

EQ-WOOD
Quality Qualifications for the European Woodworking and Furniture Industry
PROJECT no. 591939-EPP-1-2017-1-IT-EPPKA2-SSA
Co-funded by
ERASMUS+ programme of the European Union
(running from 01/01/2018 until 31/12/2020)

BRIEF OF GENERAL REPORT

WP4 – Needs Analysis Review and Qualification Design

This report is composed by three subchapters (Briefs) that come as Appendixes to this generic report:

- Appendix 01: Stakeholders Analysis Report
- Appendix 02: Sectoral Information Report
- Appendix 03: Studies and Qualifications Report

Appendix 01: STAKEHOLDERS ANALYSIS REPORT

01. Introduction

The furniture sector is in general a manufacturer sector, but this sector needs to implement some changes due to the future challenges.

Really to implement the challenges for the future is necessary to have people working in the companies with competences and skills capable to promote and implement the changes in the companies.

For that reason is necessary define a professional profile with those competences to allow to the companies implement and promote the changes, people capable to help to manager of the companies in the different actions and changes to arrive at a competitive company, like "the innovative advisor".

Before to define the professional profile, it is necessary to have an idea about the situation and the opinion in each country participating in the project in different aspects related with the currently and future skills of the people working in the furniture sector, as well as the furniture sector trends.

Really the situation in each country participating in the project is not always similar, in aspects related with the competences for the actual and future workers .we need to know the currently reality and the demands of the future in each country with the aim to define a new professional profile at European level with those competences and skills to allow to improve some activities related to the Industry 4.0 implementation, circular economy, design etc. in the furniture sector.

6 countries have participated in the project, Italy, France, Bulgaria, Hungarian, Belgium, and Spain

To obtain the information the partners in each country have selected the stakeholders with knowledge of the sector and with capability to respond to the questionnaire and give an idea about the needs and characteristics for the professional profile demanded in the companies in the future.

The stakeholders has been:

- Companies.
- Universities.
- VET Centres.
- Companies associations.
- Trade Unions.

- Sectoral experts.
- Policy makers.

Each stakeholder has responded questions related to the currently skills and their opinion about future skills, trends and profiles that are demanded currently or well will be demanded by the companies in the future.

This information we have gave us an idea about the professional profiles needed in each country and consequently the professional profiles in a European level.

143 questionnaires have been responded in total.



02. Challenges for the future

The before information have defined three big challenges as responsible of the futures changes in the sector and this challenges will be responsible to develop new skills for the people working currently and will work in the future in the enterprises:

First challenge: ICT tools and industry 4.0

Always in front of futures changes there are a resistance to the change, is necessary to adapt to the change and for that is necessary to have skills to do it. The OCDE say that the digital transformation is one of the challenges more important by the enterprises competitively because is one of the technologies is a technology that provides support to all sectors of the economy.

The enterprises digitalization is a technological change to transform the business model and the organization. Must be borne in mind that in the coming years it will increase the number of robots incorporated into the Assembly lines, robots what are called collaborative robots.

Other future aspects, is the additive manufacturing (known as 3D printing) something that will be developed in medium time 2020-2030.

The same things happen with the augmented reality to use in the productive process to reduce the inefficiency and humans mistakes facilitating information and additional resources to the operator to develop their job.

The Production simulation, decentralized manufacturing and omnipresent Big Data and dates analytic are others trends will impact in the next future in the industry worldwide.

So in the coming years we will see the incorporation of intelligent robots every time more, in the assembly lines (with the debate about its impact on the Working tasks of less value) as well as robots helping to the workers in some process, The use of these technologies is more difficult in the furniture sector because the medium and small sizes of the enterprises with problems to implement the digital technology in all the process.

But, the future furniture company will work with the application of Industry 4.0 issues:

- Interconnection
- integration
- Big Data

And the main operating system will be

- Intelligent production line and network
- Intelligent order and payment system
- Remote Product development and design system

- Intelligent production system, involving the entire factory production processes , machinery, equipment and plant logistics management
- Intelligent logistics system

Because the furniture manufacturing industry is faced with many problems, such as low efficiency of resource use, great pressure of environment, high labor cost. The intelligent manufacturing is the inevitable trend of the future furniture manufacturing industry. "Industrial 4.0" has the advantages, such as high efficiency of resource allocation, quick response to market demand, low labor cost and logistics cost. In this way, we can apply "Industrial 4.0" into customized furniture manufacturing industry

The integration of the technologies of the communication and information (technology ICT) will take the concept of industry connected (4.0) to optimize data flows, automation and process control, relocation and new business models and collaborative manufacturing

The second challenge: Circular economy

The transition to the circular economy model promote by the European Commission to achieve efficiency in the use of resources, improving the quality of life and employment generation, involves radical changes in current production systems and market, offering this important opportunities, but also barriers and risks for the companies.

The more important tools and principles to change are:

- Prevent the use of matter and energy through eco-design (design of the product or service for the prevention of environmental impacts throughout their life cycle) and the functional economy,
- Extension of the service life. To design to maintain the components and material circling. Maintenance and repair, reuse and re-manufacturing.
- Maximum revalorization of the materials, recycling

The transition to the circular economy model needs big changes in the current productive systems and the market, with opportunities for the companies and barriers and risks.

The third challenge: Consumers

The decisions of millions of consumers will be very important in the decisions that the enterprises need to take for their future in aspects about design, use, price, recyclability, materials, etc. used in the furniture manufacture.

It is very difficult to speak about only a professional profile, because analysed the results of the questionnaires to the stakeholders about trends and skills for the future

of the furniture sector appear some different and important professional profiles but interconnected with each other. All of them need to have a set of common skills.

We could say about there are some Jobs o professional profiles that need to work together as a team inside in the Company taking innovative decisions for the future of the companies.

- **Sales expert** speaking foreigner languages, with market analyses and strategic decisions capability, with competences to participate in the decision of the definition of Brand of the Company, with knowledge to analyse the consumer needs to translate this information to the companies and the designers.
- **Designers** with knowledge and skills to use the information provide for the sales expert and other information to adapt the products designed to the consumer needs and the market evolution in aspect of new materials, intelligent furniture with electronic aspects contributing to a more versatility to the product with different utilities of the initial aim to this furniture has been designed, this designer must be able to interact with the multimedia world, and they need to have knowledge about the TIC, not only design software, besides when they design the products they need to apply the eco-design concepts, to reduce the environmental impact of the product designed for a company working in an circular economy , with knowledges on new materials in the market to use them in the innovative and creative design.
- **Middle management** with horizontal ability to manage people and to manage the Production area, flexibles, with strategic vision, work team and problems solve, with knowledge about the technological evolution and user of ICT tools in all aspects of the management, with knowledge about the techniques and technological innovations issues both to introduce both of them in the Company to go to the Industry 4.0 and circular economy with capability to innovate, working in permanent contact with the designers and the sales expert.
- **Qualified worker** with their skills and abilities to use the traditional equipment like cabinetmakers, joiners, upholders, etc. but with skills to use ICT tools, with knowledge to use advanced machines and with knowledge to use and implement the new materials.

03. Proposal for the Innovation Advisor Qualification

Having in mind the professional profiles (workers) that the sector is demanding facing the future, and also having into account the professional profiles already exist, the “Innovation Advisor” qualification will be a new qualification with some skills that already exist and with new skills that doesn't exist in a professional profile, this

qualification is deployed as follows in the following section. Besides, will have, minimum, these basic SKCs:

- General knowledge about the **furniture sector** (materials, processes, technologies, trends, market prospection...).
- Utilization of **ICT tools**.
- **Soft skills**, such as team-working and leading, negotiation, ...
- **Speaking other languages**

Proposal for the qualification in “Innovation Advisor”

General competence:

The person who **defines and implements the innovative strategy in the furniture companies** in order to face future challenges working in a team with the specialist experts in the different areas of a company, such as designers, production managers, marketing staff, general manager...

Competence Units:

- Being an effective leader in order to adequately stimulate and motivate the team, facilitating the generation of relevant ideas.
- Using innovative trends that could help the companies in order to develop strategies for the future, such as market, technology, design and end-consumers.
- Defining innovative and future trends according to the corresponding furniture company.

The proposal of the EQF Level for this qualification would be 5/6 EQF Level.

Appendix 02: SECTORAL INFORMATION REPORT

01. Introduction

The furniture industry is a labour-intensive and dynamic sector dominated by small and medium-sized enterprises (SMEs) and micro firms. EU furniture manufacturers have good reputation worldwide thanks to their creative capacity for new designs and responsiveness to new demands. The industry is able to combine new technologies and innovation with cultural heritage and style, and provides jobs for highly skilled workers.

02. Why the EU furniture industry is important



Employment - the sector employs around 1 million workers in 130 thousand companies generating an annual turnover of around EUR 96 billion;



Trend setting - EU furniture manufacturers set global trends. About 12% of designs registered in the European Union Intellectual Property Office relate to this sector;



High-end segment - the EU is a world leader in the high-end segment of the furniture market. Nearly two out of every three high-end furniture products sold in the world are produced in the EU.

03. Challenges faced by the furniture sector

The furniture sector has been severely hit by the recent crises and has faced a significant drop in the number of companies, jobs, and turnover. The main challenges are:



Competition – the EU furniture sector faces enormous competition from countries having Low production costs. China's penetration into the EU market is growing rapidly and it is now the largest furniture exporter to the EU, accounting for over half of total furniture imports to the EU.



Innovation - the reliance on innovation and design combined with an increase in global trade and digitalisation makes the sector more vulnerable to weak protection of intellectual property rights. Boosting research and innovation also requires finance that is often inaccessible to SMEs.



Structural problems - the ageing workforce combined with difficulties in attracting young workers may lead to disruptions in maintaining skilled workers and craftsmanship.



Trade - protectionist measures on international markets create market distortions and decrease the sector's competitiveness. EU furniture producers face both duties on imports of raw materials and tariffs on exports of finished

products. Moreover, operational costs in the EU are higher due to high environmental, sustainability, and technical standards.

04. Opportunities for the furniture sector

The EU furniture sector has undergone significant changes to make it more export-oriented and to focus on upgrading quality, design, and innovation. These changes include restructuring, technological advances, and business model innovations. The main opportunities ahead lie in:



Investment - continuing investment in skills, design, creativity, research, innovation, and new technologies can result in new products which are in line with the changing population structure, lifestyles and trends, as well as with new business models and supplier-consumer relationships.



Research - research in advanced manufacturing technologies can result in the creation of high technology and knowledge intensive jobs, which would give the sector the attractiveness it needs to attract employees from younger generations. This could help rejuvenate the sector while keeping it highly competitive on the world stage.



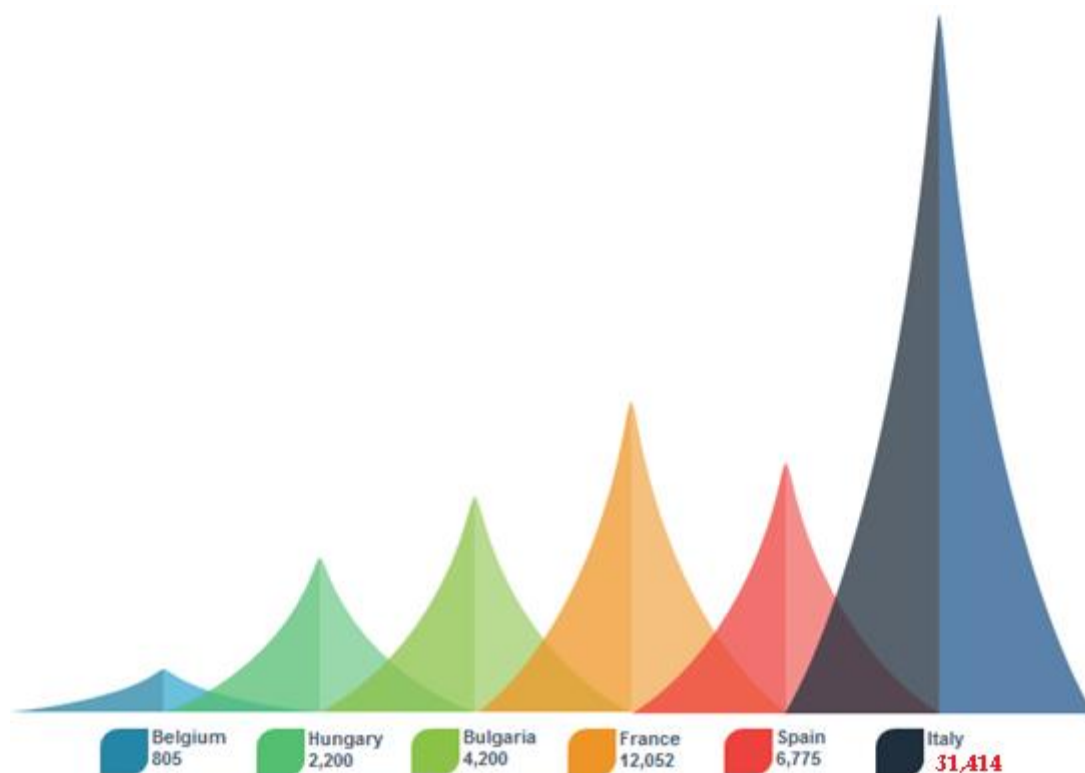
Accesses to new markets – EU furniture manufacturers are recognised worldwide for their quality and design. This creates opportunities for the sector to further seize other markets, in particular in high-end segments and emerging economies.



Synergies - with construction and tourism could also be exploited, building on the sector's excellent track record in sustainability. Specifically, the reliance on raw materials from sustainable sources used in the furniture production could have a positive impact on sales among environmentally concerned end-users.

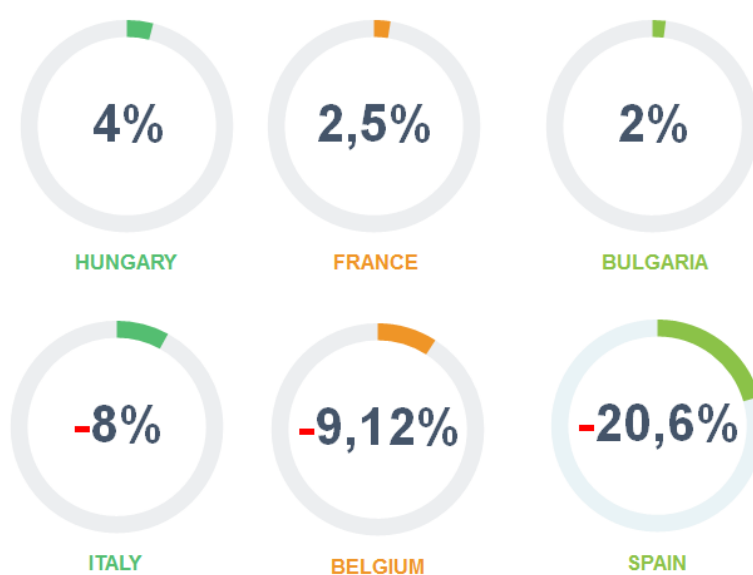
05. Comparison between countries

AVERAGE NUMBER OF COMPANIES IN THE FURNITURE SECTOR:



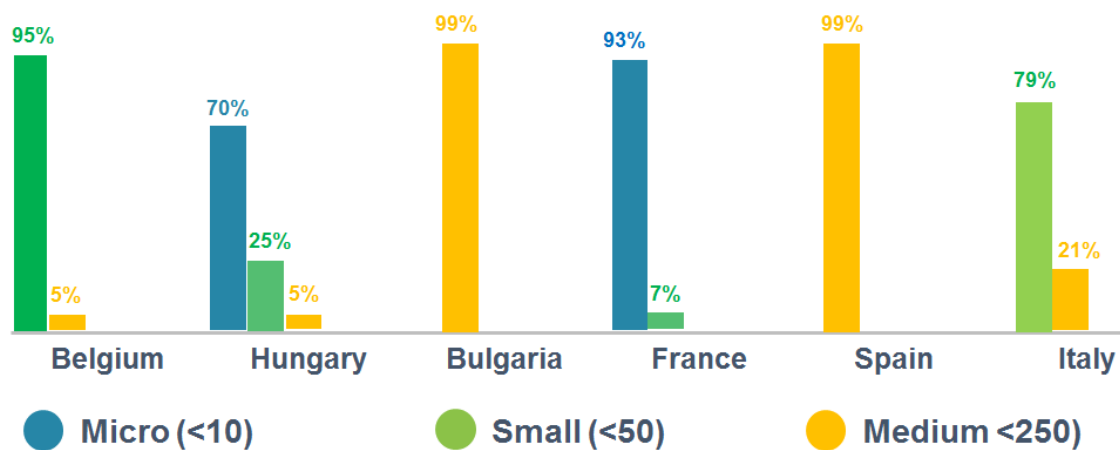
Source: Own elaboration

EVOLUTION IN THE LAST 5 YEARS (NUMBER OF COMPANIES):



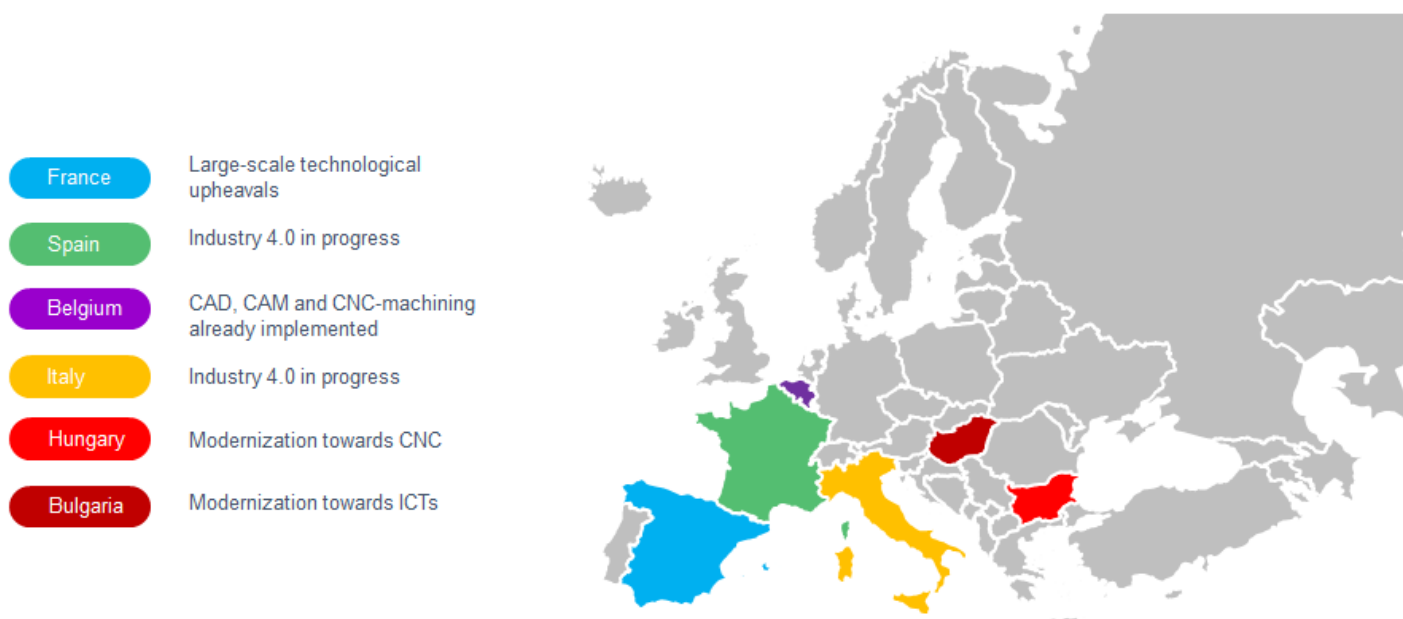
Source: Own elaboration

COMPANIES' DISTRIBUTION BY SIZE:



Source: Own elaboration

TECHNOLOGICAL DEVELOPMENT:



Source: Own elaboration

ECONOMIC DATA RELATED TO COMPANIES:

	HUNGARY <ul style="list-style-type: none"> 15% works for export 3% in international ownership no own or original products 		FRANCE <ul style="list-style-type: none"> Turnover: about 8 billion Euros 4th European exporter of furniture First customer: Germany 		ITALY <ul style="list-style-type: none"> Revenues: 41,5 billions (+2% from 2016) Workers: 318.520 Export: 16,3 billions (+3,7% from 2016) Import: 8,4 Billions (+2,5% from 2016)
BELGIUM <ul style="list-style-type: none"> Value produced: 2,380 m€ Evolution of value produced: -4,5% Export quote: 57% 		BULGARIA <ul style="list-style-type: none"> Industry: 2,5% of GDP. 8% of the total employment. 57 % for exportation to: Germany, UK, Italy, France, Czech Republic. 		SPAIN <ul style="list-style-type: none"> 4364 m€ furniture industry turnover 1885 m€ total furniture exports 2662 m€ total furniture imports 	

MAIN TRENDS:

BELGIUM	HUNGARY	BULGARIA	FRANCE	SPAIN	ITALY
<ul style="list-style-type: none"> ICTs CAD-CAM Robots/Cobots Co-creation Customer involvement Subcontracting/ Outsourcing Green packaging and driving Product specialization 	<ul style="list-style-type: none"> Greenskills Creativity Implementation of new skills New technologies Industry 4.0 	<ul style="list-style-type: none"> Industry 4.0 New technologies Design Creativity Outsourcing Franchising 	<ul style="list-style-type: none"> Big Data Automation with electronics Sustainable development Traceability Customization of products Circular Economy Design thinking Public procurement BiM process ERP 	<ul style="list-style-type: none"> Big Data Electronics / Robotics Circular Economy Industrial symbiosis4 Canva business model Design thinking Smart products Global Strategy Sharing economy ERP 	<ul style="list-style-type: none"> Greenskills Creativity Implementation of new skills New technologies Industry 4.0

The European furniture sector employs around **1 million workers** in **130.000 companies** generating an **annual turnover of around 96 billion Euro**. It is a labour-intensive and dynamic industry, dominated by **SMEs** and **micro firms**, which produce kitchen, office, bedroom and other specialist types of furniture. Its success factors lie in creative capacity for **new designs** and **responsiveness to new demands**, ability to combine **new technologies** and **innovation** with **cultural heritage** and **style**, **highly skilled employees** and **performing production systems**.



Europe and the rest of the world. Furniture production. 2016.

The European furniture manufacturers set the trends at the global level, which is reflected by the fact that 12% of designs registered in the Office for Harmonization in the Internal Market relate to the furniture sector. The EU is also a world leader in the high-end segments – nearly **two out of three high-end furniture products sold in the world are produced in the EU**.

Main challenges

The European furniture sector faces enormous competition from countries having Low production costs, in particular in the Low- and mid-range price segments, where the EU share in world furniture trade has significantly dropped in the last decade. **China's EU market penetration is growing rapidly and it is now the largest furniture exporter to the EU**, supplying more than half of total furniture imports to the EU. The reliance on **innovation** and **design** as a **competitive advantage** of the European furniture sector, combined with an increase in **global trade** and **digitalisation**, makes it more vulnerable to weak protection and enforcement of **intellectual property rights** on the global markets.

The European furniture sector is also faced by structural problems. The **ageing workforce** combined with **difficulties to attract young workers** may lead to disruptions in maintaining a skilled workforce and continuity of traditions and craftsmanship. Furthermore, boosting **research** and **innovation** requires sufficient finance, which is often inaccessible to SMEs.

While the EU is the most open global market, protectionist measures exist on other international markets, creating market distortions. EU furniture producers face both

duties on imported materials and semi-finished products used in furniture, and tariffs on their exports of finished furniture products, thus decreasing the sector's global competitiveness. Moreover, their operational costs are increased by environmental, sustainability and technical standards and regulations. All the above factors, combined with the fact that the furniture sector has been severely hit by the recent crises, have led to a significant drop in the number of companies, jobs and turnover, from which **the sector is still trying to recover.**

Opportunities

In the light of these developments, the EU furniture sector has undergone significant changes – **restructuring, technological advances and business model innovations**, allowing it to be more **export-oriented**, and to focus on **upgrading quality, design and innovation**. Continuing investment in **skills, design, creativity, research, innovation and new technologies** can result in new products which are in line with the changing population structure, lifestyles and trends, as well as with new business models and supplier-consumer relationships. Moreover, research in advanced manufacturing technologies can result in the creation of high technology and knowledge intensive jobs, which would give the sector the attractiveness it needs towards the new generations. This could help to **rejuvenate the sector while keeping it highly competitive on the world stage.**

European furniture manufacturers being recognised world-wide for their **quality and design** also creates opportunities for the sector to further seize other markets, in particular in the high-end segments and emerging markets. The **synergies** with **construction** and **tourism** could also be exploited, building up on the sector's excellent track record in sustainability.

Specifically, reliance on **raw materials from sustainable sources** used in the furniture production could have a positive impact on sales among environmentally concerned end-users within and outside the EU.

All in all, Europe maintains an important role in the furniture industry, although major structural changes in the world furniture sector, including the emergence and fast development of extra-European suppliers over the last 20 years have severely affected the area, the production value is nearly EUR 88 billion, accounting for around a quarter of the world's furniture industry, which is half the Asian share. Western Europe provides the largest share, but Eastern countries are the fastest growing. **Germany, Italy, Poland and the United Kingdom** rank among the top 10 furniture manufacturers worldwide, and hold a combined share of **14% of world production and almost 60% of European production.**

Source: A BLUEPRINT FOR THE EU FOREST-BASED INDUSTRIES (woodworking, furniture, pulp & paper manufacturing and converting, printing)

Appendix 03: STUDIES AND QUALIFICATIONS REPORT

01. Introduction

This report aims to present the different education systems in each country participating in the project related with the furniture sector, comparing the similarities and the differences between them.

The education system in each country is very different.

The idea of this report is to find in the same document the studies in each level of each country to prepare and train the current and future workers for the furniture sector, and to compare their similarities or differences.

This document will help to understand the lacks in some countries and in some cases the problems of the companies to find people with the knowledge or right qualification for some jobs in the production area or in management area with specific knowledge about the furniture sector.

The aim of the project is to define a new qualification for the sector. First, we need to know the current education systems and the qualification system in each country with their EQF LEVEL, as a first step to define the innovation advisor qualification using if it is possible the current studies in each country.

VET					EQF AND CORRESPONDENCE IN EACH COUNTRY		UNIVERSITY STUDIES
BELGIUM		age	year studies	titulation			
	LEVEL 2	15	2/3 years	professional	EQF3	LEVEL1	WOOD TECHNOLOGY/ professional Bachelor
	LEVEL 3	14	4 + 1 optional	specialist	EQF4	LEVEL2	Bachelor in Construction - option WOODconstruction
	LEVEL 4	14	4+1 optional	technician	EQF5	LEVEL3	Industrial Product Design/ professional Bachelor
							Furniture design/bachelor after bachelor
FRANCE	LEVEL 1		1 year	Be a holder of a BTS in the same professional sector/ manager	EQF3	LEVEL 5	Training engineer /Engineer for wood industries
	LEVEL 2	18	2 years	Be a holder of a BAC STI2D or a BAC PRO in the same professional sector/manager in wood construction	EQF4	LEVEL 4	Master's degree/Trainer's jobs by the tertiary and industrial sectors in the bodies such as the training schools of Chambers of trade and industry, AFPA, GRETA, the internal training services in large companies
	LEVEL 3	16/17	3 years	Be a holder of a CAP or a BEP in the same professional sector/tecnician	EQF5	LEVEL 3	DMA (2years)/Cabinet maker - Tapestry-maker of furnishing

	LEVEL 4	16 / 25 years old	2 Years	Basic professional/first qualification to work in the sector of the wood/carpenter/joiner			CAP (1year)/- Marquetry - Cabinetmaking(cabinetwork) - Joiner in seat(siege) - Shooting
SPAIN	LEVEL 1	from 16 or more	2	basic professional	EQF 1/2	LEVEL1	Degree on Forestry and Natural Environment Engineering
	LEVEL I2	16	2	Technician in Carpentry or Furniture and Technician in Installation and Furnishing.	EQF 3/4	LEVEL 2	Master on Forestry Engineering
	LEVEL 3	18	2	High education level. Expert Technician in Design and Furnishing	EQF 5	LEVEL 3	
ITALY	LEVEL 1	14	3	BASIC PROFESSIONAL	EQF3		Bachelor degree /“Technical building skills, working process and security to adopt and use within wood and naturalistic engineering”
	LEVEL 2	14	5	TECHNICIAN	EQF4		master degree/“Technical building skills, working process and security to adopt and use within wood and naturalistic engineering”
BULGARIA	LEVEL 1		3		EQF2		don't exist
	LEVEL2		4		EQF3		don't exist
	LEVEL3		4/5 YEARS		EQF4		don't exist

HUNGARY	LEVEL 1	14	3	joiner			engineer assistant
	LEVEL 2	17	1	cabinet-maker			timber industry engineer BSc
	LEVEL 3	14	3	upholsterer			timber industry engineer MSc
	LEVEL 4	14	3+1	woodworking technician			PhD in material sciences and technologies

There are great differences in the studies related to the wood and the furniture at European level and, more concretely, within the different countries that are part of this project: Spain, Italy, France, Hungary, Belgium and Bulgaria.

In each of these countries there are professional training systems, with **different entry ages to the studies, different baselines in the training and different levels in the competence when finishing the studies.**

Another difference is the related to the training contents that are taught. **Some countries have very specific studies in the vocational system about the sector; others have general and technic subjects.**

Regarding the qualifications **we find big differences despite the existence of the European qualification system and its established levels. Not all the countries use this system, which is the case of Spain and France. Therefore, equivalence between levels must be found.**

Another difference is that **some countries have established their professional qualifications and, in order to obtain the corresponding certification, individuals can take a course.** For workers **who have the competences, abilities and knowledge corresponding to the required qualification there is a recognition system.** There is also a correspondence with the vocational system.

In other countries **the professional qualification system has been modified to meet the professional training taught.**

In both the field of professional training and the professional qualifications, we find that the most representative figures are those of carpenter, cabinetmaker, upholsterer, installer, varnish workers... Differences can be found regarding the funding of studies and the educational contents taught in each country. Depending on the countries we can see that some studies train heads of sector and/or managers for the professions mentioned before. They also train production staff, who get more responsibilities in companies as time goes by.

Regarding the university studies related to the wood and furniture sector we can also find a great variety. **Most of the countries have studies related to the forestry field or to the wood construction.** What we find least are university studies related to the manufacturing of furniture.

There are not studies corresponding to the qualification of Innovative advisor in any of the countries. There are studies that prepare designers, specialised in the furniture sector in some occasions, and responsible for the production area in the companies with engineering studies.