

Lesson 6



**GROWTH THROUGH
TRANSFORMATIONAL CHANGES**
in the industrial sector influenced by the EU Green Deal and digitalization and
oactive participation of workers in restructuring the changing working environment

Case studies and good practices



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Good morning. The last lesson in the series on dual transition in the GTC project will deal with good practices. We will have the opportunity to look at specific cases of companies from different countries that are meeting the goals of either decarbonizing or developing digital tools in the workplace.

As mentioned earlier, it is currently difficult to identify examples of simultaneous decarbonization and digitization at the level of a specific company – so that we can talk about dual transition. Therefore, in this lesson, we will focus on examples of either digitization or implementation of low-carbon goals, but which are not linked together at the planning or implementation stage.

We will start unusually with a waste treatment company in Macedonia, a candidate country for the European Union. The operations of this company are themselves implementing the principle of a closed-loop economy, so by its very design it is meeting the goal of reducing greenhouse gas emissions. This company also uses advanced digital solutions. The next two companies we will talk about represent the steel industry in Poland and Slovakia. It is well known that it requires significant energy resources, we say, and is a highly energy-intensive industry. Changes at these companies involve transforming the production process in a way that leads to a reduction in energy demand and thus greenhouse gas emissions. In the case of a steel mill in Slovakia, the theme of digitization will also be discussed.

For the purposes of this lesson, company names have been anonymized.

Recycling company in Macedonia

The company was established in 2011 with the task of waste management, purchase of secondary raw materials, including steel, and processing of metal materials. It has state-of-the-art technology for processing raw materials, despite having only 18 employees.

In addition to its original activities, in recent years the company has expanded its operations to include its own production, and finally in 2015 it launched its first product – rubber floor tiles, which are the only product of their kind produced in Macedonia. The product has won many awards and distinctions. Since 2023 – a newly established company in the group – it has also produced benches and plastic safety barriers made of recycled plastics. The company received the award for the best companies in Southeast Europe in the category: environmental protection and subcategory: small and micro-enterprises, sponsored by the PERSPECTIVE International Economic Forum and Company Promo Global.

In this company, a dual transition is being implemented to integrate digitization and decarbonization as parallel and interdependent processes using modern technologies. An example of this is the implementation of a digital system for monitoring and managing energy consumption in production processes. The company is also using advanced technologies to optimize waste col-

lection, streamline recycling processes and improve efficiency. By using state-of-the-art tools and systems, it can streamline production operations, reduce costs and minimize environmental impact. In addition, the company has installed water filters and has zero emissions of harmful gases.

The process of planning and implementing the dual transition began with encouraging employees to participate in the work of implementing the principles of green transition, in which trade union representatives played a significant role. Employees were actively involved in all phases. In the early planning stages, unions were consulted on the needs and challenges faced by workers. In the implementation phase, trade unionists played a key role in ensuring that employees supported and accepted the changes. Employees were informed of the company's plans through regular meetings and training sessions and participated in discussions on how to optimize the change implementation processes. Shared decision-making has enabled this company to integrate employees' ideas and suggestions, resulting in improved transition plans. Their involvement facilitates the implementation of both digitization and environmental efficiency of the company.

The result is a significant reduction in carbon dioxide (CO₂) and other harmful gases through the implementation of advanced technologies, energy efficiency and efficient management of energy consumption. The company's practices as a green enterprise, part of a closed-loop economy, comply with all national policies and regulations and contribute to environmental protection and the creation of green jobs. The company has a reputation for offering employment with relatively high wages and representing an employer valued by its employees. In addition, the company manages to remain competitive, productive and efficient at its current high level, and they hope to continue in the same direction in the future through the implementation of innovative technologies and new investments. As a result of increasing the company's capabilities at the regional level, a new subsidiary has been opened to process plastic waste. The company is constantly introducing new innovative products into production. In addition, the company is succeeding in building a positive corporate image as a responsible and sustainable organization.

Based on interviews with company representatives and employees, the following success factors were identified:

- investment in new digital technologies and technologies that enable energy efficiency, pollution reduction, etc.;
- active employee participation and support, good communication and negotiation with employees;
- the existence of favourable external factors such as national policies and regulations that companies must comply with in order to successfully implement decarbonization and digitization;
- state support in stimulating companies to transition to a green economy and digitization of production processes;
- the challenge, on the other hand, is the lack of adequately skilled workers or the need to retrain them so that they acquire the new skills needed for production processes;
- which is why it is important to offer employees retraining and upskilling courses, and to provide safe jobs with adequate salaries for their skill level.

Another example of a company introducing low-carbon solutions is a steel mill in Poland with a long tradition dating back to the 19th century, which is a manufacturer of steel products such as bars, flat bars and reinforcing mesh. It is currently owned by a private owner and employs about 2,500 people. It is the largest entity processing steel scrap in Poland – so it has an important function within the closed-loop economy and recycling. Scrap is processed into steel using electric furnaces, while the end product is used in a number of sectors: construction, agriculture, engineering, energy and infrastructure.

At the company surveyed, an example of decarbonization is the use of an innovative technology based on processing hot steel batches. This technology reduces production time and energy consumption. In the previous process, the steel batch was cooled before it was processed and then reheated in a furnace to 800 degrees Celsius. Today, the steel charge is transported to the rolling mill in a heated form and prepared for processing there. This process makes it possible to reduce heat and gas consumption by 60%, while reducing processing time from 2 hours to 45 minutes. Increasing the productivity of this process makes it possible to reduce the consumption of heat energy, which contributes to significantly lower CO₂ emissions into the atmosphere and a reduction in the dustiness of the production hall. At the same time with this process, the premises have been modernized and sealed, so that residual gases do not escape from the plant. Special state-of-the-art fans were installed to further de-dust the premises.

The example described above has several important benefits. The innovation introduced allows for less consumption of energy resources, which means economic savings and lower production costs for the company. An important aspect of the changes introduced is the formation of a positive attitude among employees towards green changes in general. Employees have also seen that it directly benefits the cleaner air where they live. This positive attitude towards green change encourages the company to make further investment plans, i.e. alternative energy sources, replacing wheeled transportation with rail, or using rainwater for the production cycle. An important benefit of the implemented change is also the positive legal consequences: reducing emissions avoids fines/costs associated with emitting CO₂ into the atmosphere within the EU.

The employer implements and monitors the changes with the help of specialized units of the company: the environmental department or innovation officers. Emission restriction regulations make the company closely monitor the parameters of gas extraction. Employees, on the other hand, would like to see a greater level of team inclusion in the planning and implementation of changes.

Another challenge is to adapt the workplace and prepare employees from the health and safety side for the new processes. New technologies require new instruction and training of staff on how to handle them.

In addition, innovations require further investments, which must streamline the implemented process and ensure adequate safety for employees. With the current economic crisis, many investments have been put on hold and postponed until later years.

The last company we will discuss is a steelwork in Slovakia with about 12,000 employees. At the end of 2021, the company began systematic work on preparing a sustainable development strategy. A Sustainability Team was established for this purpose, which developed and is now monitoring the implementation of this strategy. Its main goal is to increase energy efficiency, reduce emissions, and conserve energy and other resources, prioritizing the reuse and recycling of materials in the production process to minimize its environmental impact and be a more sustainable company.

The steel production process uses advanced digital tools like big data processing and artificial intelligence to help save millions of euros and reduce environmental impact. So far, the savings amount to more than 30 million euros per year. Over the past 3 years, the company has participated in more than 30 completed projects, employing more than 10 data engineers and 200 IT staff. These projects have included the following topics: optimization of steel production using artificial intelligence, metal desulfurization, waste blending, and steel production in oxygen converters, among others.

The processes that make up the dual transition have been going on at this Slovak steel plant for a long time and are still being developed. At times, this has involved downsizing, which has been the subject of discussions with the unions present at the company, which have sought to maintain employment. In this context, the unions proposed the introduction of a training program that would improve the skills of existing employees who could find employment in new production processes. The role of the unions was to put pressure on employers and the Slovak government to ensure that the effects of restructuring would not have very drastic consequences for workers.

For example, modernization of production processes, introduction of camera systems, remote control were to eliminate some jobs, such as the position of slag scraper operator, crane operator, etc. The labour unions negotiated with the employer to retrain and find another job in the company. In addition, employees with less than 3 years left until retirement were offered a voluntary departure program with a severance payment higher than the Labor Code. In this way, the trade unions and the employer prevented mass layoffs and a significant deterioration in the economic situation of a large group of employees and their families. It is noteworthy that there have been no mass layoffs at the company so far, despite the advanced green and digital transition processes – precisely because of the effective dialogue between the unions and the employer. Just over 4,000 employees left the company between 2000 and 2024 because of a gradual natural decline in employment. In 2013, this Slovak steel mill signed an agreement with the Government of the Slovak Republic covering a five-year period, under which the company received about €1 million a year in exchange for limiting job cuts. The effect of this program was not only to stabilize employment, but also to lower the cost of steel production.

With several shocks negatively affecting the metal sector in Europe such as the pandemic-induced economic crisis, high energy prices, increasing competition from the Chinese market, development prospects do not inspire optimism and may result in further examples of restructuring. It is precisely in a period of turbulence that strong social dialogue and partnership between trade unions and employers are needed.



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