BARMETAL

Decarbonization: Opportunity for Strengthening Collective Bargaining in the Metal Sector

The Netherlands policy report

Author:

Niels Peuchen, WageIndicator Foundation

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Introduction

Research question

In this report, research question 2 of the BARMETAL project will be answered for the Netherlands. This two-part research question is:

- What are the main challenges/changes relevant for working conditions with respect to digitalisation, automatization and decarbonization in the metalworking industry across the EU Member States and Candidate Countries?
- How are new forms of work and training related to these changes, covering a period from 2017 and 11 Member States (CZ, DE, DK, FR, HU, IT, NL, PL, RO, SK, SE), addressed or can be addressed via collective bargaining?

To do so, chapter 2 focuses on the situation of the current Dutch labour market and the metal sector. Chapter 3 describes industrial relations in the Netherlands as a whole and the metal sector in particular. Chapter 4 looks into the effects of digitalisation, automation and decarbonisation on a national and sectoral level, and how collective bargaining responds to these developments. In chapter 5, two case studies will be presented to illustrate the challenges and responses. In chapter 6, the outcomes of bargaining are shown in collective bargaining agreements (CBAs). Chapter 7 summarises the findings and sums up several policy recommendations to strengthen bargaining within the metal sector.

Methodology

To formulate an answer, desk research and interviews have been conducted. The focus of the desk research has been on sources from within the sector, such as strategic papers from relevant social partners and trade journals, and from statistics centres. Interviews have been conducted with negotiators and other representatives from one trade union and one employers' association which are associated with the metal sector. Additionally, for the case studies, interviews were done with two companies. In total, 12 people were spoken to during the various interviews. To further enhance the understanding of the metal sector, the production facility and offices of one of the companies were visited as well.

The selection of company case studies has been decided upon by reaching out to the employers' association that represents them. The representative of the association proposed a number of companies, after which a selection was made by the BARMETAL research team. The first company reached out to was immediately willing to cooperate, and provided a list of seven employees to which could be contacted; all of them were spoken to within the following weeks. This led to an extensive case study that is included in this report. The selection of the second case study proved to be more difficult. Several candidates were not willing to cooperate, despite reaching out multiple times. In the end, one company representative agreed to be interviewed; however, they were unwilling to have colleagues participate. Therefore, the second case study is limited.

The interviews that were conducted, took place in a semi-structured way. On the basis of a questionnaire that was used by all BARMETAL partners, relevant questions were asked. The questions selected were based on the position of the people spoken to and their expertise. When specific information was already acquired and confirmed in other interviews, similar

questions were left out. This decision was made to make efficient use of the one hour duration of most interviews. When the provided answers were unclear, further questions were asked.

1. National and sectoral labour market situation

1.1 National labour market

The Dutch labour market is currently prospering. During the third quarter of 2023, the number of workers was higher than ever before and the rate of unemployment was strongly below average. Combined with the large number of open vacancies, however, this has led to labour shortages being common in many sectors. Although these shortages have decreased since the second quarter of 2022, they still form a key challenge within the Dutch labour market (CBS, 2023a; CBS, 2023b). This trend is in line with the labour market situation in many EU member states (European Commission, 2023, p. 38).

The development towards labour shortages can already be seen since 2013-2014, on the tail of the European debt crisis. During the first quarter of 2014, 793,000 people were unemployed, with 104,100 vacancies divided among them. Only 14 vacancies were available per 100 unemployed workers. In the years after, the rate of unemployment dropped consistently, while the number of vacancies grew. This led to 67 open vacancies per 100 unemployed workers in the fourth quarter of 2019. This trend was thwarted temporarily by the Covid-19 pandemic in 2020. Between the first and third quarter of 2020, the unemployment rate grew by 36.4%. At the same time, the number of vacancies stagnated. This led to 41 to 56 open vacancies per 100 unemployed workers. Despite the effects of the lockdown and other emergency measures, the trend of less unemployment and increased vacancies has picked up by the end of 2020. One year later, in the fourth quarter of 2021, a point was reached where the number of unemployed people dropped below the amount of open vacancies. The number of vacancies increased to 106 vacancies per 100 unemployed workers. Since then, the already tight Dutch labour market became even tighter, reaching a record of 142 vacancies per 100 unemployed workers in the second quarter of 2022. It decreased slightly in the months after, to 114 vacancies per 100 unemployed people in the third quarter 2023 (CBS, 2023b).

These labour shortages are due to several developments: the pandemic, an ageing labour force, part-time employment, climate change and the energy transition, and a mismatch between supply and demand on the labour market, based on skills and education (UWV, 2022). While the pandemic was unexpected, the other causes as mentioned above are seen by the Dutch Ministry of Finance (2023) as structural challenges.

Shortages are found mainly in healthcare, IT, pedagogical and educational professions, and specific technical jobs, such as engineers and production managers in the manufacturing and construction sectors. Moreover, the demand for technically skilled workers in non-technical professions is increasing (Researchcentrum voor Onderwijs en Arbeidsmarkt (ROA), 2021, pp. 28-29). This can be explained by the increased need in many jobs for technical insights and problem-solving skills and the increase of technical education that is less focused on 'hard' skills (Fouarge, 2017). Technical professions for which Maastricht University predicts shortages are metal workers and assembly workers, this will be resolved by 2026 (ROA, 2021, pp. 28-29).

1.2 Sectoral labour market

Before diving into the trends of the Dutch metal sector, the sector itself has to be defined for research purposes. Within the BARMETAL project, the subsectors that are analysed are:

- C24 - Manufacture of basic metals
- C25 - Manufacture of fabricated metal products, except machinery and equipment
- C29 - Manufacture of motor vehicles, trailers and semi-trailers

These are all seen as subsectors of the manufacturing sector. The (sub)sectors and the corresponding codes are defined using the NACE Rev 2 classification. For the Dutch labour market situation, the Dutch government-funded statistics bureau CBS uses the Standaard Bedrijfsindeling (SBI) 2008. These two classifications are set up in the same way, using the same codes for the metal sector, and can therefore be used interchangeable for the Dutch situation (CBS, 2023c).

Figure 1. Number of companies and employees in the Netherlands, nationally and sectorally.

	Companies	**Employees**	**Percentage employees as part of working population**
All economic activities	2,151,195	8,941,800	100%
C. Manufacturing	78,800	784,000	8.7%
C24. Manufacture of basic metals	405	20,400	0.2%
C25. Manufacture of fabricated metal products, except machinery and equipment	14,445	88,800	1.0%
C29. Manufacture of motor vehicles, trailers and semi-trailers	805	23,100	0.3%

Shown period for companies: fourth quarter 2022; for employees: December 2022 (CBS, 2023d; CBS, 2023e).

Metal and electrical engineering industries are often grouped together, for example by social partners, as the Metalektro sector. Many reports on the sector group these industries as well, leading to difficulty extracting numbers specifically for the metal industry.

Within the Metalektro sector, the social partners view the shortage of technically skilled personnel as the biggest concern for their industry. This is stated in the Strategic Agenda Metalektro, an elaboration of the collective agreement that was concluded in 2021. The cause of these labour shortages within their sector are due to many of the same developments that are present in the national context. For example, an ageing working population leads to more people retiring than new workers entering the Metalektro sector. Moreover, the shortage becomes more urgent due to the need for the learning of new skills to embrace digitalisation and new technologies within the sector. This is reinforced by the predicted decrease of the 'human capital cycle', the timeframe in which a workers' knowledge and skills become

obsolete. While this period is now estimated to be 25 years, it is expected to be only 0 years by 2030. The industry itself also notices that many non-technical sectors are looking for technically skilled people. They see this occurring as part of what they call the 'fourth industrial revolution': the current digitalisation of labour (Hinsenveld, Peltzer, 2022, p. 14).

The trend that more people work part-time is not seen as a cause for the labour shortages by the social partners. Rather, the average work week of an employee is 36.4 hours and the share of full-time jobs is 89% in the Metalektro sector, whereas this share is only 50.5% nationally (Hinsenveld, Peltzer, 2022, p. 5).

Related to digitalisation, automation and decarbonisation, the consequences of the labour shortages are multifaceted. These shortages can lead to investments and labour-saving innovations, in the form of automation and digitalisation (Ministerie van Financiën, 2023). These developments can increase productivity and, especially for automation, can decrease the gap between the demand for specific skill sets and the supply of appropriately skilled workers (ROA, 2019, p. xxii). At the same time however, a shortage of skilled technical personnel can lead to digitalisation, automation and decarbonisation progressing slower than desirable. Within the manufacturing sector, 3 out of 10 employers see the labour shortages as a hindrance for their own business operations (UWV, 2023). These much-needed jobs are for example industrial machine and installation technicians, who enable the automation of the metal industry, and architects and analysts for IT systems, who enable the digitalisation. Together with many other workers, they can decarbonise the processes within manufacturing facilities (Van den Beukel, IJzerman, 2023, p. 7).

2. Insight into industrial relations

2.1 National characteristics

All throughout the Dutch labour market, trade unions and employers' associations play a role in consultative bodies. At the national level, this happens within the Sociaal-Economische Raad (Social and Economic Council), which advises the government and parliament on socioeconomic matters. The biggest union federations and employers' federations have a fixed seat in the council. Collective bargaining does not take place on the national level, but is predominantly done on the sectoral level. There, sectoral trade unions and employers bargain collectively. In some cases, special bodies are established that, next to CBAs, bargain and discuss additional issues like pension and training funds.

CBAs play a significant role in the conditions of Dutch employment, since the Dutch labour law contains only limited regulations regarding topics such as wages and working conditions (Jansen, 2021, p. 10). At the end of 2022, the number of regular collective bargaining agreements amounted to 667. 178 CBAs are sectoral agreements, while 489 are company agreements. In total, they cover 5,917,300 employees (OECD, AIAS, 2021).

Although the amount of trade union members is limited and has decreased during the last ten years, trade unions still have a strong position in the field of industrial relations (CBS, 2023f). This is clear through the bargaining coverage in the Netherlands: 75.6% of the employees that have the right to bargain are covered by a company or sectoral collective agreement. Even though sectoral CBAs form the minority, most employees are covered by

one of the 178 sectoral CBAs: this is the case for 5.3 million employees. Only 0.6 million employees are covered by one of the 489 company CBAs (OECD, AIAS, 2021).

Works councils are not formally involved in negotiations on collective agreements in the Netherlands. Negotiations are the prerogative of trade unions and employers' associations. No other actors have a formal role in the process. Nevertheless, works councils do have statutory information and consultation rights at the company level. They represent the interests of workers, but also have to take the company's prosperity into account. This leads to "a more ambiguous position than a union" (Been, Keune, 2019).

Figure 2. Key collective bargaining characteristics for the Netherlands (OECD, AIAS, 2021)

Trade union density (UD)	15.4% of employees (2019)
Employer organisations' density (ED)	85% of employees (2018)
Bargaining coverage (AdjCOV)	75.6% of employees with the right to bargain
Predominant level of bargaining (LEVEL)	Sector or industry level
The combination of levels at which collective bargaining over wages takes place	Sectoral (separate branches of the economy) and company, with company agreements that specify, or deviate from, sectoral agreements, guidelines or targets
Mandatory extension of collective agreements to non-organised employers	Extension is used in many industries, but there are limitations. E.g. thresholds or the government can, and sometimes does, decide not to extend (clauses in) collective agreements
Involvement of works councils (or similar structures) in wage negotiations	Works councils are formally by law or agreement barred from negotiating (plant-level) agreements and involvement of works councils in negotiating (plant-level) agreements is rare

2.2 Sectoral developments in metal

Workers within the metal sector, within the three subsectors which were defined in the previous chapter, are covered by CBAs on the basis of their subsector, company size and company. Essentially, two sectoral collective agreements are used within the sector. Organisations with fewer than 1,200 FTE per week, 'kleinmetaal', are covered by the Metaal & Techniek CBA. Bigger companies within the sector, called 'grootmetaal', are covered by the Metalektro CBA. However, this divide is not set in stone and does differ for specific subsectors and companies (FME, FNV Metaal, CNV Vakmensen, De Unie, 2022, p. 63). Additionally, a certain number of companies have agreed upon their own CBA or amended the Metalektro CBA, such as Philips and Tata Steel.

Employers and trade unions within the Dutch metal sector are currently on good terms. In the Metalektro's strategic agenda for the period of 2022-2027, they state: "From now on, we will pull together as partners for the Metalektro. We do this by continuously having good social dialogue." Moreover, "[w]e, social partners, want to act more and more as partners, instead of sitting at the table as parties against each other." Their reason for doing so is to strengthen the Metalektro sector (Hinsenveld, Peltzer, 2022). This stance has been confirmed by the interviewees from the trade union FNV Metaal and employers' association FME.

2.2.1 Metaal & Techniek

The Metaal & Techniek CBA is a framework agreement. The current CBA is running from 1 October 2021 until 31 March 2024. It is declared as generally binding, which means that all companies within the subsectors are covered by the CBA. The negotiations for the new CBA will start in February 2024 (FNV, 2023). Within the agreement, five different CBAs can be defined for different sectors:

- Carrosseriebedrijf (Vehicle body companies)
- Goud- & Zilvernijverheid (Gold and silver industry)
- Isolatiebedrijf (Insulation companies)
- Metaalbewerkingsbedrijf (Metalworking companies)
- Technisch Installatiebedrijf (Technical installation companies)

The social partners for the smaller companies within the metal sector come together in the Stichting Vakraad Metaal & Techniek (Metal & Engineering Trade Council Foundation). Within the Vakraad, the Federatie Werkgeversorganisaties Techniek (Federation Employers' Organisations Engineering) is the employers' representative. This is a collaboration between nine employers' associations. On the side of the employees, the trade unions FNV Metaal, CNV Vakmensen en De Unie take part in the negotiations.

Next to the CBA itself, the social partners also discuss topics such as the sectoral pension fund and the various training and development funds. These Opleidings- en Ontwikkelingsfonds, or 'O&O-fondsen', as they are called in Dutch, address the new skills and knowledge needed by workers. This is for example done through providing workers with training vouchers, workshops and individual career advice sessions. Works councils and HR managers can also make use of their services. They are funded by a premium on the wages paid by the employer.

For the Metaal & techniek sectors, the Vakraad Metaal & Techniek (n.d.a) has instituted five training and development funds:

- Vehicle body companies: OOC
- Gold and silver industry: OOGZ
- Insulation companies: OOI
- Metalworking companies: OOM
- Technical installation companies: WijTechniek

2.2.2 Metalektro

The Metalektro CBA is an agreement for the bigger companies within the metal sector. The current CBA runs from 1 December 2022 until 31 May 2024. It is declared generally binding, which means that all companies within the subsectors are covered by the CBA. However, several companies, such as VDL Nedcar, have agreed upon their own MetalektroB-cao (MB Collective Agreement) with the trade unions. In these MB agreements, are company-specific arrangements made on the clauses where deviating from the Metalektro CBA is allowed (Loonwijzer, 2022). Next to the basic Metalektro CBA, three specific agreements are concluded: for workers participating in an early retirement scheme, workers that are assigned to a high salary scale and on the labour market and training arrangements within the sector (Raad van Overleg Metalektro, 2023a).

After agreeing upon the previous Metalektro CBA in 2021, the social partners initiated a Strategic Agenda Metalektro. This document can be seen as an elaboration of the CBA, setting goals that exceed the CBA's duration. The all-encompassing goal is "to work together for a successful and competitive Metalektro that offers decent work and contributes to the broad prosperity and well-being of the Netherlands and the EU." All parties stress the importance of cooperation due to serious challenges, such as digitalisation and the energy transition (Hinsenveld, Peltzer, 2022).

The social partners for Metalektro conduct their social dialogue within the Raad van Overleg in de Metalektro (Council of Consultation in de Metalektro), or ROM for short. Within the ROM, FME acts as the employers' representative. On the side of employees, the participants are trade unions FNV Metaal, CNV Vakmensen, De Unie en VHP2 (Raad van Overleg Metalektro, 2023b).

3. D-A-D and its effects

3.1 National policies and discourse

On a strategic level, digitalisation, automation and decarbonisation within the Dutch economy and labour market are covered in various policies by the Dutch government.

From a workers' perspective, this is increasingly important, since 1 in 5 tasks were automated across sectors between 1995 and 2017 (Centraal Planbureau 2023, p. 7). In the last few years, between 2020 and 2022, however, this increase halted. The amount of automated task grew only from 33% to 34% (Amsterdam Centre for Business Innovation, 2023, p. 1). Nevertheless, the increased demand for specific jobs is caused by technology, digitalisation and sustainability (Amsterdam Centre for Business Innovation, 2023, p. 6). To enable workers to be up-to-date in this ever-changing labour market, the Dutch central government is stimulating 'life-long learning'. The need to keep up with digitalisation and the challenges of climate transition are explicitly stated among the reasons why the government stimulates training and development for all adults. The government also specifies that it encourages training towards those jobs which are experiencing labour shortages, such as IT and engineering (Rijksoverheid, n.d.).

On the company side, the government’s actions on all three aspects have become clear through the implementation agenda on a ‘strategic and green industry policy’ by the Ministry of Economic Affairs and Climate. According to this agenda, the government and all industrial

sectors together should invest in the Dutch industry, which is defined as “basic industry, processing industry and manufacturing industry”. This agenda should lead to the Netherlands remaining an important actor in the global economy. To achieve this, the government will invest more in research and development (R&D) funds, but it expects the sectors and companies within to do the same (Adriaansens, 2022, p. 12). Within this funding context, the minister urges investment in digitalisation, as it gives the chance to improve the Dutch industry’s competitiveness versus low-wage countries (Adriaansens, 2022, p. 10). The Metalektro sector is constantly lobbying for these investments, which they call ‘industry politics’. According to the parties involved, industrial politics creates preconditions that are good for the competitiveness of the manufacturing and technological industry (Hinsenveld, Peltzer, 2022, p. 8).

The implementation agenda also touches on the decarbonisation of the Dutch industrial sector. This was formalised in June 2019, when the Dutch government and businesses concluded the National Climate Agreement. In the agreement, five sectors pledge to reduce their emissions: industry, electricity, built environment, traffic and transport, and agriculture. Agreements per sector were concluded on how they will reach the climate goals. To achieve this, conversations were held between (local) governments, companies, trade unions, employers’ associations, environmental organisations and many other stakeholders. While these discussions cannot be seen as bargaining or social dialogue, the separate sectoral talks allowed unions and employers to sit at the same table and discuss decarbonisation measures for their industries (Voortgangsoverleg Klimaatakkoord, 2018).

The goals that came out of the Climate Agreements can be seen as more specific actions based on the Climate Act of 2019. The goals in this act are to reduce greenhouse gas emissions by 49% in the period leading up to 2030, compared to 1990. In 2050, a 95% reduction should have occurred (Government of the Netherlands, n.d.). In 2022, the government set a higher goal of 2030: 55% reduction of greenhouse gas (Rijksoverheid, 2022a). Additionally, in 2023, more measures were taken, leading to an intended reduction of 60% (Rijksoverheid, 2023).

These reductions are especially relevant for the industrial sector, which includes the metal industry, since it has the highest emission of CO2 among all the participating sectors. In 2022, it emitted 48.33 megatons of greenhouse gas emissions. In 1990, this was 87.04 megatons (CBS, 2023g). The current goal for 2030, based on the most recent measures, is to reach 29.6 megatons (Rijksoverheid, 2022a).

3.2 Challenges for the metal sector

Digitalisation, 9llowed9zation and decarbonisation offer various challenges to the Dutch metal sector. Through conversations with representatives from metal companies, trade unions and employers’ organisations, certain challenges become clear. For this report, the challenges will be classified into two groups: employment challenges on the one hand, and financial and economic challenges on the other. On the employment side, challenges are respectively the labour shortages, the need for new skills, the redistribution of work and the engagement of the tasks to be done.

To make full use of the possibilities of digitalisation and automation, and to develop these further, technically skilled personnel is needed. However, an increasing shortage of technically skilled workers is seen as the biggest challenge for the technological sector, which

includes ‘grootmetaal’ (Hinsenveld, Peltzer, 2022, p. 14). As stated earlier, 3 out of 10 employers in manufacturing view the labour shortages as hindering their business operations (UWV, 2023). The shortages are reinforced by digitalisation, automation and decarbonisation taking place in many other industries as well, where they are competing for the same technically-skilled workers.

To address and mitigate these shortages, existing personnel have to be upskilled in order to embrace digitalisation. This does not only entail hard skills, which can be seen as job- or industry-specific skills, but also soft skills, which includes cooperation and flexibility. The hard skills that should be taught are related to ‘key technologies’, as these are called in the industry, such as robotisation, Artificial Intelligence, 5G networks and Big Data (Hinsenveld, Peltzer, 2022, pp. 10-14).

The redistribution of work is another major challenge. While technological developments do not guarantee that jobs will be lost, they do lead to changes to the tasks that are being done. Keeping this in mind, the increase of automation sometimes leads to workers afraid of losing their jobs. For example, this could occur when an assembly line only needs 2 people instead of 30, due to the introduction of robots. According to the trade union representatives that were spoken to, this leads – in many cases – to a redistribution of work instead of layoffs. The addition of robots does not lead to less work overall per se. The affected processes need to be maintained, developed and programmed, which also creates jobs. Still, the trade unions are on top of this when the number of jobs is affected. In these cases, a social safety net is discussed by the social partners.

Another challenge due to automation and digitalisation is keeping the workers at the assembly line engaged. This is due to the decreased mental capacity that is needed for simplified tasks. For some companies, manufacturing processes have become divided into many easy to execute tasks. Additionally, operators see the instructions for the job they do on a tablet and simply perform the action that is asked of them. However, this leaves their knowledge about the entire process wanting. This can lead to mind-numbing work.

On the financial and economic side, the main challenges are the redesign of products and processes, the costs associated with innovations, and (the lack of) government policies.

Especially the laws concerning the climate transition forces companies to redesign their products and processes. But even without these laws, digitalisation, automation and decarbonisation are a double-edged sword. Not going along might result in losing one’s competitiveness within their industry, while embracing it can lead to a competitive advantage. Companies might then adjust to adhere to specific standards, to keep relevant in a changing market or even to challenge industry standards. In the automotive industry, the transition from cars with combustion engines to electric vehicles is a clear example. In one of the case studies in this report, a gas boiler company says goodbye to its gas boilers to stay future-proof. Nevertheless, changing or even phasing out products and processes can have economic risks when the entire company is centred around it (Gajdzik, Wolniak, 2022).

One of the trade union’s representatives actually states that they think the developments are going too slow, since the outflow of workers continues steadily. New technologies are therefore needed as a way to redistribute work and keep companies financially healthy. They often see that companies are not yet thinking on making their processes green. Moreover, workers and works councils are not always involved in these transitions.

Another challenge of digitalisation, automatisation and decarbonisation are the costs generally associated with them. The purchase of robots or changing production processes to make them carbon-neutral can be hard to achieve for companies with smaller reserves. Also, it is noticed by a trade union representative that companies owned by private equity parties are less likely to make big investments in the companies they own the longer they own these companies. Not investing in new technologies affects their competitiveness and possibly leads to job losses. It worries them, the union representative states, that this group of companies that fall behind, might not exist anymore in five years' time.

Government policies or the lack thereof also forms a challenge for Dutch companies in the metal sector. Currently, social partners feel that the conditions elsewhere are more suitable for growth and the Netherlands stay behind. Also, there is a lack of clarity regarding arrangements, for example on subsidies. They see the Inflation Reduction Act by the Biden administration in the United States as an example of support and competition, that promotes the national manufacturing industry by introducing tax credits for locally produced products, such as electric vehicles (Rijksdienst voor Ondernemend Nederland (RVO), 2023).

4. Sectoral relevance of DAD – responses via collective bargaining

To address the challenges that are experienced within the metal sector due to DAD, cooperation by all those involved is needed. However, as is stated by both the trade unions' and employers' representatives that were interviewed, digitalisation, automation and decarbonisation are not individual subjects as such that are discussed at the bargaining table. Rather, the consequences of these developments are discussed between social partners as part of their social dialogue.

When looking into the industry's CBAs, one will not find any binding clauses agreements on e.g. the degree of 11llowed11zation or decarbonised work processes. What they do contain, however, are arrangements like training facilities and training leave. In chapter 6, these clauses will be shown. In the current chapter, however, the focus is on social dialogue as a way to address the previously stated challenges.

As stated earlier, social dialogue in the metal sector mainly takes place within the Raad van Overleg in de Metalektro (ROM) and Vakraad Metaal & Techniek. The implementation of the outcomes is done by various funds, such as the pension funds, the training and development funds, the social fund and specific committees (Raad van Overleg Metalektro, 2023b; Vakraad Metaal & Techniek, n.d.b). Unions and employers collectively decide to which goals funds and budgets will be allocated. For the ROM, this is done by first deciding together for which bottlenecks extra efforts are needed. They do so every CBA period. For example, these issues could attract new workers, the need for adjusted strategies, funding for training and career development, as well as local cooperation. Training and development funded by A+O Metalektro is then able to offer compensation, advice and practical support (A+O Metalektro, n.d.).

For each of the challenges defined, the social partners' responses will be listed. First, on the employment side: labour shortages, the need for new skills, the redistribution of work and the engagement of the tasks to be done.

Labour shortages are addressed in multiple ways. First, cooperation is sought with educational institutions that prepare future workers for the manufacturing sector. In this

spirit, so-called technohubs were created in 2020. Educational institutions and companies from the manufacturing industry are working together within these locations in the form of a public-private partnership. Their aim is to provide training to employees, promote engineering education and work on innovative ideas. Within these technohubs therefore, companies and their workers are learning new skills in a hybrid way, based on current and future developments, together with young people studying in the same region. Using subsidies from A+O Metalektro, twelve technohubs have been set up in the past few years (FME, 2021; A+O Metalektro, 2020). Additionally, social partners are working together with schools and universities to make technological and engineering degrees more attractive for students and to promote the manufacturing industry to workers from outside the sector. Social partners have also committed to ensuring workers do not leave the industry. (Hinsenveld, Peltzer, 2022, p. 15).

Learning new skills and the redistribution of work are closely interrelated. They are addressed by the technohubs as well, but more initiatives are run by the training and development funds. E-learning platform oZone is used across the metal sector, for workers to follow online courses, workshops and to access relevant information to maintain and update their skills. It can be used freely by companies that are associated with the training and development funds A+O Metalektro and the metalworking fund OOM. It is therefore available for workers covered by the Metalelektro CBA and the Metaal & Techniek Metaalbewerkingsbedrijf CBA.

To increase the engagement of the work done, the social partners have stated their commitment to actively involve workers by the development, implementation and use of new technologies, and to not only have them experience the consequences of these decisions. Additionally, the trade unions provide workers the services of career and sustainable employability coaches, to guide workers within their organisations. They can discuss the way they are currently doing their work and what their career perspectives could be.

Next, for each of the financial and economic challenges defined, the social partners' responses will be listed. These are the redesign of products and processes, the costs associated with innovations, and (the lack of) government policies.

Unions and employers agree that digitalisation and decarbonisation have to be accelerated (Hinsenveld, Peltzer, 2022, p. 8). But they do acknowledge that overturning business processes and staying ahead of the game requires a structural approach. In this regard, the redesign of products and processes and the costs associated with innovations cannot be seen separately. Technohubs and field labs play a role to address these challenges. Next to the educational activities, field labs give companies, mainly small and medium-sized enterprises, the chance to check out new technologies, such as robotics and 3D printers. This could help them to decide whether these automation and digitalisation solutions would be helpful for their production processes. When they decide to invest in these solutions, the technohubs also offer education and advice to actually use these innovations within the company. If the company does not have enough budget to invest, funds are available for specific fields and regions, such as Smart Industry Vouchers to accelerate the digitalisation of the manufacturing industry (Smart Industry, n.d.).

Regarding (the lack of) government policies, social partners agree that lobbying towards the Dutch central government is needed. For example, the Metalektro sector states that the Government has to invest in their industry to fully unlock the potential of technology

(Hinsenveld, Peltzer, 2022, p. 8). While this could feel as a simple plea for more government funding, the plea shows a rationale that is embraced by both the trade unions as well as the employers' association. Investing in the metal industry should lead to more competitiveness for the Dutch industry among their European and global competitors, leading to more jobs across the sector. This lobbying is also done at the European level, in order to retrieve more funding for EU-based industries, by the IndustriAll European Trade Union.

5. Case studies

5.1 Itho Daalderop

Itho Daalderop is a producer of home-based systems to regulate heating and ventilation (HVAC) in homes, such as heat pumps, water boilers and ventilation units. It is categorised within the C25 subsector: "manufacture of fabricated metal products, except machinery and equipment".

Itho Daalderop refers to its founding date as either 1919, when Itho was founded, or 1880, when Daalderop was founded. These companies merged in 2011. Then, in 2016, the new company became part of the Climate for life (CFL) group, which was sold to the private equity firm Parcom in 2020. Recently, in June 2023, the Swedish firm NIBE Industrier AB took over CFL from Parcom. Itho Daalderop has production sites in the Dutch cities of Tiel and Schiedam.

Itho Daalderop's workforce consists of 450 people. Of these workers, 120 are at the assembly lines. A significant part of these are temporary workers, who form an integral part of Itho Daalderop's workforce. They can be assigned to the assembly line when more capacity is needed on the production side. When the number of products to be assembled decreases, however, these temporary workers are not assigned to Itho Daalderop, preventing workers from having nothing to do on the factory floor. This is a business decision, since production and sales can fluctuate depending on the orders that come in.

The Itho Daalderop case study shows a front-runner in many aspects of a company's digitalisation, automatisation and decarbonisation processes. To illustrate this, each of the three developments will be shown in the following paragraphs.

Digitalisation within Itho Daalderop can be seen in the manufacturing processes as well as in the products and their aftercare. A clear example of digitalisation are the tablets visible above every workstation on many assembly lines. These tablets provide workers with clear instructions on which actions they should perform to finish the assigned task for that station. This is especially useful for those temporary workers who are assigned to various assembly lines when production needs to be increased. Digitalisation is also implemented in various products. For example, when at one's home, Itho Daalderop's thermostats can be connected to the internet. In case of an error, this allows maintenance workers to check the status of a heat pump from any location they are at, instead of having to travel to the heat pump's owner. This form of maintenance from a distance can also be seen as a decarbonisation measure, as it limits the travel needed by maintenance workers.

Automation at the production facility is present in many ways. For example, processes that previously were done by hand, such as moving around aluminium plates, are now done by robotic arms. These automations do not only make the work easier to perform, since workers must execute fewer actions, it also makes the work safer. An example is the hydraulic press

machine, which had to be greased by hand, and came with various risks. For many years now, this process has been done automatically. It is now impossible to get close to a functioning press machine, since it is caged off. Moreover, similar machines have pressure-sensitive mats surrounding them, turning them off if and when people get too close.

With its products, Itho Daalderop has already undergone a decarbonisation transition. At the end of 2021, the company stopped the production of gas boilers, to focus on hybrid and all-electric heat pumps. They call themselves "the first gas boiler producer who has stopped producing gas boilers." Itho Daalderop already announced this five years before the production stop (Itho Daalderop, 2021). Therefore, two developments that occurred around that time have nothing to do with Itho Daalderop's decision. First, starting at the end of 2021, a significant increase in gas prices occurred in the Dutch energy market (CBS, 2023h). Second, the Dutch government announced in 2022 that from 2026, when households need to replace their gas boiler, they must opt for a sustainable alternative, such as a hybrid heat pump. This does not mean gas boilers are totally obsoleted, they can still be used in combination with hybrid heat pumps or when an exception applies, such as for historical buildings (Rijksoverheid, 2022b). Moreover, Itho Daalderop is on its way to become 100 percent electric, however lorries that are used to deliver parts to the production facilities still run on fossil fuels.

The Salvagnini machine, which is present at the production facility in Tiel, actually combines automation, digitalisation and decarbonisation. Essentially, Itho Daalderop purchased the machine because of an increased demand for water tanks for boilers and heat pumps. It asked its tank supplier to increase its production and to do it in a more sustainable way, since the process of polishing and welding water tanks is environmentally harmful. Because the supplier was not able to make this switch fast enough, the former director decided to buy the Salvagnini to create these tanks themselves. While this was essentially a business decision, meant to increase the production, it also allowed Itho Daaderop to create more and larger (of up to 270 litres of water) tanks in a cleaner way, which is not possible manually. While most robots are designed for specific tasks, the Salvagnini machine works with a system and a user interface that can be adjusted to perform different pre-programmed tasks. For the water tanks, for example, it can bend and punch the sheet metal (Festo, 2023), and it is capable of performing many more tasks when programmed to do so.

5.1.1 Measures in response to technological change

The developments regarding digitalisation, automation and decarbonisation within Itho Daalderop are mainly a management decision. For example, for the purchase of new machines, trade unions and works councils are not involved. Rather, purchasing is decided by management, based on business decisions. Workers are involved in how to set up the new assembly lines, but the working foremen make the executive decisions in the end.

When these machines are introduced, redistribution of work happens a lot. People are sometimes afraid that they will be fired, but this does not happen. The work they have to perform, however, does change. This relates to the tasks themselves and to the difficulty of the work. For example, technological changes make the assembly work increasingly easy to perform. When knowing the basics, temporary workers can easily switch between assembly lines. One interviewee from Itho Daalderop, who does not work at an assembly line, mentioned that both they and the interviewer could do the work right away. Additionally, the

increased automation makes manual labour increasingly move to the end of the assembly lines, as the intensive tasks in the core of the process can be taken over by machines. The downside is that the manual work itself can become less interesting. Therefore, to keep the work at the production facility engaging workers can switch between working stations and assembly lines during the day.

At the same time, work that requires technological skills becomes increasingly more difficult as technology evolves. An example are the technical service workers who fix errors in the machines used, who have to upskill themselves constantly to keep up with the advancements. Moreover, more workers are needed to perform these tasks. This requires Itho Daalderop to invest more in training and hiring of technically skilled workers.

As part of the decarbonisation efforts, workers are shown how the tasks they perform contribute to Itho Daalderop's sustainability goals. This is done in order to enhance engagement with and knowledge about their own work. This is part of the services that the 'Opleidingshuis' (Training house) offers to new and current employees. The Opleidingshuis also integrates sustainable practices in workers' daily routines, by mentioning them explicitly or by nudging. For example, the use of digital filesharing services is encouraged, to limit the amount of emails that is being sent. This is part of limiting the bandwidth used, since data centres also consume a lot of energy. Another policy is carpooling when travelling to an external location, to minimise the amount of cars in traffic, or even adjusting the meeting place to the one for the least amount of driving has to be done – in total, by all those who will attend.

5.1.2 Collective bargaining and social dialogue responding to technological change

Trade unions have a limited role in the digitalisation, automation and decarbonisation, as the business operations of Itho Daalderop are the main prerogative of the employer, not of the trade unions. Therefore, as long as new technologies do not cost any jobs or change the work to be done significantly, trade unions lack bargaining power. Decisions like digitalisation and automating assembly lines are made by Itho Daalderop's management, based on their long-term strategy.

Several years ago, the role descriptions within the company were redefined, partly due to the knowledge and expertise needed for specific roles, and partly due to the need for former Itho and Daalderop workers to have the same role descriptions and pay scales. This included, among other things, the introduction of 'productiemedewerker D' (production worker D), which is a job title for operators of the various machines on the production floor.

To formalise this, management implemented a role and assessment system preferred by the trade unions. Because of the preferred position of this system, it was enough to simply inform the trade unions about this change; no bargaining was needed. The works council also gave its approval after being consulted throughout the process.

Also, when the Salvagnini machine was introduced to the production facility in Tiel, management thought of introducing shift work. Implementing working hours outside of the standard working days would make sure Itho Daalderop could keep up with the projected increase in production made possible by the machine and the increasing demand. However, through talks with the trade union and the works council, it was decided to not introduce shift work, as the parties felt that its mandatory character did not fit with the workers' culture.

Instead, a new operating hours regulation was introduced. This regulation makes it possible to work outside of office hours, but this is not an obligation; employees can decide voluntarily.

As stated earlier, reskilling and upskilling are the most visible topics in the social dialogue between social partners in the metal sector. For example, Itho Daalderop makes use of Ozone, a training platform, to provide training to their employees. The individual parts of onboarding happen in Ozone; all e-learning modules are available there as well. When necessary, the HR division organises individual training, for example when a production worker wants to learn to work with cobots.

5.2 Norsk Hydro

Norsk Hydro is a Norwegian company which has mainly been engaged in aluminium: from mining bauxite to manufacturing semi-finished and finished goods. In addition, the company is currently also engaged in renewable energy sources. Hydro invests in joint ventures and buys stock in companies that are involved in related technologies, such as batteries and hydrogen (Hydro, 2022; Hydro, 2023). Hydro can be classified as part of the 'C24. Manufacture of basic metals' subsector.

The Dutch factories of Hydro are part of Hydro Benelu', specialised in the extrusion o' aluminium. This is an industrial process in which a preheated piece of aluminium is transformed into a semi-finished good, called a profile. Hydro Benelux sells these aluminium profiles to European industries such as construction and transport. Production takes place within factories that have been acquired throughout the years in the Benelux, starting in the 1960s. The three Dutch factories are located in Drunen, Harderwijk and hoogezand.

Hydro's workforce in the Benelux consists of 1,200 people. Estimates are that 75 to 80 percent of these workers play a role in the aluminium extrusion processes. The other workers are involved with sales, finance, HR and similar administrative processes.

The Hydro case study shows a company that is taking steps towards digitalisation, automation and decarbonisation. To illustrate this, each of the three developments will be shown in the following paragraphs.

Digitalisation at Hydro is still in its infancy. The company still has to decide where to focus on. Currently, learning on the job is a big part of the onboarding process. Some courses are available online, but the supply is still limited. Digitalisation differences can be seen between the Dutch and the Belgian factories of Hydro Benelux. In the Belgian factories, the introduction of a digital payslip is difficult to achieve, while this is commonplace in the Netherlands. Filling out a digital form and performing other tasks on a computer also proves difficult for a substantial part of the workers. This makes implementing modernised and digital processes a tricky job.

Automation is used in Hydro to ensure that the work can be done safely without any accidents, that the workers can perform their tasks in an ergonomic-friendly way and that production can continue, even despite labour shortages. The solution to keep the production on par is not to attract more workers. Rather, the production processes should be redesigned to increasingly require fewer workers. Many technologies are already used, such as welding robots, but even more investments are needed to keep up.

Decarbonisation takes place according to three principles: greener sourcing, greener production and greener design. Greener sourcing entails the sustainable mining of bauxite, the purchase of environment-friendly source materials from sustainable suppliers, et cetera. Green production refers to the production methods that are used within Hydro's factories, to ensure that these are up to modern, climate-friendly standards. Greener design includes the possibility to recycle the created goods, such as bicycle frames, for which hydro works together in the Netherlands with Swapfiets and VDL.

5.2.1 Measures in response to technological change

To make the switch to more digital learning methods for those who can work with these, the sectoral learning platform Ozone is being introduced at Hydro. Currently, it is only used for the Drunen factory workers. In the future, it will be expanded to workers in the other Dutch factories.

Regarding automation taking place within the factories, training sessions are given on working with cobots in the Drunen factory. These 'collaborative robots' are essential in keeping the production on par with fewer workers available, so existing cobot workers are educating their colleagues in the use of this technology.

To make workers aware of the decarbonisation efforts, Hydro focuses on sustainable projects in their internal communication, such as highlighting their contribution to the Ocean Cleanup and the recycling deal with Swapfiets and VDL (Hydro, 2020).

5.2.2 Collective bargaining and social dialogue responding to technological change

Similar to the situation at the Itho Daalderop, trade unions and employers associations linked to Hydro are involved in a limited way regarding digitalisation, automation and decarbonisation. Decisions regarding Hydro's business operations are the prerogative of the employer if they do not affect the employment at the factories in any major way, such as layoffs.

Training possibilities are provided through the A+O Metalektro fund. Training days, as shown in the next chapter, are included in the collective agreement. However, there is ongoing dispute between unions and employers on how and when to use these training days.

6. Bargaining outcomes

Figure 3. Contents related to DAD in collective agreements

CBA	**Contents related to DAD**
Metalektro – sectoral	The Metalektro CBA does not contain any specific agreements on digitalisation, automation and decarbonisation. It does contain clauses on training: • Workers are granted 1 day per year to actively and autonomously work on their sustainable employability. This includes activities related to training and development, and health (clause 5.1)

	• Workers are granted 2 training days or 16 hours per year. They can be saved up to 5 days or 40 hours. The worker decides together with its employers the topic of these training activities and when to follow them (clause 5.3)
Metaal & Techniek Metaalbewerkingsbedrijf – sectoral	The Metaal & Techniek Metaalbewerkingsbedrijf CBA does not contain any specific agreements on digitalisation, automation and decarbonisation. It does contain clauses on training: • A worker is granted 1 paid training day per year. The worker decides together with their employers the topic of these training activities. It must fit within the sectoral policy for training and development. • The worker may save up their yearly training days for a maximum of 3 years, in order to follow a 3-day course (clause 72b)

7. Findings

7.1 Summary

In the Dutch labour market, labour shortages form the main challenge for businesses. This affects the metal sector as well. In fact, the shortage of technically skilled personnel is seen as the biggest concern for their business operations, by companies within the Metalektro sector, which consist of the medium and large companies within the industry. In the labour market as a whole, there are more vacancies than workers available, and the same applies to the vacancies for technically skilled workers. Partly for this reason, digitalisation and automation are not divisive issues among trade unions and employers' associations. Rather, both social partners view technological adjustments and improvement as necessary to a thriving metal sector. Innovation is seen as a solution to the shortages, since robots can take over the tasks for which no workers can be found. Still, what has become clear throughout the research is that this is not a definitive solution. The development, maintenance and handling of these new technologies at the production facilities cannot be done without skilled workers. That is why trade unions and employers' associations are working together to entice young people to enter the manufacturing industry and to reskill and upskill existing workers, for example in cooperation with education facilities and through their industry's training and development funds. The social partners see the need for a cooperative, structural approach to automation and digitalisation, to tackle the labour shortages and to keep the company's production up to par.

The same cooperative mentality can be seen for implementing decarbonisation throughout the sector, although the actions are less advanced. The trade unions and employers' associations also expect the Dutch central government to contribute, for example through clear and supportive industrial policies that will make the Dutch metal sector competitive within Europe and across the world. Because of the costliness of decarbonisation measures, social partners are lobbying towards financial and policy support from the government, for example regarding 'green fuels'. Decisions by companies to take part in decarbonisation measures, such as out phasing water boilers and investing in recycling, are first and foremost business decisions. Employers joining the 'decarbonisation bandwagon' are mainly doing so

to keep their businesses relevant in these changing times, to be able to keep up or even increase their production as a sustainability forerunner. Trade unions support these actions, since they see the presence of thriving companies in their industry as essential for a healthy workforce.

Social partners discuss these issues more through social dialogue than by settling on binding agreements in the form of collective bargaining. The only binding clauses in the collective agreements for the sector are those on providing training days and training leave for workers. These training opportunities are important within the sector, in order to reskill and upskill workers in order to have them work with innovations related to digitalisation and automation. Decarbonisation is not addressed at all in collective bargaining. Social partners do discuss these issues through social dialogue, however. For example, they work together within their sector's training and development funds to set up platforms such as technohubs, that offer companies the chance to discover new and useful technologies and to train their employees in working with them.

7.2 Recommendations

Policy recommendations will be added after the comparative report has been written.

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Appendix II. Interviewees

1. Trade union: Chief negotiator Metalektro, FNV Metaal
2. Trade union: Chief negotiator Metaal & Techniek, FNV Metaal
3. Employers' association: Policy advisor and negotiator Metalektro, FME
4. Employers' association: Programme manager Futureproof Employment, FME
5. Company case study 1: Working foreman Itho Daalderop (1)
6. Company case study 1: Working foreman Itho Daalderop (2)
7. Company case study 1: Engineer and president works council Itho Daalderop
8. Company case study 1: HR business partner Itho Daalderop
9. Company case study 1: Team manager Opleidingshuis (Training House) Itho Daalderop
10. Company case study 1: Director Digital Itho Daalderop
11. Company case study 1: Manager Innovation Itho Daalderop
12. Company case study 2: HR director Hydro Benelux