

BARMETAL



Digitalization, Automatization and Decarbonization: Opportunity for Strengthening Collective Bargaining in the Metal Sector

Denmark Policy Report

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Introduction

The BARMETAL project aims to understand the key challenges derived from trends of digitalization, automatization and decarbonization that influence working conditions in the metalworking sector and its companies across the EU Member States and Candidate Countries. This National report on Denmark is one of the country case studies in the BARMETAL project. As such it addresses RQ2 in the project, in relation to the Danish case: What are the main challenges/changes relevant for working conditions with respect to digitalisation, automatization and decarbonization in the metalworking industry, and how are new forms of work and training related to these changes addressed via collective bargaining?

Methods and material

The study is based on analyses of secondary survey data, reports and statements by firms and social partners in Denmark, as well as by company case studies based on interviews with representatives of management, trade unions and employees in local manufacturing companies.

Three company case studies and additional interviews/documents from sectoral level Employer organizations and Trade unions were used for the analysis. The interviews performed with help of the joint BARMETAL interview guides took between 45 minutes and 2 hours. They were recorded and transcribed verbatim. Data was collected from the following cases and levels:

Company 1 (DINEX), with appr. 2000 employees, produces catalysts and exhaust systems for combustion engines. Their headquarters and warehouses are located in Denmark, whereas the main production plants are in China, India, Turkey, Latvia, and the USA. Interviews were performed with the HR-manager, the sustainability manager, and a shop floor worker in Latvia.

Company 2 (TRECO) with appr. 400 employees is a subcontractor producing machinery parts for other companies at four production plants in Denmark. The products spans from box systems for parcel handling, and spare parts for trucks, to automated machinery such as luggage screening tunnels for passenger flights. Interviews were performed with the HR-manager, the technical production manager, two trade union shop stewards, and two shop floor workers.

Company 3 (WILA), with appr. 100 employees produces stainless steel equipment for the food industry in one production plant. Of the three cases studied, this is the one with least implementation of automation in production. Interviews were performed with the CFO, the HR-manager, a trade union shop stewards, and a shop floor worker.

At the sectoral level, an interview was conducted with a senior official at the employer organisation Dansk Industri, DI (the Confederation of Danish Industry), whereas the information on Trade unions were gathered from webpages and documents from the trade union, mainly the blue-collar union Dansk Metal, DM (The Danish Union of Metalworkers), and the union for Engineers, IDA (The Danish Society of Engineers). In addition, some joint social partner organisation documents were also used.

1. National and sectoral labour market situation

Denmark has a small and open economy highly dependent on its exporting industries. As compared to other Nordic countries such as Sweden and Finland, with many large manufacturing companies, Denmark has a stronger agricultural sector and a greater dependence on many small enterprises. Around 3 million from appr 5,8 million of the total population are in the labour force (Andersen et al. 2023). Around 10-11 % of Danish employees are in manufacturing, which is close to the EU-27 mean. The strongest subsectors in manufacturing are pharmaceuticals, machinery, and food products. Within the metal sectors focused in the BARMETAL project, the subsector of machinery is quite large, whereas metal production is more moderate in size and the automotive industry is rather small, bordering between the periphery and the semi-periphery of the European automotive industry (Pavlinek 2021; Statistics Denmark).¹

2. Insight into industrial relations:

The Danish industrial relations model is part of the Nordic regime of industrial relations characterized by strong trade unions and employer associations negotiating collective agreements with a high degree of autonomy from the state, and with wide bargaining coverage and relatively low levels of conflict (Furåker and Larsson 2020; Kjellberg 2023; Knudsen et al. 2023). There is a large welfare state based on social democratic traditions, however, as in other Nordic countries Denmark has seen the introduction of more liberal features in the industrial relations set-up; particularly in the Flexicurity system, which gives employers space to hire and fire, while employee security is based on generous welfare benefits and access to education and training for the unemployed. Besides the autonomy of bipartite collective bargaining between employers and trade unions, there are also strong corporatist elements in ongoing collaboration and some tripartite agreements with the state on employment policies, vocational education and furthering education and training (Andersen et al. 2023).

Danish trade unions are strong and have by tradition been organized primarily on an occupation/class basis. However, in 2019 the national blue collar trade union federation LO merged with the national trade union federation for professionals and white-collar workers (Funktionærernes og Tjenestemændenes Fællesråd) into the Danish Trade Union Confederation FH (Fagbevægelsens Hovedorganisation). The previously centralised collective bargaining system went through an “organized decentralization” during the 1990s, and today’s system is characterized by (coordinated) sector level bargaining, giving quite some leeway for company level bargaining around wages and working time (Andersen et al. 2023). Trade union representation is “single channel”; there is no statutory minimum wage; and there is no legal extension mechanism. However, Denmark has a high employer organisation density (appr. 68 % overall), and a high union density (appr. 63 %, while being slightly lower around 58 % among blue collar workers in the private sector) – almost a fifth of the organised employees are organised by employer friendly so called “yellow unions” functioning more as insurance companies than traditional unions (Rasmussen & Høgedal 2021). On this basis, the collective bargaining coverage is high, around 82%, while being somewhat lower in the private

¹ <https://statistikbanken.dk/NABP69>

sector, at 73%. Around 52% of all enterprises have on-site union representatives (Andersen et al. 2023; Kjellberg 2023).

The main social partners in the metal industry in Denmark are: The employer association Dansk Industri (Confederation of Danish Industry), with appr. 18.000 private member companies in most subsectors of manufacturing and the services industries; the blue-collar union Danks Metal (DM) with appr. 105.000 members in blue collar occupations in the metal industry; and the white-collar union IDA, with appr. 150.000 members, of which a large part are engineers.

3. D-A-D and its effects and sectoral relevance

Danish companies were at the forefront of the first wave of digitalization and there has been strong political and social partner commitment during the last decade to stay ahead and remain competitive also in the second wave of digitalization and advanced robotics, i.e., Industry 4.0 (Stentoft et al. 2017; cf. Brodny & Tutak 2021). Similar commitments to reach a decarbonized society, including strategies for electrification of transport, industry, and society at large, also characterize the government and the social partners on both sides, i.e., employer organizations and trade unions (Lund 2022).

General or sectoral collective agreements do not specifically regulate DAD issues. However, there are of course aspects of the collective agreements that are of relevance, such as employers are required to plan further education/training, and the existence of an employee competence development fund is to be financed by employers.² Such issues are also highlighted as cooperative areas in the sectoral collective agreements, stating e.g. that “The parties wish to strengthen cooperation on training in the companies with a view to improve both employees' skills and companies' competitiveness.”³ In addition, the social partners have a joint sectoral Technology and Cooperation Committee (Samarbejdsudvalget - TekSam), that is to “follow the technological development and support information, guidance and development work to promote cooperation within companies, including the use of new technology.”⁴ In their organisation agreement from 2020, the manufacturing employer association DI and the (nine) trade unions in the cartel CO Industri (the Central Organisation of Industrial Employees in Denmark) stated that:

Danks Industri and CO Industri further agree that the green transition is a central theme for TekSam in the coming years collective agreement period. This is continued and expanded TekSam's focus in recent years on technological changes such as Industry 4.0 with automation and the implications this has for other new competencies [...] and the topic should be a naturally recurring one in the future theme for the cooperation committees.⁵

² Overenskomst mellem Dansk Erhverv Arbejdsgiver (DEA) f. AutoBranchens ArbejdsgiverForening (ABAF) og Dansk Metalarbejderforbund 1. marts 2020 – 1. marts 2023. Cf. Industriens Funktionæroverenskomst 2020-2023. CO Industri DI. (Co Industri is composed of nine trade unions)

³ Overenskomsten for faglærte 2020-2023 Indgået mellem DI Overenskomst II og Dansk Metal, Dansk EI-Forbund Overenskomsten er tiltrådt af 3F Industri (TIB) og Malerforbundet i Danmark. DI nr. 794525

⁴ <https://www.co-industri.dk/tema/samarbejdsudvalget>

⁵ Industriens Organisationsaftaler 2020-2023 CO Industrier – DI.

At local level there are also opportunities for trade union representatives to be informed and consulted in issues related to digitalization, automation and decarbonization, even if there are no specifics given regarding such issues in the local Collective agreements.

4. Sectoral relevance of DAD – responses via collective bargaining

Interviews and documents collected from the social partner organisations at the sectoral level highlight that there is much consensus in terms that both employers' associations Dansk Industri and the trade unions Dansk Metal and IDA advocate further digitalization, automation and decarbonisation to keep up with international competition and save jobs. Although Denmark is already highly ranked in terms of digitalisation, automation and robotization in the manufacturing industry, with social partners from both sides emphasising that further investments are needed (Brodny & Tutak 2021; DI 2020; 2023; DM 2018; 2019).

It is perhaps not surprising that the employer side applauds Denmark's strong position in the use of robots in a European context, and highlights that further digitalization, automation and use of AI is important for Danish industry competitiveness, as well as for securing jobs in Danish manufacturing – but also for greening and decarbonisation – for the future (DI 2020; 2023a). More noteworthy is the similar stance from trade unions, particularly the blue-collar union Dansk Metal, who presented their overarching "robot strategy" in a report from 2019 (DM 2019). The point of departure is that not only companies, but the union members in Dansk Metal are said to be in strong competition from competitors in other countries. The union thereby finds it problematic that there are not enough investments in automation and robot technologies in Denmark, as such are needed to improve the quality/price competitiveness of the Danish metal industry. They emphasize that such a focus on productivity is nothing new for the Dansk Metal union, but they lean on a long tradition in which trade unions support productivity improvements to create job opportunities and secure good wages for their members. They also emphasize that digitalization automation and robot technologies may even relieve employees from monotonous and strenuous tasks. However, they do note that it is important that employees receive the necessary education and training when implementing new technologies.

In other reports and analyses, the Danish metal workers trade union states that debates expressing that new technology leads to job losses is exaggerated. According to surveys among local union representatives, there are no indications that new technology would be "stealing" their jobs – on the contrary, they make the companies keep up with international competition and save jobs (DM 2017a). In fact, another report based on surveys among local trade union representatives, claims that the introduction of robots is making it possible for Danish companies to bring production back home to Denmark from production plants abroad (DM 2017b).

This joint approach from employer associations and trade unions in the metal industries are also documented by reports from the Industry Associations for the Working Environment, BFA-industry (Branchefællesskaberne for Arbejdsmiljø, Industri), which is a joint partner forum for improving working conditions, including both above mentioned social partners, as well as other trade unions in the sector. These reports give recommendations and guidelines regarding how robots and cobots (collaborative robots) are to be implemented with regards to employee's health and safety, highlights the need for education and training among

employees in order to not reduce but rather improve their working conditions (BFA-I 2022; 2023)

The topic of decarbonisation and green transition is also supported and advocated by both the employer association Dansk Industri and the trade unions – and great reductions in emission have already been made by the manufacturing industries since 2000, as compared to the European context (AE 2023). The social partners support the political target of reducing CO2 emission by 70 % by 2030, and believe this is good for the export industries (DI 2023b; DM 2020). They also state that this issue is actually in line with their digitalization and robotization strategies, as new technologies may both increase productivity and decrease emissions (DM 2019). As stated by the peak level trade union confederation FH, there are also expectations from the trade union side that green transition will create a large number of new jobs – which is why the topic of green transition was introduced in the collective bargaining rounds in 2020 (FH 2020). The assumption that green transition strengthens the industry's competitive position and creates new jobs has been confirmed by the engineers' trade union, IDA (IDA 2020). As illustrated by a report from the joint sectoral social partner Technology and Cooperation Committee (Samarbejdsudvalget - TekSam), the social partners are not only in consensus in pushing the decarbonization agenda, but they state that joint cooperative efforts by employers and employees in combination with cooperation in the area of Industry 4.0 will benefit both companies and employees (Teksam 2021).

5. Case studies

There are instances of digitalization in all three companies, while the degrees of automation and de-carbonization vary. All three companies studied use digital technology in the administrative systems such as finance, human resource management (HRM), and enterprise resource planning systems (ERP) systems, as well simple automation (Robotics/CNC machines) in production. The two larger companies (#1 and 2) also have digitalized customer relations, and more advanced robots, as compared to the smaller company which mainly have simpler stand-alone robots substituting a worker with a robot on a one-to-one basis. Both the larger companies (#1 and #2) are aiming for more advanced digital (AI-based) automation in the future, while the smaller and less digitalized company (#3) does not have any specific strategy or policy for the future, besides wanting to implement a new updated enterprise resource planning system.

The main reasons for introducing new technologies are rather straightforward: it has to do with increasing productivity, cost efficiency and business expansion. The ERP systems are in addition important for organising data such as schedules, orders, documentation of production materials, monitoring of production/staff performance, as well as other administrative aspects of production. The use of robots and automation is also said to increase quality and enable a more predicible production flow (in some cases functioning 24/7), and in addition, replace/release workers from monotonous tasks or reduce the demand for new employees. Similarly, digital administrative systems are said to reduce the administrative workload, speed up the processes and increase documentation quality.

The clearest example of the importance of combining the benefits of ERP systems and robots was given by company #1, which recently acquired a plant with older machinery having a lower production flow as compared to their existing plants. The need for new machinery and

robots – and the reason for an 8 % reduction of shop floor workers – wouldn't have been known without the enterprise resource planning system.

However, there are also two other influences on digitalization. One is that requirements from customers may also affect the need to use certain technologies. The other, is suggestions from the employees, through attempts to shape lower-level bottom-up improvements.

According to the management, the main obstacles and difficulties with introducing new digital and automated technologies are to facilitate a swift and smooth implementation in the workflow. The main problem has to do with employee competences and attitudes, with staff showing an unwillingness to change, or having inadequate competences to operate and manage new technologies. In addition, it may also be difficult to attract new staff, if e.g., statistics or programming competences are needed.

5.1. Digitalization and automation – employee and trade union involvement

As noted above, employees may both facilitate effective implementation of new technologies by suggesting improvements and create obstacles for its implementation. As regards the latter, both company #1 and company #2 described previous “failed” implementation processes, because of a lack of preparation and facilitation in relation to employees. In the former company it had to do with the introduction of a Customer Relationship Management system, which backfired, before they understood that such implementation has to be done in slower steps. In the latter company it was related to the introduction of new machinery, in which an inadequate involvement of employees resulted in a slow implementation during 1-2 years before the machinery was up and running smoothly. Both companies learned from these instances. Company #1 noticed that it may be hard to convince local shop floor workers that the new process is better, but also to educate and train them in how to utilise the new technologies, and in Company #2, the management became more willing to listen to the employees operating the machinery from then on.

Further education and training of staff is thus an important area when implementing new technologies. In company #1, this has to a high degree been accomplished by sending experienced and knowledgeable employees from the Danish mother company to train employees at plants in other countries. In addition, the company management stated that their employees get general training in personnel productivity, and that they send staff on courses to equip them for the future. Company #2 often uses externally facilitated training in connection to new technology, in most cases, training with the supplier of said technology. In addition, they select 12 employees a year to send to further vocational training, topping up their existing education as e.g., blacksmiths or technicians. This training/education is performed by allowing employees alternate on a weekly basis between their regular work and education; for up to two years.

There is thus some influence and inclusion of employees in the process of technological change, however only in one of the companies, did trade union representatives have a more formal role. That was in Company #2, which has the most integrated employee and trade union approach. The process is formalized in that there is a local “Samarbejdsudvalget” in which employees are consulted and can air thoughts and ideas regarding new work processes. Samarbejdsudvalget are not simply works councils, but rather joint management-employee

bodies intended for discussions of tactical (rather than strategic) matters, such as principles for personnel policies, work organization, training, payment systems, and the introduction of new technology (Knudsen 2003).

As regards the views from employees and the trade union representatives on the issues of digitalization and automation, those we interviewed do not seem to hold views that contradict the management or the social partners at the sectoral level. They report rather positive experiences of being relieved from tedious and monotonous tasks, and there seems to be little fear of jobs being replaced by automation.

5.2. Decarbonization in the case companies

The issues and processes related to decarbonization are much less articulated and developed in the case companies than the topics and processes related to digitalization and automation. Among the companies only the largest one (#1) has a formal sustainability policy, and it is only two years old. Company #3 has started its journey by completing its first Climate Report just two weeks prior to the interview. This shows that the companies are still only in their early stages in relation to decarbonization.

However, there is an awareness and interest around climate issues from both management and employees, and other steps are being taken besides the policies/reports mentioned. As company #1 produces catalysts for combustion engines, the company representatives are aware of the risk of their products becoming obsolete given the electrification of the vehicle fleet. Therefore, they have started developing a fuel cell – which is the main component in hydrogen fuelled engines, and although such engines do not meet the zero emission ambitions of the EU, the emissions are a fraction of those from combustion engines. Company #2, states that the introduction of new machinery and a planned installation of solar cells later this year, will reduce their consumption of electricity, thereby reducing their CO2 footprint. Company #3 is just at the beginning of tackling such issues, but as a reaction to their climate report, they have started discussing whether to install solar cells, and replace old machinery with newer more energy efficient technologies. In addition, they find that automation may have beneficial effects on their footprint, since “robots do not travel to work”, and their climate report indicated that employee travels to and from work was noticeable.

From the interviews it seems that the main reasons for introducing decarbonization measures mainly comes from forces/pressures external from the management. They refer to the effect on markets and operations from political decisions, such as CO2 taxation. Even more concretely, there are customer companies and banks who are seeking information on efforts to reduce CO2 emissions, as they have a desire to control such issues through their whole value chain. In addition, as employees are also concerned with environmental issues, that may also be a motivator. In short, one company representative indicated that just like with the development of digitalization and automation, the issues concerning decarbonization need to be taken into account in the future in order “Not to be forced out of business”. Though, as compared to the former issues, the decarbonization process in the three case companies is still in a nascent stage.

6. Findings

To conclude, Denmark is a small open economy dependent on exports. Of the sectors in the BARMETAL project, machinery is quite large, metal production is moderate in size, and the automotive industry is rather small – in between the periphery and the semi-periphery of the European automotive industry. Denmark has been at the forefront of digitalization and there is strong political and social partner commitment to stay ahead and be competitive in robotics and Industry 4.0, as well as in decarbonization.

Danish industrial relations are characterized by strong trade unions and employer organizations negotiating collective agreements with wide bargaining coverage; about 73 % in the private sector. There are also corporatist elements and tripartite agreements on employment policies, vocational education and further education and training. Collective agreements do not specifically regulate DAD issues, but there are elements of relevance, concerning further education/training and employee competence development funds. Such issues are also highlighted as cooperative areas in sectoral collective agreements. At the local level, possibilities exist for trade union representatives to be informed and consulted on issues related to D-A-D, even if they are not detailed in local collective agreements.

The main employer organisations and trade unions in the sector are in consensus that further D-A-D is important so as to keep up with international competition and save and improve jobs, rather than steal or destroy them – and thus it will benefit both employers and employees. They have also developed joint forums for cooperating on the issues related to D-A-D.

Regarding the local case studies, there are instances of digitalization in all three companies, while the degree of automation varies, as well as nascent decarbonization. The reasons for introducing DAD-technology are straightforward: increasing productivity and cost efficiency and expanding businesses. Automation is also used to increase quality, organize the production flow, release workers from monotonous tasks, and/or reduce need for new employees. The main reasons for decarbonization seems to mainly come from forces/pressures external to management: D-A-D-technologies may be requested by customer companies, decarbonization also from the political level. In addition, bottom-up improvements may also be suggested by employees. All in all, the D-A-D issues are very much framed in terms of staying competitive internationally.

The main local difficulties with D-A-D-technologies are to facilitate a swift and smooth implementation. Employee competences and attitudes may be obstacles, and it may be difficult to attract and develop the competences needed. Local trade union representatives are said to have rather little influence on implementation, except in the largest company, in which such opportunities are secured through joint trade union-management consultation processes. The possibilities for employees to directly influence the actual implementation, seem to have increased over time in the companies, against the background of previous failed implementation processes. Further education and training of staff exists in all three studied companies, albeit to different degrees. Regarding the views from employees and trade union representatives, there seems to be quite some consensus at the local level concerning the need to develop DAD: they report experiences of being relieved from tedious and monotonous tasks and there seems to be little fear of being replaced by machines.

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Collective agreements

Overenskomst mellem Dansk Erhverv Arbejdsgiver (DEA) f. AutoBranchens ArbejdsgiverForening (ABAF) og Dansk Metalarbejderforbund 1. marts 2020 – 1. marts 2023. Cf. Industriens Funktionæroverenskomst 2020-2023. CO Industri DI. (Co Industri is composed of nine trade unions)

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