FUTURE SKILLS
FOR THE PAPER INDUSTRY

industriAll
EUROPEAN TRADE UNION

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cepi
confederation of
european paper industries
FOREWORD

Like other industries in the EU, Europe’s pulp and paper sector has noticed that fewer young people are joining its workforce than in the past. The EU’s population is ageing and stagnating, which is an additional concern for its future workforce. These trends are occurring against a background of rapid change in the industry in terms of decarbonisation, new technologies and business models, as well as innovative products. Yet a better qualified and skilled workforce will be crucial if the EU is to compete on the global stage.

In recent years the EU has scaled up its coordination efforts to develop agendas and policies in order to upgrade the skills of the European workforce and turn them into a competitive advantage. The EU’s New Skills Agenda adopted in June 2016, encourages EU countries and stakeholders to improve the quality of workers’ skills and their relevance for the labour market in order to boost employability, competitiveness and growth in the EU. Strategic partnerships and Social Dialogues in particular will play a crucial role in achieving the EU’s skills objectives.

To help reach the objectives of the EU 2020 strategy, industriaAll Europe and CEPI have launched a joint project entitled ‘Mapping the European education systems on their suitability to meet the needs of the European pulp and paper sector’.

The project is supported by the European Commission. It provides a good insight into sector-specific concerns and confirms the issues of skills mismatches, the need for new skills, the difficulties that people of all ages are experiencing in finding a job, but also the problems that companies face in trying to recruit suitably-skilled staff. It also explores policy options to meet these challenges.

The findings and recommendations of this project confirm that urgent changes are needed in Europe’s education and training programmes, especially if industry is to make a successful transition towards a more Industry 4.0-based circular bioeconomy.

Marianne Thyssen
Employment, Social Affairs, Skills and Labour Mobility Commissioner
THE PROJECT STRUCTURE

A highly-qualified and skilled workforce will be a prerequisite if Europe’s industry is to remain competitive on the global market and to keep up with technological advances. Industry 4.0 and the transformation of the sector towards the bioeconomy reinforce this need.

To assess where the skills mismatches and shortages lie, the European Paper Sector Social Partners, CEPI and industriAll Europe looked at the existing education and training systems and whether they are fit to respond to the major challenges facing the sector, namely:

- Rapid demographic changes and ageing staff
- Unattractiveness of the sector among young people
- Fast-paced technological change
- Innovative products and processes

During 2015-2016, the partners carried out extensive research on the existing education and training systems for Europe’s pulp and paper industry in 8 selected member states: Austria, Finland, France, Germany, Italy, Poland, Sweden and the UK. This mapping was complemented by a survey on on-site and off-site training provided by individual companies. Then a second survey was carried out to identify current and future skills and recruitment needs of the sector.

The partners drew up typical education and training trajectories in the 8 selected countries by looking into the role of the school systems, traineeships and apprenticeship models, as well as further and specialised post-school training up to higher education (page 4-5). To ensure that comparisons were meaningful, the international standard classification of education (ISCED) provided a coherent framework for the analysis.

The survey of skills and recruitment needs within the industry highlighted key questions such as recruitment issues, mentorship, core technical and behavioural competences, partnerships and the attractiveness of the sector (page 6-7).

Matching the results of the mapping and surveys allowed the partners to identify and analyse convergences and gaps (page 8-9).

By looking at typical curricula and existing training provided by companies, complemented by a survey on the future needs of the industry, the project identified gaps and developed policy recommendations (page 10-11).
TYPICAL EDUCATION AND TRAINING TRACKS

Existing education and training systems were mapped to investigate the tracks provided throughout European education schemes in the 8 selected countries for 3 categories of workers: process operators, maintenance staff and middle management.

The survey revealed a variety of Vocational Education and Training (VET) models within the member states. Student mobility is difficult between member states as only higher education curricula follow the Bologna framework, which promotes mobility between European universities. At basic education level, school is compulsory until the age of 15-16, either within a one-track-for-all system or, as in some countries, split into general and vocational tracks at the age of 12-16.

European VET models range from vocational school programmes to apprenticeship systems such as the “dual system”, which places a strong emphasis on the share of work-based learning. Vocational school-based programmes with on-the-job training modules remain the most common choice for production and maintenance workers in many countries. However, apprenticeship training is becoming more popular as advantages related to acquired competences and employability gain recognition. Nevertheless, there are still countries without dedicated apprenticeship training in the pulp and paper sector. A typical curriculum in the pulp and paper sector is built on qualifications geared to traditional papemaking and paper technology. But some vocational school-based systems aimed at process operators now combine generic and free-choice modules with a specialisation in the paper industry.

As well as initial vocational qualifications, further specialised vocational training is provided for qualified paper technologists or process operators, in both sector-specific training centres and higher vocational institutes. These schemes aim to produce middle managers and supervisors. However, some countries lack advanced sector-specific training offered between initial VET and academic universities.

Within higher education, Universities of Applied Sciences provide education with a focus on practical skills, including either school-based programmes with traineeships or apprenticeship training.

Universities follow an academic track, but their programmes differ: Some provide specialisation in paper technology while others have a broader focus on the bioeconomy.

As well as identifying different education tracks, one of the surveys investigated different types of on-site and off-site training: dedicated induction training for new staff starting a job in the industry or coming from another company or mill, ad-hoc training delivered as needed, and continuous training.

On-site and off-site training: Key findings

- Roughly half of the training provided for all employee groups is ‘certified’.
- In general, most company-provided training is recognised at mill or company level but rarely at regional or international level. Nevertheless a minor part of ad-hoc and continuous training may be recognised at sectorial and national level.
- Close to 2/3 of new staff are entitled to a period of induction training which is mainly provided on-site, while ad-hoc and continuous training is provided both on- and off-site.
- In contrast, approximately 1/3 of the companies surveyed reported that ad-hoc and continuous training covers all middle management and process operators, while nearly half of the companies offer training for all maintenance staff on an ad-hoc and continuous basis.
- Continuous training is partly addressed by dedicated training centres, usually set up by the industry itself. Often, they also support initial vocational training.
- Almost all training is company sponsored and the share of public funding remains low.
- For middle management, training tends to focus on behavioural competences such as leadership, human resources management, team building, communications and project management.
- For process operators and maintenance staff, the focus is not on behavioural skills but on technical ones, such as processes and products, environment, new technology and maintenance.
Further and advanced vocational training

**ISCED 4-5**

- **JOBS**
  - Competence-based qualifications and apprenticeship training: Middle managers, supervisors for trainees; specialised process and maintenance technicians
  - Institutes for advanced vocational training: Specialised paper machine operators, process and maintenance technicians and packaging designers
  - Vocational schools and Apprenticeship training: Paper technicians, process and machine operators

- **Higher education**
  - University
  - University of Applied Sciences
  - Master of Science (1-2 years)
  - Bachelor of Science (3 years)
  - Higher education track (3 years) ISCED 3

**Compulsory school** (9 years) ISCED 1-2

- Primary and lower secondary school

**ISCED: International Standard Classification of Education**
CURRENT AND FUTURE SKILLS AND RECRUITMENT NEEDS

New technologies and innovations as well as demographic changes drove the investigation into the current and future skills needs of the pulp and paper industry. The objective of the second survey was to identify factors affecting recruitment, mentoring practices and desirable curricula, while also looking into existing and potential partnerships.

It also examined the attractiveness of the sector. The survey found that the pulp and paper industry, like other manufacturing industries in Europe, is suffering from a skills mismatch. It is failing to appeal to the young, just at a time when it needs broader and new skills.

Results showed that mill employees are mainly 40-50 years old. An ageing population is exacerbated by an insufficient number of skilled candidates applying for open vacancies and this lack of candidates is expected to increase within the next five years, even in the Nordic countries where the situation is generally better. The sector’s unattractiveness is not helped by mill closures, mills being in remote locations, the shift-work system, and the misconception that the industry is old, polluting and out of date.

“Behavioural skills are becoming more important.”

Official mentoring takes place within apprenticeship training and other forms of in-company training, while unofficial mentoring enables the transfer of “silent knowhow” of older workers to newly-hired workers. As a best practice from the industry, “godfathers” take care of newcomers along with official mentoring during apprenticeship training. They give guidance and transfer their knowhow. However, while mentoring was recognised as important, plans to develop mentorship practices in the future were found lacking.
There is a clear demand, not just to strengthen core technical competence, but also polyvalence. Next to the core technical competences, such as health and safety and maintenance, there is a growing need for a broader set of skills with regard to mastering entire processes. Behavioural skills, such as communication, team building, the ability to learn and be results-driven, are becoming more important. They will be needed to adapt to a changing and more complex work environment. In short, workers will need a broader set of skills and higher education will have to help provide them.

A clear majority of companies pointed to the value of partnerships with schools and training centres as the most popular forms of collaboration today and in the future. To redress the unattractiveness of the sector, collaborative action will be needed between education providers, mills and industry associations. Some best practices have already been implemented at schools to increase awareness of the sector.
CONVERGENCES AND GAPS

Following extensive research on the industry’s existing curricula and competence needs, convergences and gaps have been identified across Europe that may lead to skills mismatches and make the sector unappealing.

- Apprenticeship training and other competence-based training can provide a guarantee of quality and up-to-date skills. Yet some countries lack such training in VET. Best practices combine learning with work-based training, and these are being used to develop new paper-sector apprenticeship schemes and competence-based qualifications within traditional school systems. Such an approach has also been introduced in higher education.
- Working in the industry requires a strong background in sciences, technology, engineering and mathematics (STEM) disciplines, for which the foundations are already laid during compulsory education. Still, it is worrying that there are not enough young people with the necessary skills entering the labour market.
- Most of the vocational and higher education and training programmes are lagging behind the continual evolution of the job content, e.g. the rise of the bioeconomy.
- Some countries lack continuity in their education programmes and do not offer any sector-specific vocational training. This prevents qualified employees from developing their skills and gaining recognition for their progress.
- Shorter and more flexible module-based learning schemes adapted to the needs of the workers and of the company complement entry-level qualifications, but there are not enough of them.
- Nor is there enough formal certification of skills and competences; Continuous training is not adequately recognised, which makes it difficult, if not impossible, to compare qualifications and competences at a pan-European level, and further jeopardises voluntary mobility of workers. Currently there is a lack of widely-recognised cross-system qualifications, except for higher education within the Bologna process.
- The industry is keen to establish partnerships within education and training to anticipate skills needs and match them with tailored training.
• Because there has not been an integrated approach to meeting the needs of the future labour market, workforce management is largely ad-hoc. It lacks monitoring mechanisms and long-term planning.
• The absence of a systematic approach to mentorship means that workers cannot benefit fully from the ‘silent knowhow’ accumulated at mills. In practice, mentorship at mills such as ‘godfathers’ for newly-hired workers is scarce.
• Currently, the way in which new apprentices receive support from official mentors varies from one country to another.
• The overall lack of appeal of the manufacturing sector is exacerbated by a negative perception of the paper sector itself. As a result, the industry has to compete for talent with workplaces which young people perceive to be more attractive.
OVERCOMING THE CHALLENGES

The policy recommendations resulting from this research are interconnected. Social dialogues, at various levels, are important to anticipate and raise awareness of likely developments in the sector. Europe’s paper sector social partners recommend that policy makers implement the following recommendations in collaboration with public authorities and education providers taking into account social partners’ expertise.

1 Promote polyvalence

Given the progress in manufacturing technologies and processes, (Industry 4.0, digitalisation, robotisation, mass customisation, etc.), and the move towards the bioeconomy, professionals are expected to multi-task. Those with strong behavioural skills are better placed to take on broader tasks and enhance their learning. They can also help to adapt to a changing work environment, technologies and fields of expertise. Promoting polyvalence requires:

- Making apprenticeship training and other work-based learning models relevant and efficient to enhance learning outcomes and ensure the right skills are developed for the labour market;
- Promoting and increasing the quality of fundamental disciplines such as science, technology, engineering, maths, as well as languages in school curricula;
- Creating and promoting “hybrid” curricula that mix traditional and new competences to enhance interdisciplinary skills, throughout the education and training systems.

2 Upskilling – Life-long learning

Responding to a changing work and technological environment requires more than a focus on initial education and competence-based qualifications. More continuous learning and the adoption of skills geared to the needs of the sector are needed too, while enhancing the employability of the sector’s workforce. This includes creating adapted training opportunities for older people so they can access life-long learning and hence keep them as valuable personnel to ensure the transfer of knowledge. Emphasis must be placed on:

- Developing module-based learning and skills development tools (e-learning, distant learning) throughout an employee’s whole career while ensuring mutual validation and recognition of degrees as well as of additional module-based training;
- Improving cross-recognition and validation of qualifications within the sector and its companies, between sectors as well as between member states.

3 Facilitate mobility

Considering the success of the Bologna process in enhancing the mobility of students within higher education, more needs to be done to promote mobility opportunities for students and workers at all levels of education, particularly within secondary schools (summer internships) and VET. Voluntary mobility should be enhanced throughout careers; between education providers (exchange), between education and work (traineeships), and between sectors or within companies (work-based mobility). For this, action should be taken to:

- Encourage voluntary mobility with relevant and sufficiently-funded EU programmes (e.g. Erasmus+) that provide and increase opportunities for exchanges and in-company traineeships;
- Promote networks of all relevant actors (e.g. Erasmus for teachers, trainers and providers) to create mutual learning opportunities and facilitate the exchange of good practices;
- Set up voluntary internal–mobility opportunities within companies, including cross-border.

4 Anticipate skills

Anticipating future skills helps prevent shortages and mismatches. A targeted monitoring mechanism would provide a tool to assess and anticipate the skills the workplace of the future will need. It could build on the evolution of the industry while also ensuring an adequate quality of degrees.
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and qualifications to meet future needs such as those identified by the project. This could be achieved by:

- Developing a focused anticipation tool, that feeds education and training systems with actual information on the labour market;
- Financially supporting partnerships between education providers and the labour market with EU funding, making sure that the financing builds on a qualitative approach, instead of a purely quantitative one, i.e. not only dependant on the number of students registered but on the number of graduates and on the labour market relevance of their skills.

5 Create conditions for high-quality mentorships

The ‘silent know-how’, experience and unwritten competences accumulated by older generations throughout their careers could be put to better use by creating more efficient conditions for mentoring, e.g. allocating mentors and their time. A more structured approach towards high-quality mentorship would require:

- Identifying and encouraging best practices for mentorships - this could be considered an additional “knowledge bank” for the mills;
- Creating opportunities for “tandems” at mills targeting newcomers, and newly-hired workers.

6 Raise awareness and attractiveness of the sector

The current perception and image of the sector is a particular challenge, as the public is generally not aware of its processes or products, nor of the various ways in which the sector contributes to the circular bioeconomy. Therefore, additional action should involve:

- Informing orientation advisors and teachers at schools to ensure they have an accurate knowledge of the sector, and correcting negative perceptions of the industry. This could be further supported by partnerships between schools, companies and mills and/or site visits for example.
- Enhancing communication about the sector through positive career stories at mills as well as about the future of the industry and the opportunities it offers.
- Exploring novel ways to facilitate better work-life balance, to address concerns related to the shift-work system.

7 Provide a one-stop-shop for a coherent EU Skills Strategy

Many EU skills strategies currently fall under the charge of different DGs (EMPL–EDU– GROW), resulting in a lack of coordination and coherence. An EU one-stop-shop for skills that would connect with other relevant EU strategies is needed. It could work with areas such as the reindustrialisation (Industrial Renaissance) of Europe, the circular economy, the digital agenda and the European bioeconomy strategy. Furthermore, it is crucial to look at the existing tools for voluntary occupational placements and ask why they have been relatively inefficient and their uptake limited. Why is it that skills and qualifications within the EU are not adequately recognised? In this respect, it will be important to:

- Streamline, stabilise and enhance EU strategies, policies, instruments and sources of funding impacting on skills.
- Strengthen the role of European Centre for the Development of Vocational Training (CEDEFOP) as a focal point (with national platforms) to map, monitor, grant funding and anticipate skills needs. CEDEFOP should also develop its ground-level communication and contributions to its “customers”, notably by supporting social partners or other relevant networks with sector-specific analyses.
- Improve the effectiveness, benefits and performance of relevant agencies and tools, including the Europass documents format, to deliver better results and facilitate voluntary mobility, recognition of skills and to gather activities under one single European mobility agency.

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