



Secondary
Sources
Report – WP2
Deliverable:
Formative
Map of the
Construction
Sector

04/01/2019

DETECTA Project: 2017-
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EU Related

1. European Construction Sector Observatory (ECSO)

Pre-Analysis

REPORTS AND STUDIES		
URL	http://ec.europa.eu/growth/sectors/construction/observatory/	
URL information	https://ec.europa.eu/docsroom/documents/24261 European Construction Sector Observatory - Analytical Report - Improving the human capital basis - April 2017 http://ec.europa.eu/docsroom/documents/26206/attachments/1/translations/ Languages available: PL; DE; FR; EN; IT; ES	
Typology	Statistics	x
	Bibliographic	
	Statement	x
Summary	<p>ECSO profiles the construction industry in the 28 EU countries, and produces detailed Country Fact Sheets (CFS) for each country. Each CFS provides an analysis of key figures, macro-economic indicators, economic drivers, issues and barriers, innovation, the national/regional policy and regulatory framework, and the current status and national strategy to meet Construction 2020 objectives. ECSO identifies and analyses specific policy measures being implemented in each EU country to stimulate construction sector employment, growth and opportunities. These are shown in policy measure fact sheets and organised by the thematic objectives.</p> <p>The observatory is a 3-year action that provides European policy makers and stakeholders with regular analysis and comparative assessments of the market conditions and policy developments related to the competitiveness and sustainability of construction sector in EU28.</p> <p>ECSO's deliverables include:</p> <ul style="list-style-type: none"> Individual country profiles for each Member State of the EU-28 regarding the market conditions and trends as well as national/regional strategies related to the five thematic priorities of Construction 2020. Fact sheets on individual national and/or regional policy measures related to the thematic priorities of Construction 2020, identifying the process of implementation and monitoring, the likely socio-economic effects on the various actors in the construction sector and the environmental impacts on society. Semi-annual analytical reports based on the individual country profiles and fact sheets, and other relevant sources, which clearly identify issues and formulate policy recommendations with respect to the socio-economic and environmental performance of the construction sector. Development and update of dedicated web pages for Europa and the promotion of these web pages 	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	10	10%
	Updating	10	15%
Percentage of frequency and update		20	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%

Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		100	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	x
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	x
	Training for employment national data	x
	Training for employment autonomic, regional, municipal data	
Employment needs	Evolution of activity sectors	
	New concerns	x
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	x
	New occupations / competencies due to technological changes	x
	New occupations / competencies due to changes in regulations	x
	New occupations / competences due to changes in costs	
	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

Interpretation

The key outputs of the Observatory include Country Fact Sheets that profile and analyse the construction sector in each Member State, Policy Fact Sheets on key sector-related policies in each Member State, and a series of Analytical Reports on the implementation of Construction 2020 Strategy objectives.

The most recent Analytical Report – Improving the human capital basis dated April 2017: In examining the demand by type of occupations, the trend at the EU level indicates that the highest numbers of workers needing to be trained on energy efficiency and renewable energy are found in the following professions: Electricians; Plumbers; Carpenters and joiners; Bricklayers; and technicians. The construction sector along with real estate provide the least continuous vocational training hours in Europe. There are variations among member states in terms of adult learning with 28% participating in education and training in Denmark to no participation in Romania, Cyprus, Greece and Bulgaria. An overview of policy initiatives (Energy efficiency; Image of construction; Digitalisation; construction-related apprenticeship; VET reform; Skills recognition and worker mobility; General skills and training) by country is included in Table 8, p.44 using data collected by ECSO.

EE

In reviewing initiatives aimed at strengthening energy efficiency the report notes that the targeted beneficiaries across the EU-28 are existing construction workers with countries developing continuous education and training programmes that build on the current expertise of onsite workers and other construction professionals to hone and improve their existing knowledge or impart new skills. Other initiatives target the trainers themselves although it is noted that these are generally developed at the EU level within the BUILD UP Skills framework. Types of training offered include classroom-based courses and other initiatives such as web based training/eLearning and seminars. Classroom-based are the most common in the EU and Spain is used as an example in the report. An example of web-based training is given from Sweden.

DIGITALISATION

The integration of BIM in the construction sector is being supported by national strategies amongst most member states with a knowledge-sharing and best-practice exchange component. Though not specifically training initiatives, these set the general framework for the creation of education and training, ultimately increasing the levels of BIM skills and knowledge among the workforce (e.g. Germany, the Netherlands, Denmark, Lithuania). Some countries are directly addressing the need for BIM training among the workforce by setting of training targets (e.g. France and the UK) and in some countries BIM training and learning resources are offered by non-governmental institutions (e.g. Ireland, Spain, Latvia). Many countries are teaming up to define digital skill needs and create appropriate training programmes by participating in EU-funded projects (e.g. BIM4VET and BIM-TRAIN).

2. VET in Europe - Country reports – prepared by ReferNet on Cedefop

Pre-Analysis

REPORTS AND STUDIES		
URL	http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/vet-in-europe-country-reports	
URL information	A product of the VET in Europe project and review vocational education and training systems in Member States, Iceland and Norway.	
Typology	Statistics	x
	Bibliographic	
	Statement	x
Resume	Each countries VET in Europe report provides a concise, basic insight into the state of the vocational education and training system of the MS and situates the education and training system within a broad political, social, economic, and labour market framework.	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	5	10%
	Updating	0	15%
Percentage of frequency and update		5	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		80	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	x
	National economic situation	x
	Economic conjuncture autonomous community, county, municipal	x
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	x
Employment needs	Evolution of activity sectors	
	New concerns	
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	x
	New occupations / competencies due to technological changes	x
	New occupations / competencies due to changes in regulations	
	New occupations / competencies due to changes in costs	
	New occupations / competencies due to changes in the market	

Interpretation

Individual reports available by country.

3. VET Policy Developments 2015 – 2017 - Country reports

Pre-Analysis

REPORTS AND STUDIES		
URL	http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/vet-policy-developments	
URL information	These reports describe developments in vocational education and training (VET) policy in 2015-17 in the EU Member States, Iceland and Norway.	
Typology	Statistics	x
	Bibliographic	
	Statement	x
Resume	They are part of the series Cedefop monitoring and analysis of VET policies and consist the background material for the Cedefop 2018 forthcoming analysis on the progress towards achieving targets that have been agreed within the process of European cooperation in VET since 2015. These country reports are based on information collected from Cedefop's European network of expertise on VET (ReferNet), the Directors General for Vocational Education and Training and other sources.	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%

Percentage of Accessibility		20	20%
Frequency and update	Frequency	5	10%
	Updating	0	15%
Percentage of frequency and update		5	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		80	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	x
	Training for employment autonomic, regional, municipal data	x
Employment needs	Evolution of activity sectors	
	New concerns	x
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	x
	New occupations / competencies due to technological changes	x
	New occupations / competencies due to changes in regulations	x
	New occupations / competences due to changes in costs	
	New occupations / competencies due to changes in the market	

Interpretation

Individual reports available by country.

4. Cedefop Skills forecasts country reports

Pre-Analysis

REPORTS AND STUDIES	
URL	http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/skills-forecasts
URL information	Cedefop's skill forecasts country reports highlight future skill supply and demand for each EU Member State. They provide a concise outlook on employment trends for sectors, major occupational groups and

	qualifications. They also show labour force trends for age groups and qualifications up to 2025. The forecasts use a common methodology and harmonised data and the results are consistent with official EU economic forecasts and population projections. The reports offer useful and comparable cross country information for many, including policy makers, experts, journalists, citizens, parents and young people.	
Typology	Statistics	x
	Bibliographic	
	Statement	x
Resume	These reports include Employment outlook; Sector developments; Occupations and qualifications prospects; Labour force trends.	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	5	10%
	Updating	0	15%
Percentage of frequency and update		5	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		80	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	x
	National economic situation	x
	Economic conjuncture autonomous community, county, municipal	x
	Training for employment national data	x
	Training for employment autonomic, regional, municipal data	x
Employment needs	Evolution of activity sectors	

	New concerns	x
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competencies due to changes in costs	
	New occupations / competencies due to changes in the market	

Interpretation

Individual reports available by country.

5. Future Qualification and Skills Needs in the Construction Sector July 2008 (Danish Technological Institute)

Pre-Analysis

REPORTS AND STUDIES		
URL	https://ec.europa.eu/docsroom/documents/5046/attachments/1/translations/en/renditions/native	
URL information	The study focuses on core construction activities covering conceptual development, design, plans and drawings, project management, operation management and construction, finishing trades, and technical equipment, whereas producers of building materials are not included in the analysis. 95% of enterprises in the sector are micro enterprises with less than 20 employees. The study therefore in particular addresses skills demands from an SME perspective.	
Typology	Statistics	x
	Bibliographic	
	Statement	x
Resume	Provides an analysis of existing education and training systems The purpose of this analysis is to map the characteristics of the existing education and training systems that provide labour for the European construction sector.	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness		10%
	Localisation		10%
Percentage of Accessibility			20%
Frequency and update	Frequency		10%
	Updating		15%
Percentage of frequency and update			25%
Rigour	Origin and impact		10%

	Systematisation		10%
Percentage of rigour			20%
Completeness	Totality, credibility and representativeness		15%
Percentage of completeness			15%
Adequacy	Typology of source		20%
Percentage of adequacy			20%
Total			100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	
Employment needs	Evolution of activity sectors	
	New concerns	
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competences due to changes in costs	
	New occupations / competencies due to changes in the market	

Interpretation

The study identifies a number of key future skills (described in detail in section 3.2, Future skills requirements of the European Construction Sector) which are regarded as being of increasing importance: • Planning and management skills • Sustainable construction processes • Adoption of new technologies.

For skilled workers (e.g. bricklayers, carpenters, electricians, and roofers), a foresight study from the UK indicates a general shift from strictly demarcated trades towards a more generalist, multi-skilled occupational profile. A Danish study on sector dynamics and skills demands in the construction sector reaches similar conclusions. The skilled workers in the construction sector will increasingly need a broader set of skills to cooperate efficiently across occupations. This includes functional literacy, numeracy, and communication skills as well as ICT skills in order to improve productivity through an efficient deployment of ICT through the whole construction process. Another driver for changing skills is a growing demand for sustainable technological solutions. For example, plumbers may be required to have more insight into technologies such as solar thermal energy, rainwater harvesting, air source heat pumps, micro fuel cells, and wood heating (biomass).

Four education and training systems are used to illustrate the type of systemic challenges in each of the systems. The chosen systems are the German, the English the Bulgarian, and the Italian. Adaptability to the construction sector's changing skills needs is a challenge to all education and training systems – but for different reasons.

The report holds that knowledge on the application of *complex building materials* will become more important. Interviews with British and Bulgarian employers' organisations indicate that current construction workers have insufficient knowledge of and competencies in specialised technology and materials. The drivers of new management forms such as lean, integration of ICT in the construction process and industrialisation of the construction process represent opportunities for improving innovation and efficiency in the construction sector.

BUILD UP Skills I & II

BUILD UP Skills is a strategic initiative which started in 2011 under the Intelligent Energy Europe (IEE) programme to boost continuing or further education and training of craftsmen and other on-site construction workers and systems installers in the building sector. Its primary aim is to increase the number of qualified workers across Europe to deliver building renovations which offer high-energy performance as well as new, nearly zero-energy buildings. The initiative is addressing skills in relation to energy efficiency and renewable energy systems and measures in buildings therefore contributing to the European objectives of two flagship initiatives of the Commission's 'Europe 2020' strategy — 'Resource efficient Europe' and 'An Agenda for new skills and jobs'. In practice, this has been done in two stages or 'Pillars'.

The first calls for BUILD UP Skills proposals took place in 2011 and 2012. Against the backdrop of the 2020 energy targets of the EU, projects across 30 EU countries (EU-28, the Former Yugoslav Republic of Macedonia and Norway) were funded to understand the individual situation and needs in each country. These projects developed national qualification platforms and roadmaps that would serve to successfully train the building workforce in order to meet the targets for 2020 and beyond. In doing so, a host of local and national stakeholders have been mobilised. This phase is known as Pillar I.

As a follow up to BUILD UP Skills Pillar I, new calls for proposals were launched in 2012, 2013 and 2014. A total of 22 projects were then funded to help implement the roadmaps developed in their countries. This second phase, known as Pillar II, aimed to design and implement new qualification and training schemes and/or upgrade existing schemes, based on the roadmaps developed in Pillar I. The calls for proposals on Pillar II addressed support for the set-up or upgrade of large-scale qualification and training scheme workers in the field of energy efficiency and renewable energy in buildings after initial analysis of the situation – i.e. Pillar I results. This was first eligible in 2012; the 2013 Work Programme was the 2nd opening for support to the implementation of national roadmaps' recommendations.

Pillar I Supporting the development of national status-quo analysis and national roadmaps (2011-2013);

Pillar II Supporting the setup or upgrade of qualification and training schemes (2013-2017).

6. BUILD UP Skills [Evaluation of the BUILD UP Skills Initiative under Intelligent Energy Europe Programme

Pre-Analysis

REPORTS AND STUDIES	
URL	https://ec.europa.eu/easme/sites/easme-site/files/bus_evaluation_final_report.pdf
URL information	Evaluation of the BUILD UP Skills Initiative under Intelligent Energy Europe Programme (2011 – 2015) dated May 2016
Typology	Statistics
	Bibliographic
	Statement
Resume	<p>The evaluation covers 30 Pillar I projects (one in each EU 28 Member State plus the Former Yugoslav Republic of Macedonia and Norway), 22 Pillar II projects (in 21 Member States, Italy having 2 Pillar II projects) and the EU exchange meetings. Only two of the Pillar II projects were finalised at the time of the evaluation. The results of the evaluation will be used by EASME and DG Energy to report on the effectiveness and sustainability of the initiative, as well as to provide a basis for elaborating the future of the BUILD UP Skills Initiative under the Horizon 2020 programme.</p> <p>The review included more than 400 different project documents in addition to the BUILD UP Skills project websites and other related IEE II funded projects. The documentation reviewed includes all Pillar I and II documentation made available by EASME, the BUILD UP Skills initiative and project websites; EU policy and strategy documents and directives; etc.</p>

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness		10%

	Localisation		10%
Percentage of Accessibility			20%
Frequency and update	Frequency		10%
	Updating		15%
Percentage of frequency and update			25%
Rigour	Origin and impact		10%
	Systematisation		10%
Percentage of rigour			20%
Completeness	Totality, credibility and representativeness		15%
Percentage of completeness			15%
Adequacy	Typology of source		20%
Percentage of adequacy			20%
Total			100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	
Employment needs	Evolution of activity sectors	
	New concerns	
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competences due to changes in costs	
	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

Interpretation

In relation to the needs for training this report states that these vary from country to country, but remain overall fairly homogeneous with certain professions recurrently identified as requiring training (bricklayers, carpenters, HVAC installers, etc.). Almost all respondents agree to the fact that similar initiatives should be extended to other professions, including white collars. Architects, engineers and planners are the professions mentioned most frequently. Qualifications of quality control staff and supervision staff on the building site is also often mentioned as being insufficient.

7. BUILD UP Skills Pillar II Overview Report 2018

Pre-Analysis

REPORTS AND STUDIES		
URL	http://www.buildup.eu/sites/default/files/content/bus_pillar_ii_overviewreport.pdf	
URL information	An overview report of the contract EASME/H2020/EE/2015/008 to 'Support for BUILD UP Skills EU exchanges and analysis on construction skills' for the Executive Agency for Small and Medium-sized Enterprises (EASME). 2018.	
Typology	Statistics	
	Bibliographic	
	Statement	x
Resume	Provides a brief overview of the Build Up Skills Pillar II programme including results achieved and lessons learnt.	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	0	10%
	Updating	0	15%
Percentage of frequency and update		0	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		75	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	

	Training for employment national data	
	Training for employment autonomic, regional, municipal data	x
Employment needs	Evolution of activity sectors	
	New concerns	x
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competences due to changes in costs	
	New occupations / competencies due to changes in the market	

Interpretation

The projects have generated 805 training courses of different nature, ranging from a 3-4-hour on-site course, to 10-day courses, pilot courses and fully-fledged on-site/ off-site courses, courses for workers vs. courses for trainers. Given these characteristics of the courses, the majority of the projects aimed to develop less than 10 training courses.

The skills targeted by BUILD UP Skills Pillar II projects were indeed relevant and differed from country to country as they addressed the needs and skills gaps identified in each country as part of the former phase (Pillar I) Status Quo analysis and Roadmap. These skills can be grouped into five broad categories: 1) Building fabric (e.g. façade workers/ plasterer (building envelope, roofers, outdoor/ indoor, carpenters, bricklayers, insulation installer); 2) Building services (e.g. electrical installers, ventilation, air conditioning installation, heating systems installation); 3) Energy (e.g. skills in energy efficiency, renewable energy systems, heat pumps, boilers); 4) Building management (e.g. foremen); 5) Building misc (e.g. migrant workers).

Most of the skills targeted by the projects were in the categories of building fabric, building services, and energy sources. While looking inside those categories, the following specific skills were the most popular: • Insulation installers; • Heating system installers; • Renewable energy systems installers; • Ventilation and air conditioning installers; • Façade workers; • Plasterers (building envelope); • Roofers; • Electrical installers; • Heat pump installers.

This summary also provides several lessons that can be learnt from the BUILD UP Skills projects that are of interest to other professionals concerned with advancing the skills of the construction sector workforce, including training courses offered should fill a gap in the market and be mostly practical; training needs to be flexible and cater for differing needs of workers and recognition is key to stimulate demand for training.

8. BUILD UP SKILLS Status Quo Reports & Project Documents

Pre-Analysis

REPORTS AND STUDIES		
URL	https://ec.europa.eu/energy/intelligent/projects/en/project-search?search_api_views_fulltext=status+quo+reports	
URL information	Provides access to the documentation and reports under BUS Pillar I The national reports include information on current characteristics of the building workforce, skill needs and gaps, barriers to training, existing strategies and policies. 30 countries have been supported including the 28 EU Member States as well as Norway and the Former Yugoslav Republic of Macedonia.	
Typology	Statistics	x
	Bibliographic	
	Statement	x

Resume	<p>Each Pillar I project included the following expected outcomes:</p> <ul style="list-style-type: none"> • The set-up of a National Qualification Platform • A Status Quo Analysis (SQA) with an analysis of the workforces, the national education system for vocational training, an assessment of the training needs and an evaluation of the future lack of workforce in the area of energy efficiency and energy renovation. • A fact sheet with a summary of the statistical information in each country. • A roadmap of actions for future training and market activities needed to reach national objectives by 2020 with their level of priority and the key stakeholders to be involved. • A Project Report summarising the implementation of the projects.
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Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	0	10%
	Updating	0	15%
Percentage of frequency and update		0	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		75	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	x
	National economic situation	x
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	x
	Training for employment autonomic, regional, municipal data	x
Employment needs	Evolution of activity sectors	x
	New concerns	x
	Sectors that generate employment	x
	Occupations that generate employment	x
Needs derived from the changes	New occupations / competencies due to changes in demand	x
	New occupations / competencies due to technological changes	x

	New occupations / competencies due to changes in regulations	x
	New occupations / competences due to changes in costs	
	New occupations / competencies due to changes in the market	x
Need and utility of the information provided:		
...		

Interpretation

9. BUILD UP SKILLS EU Overview Report/Staff Working Document October 2013

Pre-Analysis

REPORTS AND STUDIES		
URL	https://ec.europa.eu/easme/sites/easme-site/files/overview-report_buildup_skills.pdf	
URL information	This report provides an overview of the national status quo reports produced in the first phase of the BUILD UP Skills initiative, between November 2011 and April 2013. It provides information on the building workforce and the building sector with highlights from the 30 countries covered. It analyses the existing vocational education and training provisions and the training needs and gaps. It also lists the most frequent barriers to the up-skilling of building workers in Europe.	
Typology	Statistics	
	Bibliographic	x
	Statement	x
Resume	This report provides an overview of the national status quo reports produced in the first phase of the BUILD UP Skills initiative, between November 2011 and April 2013. It provides information on the building workforce and the building sector with highlights from the 30 countries covered. It analyses the existing vocational education and training provisions and the training needs and gaps. It also lists the most frequent barriers to the up-skilling of building workers in Europe.	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	0	10%
	Updating	0	15%
Percentage of frequency and update		0	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%

Percentage of adequacy	20	20%
Total	75	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	x
	Training for employment autonomic, regional, municipal data	x
Employment needs	Evolution of activity sectors	x
	New concerns	x
	Sectors that generate employment	x
	Occupations that generate employment	x
Needs derived from the changes	New occupations / competencies due to changes in demand	x
	New occupations / competencies due to technological changes	x
	New occupations / competencies due to changes in regulations	x
	New occupations / competences due to changes in costs	
	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

Interpretation

It was difficult for countries to determine the current training supply because the training offer is changing constantly – according to Austria, if the demand for courses is low or absent, courses are removed from the portfolio. So in many countries comprehensive information on training supply is unavailable. Thus assumption that training supply is insufficient could be somewhat misleading. What is clear, however, is that the overall quality of training courses needs considerable improvement in many countries.

Examples of the extent to which national VET systems address skills related to EE and RES are highlighted for example:

- Ireland concluded that apprenticeship training for the building occupations does not emphasise energy performance or renewable energy technology in the curricula. In the main building related crafts, approximately 15,500 apprentices have been trained in Ireland in the period 2006 to 2011. The vast majority of these have had little or no exposure to the revised building regulations, new standards and emerging technologies within their relevant fields as part of this training. The array of newly introduced programmes related to energy efficiency and renewable energy deployment are generally technology specific and do not strive to provide learners with an understanding of the fundamental principles of low energy buildings and system efficiency.
- In Spain vocational education and training does not deal with all of the bases required to implement EE and RE, principally because it does not cover all of the related activities in the sector. The majority of available training for sustainable buildings is aimed towards highly-qualified professional profiles, and, as a result, there is a consensus that they are the principal intended audience since building sustainability depends largely on them. It is not, therefore, in this group that the largest collection of skills gaps are found, since the training currently available can answer the needs of this group. However, there is not sufficient training material directed at lower levels. Although the experts may consider specific technical training unnecessary, it may be convenient to provide a more general vision focused upon the activity being developed.

In relation to training providers this report notes that training providers of continuing vocational education and training courses and programmes for adults which are not part of national continuing VET system are very different across countries and include:

- Large construction companies with their own licenced vocational training centres;
- Companies which are manufacturers or importers of equipment, materials and system. Some of these companies also have licenses for their own centres for vocational training;
- Chambers, guilds and/or trade/professional associations which, for example, organise trainings or training initiatives to enhance quality of services in the enterprises working in the building sector;

- Public and private training organisations such as universities, colleges, institutes (e.g. institutes of technology), vocational schools, building schools (such as those in IT), other private training institutions;
- Agencies;
- Consultancy companies;
- Paritarian funds, funds that are established, funded and managed by the social partners themselves, which often play a role in vocational training activities.

Most of training provision in case of courses and programmes which are not part of national continuing VET system is directed towards the needs of self-employed or workers at enterprises. Countries differ in terms of target groups of these courses. For example, in Estonia more attention is paid to training such occupations as construction finishers, carpenters, bricklayers, welders or electricians as these occupations are among the largest target groups in the building sector. The Estonian report also estimates a growth in the volume of training for plumbers, ventilation technicians and electricians. Meanwhile, the Irish report indicates that construction skills that fall outside of the formal apprenticeship system include concrete workers, steel workers, roofers and glaziers. Thus, the target groups of courses and programmes that are not part of national continuing VET system may differ quite substantially across countries.

Examples are provided of courses and programmes not part of national CVET systems e.g. the Dutch training programmes or courses that fall outside formal education include the following: professionals involved in renewing and upgrading the thermal insulation of building shells (including renovation) and creating thermal building shells for new buildings; professionals involved in the choice, maintenance, setting up, regulating and replacing installations in existing buildings as well as professionals involved with choosing, installing, setting up and regulating sustainable energy installation in new buildings; on-site supervisors to warrant effective instruction, control and validation of work on the thermal shell as well as application of the energy systems; and professions at middle management level: advisors, calculators, constructors, etc.

Although analysis in national reports suggests that short courses dominate in the market, some reports (e.g. Estonian report) suggest that recently some longer and more comprehensive training programmes were introduced.

The overview notes that the current qualification courses and schemes required for the energy performance of buildings, as well as the training and accreditation structures for carrying out these courses are not satisfactory and are underdeveloped even in countries with highly favourable conditions for adult learning.

The report states that carpenters and joiners, bricklayers and stonemasons and building and related electricians are the most frequently mentioned occupations with an identified need for training. These professions are also the ones with the highest numbers of workers requiring additional training. Other occupations with identified training needs include plumbers, insulation workers, roofers and plasterers. The report further states that the occupations identified above are those with the most urgent training needs on average overall. However, training needs greatly vary between countries (e.g. Estonia stress the need of master-level employees, see below). Occupations for which additional training should be provided to meet 2020 energy targets are different in each of them. For example this overview notes that the Irish status quo report The Irish report states that the highest training needs would be at craft level (main construction related trades - electrician/ carpenter/ joiner, plumber, bricklayer and plasterer; 49000 employees), less in Operative Level (10000) and the least in supervisory level (7230). Numbers of workers requiring training at craft level were the highest for carpenters/ joiners, plumbers and electricians. Whereas in Belgium the number of workers requiring training on EE and RES is the highest for bricklayers (6400 out of 33400 workers that require training), joiners (6400), roofers (2800), floor covering layers/ tillers/ plasterers (2500) and glaziers (2500).

Table 4: Occupations with the most urgent training needs

Most often mentioned occupations requiring additional training (Annex 5)	Most often mentioned occupations with the highest numbers of workers requiring additional training (Annex 6)
<ul style="list-style-type: none"> • Bricklayers and stonemasons; • Carpenters and joiners; • Plumbers and pipe fitters; • Insulation workers; • Building and related electricians; and • Roofers. <p>Some less often mentioned occupations include:</p> <ul style="list-style-type: none"> • Glaziers; • Concrete placers; • Concrete finishers and related workers; • Plasterers; • Floor layers and tile setters; and • Electrical mechanics and fitters. 	<p>Most often mentioned were carpenters and joiners (incl. installers of windows/ doors/ facades). The following important occupations were mentioned similar number of times:</p> <ul style="list-style-type: none"> • bricklayers and stonemasons; • building and related electricians; and • RES installers which were considered similarly important by countries. <p>Other less often mentioned occupations were:</p> <ul style="list-style-type: none"> • Plumbers; • Insulation workers; • HVAC technicians; • Plasterers; and • Roofers.

Source: National status quo reports and information separately provided by countries

In its overview of country needs for new and/or upgraded existing courses and schemes the report highlights that Ireland has identified the following areas where there is a potential need for development of new training programmes: non-domestic heating technologies; eco-construction and retrofit; heating controls and system efficiency; energy efficient construction technologies; energy efficiency / energy and carbon management

The overview shows that training and accreditation structures are not satisfactory for most countries for which the data is available. Overview showed that training and accreditation structures in respect of EE and RES in buildings are underdeveloped not only in countries with moderately favourable conditions for adult learning (e.g. EE, CZ, SI) or those with less favourable conditions (e.g. BG, CY, EL, HU, LT, PL), but even in countries with highly favourable conditions for adult learning.

In summarising the barriers to training and education the report shows that 3 education and training barriers were dominating in the reports: weaknesses of national education and training systems (e.g. low quality of the training offer, outdated programmes, lack of consideration of labour market needs, inflexible training provision and lack of balance between practical and theoretical training), limited training supply (e.g. lack of training courses, on-the job training opportunities and apprenticeship places in the industry) and underdeveloped training infrastructure and materials.

10. BUS TWG 3 Innovative Training Methods & Incentives

Pre-Analysis

REPORTS AND STUDIES		
URL	http://www.buildup.eu/en/skills/twg-3-innovative-training-methods-and-incentives	
URL information	<p>The overall aim of this TWG is to engage the project coordinators and partners in an interactive exchange of information regarding good practices on this topic. The following topics and issues have been amongst those discussed by this Group:</p> <ol style="list-style-type: none"> 1. Innovative training infrastructure and materials (tools and training content); 2. Innovative ways to train construction sector workers (training delivery); 3. Incentives to stimulate the demand for training among the workers. 	
Typology	Statistics	
	Bibliographic	
	Statement	x
Resume	<ul style="list-style-type: none"> • Provides an EASME database on training activities of BUILD UP Skills Pillar II & Horizon 2020 Construction skills projects - This database is a result of surveys conducted and analysed in 2016-2017 by Visionary Analytics on behalf of the Executive Agency for Small and Medium-sized Enterprises (EASME) and within the framework of the project "Support for BUILD UP Skills EU exchanges and analysis on construction skills" led by Trinomics B.V 	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	0	10%
	Updating	0	15%
Percentage of frequency and update		0	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%

Total	75	100%
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Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	
Employment needs	Evolution of activity sectors	
	New concerns	
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competences due to changes in costs	
	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

Interpretation

The TWG 3 Final Deliverable report presents an overview of the main types of training infrastructures, training materials and training methods used in the 27 BUS Pillar II and Horizon 2020 Construction skills projects. This overview includes project good practice examples and provides further suggestions for improving the main types of training infrastructures, materials and methods described. This report is built on knowledge gathered by the TWG as well as the database on training activities which contains contributions from all 27 relevant projects.

The objectives of this Technical Working Group were the following: 1. Discuss the particular features of innovative training infrastructures, training materials and training methods. 2. Map out the major difficulties encountered and the best results achieved during the course of the projects with regard to each topic. 3. Identify and share good practices among projects. Sharing of such practices (above) could address difficulties and/ or further amplify project achievements.

Ireland

11. CIRI - Construction Industry Register Ireland

Pre-Analysis

REPORTS AND STUDIES		
URL	https://ciri.ie/	
URL information	Construction Industry Register Ireland (CIRI) is an online register, supported by Government, of competent builders, contractors, specialist sub-contractors and tradespersons who undertake to carry out construction works. Its objective is to be recognised as the primary online resource used by consumers in the public and private procurement of construction services.	
Typology	Statistics	

	Bibliographic	
	Statement	x
Resume	<ul style="list-style-type: none"> Construction Industry Register Ireland (CIRI) is an official online register of contractors carrying out construction works that aims to increase the quality level of the construction sector by vetting all companies who register to a set standard with regard to using competent and certified professionals, good governance of energy efficiency and health and safety regulations, amongst other criteria. CIRI provides details on competent builders, contractors, specialist sub-contractors and traders. Its objective is 'to be recognised as the primary online resource used by consumers in the public and private procurement of construction services'. CIRI is operated by the CIF on a voluntary basis and is seen as a valuable consumer protection measure, giving access to competent and qualified construction professionals. 	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	0	10%
	Updating	0	15%
Percentage of frequency and update		0	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		75	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	
Employment needs	Evolution of activity sectors	
	New concerns	
	Sectors that generate employment	

	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competencies due to changes in costs	
	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

Interpretation

Under the Building Control (Amendment) Regulations 2014, all commencement notices, notice of assignment of builder, undertakings by builders and certificates of compliance on completion by builder seek the CIRI registration number.

12. CIF – Construction Industry Federation

Pre-Analysis

REPORTS AND STUDIES		
URL	https://ciftraining.ie/?utm_source=cif_ie&utm_medium=homepage&utm_content=button	
URL information	<p>Construction Training Courses: The Construction Industry Federation (CIF) is the leading provider of Construction Training and Health and Safety Training courses for the construction industry in Ireland. Our training courses have been devised to meet the needs of the Irish construction sector, informed by those working on the frontline of the Irish construction industry.</p> <p>Construction Training Accreditation: All our courses provide accreditation, a key factor for Irish construction companies which has become vitally important throughout Irish industry and abroad. CIF construction training courses are accredited to bodies such as QQI and IOSH.</p> <p>CIF training programmes are the named programmes within the Department of Finance Pre Qualification documents for construction tenders.</p> <p>Quality Construction Training Courses We provide a wide range of top quality programmes, with expert lecturers sourced from relevant fields within the Irish construction industry. This has led to our construction training programmes being highly regarded, both in Ireland and internationally.</p> <p>The CIF training courses are practical, allowing them to be easily transferred to real world scenarios on site.</p>	
Typology	Statistics	
	Bibliographic	
	Statement	x
Resume	<ul style="list-style-type: none"> Contains a database of training courses & a database of virtual training/eLearning courses 	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)

Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	0	10%
	Updating	0	15%
Percentage of frequency and update		0	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		75	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	
Employment needs	Evolution of activity sectors	
	New concerns	
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competences due to changes in costs	
	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

Austria

13. Government of Austria, Shortage occupations list 2017

Pre-Analysis

REPORTS AND STUDIES

URL	https://www.migration.gv.at/en/types-of-immigration/permanent-immigration/skilled-workers-in-shortage-occupations/shortage-occupations-list-2018/#c2818		
URL information	Shortage occupations are promulgated each year in a regulation (Fachkräfteverordnung) issued by the Federal Minister of Labour (Arbeitsminister/Arbeitsministerin) in consultation with the Federal Minister of Economics (Wirtschaftsminister/Wirtschaftsministerin). Which occupations are considered shortage occupations depends on the development of the Austrian labour market.		
Typology	Statistics		
	Bibliographic		
	Statement		x
Resume	<ul style="list-style-type: none"> Shortage occupations list 2018 including descriptions 		

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	10	10%
	Updating	15	15%
Percentage of frequency and update		25	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		100	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	x
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	

Employment needs	Evolution of activity sectors	x
	New concerns	
	Sectors that generate employment	x
	Occupations that generate employment	x
Needs derived from the changes	New occupations / competencies due to changes in demand	x
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competencies due to changes in costs	
	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

14. IBW Austria - Research & Development in VET

Pre-Analysis

REPORTS AND STUDIES		
URL	https://www.ibw.at/en/	
URL information	ibw draws up reports and analyses at the interfaces between education and training, skill needs of businesses and qualifications	
Typology	Statistics	
	Bibliographic	
	Statement	x
Resume	<ul style="list-style-type: none"> ibw's research work covers a wide gamut of topics and ranges from analyses of dual VET, school-based and tertiary education and labour market analyses onto continuing vocational education and training (CVET). In our research library you will find well-founded data, studies and background analyses conducted by ibw at the interface between education, business and qualification. Most of our ibw studies have a national and sometimes also regional focus. On account of the increasingly strong international perspective due to the EU's education policy and OECD's comparisons of systems, however, there is also growing international demand for ibw's expertise. ibw has been a partner or coordinator of a large number of EU projects for many years. In addition, ibw is a cooperation partner of the EU's Centre for the Development of Vocational Training (Cedefop). 	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	0	10%
	Updating	0	15%
Percentage of frequency and update		0	25%

Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
	Percentage of completeness		15
Adequacy	Typology of source	20	20%
	Percentage of adequacy		20
Total		75	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	
Employment needs	Evolution of activity sectors	
	New concerns	
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competences due to changes in costs	
	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

Interpretation

ibw was founded in 1975 by the Austrian Federal Economic Chamber (WKO) and the Federation of Austrian Industry (IV). Apart from these two provider institutions and their sub-organisations, ibw's major project partners and clients include federal ministries, the Public Employment Service Austria (AMS), regional governments and individual companies. ibw is active at the international level within the framework of European projects and represents Austria in the ReferNet network, which was established by the EU's Centre for the Development of Vocational Training (Cedefop).

ibw's research work covers a wide gamut of topics and ranges from analyses of dual VET, school-based and tertiary education and labour market analyses onto continuing vocational education and training (CVET).

In our research library you will find well-founded data, studies and background analyses conducted by ibw at the interface between education, business and qualification. Most of our ibw studies have a national and sometimes also regional focus. On account of the increasingly strong international perspective due to the EU's education policy and OECD's comparisons of systems, however, there is also growing international demand for ibw's expertise. ibw has been a partner or coordinator of a large number of EU projects for many years. In addition, ibw is a cooperation partner of the EU's Centre for the Development of Vocational Training (Cedefop).

Denmark

The building's education mission is in cooperation with the construction industry and the education sector's actors to ensure that the education meets current and future requirements.

15. Building Education - Byggeriets Uddannelser

Pre-Analysis

REPORTS AND STUDIES		
URL	https://www.bygud.com/	
URL information	Building Education: The Advisory Board for Education and Training for the Building and Construction Industry is managed by a board consisting of four representatives from The Danish Construction Association (Dansk Byggeri) and four representatives from the United Federation of Danish Workers (Fagligt Fælles Forbund - 3F).	
Typology	Statistics	
	Bibliographic	
	Statement	x
Resume	<p>Building Education secretariates a number of vocational and professional committees in the field of construction.</p> <p>Vocational training in the field of construction opens up many opportunities for an exciting work life. A common feature of the education is that they provide access to subjects of history, pride and traditions.</p> <p>Website contains links and information on the individual programs and specializations.</p> <p>Provides Profile of skills and competences for the following are included: Bricklayer, Carpenter, Civil construction worker, Concreter, Dry wall technician, Floor layers, Paver, Roofer, Stonemason, Stucco worker, Technical insulator, Thatcher</p>	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	0	10%
	Updating	0	15%
Percentage of frequency and update		0	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		75	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	
Employment needs	Evolution of activity sectors	
	New concerns	
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competencies due to changes in costs	
	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

Interpretation

16. Education Guide (ug.dk) is the Ministry of Education's National Information and Guidance Portal

Pre-Analysis

REPORTS AND STUDIES		
URL	https://www.ug.dk/job	
URL information	The Education Guide (ug.dk) is the Ministry of Education's National Information and Guidance Portal. On the website The Education Guide - ug.dk - you can find information about educational programs, adult education and continuing training, as well as job and labor market conditions in Denmark, provides accurate and updated information for everyone in Denmark seeking job, education, business or labor market information.	
Typology	Statistics	
	Bibliographic	
	Statement	x
Resume	<p>All publicly recognized education programs: On the Education Guide you will find current and comprehensive information about all publicly recognized education programs in Denmark, ie. youth education, higher education and adult and further education, as well as information related to the conditions of taking an education. In addition, you can find information and inspiration about a variety of jobs and career paths.</p> <p>Inspirational and Guidance: Tools Ug.dk offers the opportunity to find answers to factual questions about education and jobs or to gain inspiration and support for the education choice by using the website's inspiration and guidance tools.</p>	

	<p>Knowledge Center for Guidance: Knowledge Center for Guidance collects and communicates Via weekly newsletters, guided knowledge and documentation - including analysis, research and literature. The primary target group is professional actors in the field of guidance.</p> <p>eVejledning The: education guide also includes eVejledning , which offers a number of digital guidance offers. As a citizen, you can use the offers if you need information, inspiration or support in the choice of education and occupation.</p>
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Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	10	10%
	Updating	15	15%
Percentage of frequency and update		0	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%
Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		100	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	x
Employment needs	Evolution of activity sectors	
	New concerns	x
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competences due to changes in costs	

	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

Interpretation

17. World Economic Forum, Shaping the future of construction Final Report, 2016

Pre-Analysis

REPORTS AND STUDIES		
URL	http://www3.weforum.org/docs/WEF_Shaping_the_Future_of_Construction_full_report_.pdf	
URL information	This report is the first publication of a multi-year project for guiding and supporting the Engineering & Construction (E&C) industry during its current transformation. The report describes the industry's present state, assesses relevant global trends and their impact on the industry, and devises an industry-transformation framework with key areas for development and action.	
Typology	Statistics	
	Bibliographic	
	Statement	x
Resume	This report begins with an assessment of the industry's present state and the global trends that will impact on the industry. It then introduces a conceptual industry-transformation framework, listing a number of measures, grouped in eight topical areas, that would profoundly change the industry system. The measures are classified into three groups: measures taken by private companies on their own; measures taken by companies in collaboration with their peers – or by the industry as a whole; and measures taken by the government, acting both as the regulator and as a major project owner. For each of the topical areas, the report identifies current best practices, and provides illustrative case studies of innovative approaches, to prepare for the industry's transformation. The eight topical areas are: – Technology, materials and tools – Processes and operations – Strategy and business model innovation – People, organization and culture – Industry collaboration – Joint industry marketing – Regulation and policies – Public procurement	

Coding

ANALYSIS OF RELEVANCE OF THE SOURCE			
INCLUSION CRITERIA	INDICATOR OF RELEVANCE	% value	% value (maximum)
Accessibility	Degree of openness	10	10%
	Localisation	10	10%
Percentage of Accessibility		20	20%
Frequency and update	Frequency	5	10%
	Updating	5	15%
Percentage of frequency and update		10	25%
Rigour	Origin and impact	10	10%
	Systematisation	10	10%
Percentage of rigour		20	20%
Completeness	Totality, credibility and representativeness	15	15%
Percentage of completeness		15	15%

Adequacy	Typology of source	20	20%
Percentage of adequacy		20	20%
Total		85	100%

Categorisation

SOURCE INFORMATION INDICATORS		
Type	INFORMATION about	
Current economic situation	Job market	
	National economic situation	
	Economic conjuncture autonomous community, county, municipal	x
	Training for employment national data	
	Training for employment autonomic, regional, municipal data	
Employment needs	Evolution of activity sectors	x
	New concerns	x
	Sectors that generate employment	
	Occupations that generate employment	
Needs derived from the changes	New occupations / competencies due to changes in demand	x
	New occupations / competencies due to technological changes	
	New occupations / competencies due to changes in regulations	
	New occupations / competencies due to changes in costs	
	New occupations / competencies due to changes in the market	
Need and utility of the information provided:		
...		

Interpretation

The World Economic Forum Future of Construction project is a collaborative endeavour, aimed at supporting the Engineering & Construction sector as it pursues its transformation. (Collaboration is, or should be, a hallmark of the construction industry itself: the industry's future success will rely heavily on effective collaboration among all stakeholders.) The project is planned as a multiyear effort. In its first year, the project is commencing with this wide-ranging report – a detailed map to help navigate the current industry transformation. Subsequently, the project will focus on specific topics; for example, the ways that new technologies, materials and processes will improve the project delivery and the life-cycle performance of buildings, and the ways of selecting relevant measures from the industry transformation framework.

Reference Template

Secondary/documentary source sheet Template

For each of the documentary sources in the Source Catalogue, an assessment of relevance has been made following the assessment presented. The distribution of 100% of the relevance value among the 5 inclusion criteria is as follows:

INCLUSION CRITERION	% VALUE	RELEVANCE INDICATOR
Accessibility	20 %	Degree of openness
		Localization
Frequency and updating	25 %	Frequency
		Updating
Rigour	20 %	Origin and impact
		Systematization

Exhaustive	15 %	Totality, credibility and representativeness
Adequacy	20 %	Typology of source
Total	100 %	

In addition, for the adequate filtering of sources, the criteria for compliance with each indicator of relevance have been taken into account, and the contributions made by the experts have been concluded.

Inclusion Criterion	Relevance Criteria	Indicator Description
accessibility	Openness level	We can access the source at any time.
	Localization	The source is easily accessible and freely available on the Internet.
Frequency updating and	Updating	The source is regularly updated and compiles detailed and comparative information from different periods.
	Stability	The source remains in time and has a time path that allows comparisons to be made.
Rigour	Origin and impact	The origin of the source is a local, autonomous, national, European or supra-community official body, with credit in the area of study.
		The origin of the source is a university research centre with sufficient credit in the field of study.
The source is a private research organization (consultant) with sufficient credit in the field of study.		
The origin of the source is a scientific publication with sufficient credit in the field of study.		
		The origin of the source is a publication from an official body with sufficient credit in the field of study..
	Systematization	The source has been selected in a systematic process and with an appropriate methodology.
Exhaustive	Totality	The full text is available. We can access all the data in a statistical database.
	Credibility	The source is reliable with respect to the information it provides
Adequacy	Thematic relevance	The information provided by the source is adjusted to the key information to be taken into account for the detection of training needs.

The application of the criteria and indicators of relevance to the sources initially identified has made it possible to identify those that are most relevant for the development of the process of prospecting for training needs and which are included in the following catalogue.