

LABOUR AND SOCIAL JUSTICE

SHAPING INDUSTRY 4.0 ON WORKERS' TERMS

IG Metall's »Work+Innovation« Project

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Digitalisation transforms tasks, workplaces, production processes and company organisation, with a profound impact on workers..



With its »Work+Innovation« project, IG Metall has found a way for workers to be an integral part of this change – by combining worker training programmes with company-specific innovation projects.



IG Metall takes on the role of intermediating the workers' knowledge and needs with company requirements, thus bringing a workers' perspective to innovation and new technology – at home and abroad.



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»**Trade Unions in Transformation 4.0**« examines unions' strategic actions to mobilize power resources in a »new world of work« in which capital uses digital technology to re-organize the labour process. The Global Trade Union Programme of the FES aims to understand how the power balance between capital and labour is impacted and how workers are responding to the threats of the digital rollback towards greater exploitation and precariousness of workers. Pursuing a dialogue and action-oriented approach, the project ultimately intends to contribute to trade unions' strategic reflections, experimentation and purposeful transformation.

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ABSTRACT

The transformation of the economy and the work-oriented society is leading to fundamental changes in company organisation, technology, job tasks and culture. Old division lines between productive, administrative, service and knowledge work are dissolving. Business models are changing. The half-life of professionally acquired qualifications is decreasing. At the same time, today's industry is organised on a global scale: Complex supply chains span the globe and a bewildering number of suppliers and service providers are dominating the field. Historically, there has always been technological progress. However, it is the speed and the lasting effects on the workforce, on products and on our societies, but also the differences between the developed and the non-developed world which make this transformation so unique (IndustriALL 2017: 4). Yet, no matter where you look: The transformation of the world of work is an open process. Its impact is not technology-driven, it is an open field for shop floor and socio-political debates. IG Metall has launched a number of initiatives to counteract entrepreneurial strategies putting people at the centre of the discourse.

With this article, based on the »Work and Innovation« project, we want to outline how works councils, shop stewards and IG Metall can shape the digital transformation for the benefit of employees and how they can proactively engage in innovation processes. Based on two company examples, we also illustrate how the necessary power can only unfold if the stakeholders are strong in terms of associational power, skilled in conflict resolution and competent, and if they expand, apply and harness their power resources.

The Jena power resources approach serves as a theoretical basis for this line of reasoning. This tool can be used to assess the trade unions' power to act. In particular, it provides the opportunity to work out which power resources (structural power, associational power, institutional power and societal power) are available to the respective trade unions in different contexts in order to assert their interests (Schmalz/Dörre 2014).

Two further company examples are used to illustrate that the drivers, trends and dynamics of the transformation of the world of work are not limited by the barriers of local company premises or national borders. As decisions on secure jobs and good work are no longer taken locally, but increasingly at company level (wherever it may be based), trade union work will increasingly have to be thought in transnational terms.

1

THE HISTORY OF IG METALL'S COMMITMENT TO »WORK AND INNOVATION«

It all started with the Green Paper published by the Federal Ministry of Labour and Social Affairs in 2015. »When we talk about Work 4.0, we not only mean the new technological developments of Industry 4.0. We are talking about the work of the future, in all its breadth and diversity,« was how Andrea Nahles, then Federal Minister of Labour and Social Affairs, put it in her foreword to the Green Paper (Federal Ministry of Labour and Social Affairs 2015: 7). A view of future economic change processes, which until then had been primarily technology-centred in Germany, was thus extended by integrating the »human factor«.

At its Union Congress the same year, IG Metall expressed its claim to a safe, fair and self-determined world of work. In his presentation on the future, Jörg Hofmann, President of IG Metall, emphasised the far-reaching consequences of digitalisation of products and processes for the future work-oriented society. According to Hofmann, the possibilities provided by digitalisation could only be seized if the opportunities offered by shop floor and collective bargaining policy were consistently used, pointing out alternatives, making recommendations for action and involving the workforce in these processes at the earliest possible stage. For this to succeed, IG Metall needs to provide supporting training programmes for shop stewards and works councils. »A major challenge for our trade union educational work – and a core operational task for the entire IG Metall«, according to Hofmann (IG Metall 2015: 8).

In the main motion »IG Metall Participation Trade Union« the delegates of the Union Congress accordingly called on the IG Metall Executive Committee to develop pilot projects for a sustainable and active shop floor policy in order to strengthen the assertiveness of employee representatives in companies and, in a further step, to provide technical support for practice transfer (cf. *ibid.*: 237 ff.)

For IG Metall's trade union shop floor policy and educational work, this was the starting signal for its project proposal »Work und Innovation – Strengthening Skills +> Shaping the Future« (Janitz/Schroth 2019: 205). »According to the IG Metall slogan, »Industry 4.0 needs Work 4.0«¹. In short, the »Work und Innovation« project was intended to contribute to developing prospects for shaping the world of work in the fourth industrial revolution. Key lines of action, practical examples and the first conclusions of this ambitious project are described below.

¹ In the German context, »Industry 4.0« stands for the digitalisation of industry in general. Networking people, machines and products via the Internet is the central feature of this process. The term »Work 4.0« was coined by the Federal Ministry of Labour and Social Affairs in 2015 with the aim of bringing the working conditions of employees to the centre of the discourse beyond the technological debate (cf. Federal Ministry of Labour and Social Affairs 2019).

2

STRUCTURE AND APPROACH OF THE »WORK+INNOVATION« (W+I) PROJECT²

The realities and challenges which shop floor representatives³ will face in the future in the context of digital transformation will be very diverse: this assumption was the basis for the very first ideas in the development of the »Work and Innovation« project. While in one company the type of manufacturing or the product as such will change, in another the introduction of new equipment may raise questions regarding shift planning. For others, the business model as such or the position of the company within the value chain will change. The level of digital maturity in local businesses and companies was and is by no means homogeneous: while some production halls already serve as showpieces of a »smart factory« or the responsible employee representatives have already concluded agreements on the introduction of complex manufacturing execution systems, the neighbouring company is just beginning to take stock of the existing 4.0 technologies in the different parts of the plant (cf. Schroth/Reuter/Schäfers 2019).

At the same time, according to the original assumption, there is still a lack of clear strategies on the part of the companies to cope with transformation. The colleagues in the companies, however, have one thing in common: the claim

to use and expand their resources of trade union power – especially in times of transformation. Only in this way can digital work be made humane. This is where »Work+Innovation« comes in.

IG Metall's approach: shaping the digital world of work in a safe, fair and self-determined way

The opportunities for co-determination, which in Germany are legally enshrined in the Works Constitution Act (*Betriebsverfassungsgesetz* – in the following referred to by the German acronym for the Act: »BetrVG«), allow works councils⁴ to play an active role in shaping the world of work in a wide range of fields: Topics such as the distribution of working time (§87 BetrVG), occupational health and safety (§87 BetrVG), employee training (§§96-98 BetrVG) or the design of workplaces (§90 BetrVG) – to name but a few – therefore cannot be tackled by the employer without the participation of employee representatives. The works council must also be involved in the introduction of new technologies (§90 BetrVG), which gives it a key role especially in times of digital transformation (cf. IG Metall, n.d.). However: the existence of this factual institutional power, which is laid down in the Works Constitution Act, by itself is not sufficient to actually shape the world of work at plant level in the interests of employees. Instead, it requires the (political) capacity to act on the part of the workforce representatives.

Figure 1 illustrates the range of options for shaping or not shaping individual fields of action of works councils. The introduction of digital assistance systems, e.g. tablets, in production provides a good example of this: In a negative scenario, high standardisation and rigid workflow processes make activities increasingly monotonous and one-sided. As a result, employees are »dequalified«. In addition, data relating to them, e.g. on their behaviour, errors, etc., can be recorded in real time. With increasing automation, the system takes over the activities of the employees, who become increasingly superfluous.

² »Work+Innovation« was funded by the Federal Ministry of Labour and Social Affairs and the European Social Fund (ESF). The project duration was 3.5 years. The share of the funding from public funds amounted to about 5 million euros. In general, the social partners, legal entities under private and public law and companies with a permanent establishment in Germany can apply for these public funds with project ideas. The total volume of the W+I project was around 10 million euros. More than 100 plants and companies from all over Germany took part. The project was initiated by a resolution of the IG Metall Executive Committee internally and continuously monitored by a Steering Committee and Advisory Board made up of colleagues from various departments of the Executive Committee administration and the respective regional management. In addition to the experts from the fields of social sciences, law and business administration employed by the IG Metall Executive Committee, the project was supported by experienced vocational teachers in IG Metall training centres and a network of work-oriented consulting companies and scientific institutions.

³ Shop floor representatives can either be works council members, shop stewards or both. The rights of works councils are enshrined in the Works Constitution Act. These persons represent all employees in the company and negotiate with the employer, e.g. works agreements (see also page 5 of this article). Shop stewards, on the other hand, represent the employees in the company who are members of IG Metall. Through close interaction with the members and their concerns in the different fields, they can support the works council and are therefore the link between the works council and the workforce.

⁴ Works councils can be elected in companies with at least five employees, according to §1 of the Works Constitution Act (BetrVG). The German Works Constitution Act (BetrVG) sets out the rules of the game for cooperation between the employer and the works council. As a result, the works council has binding information and co-determination rights.

Figure 1
»Our pro-active approach«

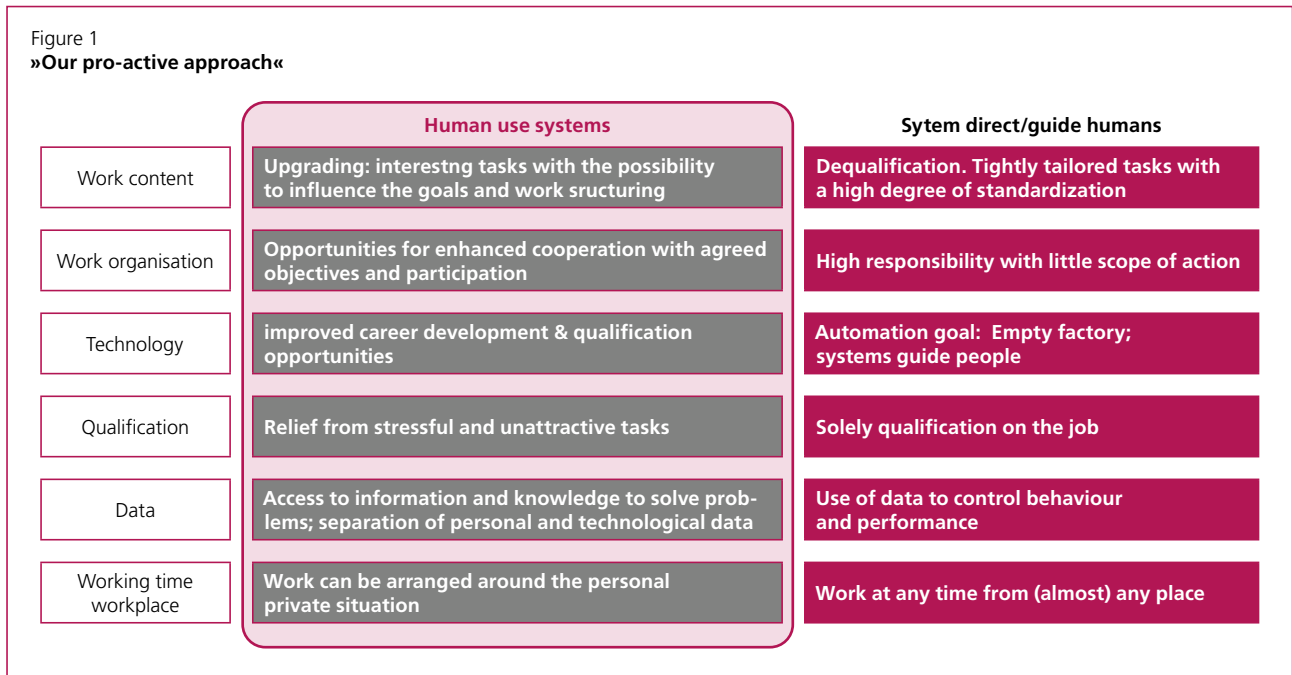
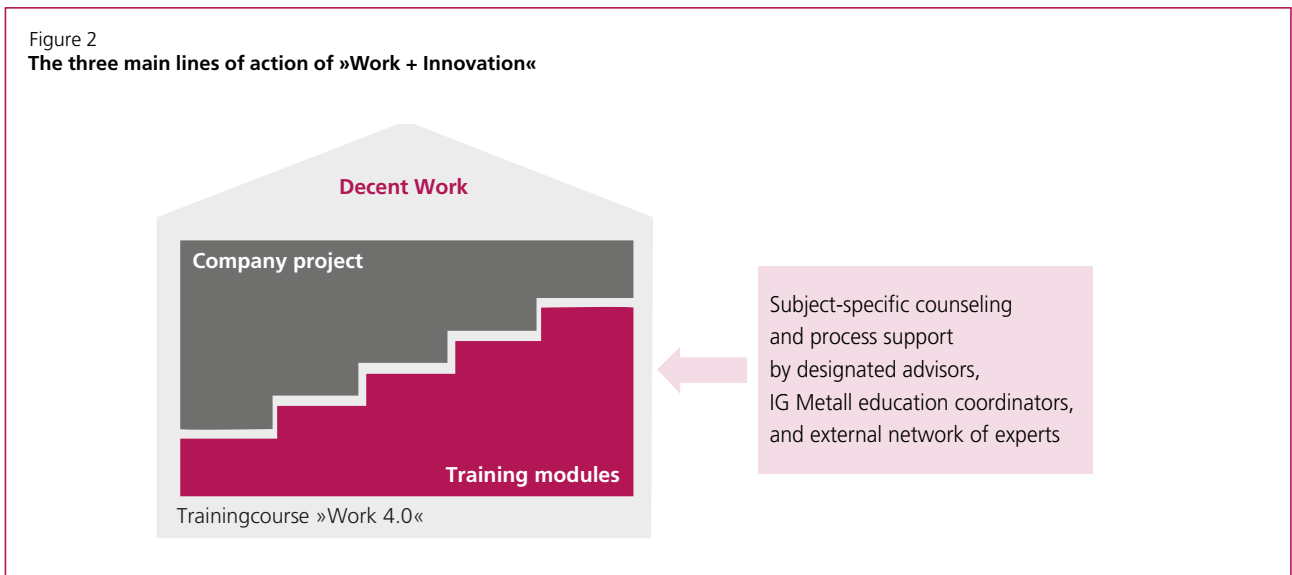


Figure 2
The three main lines of action of »Work + Innovation«



In a positive scenario, the introduction of digital assistance systems, to stick to the example, can also have an enriching effect on the activities of the employees. As repeatedly tested within the scope of W+I, proactive action on the part of the works council is particularly important here. In cooperation with management, the works council initiates a process to design the assistance system as a learning system. At the same time, a support programme is set up to provide employees with appropriate qualifications for new, more complex tasks. The respective colleagues are involved in the implementation of all measures. The rules of current collective agreements on qualification are applied.

It is therefore evident that the transformation can be shaped – if works councils make use of their power resources. This is where the three central lines of action of »Work+Innovation« come into play: qualification series, in-company implementation and related support. These are described in more detail below.

2.1 W+I QUALIFICATION SERIES FOR »EXPERT WORK 4.0«

One of the project's central lines of action was the conception and implementation of a five-part qualification series lasting three days each (cf. IG Metall 2017: 6).

The aim of this project module was to enable the participants to recognise/grasp, plan, control, reflect and implement company changes with the involvement and participation of the workforce. The main topics included the shaping of innovation processes from the perspective of the employees, questions relating to work organisation and structuring, insights into technological changes and consequences for shop floor actions, as well as matters regarding project management and sustainable implementation of the project results. At the beginning of the project, the specific content was agreed upon with the participants in order to ensure that the respective qualification series would be tai-

lored precisely to the needs of the participating plants. As a result, there was no predefined and rigid seminar sequence, but rather agile seminar modules tailored to the company's current situation.

Who participated?

The participating project plants⁵ were given the opportunity to train selected employees from individual departments, human resources managers, shop stewards and members of the works councils. The training series were therefore not aimed exclusively at employee representatives, with the participants instead being jointly appointed by management and the works council.

Why this approach?

The approach to open the qualification series to in-house experts beyond the representatives of the workforce was based on the fact that both sides – employee representatives as well as management – were to develop a common understanding of policy shaping the world of work as early as possible and agree from the outset on how they ultimately intended to shape digitalisation processes at plant level. Consequently, it was possible to take account of these considerations at an early stage, to make use of the scope for action and to actively introduce suggestions on how to shape digitalisation from an employee perspective. However, this did not change the different interests of companies and employees in shaping digitalisation. Again, in these areas, the companies' main aim is to strengthen their competitiveness, gain new market shares or improve their return on investment, while employee representatives are committed to »decent work« and job security (cf. Janitz/Schroth 2019: 214).

Special didactic feature of this qualification series: the module in the learning factory for policy shaping the world of work

One of the five modules was conducted in a so-called learning factory. A didactic concept was developed for this purpose in close cooperation with the Joint Office of the IG Metall trade union and the Chair for Production Systems at Ruhr-Universität Bochum (RUB).

In learning factories, problem and action-oriented learning can be enabled in a realistic factory environment (cf. IG Metall 2018: 7). Competences required to be able to shape tomorrow's work are imparted in a practical setting. As part of the W+I module the participants developed alternatives for the introduction of digital assistance systems (tablets).

⁵ Admission of pilot plants to the project is preceded by a project application and, as a rule, by a plant kick-off workshop to determine the expectations and objectives of plant stakeholders as well as a project confirmation signed by the works council and management. This includes the obligation of the company to grant selected employees leave during working hours for a W+I qualification series as well as the willingness to develop an independent concrete implementation project and to implement it in the company based on social partnership.

The special feature of the »Bochumer Lernfabrik« was and continues to be that it does not focus on technology alone, but above all on its effects on people. Thanks to this seminar module, it was therefore possible for the participants to jointly understand the opportunities and risks of technical-organisational changes on the basis of real production processes, to experience the associated consequences for working conditions first hand and to develop alternatives for shaping them on the basis of the guiding principle of good digital work⁶.

2.2 IMPLEMENTATION PROJECTS AT PLANT LEVEL

Trade union power only truly exists where it can be activated and applied. For this reason, the development of a company implementation project was a further central project element. This showed the way in which the participants put the newly acquired knowledge to practical use under real conditions in the respective project plant, thus fulfilling the role of proactive creators in their very own plant situation.

So what does »Work 4.0« mean for my company in concrete terms? Where do we currently see strengths and weaknesses for our site? Where is the greatest need for action? Do we have all the information we need to know how jobs and working conditions are changing at our site? What ideas are there for actively shaping decent digital work? What resistance do we have to expect and how do we deal with it? Who do we involve and when?

There were many questions at the beginning of the plant projects. The participants were supported in answering these questions by the trade union secretaries who were funded by project resources. They helped to set up company project groups or to hold discussions with management. They provided advice on the concrete project procedure, on defining responsibilities and gave tips promising communication or participation strategies. In the qualification series presented under 2.1), the status of the projects was reported at the beginning of each sequence. As a result, the experiences and ideas of other participants could be incorporated, support could be organised where necessary and solutions could be developed collectively.

The crucial step: applying the new knowledge in practice

The spectrum of content of the projects from a total of over 100 participating plants and companies was extremely diverse. This was due, above all, to the diversity described at the beginning with which transformation is reflected in the plant context. However, the central topics for action were in particular questions of employee qualification, competence development in the workplace and the challenges which

⁶ Two short films about the learning factory concept are available on Youtube: <https://youtu.be/Alilhriq3Ss> (in English) and <https://youtu.be/6kkOBotikaQ> (with English subtitles)

digitalisation poses to the shaping of work, working conditions and working time. Chapter 3 of this article will present plant examples in more detail.

2.3 ACCOMPANYING SUPPORT MEASURES

As part of the project, participating plants were offered the opportunity to access an external work-oriented network of experts. The costs were covered by subsidies. The network included around thirty scholarly research organisations and institutes, labour researchers, process consultants and experts in areas such as the design of production systems. In many cases, this provided the basis for further strategy-building processes of the plant stakeholders and supported solutions on the basis of social partnership within the company.

Regional network meetings and practice-oriented science dialogues complemented the accompanying support services. In workshops, participants could examine the societal, economic and social consequences of the digital transformation and/or deepen their knowledge of current trends – from agile forms of work to the use of networked assistance systems. In addition, successful methods for working on company implementation projects were presented and findings from other research projects were analysed. Above all, the fifty or so events offered time and space for exchange and networking.

3

PROACTIVELY SHAPING TRANSFORMATION – FOUR PRACTICAL EXAMPLES

In order to illustrate in more concrete terms how the proactive design of transformation processes from a triad of qualification, advisory services and an in-company »tailor-made« implementation project can succeed, examples of good practice are presented in more detail below.⁷ They are also suitable for outlining how projects such as Work + Innovation can contribute to strengthening and expanding trade union power resources.

3.1 QUALIFICATION AND PARTICIPATION IN THE INTRODUCTION OF NEW DIGITAL TECHNOLOGIES: MANN+HUMMEL

Mann+Hummel from Marklkofen in Lower Bavaria is one of the leading manufacturers of oil, fuel and air filters. With around 3,000 employees, of whom a good 2/3 work in production, the company operates the world's largest filter plant. They supply their products mainly to the automotive industry. Digitalisation has long since become part of employees' everyday lives. The 23-member works council therefore wanted to make themselves fit for the future and master the challenges ahead.

At the beginning of their participation in Work+Innovation, the participants in the project group, which was made up of representatives from both the employees' and the employers' side, had no clear idea of what was hidden behind buzz words such as Industry 4.0 or digitalisation. Equally vague was the understanding of what digitalisation meant for the company and how well the workforce feels prepared for the challenges of transformation. However, this last point was particularly important for the works council.

Since the committee attached great importance to a high level of participation in its work, the project group developed an employee survey. It was developed as part of the qualification modules and thus in exchange with the other participating companies. Via the W+I consultant network, a social scientist supported the team with her expertise in the development of the questionnaire.

⁷ Further W+I examples from different plants have been presented in detail in the IG Metall manual »Shaping the digital transformation« (2019a). It also includes more than 40 selected project profiles (IG Metall 2019b).

The aim of the survey was first of all to determine the status quo, i.e. to find out how the workforce assessed the current situation with regard to digitalisation and where it felt there was a concrete need for action – after all, it is the employees themselves who, as experts in their respective fields, are best at assessing potentially necessary measures.

The results of the survey showed clearly: as digitalisation progresses, work and qualification requirements are also increasing – effects which employees are already feeling in their everyday work. In addition, the respondents stated that they often already did not (no longer) feel up to these new requirements. Increasing time pressure, increasingly simultaneous processing of several tasks and the higher susceptibility to disruptions, parallel to insufficient training phases, have resulted in colleagues being overwhelmed.

A further central result of the survey was that commercial and technical members of staff were affected by the radical change just as much – if not more – than the production department.

As far as further training was concerned, the project group identified specific qualification requirements in the course of the survey, e.g. on IT topics, English language skills or on the operation of equipment that employees needed.

The good news was: The large majority of the workforce showed a high degree of willingness to undertake further training measures. The work assignment for the works council was specified in more detail with the identification of the need for action, i.e. matters such as grouping, risk assessment, strategic further training and the development of a qualification matrix.

In addition to the direct exchange with the workforce, which legitimised the works council in its further endeavours (*associational power*), lasting changes were also achieved beyond the project context with regard to cooperation between employer and works council (*institutional power*). From then on, the employers' side involved the committee at an early stage in order to shape digitalisation projects in the employees' interests right from the start. As a result, it was possible to focus attention in many places on needs which the employer alone would not have considered. This became evident in the pilot phase of an autonomous forklift

truck: right from the start of the planning, changes in work organisation were also taken into account.

The knowledge and experience gained during the project also benefited the works council in the long term: the works council was able to contribute directly to the negotiation of a framework works agreement on digitalisation, which was addressed at group works council level. As a result, it was ensured that the interests of employees will continue to be the focus of transformation processes in the future (cf. Schroth/Reuter/Schäfers 2020).

Work+Innovation strengthens trade union power resources at Mann+Hummel

The example described above illustrates how Work+Innovation at Mann+Hummel has contributed to increasing power resources: »In the major digitalisation projects, we in our capacity as the works council are now always involved. The employer has also taken this on board. No new technology is simply introduced without us. We are involved in the processes right from the start and can ask ourselves: What do we actually want? And what do we need to achieve this?«, asks Michael Nußbaumer, deputy chairman of the works council. The involvement of well-organised employees and the fact that the works council and the employers' side met on an equal footing during the project strengthened associational power.

The (formally existing) institutional power was also utilised and enhanced: the works council was able to undergo learning processes which led to more competent co-determination – in this case in the introduction of digital technologies – and to stronger initiatives to improve the qualification of employees.

It is not only the fact that formal opportunities for co-determination are available that are sufficient to enable employee representatives to proactively shape transformation processes in the interests of the workforce. Rather, knowledge of the subjects of regulation is required in order to be able to act. W+I did exactly that. As part of the project, the works council was therefore able to undergo the necessary learning processes.

The sustainability of the process is demonstrated, for example, by the framework works agreement described above that was concluded and greater involvement of the committee. As the deputy chairman of the works council put it: »Now we are paying more attention to digitalisation. If the employer procures machines and there is no competent works council member, then the obligation to provide information alone is not sufficient for us to have a say. We have to be on site with technical expertise, with the engineers on the works council. And be able to shed light on the matter from our side as well.« One thing remains clear: institutional power is always subject to compromise. Companies, even in the context of digital transformation, are primarily concerned with strengthening their competitiveness, gaining new market share or improving their return on investment.

Trade unions, works councils and workforces are committed to safe, fair and self-determined work.

3.2 ORGANISING WORKING TIME GLOBALLY: DAILY REPAIR AT AIRBUS OPERATIONS

The digital transformation in many ways leads to an increase in flexibility requirements for employees. The organisation of working hours at Airbus Operations GmbH is a prime example of this. As the company's approx. 20,000⁸ employees also demand freedom in the organisation of their working time, the company implementation project began with the development of innovative working time models (cf. Schroth/Reuter/Schäfers 2020).

In a first step, the project group carried out an analysis of the current situation. Specifically: it researched and examined all existing company, general and group works agreements on the subject of working time. It became clear that there were a number of »blank spots« in co-determination at company level, i.e. areas for which no agreements had existed to date. These included, for example, dealing with working time on business trips or mobile working. Another important field of action that emerged was work-time accounts: the majority of Airbus employees worked above-average times, especially those working in shifts.

The project group therefore wanted to find a way to improve the basic conditions for shift work. This was based on a large-scale employee survey carried out by IG Metall in 2017 in which 680,000 people from a good 7000 plants were interviewed. From this survey, an Airbus-specific data set was drawn. The result: As is the national trend, the employees in the company wanted, above all, greater flexibility, reliability and time sovereignty as well as an optional reduction in weekly working hours.

In cooperation with, inter alia, a working time expert who was engaged within the scope of W+I, the group developed a modular working time system which was intended to meet the wishes of employees to the greatest extent possible. One of the models is the »Daily Repair« shift model for flexible employee deployment in the engineering sector, which will be presented in more detail below.

The background: since the establishment of two Airbus Engineering Centres in the USA and India, the engineers at the Airbus site in Hamburg have been faced with the challenge of ensuring that their know-how is available as efficiently as possible. The service had to be organised in such a way that problems at the customer's site could be solved immediately. Due to the time difference between the different locations, a mixture of on-call and stand-by service was introduced. This allowed enquiries to be processed around the clock.

⁸ The number of employees refers to the sites involved in the project, namely Hamburg, Bremen, Stade and Buxtehude. Globally, approximately 130,000 employees work for the company at 180 sites.

The consequences for the employees were self-evident: they were increasingly exposed to permanent on-call duty and an increase in strain associated with this.

In the newly developed system, scheduling of weekend shifts is voluntary and self-organised, with employees indicating how often they are available for office and on-call duty at the weekend and any personal concerns that need to be taken into account.

If a service is not available, an escalation mechanism is activated. This allows the supervisor to determine staffing based on defined criteria such as the number of hours worked, age, family situation, etc. In this model, weekend work is financially rewarded. On public holidays and (in individual cases as well) on weekends, work can be done from home.

Following a pilot phase and a subsequent evaluation, a company agreement on this working time model was finally reached which led to better planning and greater acceptance. During the process, the employers' side also learned that work organisation and job satisfaction must be considered hand in hand.

Using trade union power

The employees in the example indicated are employed at a neuralgic point in the company. In this case, the employer is highly dependent on trouble-free processes. If the service area does not function around the clock, disruptions occur. Such failures or delays are associated with high costs in the closely synchronised aviation industry and, from the company's point of view, must be avoided at all costs. As a result, both employees and employers agree to regulate processes in the interests of the employees. Here, the employee representatives were able to take advantage of the structural power of the workforce.

The Airbus example also illustrates the high institutional power that W+I was able to harness: as one of the side effects of the project, the existing working group was upgraded by integrating it into the Personnel Committee, one of the most important bodies of the works council. Thus, a connection to other topics is ensured, as well as the ability to act at eye level with the employer.

3.3 INTERIM CONCLUSION

The two examples of Airbus and Mann+Hummel illustrate the following: Projects such as Work+Innovation empower company employee representatives to shape transformation processes proactively and in the interest and with the participation of the employees. Based on the triad of training, consulting and the implementation project to be carried out in parallel, they have succeeded in activating and expanding (already existing) trade union power resources and dealing

competently and on equal terms with employers.⁹ Transformation can be shaped. Ultimately, the task was and is to do this in the interests of the workforce.

This conclusion from Work+Innovation has also been scientifically confirmed by a recently published study: »Works council members who have attended training courses on the topic of digitalisation/Industry 4.0 are more often involved in technological change processes in the company and more often rely on the support of competent employees, the trade union and external consultants than is the case with their colleagues who have not attended training courses on this topic (Kuhlenkötter et al. 2019: 18).

The study also states that works councils that are qualified through projects such as Work+Innovation and are involved in technological change processes attach greater importance to participation orientation and thus more to the involvement of employees (cf. *ibid.*: 18f) – thereby contributing to further strengthening of associational power resources.

More than 100 pilot plants and companies have participated in W+I from 2016 to 2019, from medium-sized machine manufacturers to numerous automobile end manufacturers represented in Germany. Nearly 20 qualification courses with well over 300 participants were implemented. Many demanding company implementation projects were completed.

This proved particularly successful when the involvement and active participation of employees was considered from the outset. Participation creates legitimacy for joint decisions, generates new ideas and proposals and removes fears of impending change. The key to a participation-oriented company policy is active works council bodies and structures of trust. If one thinks of concrete changes on the shop floor, shop stewards in particular have a central role to play. The commitment to decent digital work as part of their self-conception therefore offers IG Metall's shop stewards great opportunities for upgrading the substance of their work and is associated with enormous added value for the workforce. IG Metall's task is to support them as comprehensively as possible.

The early involvement of the employers' side in the project activities – in particular by opening up trade union training formats to experts appointed by the employer and setting up project groups with an equal number of representatives from both sides to design the company implementation projects – has also proved successful. The Mann + Hummel

⁹ For the sake of completeness, it should be noted here that IG Metall does not use its union power resources only at plant level. In order to ensure that the transformation is fair and socially responsible, IG Metall also relies on the socio-political arena and thus articulates its claim to societal power: In the summer of 2019, for example, it joined forces with other civil society actors such as climate and nature conservation associations and addressed joint demands to politicians (societal power) at the large #fairwandel demonstration in Berlin. More than 50,000 participants voiced their support for the need to regulate the transformation fairly and to safeguard jobs.

example shows how institutional power resources can be better used in this way.

Furthermore, it can be stated that good work will also be possible in times of transformation, especially in those companies where trade unions have sufficient associational power to be able to »puff up their cheeks«, if necessary. The ability and willingness to engage in conflicting company negotiations is usually a prerequisite for good solutions for the workforce. It is all about »boxing and dancing« (cf. Huzzard/Gregory/Scott: 2004).

The transformation of the labour market also places great demands on trade union educational work.¹⁰ The aim is to impart comprehensive specialist and process knowledge. The diversity of topics and the necessary competences of the co-determination actors make it necessary to provide education, consulting and qualification offers tailored to respective needs. A triad of qualification series, flanking and content-related interlinked company implementation projects and complementary support offers which were tested in the context of the W+I projects provided important momentum in this regard (Janitz/Schroth 2019: 215). In addition, the pro-active understanding of the transformation process is combined with the opportunity to strengthen labour policy issues in the plant. The further expansion of trade union cooperation with university learning factories can play a major role in imparting the necessary knowledge. These enable practice-oriented knowledge in a realistic environment and enable certain processes to be condensed in space and time and to be made tangible in haptic terms (cf. Heyer/Reuter 2019: 217 ff.).

Above all, however, the experiences of W+I have once again demonstrated how comprehensive the effects of digitalisation on the world of work are in practice. In some companies, no stone is left unturned. But it also shows how open the transformation of the world of work is. With well-organised, competent shop stewards, works councils and trade unions with the necessary conflict skills, the opportunities for decent work can also be used in the future and risks for employees minimised. The central place for trade union action is and will remain the workplace. However, well over half of the companies with workforce unionised as IG Metall members belong to globally operating company and group associations. Decisions about the fate of jobs are no longer

made locally, but at company and group level. And it is precisely here that there is often a lack of a clear strategy to successfully master the challenges associated with the transformation of the world of work. The results of the Transformation Atlas in the summer of 2019 have strongly confirmed this. IG Metall surveyed works councils and shop stewards from almost 2,000 companies in all unionised sectors on various transformation-related issues. 87% of the works councils surveyed stated that decisions at their company are made in whole or in part at group level. In more than half of the plants, transformation strategies are virtually or completely absent.

For trade unions, this means that effective opposition can only be built if there is better integration of plant, company-related and transnational trade union activities. Ideally, existing opportunities for co-determination will complement and mutually reinforce each other. Two further examples from the W+I context will illustrate how a collective mobilisation of existing trade union power resources can succeed in practice.

3.4 ACTIVELY SHAPING STRUCTURAL CHANGE: THE SIEMENS TÜBINGEN EXAMPLE

In Tübingen, Siemens manufactures geared motors which are used e.g. in the check-in conveyors of many airports. Business has been slow for a number of years and, to the shock of the approx. 500 employees, management announced in 2017 that assembly would be relocated to the Czech Republic. Together with the well-organised workforce, the works council intensively searched for ways to maintain the Tübingen site. As a first step, ideas were collected on how costs could be saved by using digital technology, thus making the plant profitable again. Within a short period of time, the workforce submitted 80 concrete proposals with a savings potential of several million euros. The management, initially sceptical, was impressed. By mobilising *associational power*, the employer side was persuaded to participate in W+I.

Employees were selected for the qualification series and a company project group was set up, followed by extensive negotiations with the help of IG Metall. Finally, a series of digital applications were agreed upon, for example for the transport sector, production and service. For example, a screen in the production hall now shows in real time what capacity utilisation and availability of the individual machines is. Smart glasses are used in the service area. These allow customers all over the world to be provided with data and instructions on how to perform troubleshooting and replace parts of a geared motor. In the offices, the use of artificial intelligence and in assembly, the use of robotics has eliminated monotonous, repetitive processes for the benefit of higher quality work.

These efforts were enabled by the 100 million euros Future Fund for Digitalisation of Siemens AG which the General

¹⁰ Trade union educational work has always been one of IG Metall's core tasks. Around five percent of total contribution revenues were invested in this area in 2019 (cf. IG Metall 2020: 4). Educational work provides political orientation and promotes solidarity both for voluntary employee representatives and for full-time employees. In addition, »it contributes to trade unions and individuals remaining capable of action, dialogue and assertiveness and to successfully asserting oneself in shop floor, social and political disputes« (IG Metall 2012: 7). Transformation means that trade union actors must deal with new challenges, drivers and trends. Their requirements are becoming more complex and decisions often have to be taken more quickly. The task of educational work is therefore to impart suitable knowledge and skills that enable the actors to act competently and efficiently (cf. *ibid.*). Work+Innovation has provided important impulses in this regard.

Works Council negotiated with the company in order to avoid site closures under the heading »Actively shaping structural change«. The aim of the measures funded by these resources is to respond to structural change at an early stage by providing further training instead of staff cuts. More than one million euros flowed into Tübingen from this fund. A commission made up of equal numbers of employer and employee representatives decided on the allocation of funds. With the help of IG Metall, the works council in Tübingen and the Siemens general works council not only prevented closure of the site, but also helped to ensure that the plant could continue to operate. Siemens Tübingen is now a digital showpiece within the Siemens group. At the 2019 German Works Council Congress in Bonn, in the presence of the Federal Minister of Labour Hubertus Heil, the works councils were awarded the German Works Council Award in Gold for this exemplary interaction of co-determination at the works and company level (*institutional power*) with the involvement of the workforce (*associational power*).

3.5 STRENGTHENING GLOBAL JUSTICE: THE LEAR CORPORATION EXAMPLE

Lear Corporation, based in Southfield, Michigan, is one of the world's largest automotive suppliers with more than 240 sites in 37 countries. Approximately 170,000 employees manufacture seats, electronics and interiors, 6,500 of them in Germany. Two of the total of 17 German sites participated in W+I. The reason: Management was planning to introduce a digital production control system (manufacturing execution system) directly linked to operating processes and enabling real-time production control. Thus, processes can be optimised and errors in the process can be detected. It soon became apparent that the associated effects on work and employment affected everyone. Therefore, the general works council decided to intensively monitor the project in the responsible technical committee and to regularly inform employees about the current status together with IG Metall.

In early 2018, Lear headquarters in the USA finally announced that it would be spinning off its worldwide development sites and sales into an independent company (Engineering Carve Out). In Germany alone, 1,100 employees were affected. In order to improve exchange and networking between employees across national borders, the General Works Council approached the transnational department at IG Metall headquarters for support. IG Metall's transnational network initiative aims to enable more intensive cooperation between employee representatives across national borders; this has now also benefited the Lear General Works Council. By strengthening the workforces and trade unions at foreign plants (*associational power*), the potential for blackmail at the German plants will be reduced and good working conditions secured.

The joint project team subsequently decided on a multi-track approach. In a focus meeting of the German supervisory board on the effects of the transformation on the automo-

otive industry, the German workers had informed themselves extensively about planned product lines such as intelligent seat systems and business areas relating to autonomous driving. In a second step, the European Works Council, consisting of representatives from twelve countries, was informed about the effects of Industry 4.0 and digitalisation on the automotive industry and the measures already planned by management. Together, they discussed the effects on matters of job security, occupational health and safety and future further training needs. Arising questions were collected and sent to top management responsible for the organisational unit for Europe/Africa with a request for comments.

At the same time, the German General Works Council adapted its main areas of responsibility to the new challenges. It called on management to enter into negotiations on new working time arrangements, idea management and data protection. A joint newsletter from IG Metall and the General Works Council informed workforces at the individual sites about the current situation. This did not go unnoticed. IG Metall was able to recruit many new members. At five development sites, including Lear's European headquarters in Munich with around 500 employees, which had previously not had a works council, works council elections were held for the first time within a year (*building up associational and institutional power*).

At the same time, the European Works Council (EWC) primarily discussed the issue of changing value chains. In previous years many plants, especially in Central and Southern Europe, had been closed and production transferred to countries outside the EU. Less than two-thirds of Lear's 60,000 employees in the Europe/Africa unit were represented on the EWC. In Serbia, South Africa and, above all in Morocco alone, Lear employed more than 20,000 people to whom there was no contact whatsoever and who were yet under the same management.

With the help of IG Metall and the Friedrich Ebert Foundation's transnational network initiative, workshops with Lear employees and the relevant trade unions in all three countries were held for the first time in 2018 and 2019 (cf. on South Africa: Chiwota/Ludwig/Mogane 2019: 57 ff.). The declared goal: building mutual trust, informing each other about planned changes and strengthening employee rights in the respective countries. The EWC subsequently decided to invite employees from non-EU countries to EWC meetings as guests for the first time.

At the same time, IG Metall and the German General Works Council negotiated the concrete structure of the planned engineering carve-out in Germany with management. A collective bargaining agreement was concluded which, among other things, provides for a supervisory board with equal representation of both sides for the newly founded Lear Corporation Engineering GmbH and additional time off to improve EWC work. As a result, it was also possible to negotiate the appointment of a speaker for the European Works Council (*institutional power*).

Eventually at the EWC meeting in 2019 there was open conflict with management. At the invitation of the EWC, two elected employee representatives from South Africa and Serbia were present as guests. Management then asked the members of the EWC to exclude them from the exchange with management. The EWC unanimously rejected this and management left the meeting without a report. On the same day, one of Lear's two W+I project plants in Germany rejected a request for overtime. This resulted in a production loss of more than half a million Euros (*structural power*). For 2020, Lear Management has for the first time invited elected employee representatives from all countries in the Europe/Africa organisational unit to a »Regional Partnership Meeting« to provide information on current economic developments and new business areas. The strong signal from the EWC to management of »we care« also bore its first fruits during the lockdown in the wake of the Corona pandemic. Thus, problems with the payment of the state short-time working allowance at the Lear sites in South Africa were quickly resolved at the plant level following intervention by the EWC. The declared goal of the European Works Council remains the enforcement of guest seats for all non-EU countries and, in the medium to long term, the conclusion of a global framework agreement for the protection of workers' rights worldwide.

4

CONCLUSIONS AND OUTLOOK

These plant examples of implementing the W+I project have shown how existing power resources of employees and trade unions could be used and expanded in order to shape digital transformation in the best interests of the workforce. At Mann+Hummel, the introduction of new digital technologies was prepared by direct exchange with the unionised workforce, thus strengthening the legitimacy and associational power of the works council. The institutional power of the works council was permanently strengthened by a framework works agreement on cooperation between the employer and the works council on digitalisation projects. In the debate on working-time arrangements at Airbus Operations GmbH, the employee representatives succeeded in using the structural power of the employees involved at a critical point in the company. The institutional power of the works council was enhanced by the integration of a working group on the organisation of working time into the personnel committee.

Since well over half of the companies covered by IG Metall belong to globally active company and group associations, effective countervailing power can only be built up in the process of digital transformation if plant, company-related and transnational trade union activities are better interlinked. The site closure of the Siemens geared motor factory in Tübingen was prevented by mobilising associational and institutional power in conjunction with the submission of concrete proposals for savings. Thanks to participation in W+I, the site is now a digital showpiece within the Siemens group.

When the development sites of the global automotive supplier Lear Corporation were carved out into an independent company (Engineering Carve Out), IG Metall's transnational network initiative faced the challenge of strengthening the associational power of workforces and trade unions across national borders, not least to reduce the potential for black-mail at the German sites. This was achieved, among other things, by building associational and institutional power by means of works council elections at five sites. Use of the structural power of the employees led to production downtimes. Ultimately, the institutional power of employees, trade unions and works councils was strengthened by a collective agreement for the newly founded Lear Corporation Engineering GmbH which includes a supervisory board with

equal representation and additional time off to improve the work of the works council.

IG Metall's claim was and continues to be to ensure that the future of work is not left to employers alone. The Work + Innovation project provided important plant, company-related and transnational impetus to meet this demand. The assumption made at the start of the project in 2016, according to which the digital transformation would find its way into German industry in very different contexts and at very different speeds, and that works council bodies and trade union representatives would need tailor-made support, has been confirmed. Therefore, it is only reasonable that IG Metall should continue on this path and since mid-2020 has been implementing a two-year transfer and succession project (transfA+Ir).

Since the start of the W+I project at the beginning of 2016, the pace of transformation has accelerated and a new dynamic has emerged. In addition to digitalisation, the main drivers of change are globalisation, electromobility and climate change. Matters of employment, changing qualification requirements, outsourcing or new business models (to name but a few) continue to be relevant or are becoming increasingly so. With trans-fA+Ir, once again supported by the European Social Fund and the German Federal Ministry of Labour and Social Affairs, IG Metall is taking these changing general conditions into account: In the context of transfA+Ir, digital toolkits are being developed that are intended to offer support to different target groups (e.g. works councils, shop stewards, full-time workers' representatives) on the various drivers of transformation. Topics which have become increasingly important since the start of the W+I project (such as artificial intelligence, human resources development and qualification, resource efficiency, questions of employment security or transnational matters) are explicitly integrated into the project. The toolboxes will include checklists, key points for company agreements, further education and qualification concepts or diagnostic tools. They will be tested and constantly expanded in 14 project companies/pilot companies. Similar to W+I, external consulting services are also offered.

As Germany's largest single union, with 2.2 million members, IG Metall has also realised how important it is to change in order to remain successful. Thus, delegates at the 2019

Trade Union Congress in Nuremberg approved the project »Thinking IG Metall from the shop floor«. With the plant serving as the central place of action, the aim is to find out how the work of IG Metall must change in future in order to ensure that the transformation process is handled in a competent, participatory and conflict-resistant manner in the interests of employees. In concrete projects, colleagues and full-time trade union secretaries are to develop proposals for improvements in trade union work on site, in the company and in IG Metall offices. Whether IG Metall can continue to act strongly and effectively in the future will depend not least on the results of the projects, which are expected by 2023. Both at plant and company level and in matters of transnational trade union policy. After all, the drivers, trends and dynamics of the transformation of the labour world do not stop at the factory gates or at national borders.

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SHAPING INDUSTRY 4.0 ON WORKERS' TERMS

IG Metall's »Work+Innovation« Project



Digitisation and globalisation are creating massive upheavals in the world of work, transforming job tasks, workplace culture and the ways in which companies are organised. These changes often pose a threat to workers, by making their jobs redundant or moving them overseas.



By proactively engaging in such transformations, Germany's IG Metall is showing that innovation processes can be managed in a way that benefits workers and employers alike. Drawing on its strong associational and institutional power, IG Metall was able to conceptualize »Work+Innovation«, an innovative project that combines worker training with company-specific innovation projects. Workers and management participate together and are offered a common space to develop solutions for concrete problems at the workplace and company levels.



The trade union thus assumes a role that goes beyond conventional interest representation. By facilitating innovation processes from a workers' perspective, IG Metall contributes to protect jobs, to give workers a say in how their workplace is organised, to influence the quality of jobs – at different production sites across national boundaries. At the same time, such participatory approaches strengthen the power resources of the union and works councils.

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