DIGIT-FUR
IMPACTS OF THE DIGITAL TRANSFORMATION IN THE WOOD FURNITURE INDUSTRY

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CONCLUSIONS AND RECOMMENDATIONS

CENFIM
Home & Contract furnishings cluster and innovation hub

European Federation of Building and Woodworkers

UEA

EFIC
European Furniture Industries Confederation

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Conclusions and recommendations

Conclusions

With a massively connected and globalised economy, the wood furniture manufacturing industry will offer personalised smart products and services based on **digital manufacturing systems** supplied by resource-efficient and sustainable industries with an immense need for enough digitization talents and skills securing a competitive transformation of the industry. A number of technologies, like cheap advanced sensors, internet of things and next generation Internet, data analytics and artificial intelligence, virtual and augmented reality, collaborative robots and programmable materials offer transformative business potentials, both in terms of the actual products that can be developed and produced but also to the manufacturing process itself, for those able to utilise them. Especially, the accumulated effect of the combination of several of these new technologies together can accelerate the impact. Most of the technologies can be utilised by SME's as well as large enterprises, making them suitable for at large part of the European wood furniture industry. The biggest challenge to the wood furniture industry might well be the lack of available skills within engineering, science, technology and ICT.

The furniture industry is rapidly transforming from a traditional industry into a computerized, industrial sector. Based upon the expected changes in the analyzed job profiles – using the McKinsey levers and taking into account the Industry 4.0 technologies - we forecasted the **changes in the demand for skills, knowledge and competences**. Future employees in the furniture industry not only have to be able to efficiently perform tasks, but they have to possess as well the skills and ability to recognize and adopt continuous changes. The demanded qualification level will become higher and more specialized, as the core of the skills becomes more abstract, due to digitization/computerization.

There is no increased need for hard skills, but the hard skills or technical skills need a complete integration of (all the relevant) digital skills. Technical knowledge remains essential and forms the foundation; cognitive, social and behavioral skills will become a priority. People will no longer being selected on the basis of their diploma, but in function of their mindset. Each individual will become responsible for his or her own proficiency in learning and self-improvement.

Digitization poses new challenges for **occupational health and safety**. New types of workplaces, new processes, new technologies can increase the safety and health of workers. Robots and digital technologies can make work that is physically demanding or monoto-nous easier or more efficient. Workers may be removed from hazardous environments, and sensors may automatically indicate whether a machine need maintenance and thus reduce the risk of machinery failure and incidents. Typical hazards in the furniture industry such as dangerous substances, dust, dangerous machines and tools, will still remain, but the risk of being exposed to those risks will be reduced.

However, digitalization gives also rise to many new challenges and stresses for workers in the furniture industry. Increasing automation can lead to a lack of sufficient understanding of the new processes and technologies. This may lead to accidents due to someone doing something inappropriate or not knowing what to do when something goes wrong. Workers may also be exposed to time pressure and to an increased pace of work. They may face increasing workloads and task complexity, excessive working hours and constant reachability. Cognitive interactions between workers and robots/cobots and other digital techniques can lead to mental stress. The use of robotics/cobots and other digital techniques increases the risk of working alone and feeling isolated. Long working hours on computer screens and poor ergonomic design of non-office visual display unit workplaces may lead to musculoskeletal disorders (MSDs) due to fixed body postures and physical inactivity at work (EU OSHA, 2013a).

Recommendations

The furniture industry, which is transforming from a relatively traditional industry into a modern industrial sector due to different factors including the relevant sector digitization, creates a **demand for new specific competences and skills** of the workforce. Anticipating and building skills for the future is essential in a rapidly changing labour market. This applies to all changes in the types and levels of skills needed, as well as in occupational and technical areas.

The current supply of skills often does not match the demand for skills, indeed, there is a **clear gap among the skills needed** in the near future by the furniture sector **and the current education offer and provision.** For sure, this will become even more challenging in the future.

Effective methods to anticipate future skill needs and to avoid potential mismatches include **sustained dialogue** between employers and employees, companies and trainers, coordination across governmental institutions, labour market information systems, employment services and performance reviews of training institutions. Collaboration and co-operation at all stages (decision makers, policy makers, practical, organizational, etc.) at national and international (EU) level are needed. **Appropriate joint actions** are required to all stakeholders, including industry, sector organizations and social partners, training institutes, education and other relevant governmental entities. The **challenges and opportunities are enormous.**

All studies on future skills demand endorse the often-heard **importance of soft skills, collaboration and digital competences**. Therefor a **better cooperation** between education and sector is needed, especially for technical programs. The debate on education and training must continue to be conducted in the **context of digitization.** The sector future employees need not only to be able to efficiently perform tasks, but they also need the **skills and capacities to recognize the upcoming changes and to adapt to them**. The role of multidisciplinary skills and abilities is increasing significantly and **companies will demand higher and more specialized qualification levels**.

In relation to the **different learning provision systems** we can present some reflections that are relevant at general level and some others that are important at specific level:

- Existing **initial VET-systems and continuous VET-systems** need to adopt in their training courses the new technologies.

Digital competences must be included in the programs. But there must be attention also for new materials and products, new machines and software, etc. As the **work floor** becomes a key training floor, training providers have to closely work with companies and develop accordingly, especially in relation to the rapidly changing technological aspects of the furniture sector and looking at the compulsory evolution of the VET systems.

- The **VET systems** need to be **adaptive and continuously evolving** (in a smart way).
- **Recognizing skills developed outside the normal learning pathways**, will become more important. This recognition must be transparent and must be accepted by all stakeholders, including governmental partners.
- There is an increased need for the **involvement of all stakeholders**, training providers, social partners (firms, employers' and employees' organizations and federations), universities and academic world, sectoral organizations, public unemployment services and governmental partners (ministries of education and work). For example, for the recognition of skills, to develop **skills alliances within the sector, but also cross-sectoral**.
- The **recognition of skills** needs involvement and acceptance of all stakeholders, including the governmental partners. Yet in the past, one had to learn several skills and competences on the work floor. For example, one conclusion is that a 'diploma' that used to be a certificate of knowledge and high skills loses this meaning more rapidly than ever before. As after just only a few years away from the (high-)school/university, the acquired technical knowledge and skillsets become somehow obsolete due to the rapid changing environment.
- Importance of a **formal educational degree versus the skills adequacy** for the demanded profession. A degree should be devaluated, if not used during several years (a degree, depending on its content, should become limited in time). Only continuous VET (in formal, informal or non-formal ways) guarantees the validation the degree.
- **Lifelong learning becomes even more important**, but it also has limitations. For example, there is the question of people's developability, or what basic skills are. Workers need to be given time or freed up to properly learn and benefit their companies.

Formal VET

Formal VET-training and education is broader than just labour market oriented and remains important. The new increased **demand for the right soft skills needs to be supported** in a stronger manner. Despite the importance of these soft skills, the system should not lose sight of **basic technical competencies** and the need for an up-to-date technical education remains. One can only be successfully creative in his/her job if one has also the basic skills.

- **Schools and training centers cannot always keep up with the investments needed** by new technologies evolving increasingly rapid. There is a greater need for including in the formal training an offer of Work Based Learning, Dual Learning and Apprenticeships.
- **The learning expectancy is increasing and the learning opportunities as well**, for example, via digital learning methods. There is also a call for more e-learning via MOOCS (Massive Open Online Courses).
- The shift in competences also points out the **importance of professional qualification profiles** (set up by the sector), **as a base of the learning pathways** in education and in dual learning (set up jointly between sector and education).

Initial-VET vs Continuous-VET

The way of teaching is changing. The **need for adapted training methods to learn the new competencies** is important. Some new training methods are being implemented in practice, but the **need for new training methods and content on digitization remains high.** Not only technical skills and specialized domain-specific knowledge, but also the defined other (soft) skills are crucial. **New courses are needed to remove resistance to digitization among staff.** The fear that their work is threatened by digitization is often caused by fear of the unknown. Digitization is a broad concept and making this concrete can help.

Dual learning is a very important issue, also in C-VET. Today, teachers are trained once and they do not receive enough continuous training. They should be **closer to furniture and other sectors industries**. In addition, the **importance of soft skills is endorsed.** Companies are already responding to this and are starting to look more and more at the potential of the person.

- There is an **increasing importance of demand driven systems as apprenticeships, dual learning or work-based learning.** These systems need to be implemented in both VET-systems.

Informal and non-formal learning

Employees learn in many different ways, in training sessions, but also beyond. People search for information wherever they can find it and start working on it. **Tutorial videos** provide poor or valuable experiences, such as sectorial fora do. **Youngsters look for short learning moments –** a podcast, a webinar, an app, etc. People manage themselves partly through **trial and error** and partly through **training that brings everything together**, with related processes: short films, quizzes, apps and an extensive training that allows to lift all those micro-experiences to a higher level. The challenge is to **ensure that learners access qualitative information** (see digital literacy).

- **Informal and non-formal learning systems become more important** and a part of the lifelong curriculum (C-VET). Through

GO TO INDEX

the (formal) recognition of skills and competences, informal and non-formal learning pathways show their importance in an **adaptive labour market**.

- **Agile learning** will be needed on the part of workers, as they shift from routine jobs to new, **previously unimagined job contents and tasks.** We need to learn the right skills and competences **at the right time, in the right place and environment** (on demand).

- There must be given **more attention to the highly educated workforce for innovation**, but in a way, **they must also train the lower-skilled workforce.**

Overall this requires that all stakeholders' attention and actions focus on several aspects in a complementary and collaborative manner:

- **VET regulatory and educational governmental entities** should create the conditions to ensure that the development of soft skills, collaboration and digital competences starts already in primary education and these skills must be further developed during secondary education.

- **Training providers** should provide an educational framework where training itself needs to be more flexible and adaptive. Lifelong learning will become more and more important and ways to provide the needed training courses at the right time and in the right format is a key change in the education provision.

- **Companies** should create closer links with training providers and closely collaborate with them in order to create, facilitate and strengthen work-based, dual learning and apprenticeships. Their role in facilitating and providing continuous learning will become bigger than it is now. They will have a relevant role in developing internally those skills and knowledge that they will require to their employees. OHS risks analysis will have to be continuously updated.

- **Workers Social partners** should provide key inputs and support to workers in order to facilitate them information and proper conditions enabling them to obtain a proper proficiency in the needed skills, knowledge and capacities within the sector. They will have to look into OHS risks change and create closer links with companies and workers to reduce their negative impacts.

- **Workforce** will need to adopt a new mindset of continuous learning (lifelong learning). They will have to continuously update their knowledge about the new OHS risks and act accordingly. Overall, each individual will become responsible for his or her own proficiency in learning and self-improvement concerning skills for:

  1. Critical thinking and problem solving
  2. Collaboration across networks
  3. Agility and adaptability
  4. Initiative and entrepreneurship
  5. Effective communication
  6. Information retrieval
  7. Curiosity and innovation
  8. Digital literacy
  9. Data security