the positive growth of the production in construction industry and the increase of construction companies, German construction industry faces some challenges. Because of the demographic changes, large number of retiring workers, two thirds of construction companies are struggling to find new skilled workforce. Germany has made several initiatives to attract and upskill young people.

1.2 CONSTRUCTION INDUSTRY IN HUNGARY[2]

The recession in 2009 and 2012 strongly affected the national construction sector. Employment dropped by 21% (2008-2013). In 2012, there were 119.417 enterprises operating in the construction sector (the number decreased by 11,4%). Unemployment in 2015 was at 6,8%, lower than in 2014 (7,7%) and pre economic crisis in 2008 (7,8%). Between 2008 and 2013 the number of companies created in the construction sector declined by 52%.

In February 2015 Hungary has introduced the National Building Energy Performance Strategy (NABEPS). With this strategy, Hungary is aiming to modernize residential and public building stock, improve its energy efficiency and reduce utility costs for households. The NABEPS also establishes the plan for increasing the number of nearly zero-energy buildings, in compliance with Directive 2010/31/EU on the Energy Performance of Buildings. With implementing NABEPS 42.000 jobs will be created until 2020. With this measures Hungary is trying to meet the objectives of the Construction 2020 Strategy.

One of the challenges Hungarian construction industry is facing is also that construction is not very appealing for young people as it is linked to poor salaries and poor career expectations. There is also low investment into training activities for employees. Hungarian government has made a decision to reorganize the national Vocational Education Training (VET) system towards a dual-education model, for which is expected to improve the situation.

1.3 CONSTRUCTION INDUSTRY IN SLOVENIA[3]

Building sector in Slovenia is divided into two broad categories:

- construction (residential and non-residential)
- civil engineering works

Economic recession heavily affected the construction industry in Slovenia. In 2012 there were 18.392 enterprises who were registered in construction activity, which is in comparison to the year 2008 5,4% less. Construction enterprises employed 62.357 people in 2012, which is 30,5% less than in 2008.

[2] European **Construction Sector** Observatory: **Country profile** Hungary – March 2016
[3] Chamber of commerce and Industry of Slovenia

Many employers are looking for workers to work abroad. In 2011, most available jobs in construction were associated with energy efficient construction and renovation. There has also been a shift in demand for workers. In 2008, employers were hiring workers who were without qualifications and now they are looking for workers who have finished secondary vocational school. Here comes a challenge, because enrolment in secondary vocational schools is decreasing each year, meaning that a large proportion of workers will be taken from abroad.

Currently construction sector is undergoing a restructuring process.

Slovenia is also one of the EU countries who have joined the EU objectives (20/20/20 by 2020): 20% improvement in energy efficiency, 20% increase in the share of renewable sources and a 20% reduction in greenhouse gas emissions. To revive the construction industry in Slovenia it is important to focus on nZEB, energy efficient renovation, the use of renewable energy sources.

2. VET SYSTEM IN EUROPE

The Europe 2020 Strategy puts a strong emphasis on education and training to promote "smart, sustainable and inclusive growth". This Communication responds to the call of the Europe 2020 Strategy to reinforce the attractiveness of vocational education and training (VET). Improving the attractiveness of VET has been a European policy objective since the beginning of the Copenhagen process in 2002; and countries have devoted a lot of attention to the issue before 2010. The Copenhagen process has supported the Member States in modernizing VET systems. It has boosted the development of the learning outcomes approach, the lifelong learning perspective and has supported the development of common reference tools (Europass, European Qualifications Framework - EQF, European Credit System for VET – ECVET and European Quality Assurance Reference Framework for Vocational Education and Training – EQAVET).

There have been many campaigns introduced to attract young people to VET. A great number of EU countries are expanding or improving the use of the internet to promote VET, among them also Germany and Slovenia.
There have also been campaigns for the adults in about half of the EU Member States. With these campaigns, they are trying to raise an awareness of the benefits of VET. Within the Bruges Communiqué (European Commission strategy for VET systems), countries have agreed to support VET attractiveness by demonstrating the value and benefits of VET through campaigns and skills competitions.

Forecast of future skills show a greater demand for medium and high level qualifications. Because of the emerging new technologies, VET must adapt accordingly. Young students will have to be equipped with appropriate skills, so that they will be able to meet the labour market needs. Adults will be able to upgrade their skills through continuing vocational education and training (CVET).

2.1 VET SYSTEM IN HUNGARY[4]

The Minister for the National Economy, who shares responsibility with ministries for specific vocational qualifications and with the Minister for Human Resources on learning outcomes and framework curricula, leads central administration of VET (and adult training). Presently the Chamber of Commerce plays a dominant role in shaping VET. In Hungary, all qualifications are registered in the National Register of Vocational Qualifications (OKJ). The register updates annually.

Young people at age 14, decide if they wish to enter VET and what type of VET to choose. Work based learning is organized in enterprises and/or school workshops depending on availability of places and learners and schools decisions. Formal education offers adults the same options as young people, in part-time or distance education; for example, they can enter VET programs, which lead to OKJ qualifications.

One of the distinctive features of the Hungarian VET system is that enterprises are increasingly providing training. In addition, every year the government issues shortage job lists based on county development and training committee's recommendations. To encourage training in shortage jobs, practice providers are offered incentives and students receive grants.
Hungarian VET system faces the following challenges:

- High youth unemployment
- Skills shortages
- Low image and attractiveness of VET
- Low participation of adults in education and training – one of the consequences is that they have one of the lowest employment rate in EU.
- Migrations of skilled workers – Hungary is trying to solve that with orienting towards a German dual education model

2.2 VET SYSTEM IN GERMANY[5]

VET in Germany is based on cooperation between State, private sector and social partners. The Federal Ministry of Education (BMBF) is responsible for general VET policy. The ministry also works closely with the Federal Institute for Vocational Education and Training (BIBB), which conducts research and advises the Federal Government and vocational training providers. The *Länder* (federal states) are responsible for school-based (parts of) VET and have VET committees with employer and employee representatives.

Key feature of German VET is the dual system. Every person who has completed full-time compulsory schooling has access to apprenticeship training (duration usually three years), which combines two learning venues, companies and vocational schools. Companies conclude training contracts with applicants under private law. Enterprises and vocational schools conduct training and the chambers are responsible for holding examinations. To keep pace with rapid technological changes training regulations are revised every few years. Another feature of the

[4] http://www.cedefop.europa.eu/en/publications-and-resources/publications/8059

[5] http://www.cedefop.europa.eu/en/publications-and-resources/publications/8057

German VET system is the cooperation between the social partners (employer organization, trade unions and employee organization) and the government.

Current challenges in German VET system are
- improving transition from (compulsory) general education to VET and higher education;
- further developing guidance and counselling;
- preventing dropouts from VET;
- reducing the lack of qualified personnel.

2.3 VET SYSTEM IN SLOVENIA[6]

The Ministry of Education (MoE) is the main responsible body for VET. It prepares legislation for upper secondary and higher vocational education, adopts educational programs and finances public schools. Public schools are the ones who provide formal vocational education and training (VET) programs in Slovenia. Together with private providers, public schools also offer continuing VET for adults. Since 2000 the national qualifications system (NVQ) has been in place. NVQ does not provide formal education as it is based on assessment processes that enable individuals to obtain formal recognition of their vocational competences.

Social partners are involved in VET at all levels.

Some of the distinctive features of Slovenia VET system are:
- vocational / technical programs and national vocational qualifications are based on vocational standards prepared in cooperation with employers
- Local companies actively cooperate with VET schools
- Education institutions are forming school centers that encompass all VET levels
- High permeability between VET and general programs at upper secondary level

Some of the Slovenian VET system challenges are:
- Strengthening the link between employers and promote the employment of young workers
- Attractiveness of VET, by providing better qualifications that meet labour market needs
- Flexibility of educational pathways
- Quality of practical training
- Development of quality learning materials
- Implementation of EU tools and instruments (EQF, ECVET and EQAVET)
- Improving the quality assurance system

[6] http://www.cedefop.europa.eu/sl/publications-and-resources/publications/8070

2.4 NATIONAL QUALIFICATIONS FRAMEWORK (GERMANY, HUNGARY AND SLOVENIA)

National qualifications frameworks (NQFs) classify qualifications by level, based on learning outcomes. This classification reflects the content and profile of qualifications - that is, what the holder of a certificate or diploma is expected to know, understand, and be able to do. The learning outcomes approach also ensures that education and training sub-systems are open to one another. Thus, it allows people to move more easily between education and training institutions and sectors.(Cedefop: http://www.cedefop.europa.eu/en/events-and-projects/projects/national-qualifications-framework-nqf)

All three project Skillco partners countries (Slovenia, Germany and Hungary) have their own national qualifications frameworks in construction on the EQF level 4. Because all countries have their own specifics as also the number of qualifications, we have selected five common to all sectoral qualifications: drywall installer, bricklayer, painter, carpenter and a tiler. We have chosen the listed qualifications based on a quick analysis of the existing information on specific country qualifications and compared the three national qualifications frameworks.

The German qualification framework on the EQF level 4:

Title of the qualification	**English title of the qualification**
Maler und Lackierer/Malerin und Lackiererin	Painter and varnisher
Fliesen-, Platten- und Mosaikleger/in	Tile and mosaic layer
Zimmerer/Zimmerin	Carpenter
Maurer/in	Mason - bricklayer
	Dry construction worker

More info on German qualification framework: https://www.bibb.de/de/index.php

Hungarian qualification framework on the EQF level 4 is:

Title of the qualification	**English title of the qualification**
Kőműves és hidegburkoló	Bricklayer and tiler
Kőműves	Bricklayer
Burkoló	Tiler
Szárazépítő	Drywall specialist
Ács	Carpenter
Festő, mázoló, tapétázó	Painter, decorator, paper hanger

More info on Hungarian qualification framework: https://ec.europa.eu/epale/en/resource-centre/content/hungarian-national-qualification-register

In addition, Slovenian qualification framework on the EQF level 4:

Title of the qualification	**English title of the qualification**
Izvajalec suhomontažne gradnje/izvajalka suhomontažne gradnje	Drywall installer
Pečar–polagalec keramičnih oblog/pečarka–polagalka keramičnih oblog	Stove fitter – ceramic tiler
Slikopleskar–črkoslikar/slikopleskarka–črkoslikarka	Painter – Sign painter
Tesar/tesarka	Carpenter
Zidar/zidarka	Bricklayer

More info on Slovenian qualification framework:
https://www.gzs.si/Portals/Panoga-Gradbenistvo/info%20gradbena%20mapa_2017_v13.pdf,
http://www.nok.si/slovenian-qualifications-framework-register

All countries have a common qualification in:

- Bricklayer
- Carpenter

However, there are some differences in a qualification title in:

- **Painter** (German – painter and varnisher; Hungarian – painter, decorator, paper hanger; Slovenian - Painter – sign painter)
- **Drywall installer** (German – dry construction worker; Hungarian – drywall specialist; Slovenian – drywall installer)
- **Tiler** (German – tile and mosaic layer; Hungarian – tiler; Slovenian – stove fitter – ceramic tiler)

Hungary also has a qualification where bricklayer and tiler are joined in the same qualification and there is a separate qualification as a bricklayer. German qualification “Maurer” is divided into two qualifications and that is in mason-bricklayer and dry construction worker.
There are also differences in skills and competencies that are listed in specific qualification.

All of the qualifications are on the EQF level 4 and on the particular country level 4 (SQF – Slovenian, DQR – German and OKJ – Hungary). There is also no difference in time of education for the five listed qualifications - they all have 3 years long education time. Skills and competencies of the 5 common to all countries national qualifications are different also. German and Hungarian are more described, there are more of the listed skills and competencies than in Slovenian.

Final examinations is the same in all countries, it is formed from written and oral examination and practical examination (presenting and defending a project or a service).

The main difference in work-based learning is that in Germany, because of the dual system, the students are already employed as far as in the Slovenian and Hungary education system the students are obliged to do their work based learning during the education time. Slovenian work based learning is mandatory for all students and in length of 24 weeks (in 3 year study). Individual student contracts allows the extension of practical training to up to max of 53 weeks. Hungarians have a bit more of work-based learning, it is also obligatory, in second and third year at a construction company. They have a range of theory and praxis 30%/70%. Germans, as we have mentioned above, have a dual system so the training is provided in a company and part time at vocational school (which they attend only one or two days a week). The least work based learning is in Slovenia, the other two countries put more emphasis on work-based learning, getting the practical trainings.

3. SKILLS IN THE CONSTRUCTION INDUSTRY

Construction industry faces new challenges due to development of new technologies and greening the production and the products. There is a big gap between curricula taught in the educational institutions and what is needed in the labour market. The consequence is that enterprises have to recruit workers who are not properly qualified.

In December 2010 the European Member States, social partners and the Commission adopted the Bruges Communiqué. This is an ambitious agenda for modernizing vocational education and training system in EU and it is the objective of the Europe 2020 strategy.

Young people in VET systems need to develop technical skills and learn to adapt to the need for continuous skills development. This is also relevant for adults; they constantly have to upgrade their skills and competences. For older workers Continuing vocational training (CVET) is gaining strategic importance through equipping them with skills necessary for changing jobs as well as for entrepreneurship.

Skills are very important for growth, employment and competitiveness. Cedefop has made an analysis of case studies in specific clusters and it has showed that strategic investments in skills can have the potential of creating a dynamic system, which support economic development and innovation.

A high percentage of adults in EU do not have foundation in basic skills like literacy, numeracy, ICT and foreign language (Education and training: The Survey of Adult skills (PIIAC). In 2011, a survey was carried out among employers on skill gaps. The most frequently mentioned skill gap was health and safety and the next was technical skills. Moreover, what are the common skills needed in the construction sector:

- understanding and operating tools and equipment
- accuracy and precision
- manual dexterity and physical strength/stamina
- Personal attributes such as good time management, flexibility, problem-solving skills, trustworthiness and the ability to work as a team.

- Increases in subcontracting have led to a requirement for project management skills, including planning and management.

3.1 Green skills

Construction sector plays and important role in the delivery of the European Union's 'Europe 2020 goals for smart, sustainable and inclusive growth.
There are two directives that mainly influence construction sector:

- Directive 2002/91 /EC mainly influence construction sector on the European energy performance of buildings
- Directive 2006/32/EC on energy end-use efficiency and energy services. It also represents an important source of employment.

Green technologies are developing fast and because of that, the construction sector has to face many challenges of innovation. Not only that the industry has to adapt quickly, but also the employers and the workers. As green technologies mean new jobs, there is also a need for new skills and new occupations. Now the challenge is how to upgrade workers skills and teach them new techniques. Problem with this is also that there are not enough of trainers and teachers.

In Germany, the environmental aspects have greatly influenced their education and training system. Because of that, they have included environmental protection in dual vocational training and university education.

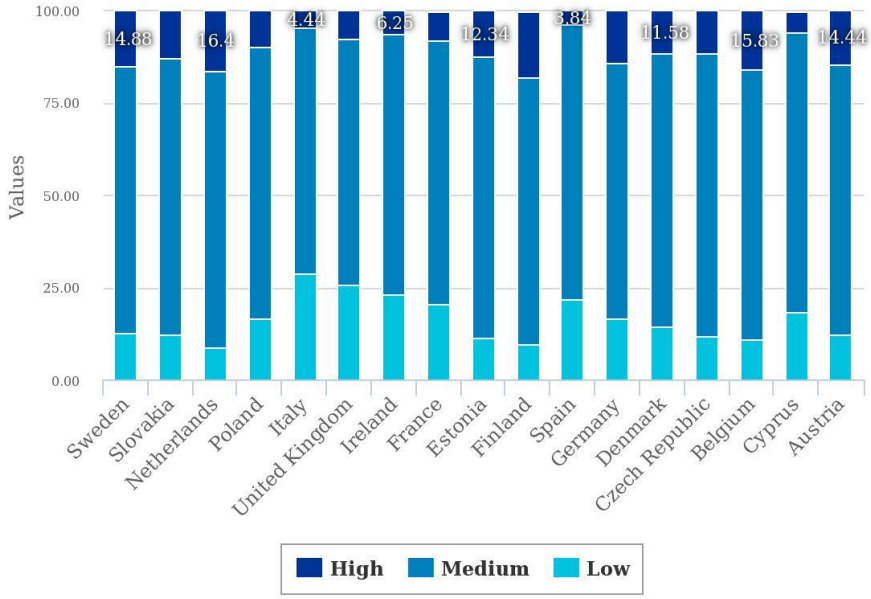
Overall, the trend of construction green buildings requires construction workers to be more aware of the eco friendly materials and technologies. Nevertheless, the trend will not apply only for new buildings but also on existing homes. Analysis undertaken as part of the BUILD UP Skills European initiative, suggests that by 2020 more than 3 million workers in Europe will require training on energy efficiency or renewable energy sources (mainly craftspeople and on-site workers). Workers who need the most of skills upgrading are: electricians; plumbers (including installers of heat pump boilers, biogas systems, central heating, sanitary and thermic equipment); carpenters and joiners; bricklayers; and technicians (including heating, ventilation and air conditioning).

3.2 Literacy and Numeracy

Literacy and numeracy are one of the most essential skills in construction industry and they are becoming more and more significant in the labor market. These skills are not important only in our everyday life but also in education, work, etc. Nowadays more jobs require at least a functional level of literacy / numeracy. If an individual does not have a high level of literacy or numeracy, he is more likely to work in low skilled jobs. Nevertheless, the number of low skilled jobs is shrinking (in EU from 2003 to 2013 by 22%).

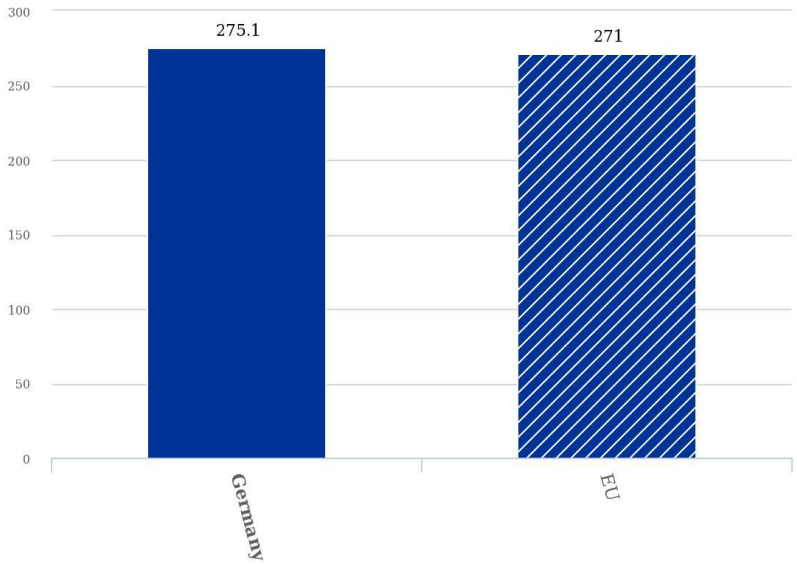
A survey made by PIAAC has shown that the mean literacy scores of adults aged 25 – 64 are lower with people who have finished vocational school. In many European countries, only one third of adults with vocational education have proficiency Level 3 on PIAAC literacy scale.

European countries who have the highest proportion of VET educated adults scoring at the level 2 are Spain, Belgium, Italy and France. In Netherlands, Sweden and Finland less than 50% score at level 2.



Source: Skills Panorama - Level of proficiency in numeracy by age group 16-24 across countries in 2012

Jobs today are demanding skilled workers. Individuals with poor skills of numeracy and literacy will be at greater risk of unemployment in the future.



Source: Skills Panorama - Average scores in numeracy skills by age group 16-24 in Germany compared to EU in 2012

3.3 Occupational Safety and Health (OSH)

Occupational safety and health (OSH) is a multidisciplinary field concerned with the safety, health, and welfare of people at work. It is written in the law that employers have a duty to take reasonable care of the safety of their employees. Specific OSH factors vary on the specific sector. Despite the significant improvements observed during the last 10 years there are still more occupational fatalities in construction industry than in any other. One of the most common causes of fatal and non-fatal injuries among construction workers are falls. In most countries, men are most in danger of workplace fatalities. In the EU as a whole, 94% of death were of males.
In many EU countries, there is strong cooperation between employer and worker organizations (e.g. unions) to ensure good OSH performance as it is recognized this has benefits for both the worker (through maintenance of health) and the enterprise (through improved productivity and quality). In 1996, the European Agency for Safety and Health at Work was founded.

In Member states of the European Union, they have implemented a series of directives into their national legislation that establish minimum standards on occupational health and safety. These directives dictate employers to assess the workplace risks and make preventive measures.

There are many OSH professionals, who have different roles and responsibilities (varies regionally). Their work is to:

- Evaluate working environments
- Develop and encourage measures that might prevent injuries and illnesses
- Providing OSH information to employers /employees
- Providing medical examination
- Assessing the success of worker health programs.

For example in In Norway, the main required tasks of an occupational health and safety practitioner include the following:

- Systematic evaluations of the working environment
- Endorsing preventative measures which eliminate causes of illnesses in the workplace
- Providing information on the subject of employees' health
- Providing information on occupational hygiene, ergonomics, and environmental and safety risks in the workplace

3.4 ICT

ICT is becoming more and more implemented in the general construction process. It is increasingly embedded into the everyday jobs of construction workers. Because of the new technologies in construction sector (smart buildings, energy reduction), there is a need for ICT skills in construction, to which employers are already responding. There is still however an issue with employees, who have not received enough training in these new technologies.

Although many construction companies across Europe have focused on digitalization in construction, only few of them have implemented this new field of work in their business. The economic crisis has had an impact on the adaptation of new technologies, but this is slowly changing and growing.

Some of the innovations in the construction industry are:

- Drones - the construction industry has emerged as a key driver of the commercial drone industry. With drones the construction company can save up their money, they are faster, they collect data far more frequently With the right computing tools, builders can turn sensor data into 3D structural models, topographical maps, and volumetric measurements (useful for monitoring stockpiles of costly resources like sand and gravel). Collectively, that intelligence allows construction companies to more efficiently deploy resources around a job site, minimize potential issues, trim costs, and limit delays. In fact, most of the advanced construction projects are transformed with drones. In Spain, they use drones to supervise projects in less accessible areas.
- BIM (Building Information Modelling) – allows simulations of construction processes. It is used and being further more developed in several European countries. In two European countries, Poland and Greece the implementation of BIM is very limited. In these countries, they tend to focus more on machinery and people.

For now, mainly large companies are investing in digital construction. Only time will tell how the small companies will manage to benefit from this trend and how will they be able to invest.

3.5 Social skills

Social skills are one of the soft skills (job non-specific skills, which are related to individual ability to operate effectively in the workplace either alone or with others). Soft skills are a crucial aspect of many industries, among them is a construction industry.
Although hard skills are the ones that are the most important, soft skills also play a big part in the construction sector. Knowledge of building projects and materials is and will always be valued, but many employers are realizing that soft skills are equally important. It is vital that a construction worker or even a person with a more specialist position is able to communicate.

Construction workers must have the following soft skills:

- Communication / vocabulary
- Time management
- The ability to lead others
- Written skills

The most important soft skill in construction industry is being able to work in a team. Every project is collaborative process, so preconstruction meetings are often necessary to determine the objectives, timescale and budget constraints to which everyone are aware. **Summary**

The desk research results gave us 6fields of skills gaps, where we have to search for specific skills gaps among construction workers. Those are: green skills, literacy, numeracy, ICT, OSH, and finally social skills. Project consortia decided upan the EACEA communication, that within Erasmus+ SSA social skills are not meant to be addressed and analysed. We can conclude SKILLCO project consortia will only make further (terrain) research in rest 5 skills gaps fields. Next project research activities are planned to be finished and presented (in public report »GENERAL DOCUMENT OF RESEARCH RESULTS ….«) by the end of the year 2017.

3.6 Valuable vanishing skills

Sustainable construction is a human and environmentally friendly construction and at the same time economical. Investors, designers and contractors need to use the construction practice, which will not cause permanent damage to the environment. Buildings that are energy efficient, healthy and functional help reduce pollution and waste. Such construction is based on the triple principle: "Man, Earth and Savings". The ultimate goal of sustainable construction is to reduce the impact of buildings on the environment during construction, use, maintenance and ultimately demolition.

Given the high representation of masonry buildings and their relatively high age, the need for quality construction interventions on such structures is increasingly emphasized. With the newer buildings there are mainly small reconstructions and rehabilitation, and for the elderly there are complete construction interventions, which are the basis for the preservation of the existing construction fund. The latter is necessary due to spatial and economic needs, environmental reasons, as well as the preservation of cultural heritage and the revitalization of old village and city cores. In this regard, according to the construction design, the method of construction and the materials used in the masonry buildings, these customized construction interventions are required.

The efforts for technical sustainability are interwoven with the general trend or strategy of sustainability of a built environment or sustainable construction, in which we strive to take into account environmental, economic and social aspects.

Valuable vanishing skills play an important role in the project Skillco. Besides desk and field research, we will also address these skills by presenting them in the form of expert video clips. Vanishing valuable skills that we have identified mostly in the light of green skills in building – sustainable construction, remain very interesting for the construction companies. There is still a demand on the market, but the techniques of work are gradually disappearing, because there are less and less people who have the knowledge in restoration, renovation, etc. With the expert videos that all three project partner countries will make (Slovenia and Germany will address wooden construction and in Hungary, they will address mud walls), Skillco project aims to preserve the skills in this field of construction.

4. SUMMARY

Construction sector has been hit hard by the economic crisis, but generally, the European construction market shows a trend of steady growth. The future of European construction market looks bright and that is also because of the measures such as the Construction 2020 Action Plan and eco-innovation policy.

One of the major goals in Europe that will also provide new jobs is promoting green energy and »smart infrastructure«. Aims of the policy are investing in technology and innovation in construction industry.

In construction industry there is also one trend which was identified and that is digital construction. Larger European construction companies have all defined their vision around digital construction. Because of the economic crisis in the past years, the companies made fewer investments in the development and new technologies. Now, as the market is recovering the adaptation and investments in new technologies in construction sector is growing.

Over 3 million construction workers will need to increase their skills in the building sector in relation to energy efficiency and renewable energy by 2020. This and other outcomes showing the importance of developing a qualified workforce are gathered in the latest EU BUILD UP Skills report.(EASME: ec.europa.eu/easme/)

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Leader:

Gospodarska zbornica Slovenije
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Chamber of Commerce and Industry of Slovenia
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Partners:

ŠOLSKI CENTER CELJE

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Institute of the Republic of Slovenia for Vocational Education and Training

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ÉVOSZ

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BKSZC

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Kecskeméti Szakképzési Centrum

Kecskemét Centre of Vocational Training
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WESTDEUTSCHER HANDWERKSKAMMERTAG

West German Chambers of Crafts and Skilled Trades' Council
(WHKT), Germany

BERUFSFÖRDERUNGSWERK DER BAUINDUSTRIE NRW

Training Institute of the Federation of Construction Industry in North Rhine-Westphalia
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FIEC

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