



Changes of labour relations and rationalisation patterns through lean production

The German Experience

Centre for Workers' Management

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About RLS

The Rosa Luxemburg Stiftung (RLS) is one of the largest political education institutions in Germany today and sees itself as a part of the intellectual current of democratic socialism. The foundation evolved from a small political group, “Social Analysis and Political Education Association”, founded in 1990 in Berlin into a nationwide political organization, a discussion forum for critical thought and political alternative, as well as a research facility for progressive social analysis.

Preface

This paper was an outcome of discussions between German auto workers and Indian auto and other engineering workers in Pune in 2014. The discussion was over the introduction of new management methods in the auto and other engineering industries in India and its impact on workers and their organisations.

With respect to introduction of new management practices in India, our experience of working closely with workers and their organisations in India is that there are 3 clear reactions to it: *First*, in old unions with a militant past and in workplaces with a single union, the first reaction has always been to reject the introduction of these practices as exploitative practices. However, it has been difficult to sustain this opposition. In many cases, this has even led to the union being pushed out of the workplace. *Second*, in case of new unions and workplaces with multiple unions, even if there is an understanding of the exploitative nature of these practices, rejecting these from being implemented is not feasible. In many cases, introduction of these practices also take place by stealth without consultation with the workers or their representatives. With number of irregular workers on the rise and the number of permanent workers and hence the strength of their unions declining, opposing these management practices has become extremely difficult. In the last quarter of a century there has been an erosion of dignity of work and a devaluing of the working class identity. In this environment management is able to lure workers to believe that they can be 'co-managers'. This leads to false sense of dignity and identity and divides workers further and destroys the strength of trade unions. And finally, there are many unions that have not opposed these management practices. These may be unions that are too weak to oppose given their membership size, or unions that are new which do not have the experience to understand the complexity of such practices till a certain time passes. These may also be management propped up unions to prevent the formation of democratically elected unions.

New management practices are intrinsically linked to control over the production process and the workplace and hence the right to freedom of association and collective bargaining of every worker at a workplace. The collective bargaining agreements over time have accepted greater intensification of work, stricter work norms, closer supervision and longer working time for increases in money wage. This has on one hand compromised the health of workers and on the other widened the gap between the workers covered under these collective bargaining agreements and those who are not.

Management practices being implemented today in India have been tested and tried elsewhere. This paper by Dr. Heiner Kohnen provides us an insight into the German experience in the last decade in their auto industry. Experiences of Works Council members Michael Clauss of Daimler, Martin Bott and Benito Katzer of Volkswagen, and Wolfgang Schaumberg of General Motors have been valuable in enriching this effort.

We thank Dr. Heiner Kohnen for his continuing effort in connecting workers in global corporations.

Dithhi Bhattacharya
Executive Head

Introduction

During the last two decades, labour relations in the German automobile industry experienced a dramatic change. New production methods have been introduced that led to a deep transformation in the way production and the supply chain is organised, the nature of the workforce used, and how control over workers is exercised. These processes changed industrial relations as well. It also changed the condition for unions to organise, mobilise and win struggles. Unions and workers faced attacks at the factory and company level as well as at the level of industrial collective bargaining.¹ At the bargaining level of the metal sector (the automobile industry is a part of this), the period between 1995 and 2012, saw a drop in real wages, a weakening of collective bargaining agreements (CBA) and a decay of union power.

With the collapse of the socialist economies in the 1990s, automobile companies opened Greenfield² plants in East Germany and in Eastern European countries such as Romania, Hungary, Poland, and the Czech Republic. These new plants served as **model and paradigm for the new production system of lean production and as a constant threat to unions in the West.**³ These plants were used to trigger an international competitiveness rooted in the reduction of 'labour costs'. In a pretended effort to secure factory locations within the country (*Standort*) and prevent flight of capital, employers in Germany demanded the establishment of a so-called 'genuine low-wage sector'.

Union members were divided in their evaluation of the situation as well as the role the unions played in this process: was it pre-emptive obedience⁴, or were these concessions necessary to secure production in Germany? However, its outcome after two decades is dramatic: between 1995 and 2012, the real wages of German low-wage earners have dropped by about 20%, those of average earners by about 8.5%. Companies, specifically in *East Germany*, pulled out of the employers' federations and hence from the collective bargaining framework, thus rejecting further compliance with the metal industry CBA. At the same time, the *IG Metall*⁵ accepted so-called '*opening clauses*' within the existing CBAs, allowing companies to depart

¹ In contrast to many other countries, Collective Bargaining Agreements (CBA) in Germany are usually signed at sector level. Therefore unions normally do not bargain with one employer, but with the employers' association of their respective sector, trying to assure similar conditions within the complete sector.

² Greenfield project is one that lacks constraints imposed by prior work.

³ Köhnen, Heiner, 2013: International Experiences on Lean Production and its Impact on Workers and Trade Unions in the Auto Industry. CWM 2013

⁴ In pre-unification East Germany, *pre-emptive obedience* meant guessing the future orders of the politburo of the communist party and obeying them before they were issued.

⁵ **IG Metall** is the largest metalworkers' union in Germany, making it the country's largest union as well as Europe's largest industrial union. Today, IG Metall mainly represents employees at major car makers such as Daimler, BMW, Porsche and industrial giant Siemens.

from conditions required by the respective CBA in case the plant and its competitiveness were at stake.⁶

At the company and factory level, management now demanded cost reduction by all kinds of concessions: speed-up, new production methods, outsourcing, precarious jobs and other forms of employment. The German government seconded by issuing regulations in favour of labour market flexibilisation. With its horrendous productivity increases and its new flexible labour market Germany became the global champion in exports. Germany became the role model for austerity policies in other countries when the economic crisis in Europe emerged, with the clear aim to export the backlash against labour effected in the course of the last two decades to other European countries.

This article focuses on union and workers' experiences at German automobile plants in regard to some specific topics, such as team organisation, Kaizen, precarious work, and industrial engineering methods.

The *first chapter* presents general changes caused by the new production system, highlighting the constant threat to workers and the struggle for competitiveness. The *second* and *third chapter* describe experiences of team concept, Kaizen and precarious jobs at Daimler Benz Germany and other car manufacturers. Many union representatives, hoping that team concept would promote a 'humanisation of work' as broadly demanded by unions in the 1970s, realised too late that management was much more interested in productivity increases. The *fourth chapter* shows some experiences on Methods-Time Measurement (MTM), an industrial engineering tool for job rationalisation. Regardless of lean production focussing on the direct involvement of workers into its rationalising efforts, companies never intended to do without the tools of industrial engineers. MTM, with its radically Tayloristic approach, has been the most successful rationalisation method from the 1960s until today.

The following paper originates from a collective effort of a working group of German automobile workers and union activists to develop a union cooperation between German and Indian metal workers' unions. Experiences described here mainly draw on Michael Clauss and Martin Bott, works council members at Daimler, Untertuerkheim, Benito Katzer, shop steward at Volkswagen, Wolfsburg, and reflections on MTM of Wolfgang Schaumberg, former works council member at General Motors, Bochum. All four are members of the *IG Metall* union.

⁶ A survey of 2005 showed that 75% of all companies had already used the clauses in order to depart from the conditions required by the CBA.

I Lean Production in German Automobile Plants

Various factors in the late 1980s and early 1990s led to an overall environment in which German automobile companies took the lead in rolling out a new offensive on workplace and company restructuring. As one of the key factors, Toyota and other Japanese Transplants⁷ in North America had just 'shocked' European players with their performance. Management literature, researchers and popular magazines flooded the market with reports on company benchmarks and the 'horrendous competitive edge' of Toyota and its production system. Managements of all leading car manufacturers in Germany reacted by pressuring for the adoption a new production system, using arguments of:

- (i) comparatively high labour costs compared to other European countries,
- (ii) comparatively low productivity compared to market leader Toyota, but also other Japanese and North American transplants, and
- (iii) the stagnation, with respect to the reduction of domestic car sales during the 1990s.

The proposed new production system would be modelled after the North American Japanese transplants or Japanese-US joint ventures and include various dimensions. The new production system was characterised by:

- flexibilisation of production technology,
- a larger range of products (a greater variety of car models, coupled with shorter product cycles),
- a new quality management,
- a just-in-time reorganisation of the supply chain,
- a push for a globalised production, and
- with an Organisational Restructuring and changes in Work Organisation and Control.

Organisational Restructuring

- *Creation of Cost Centres and Profit Centres*

Companies introduced cost and profit centres which were authorised to do their planning independently in order to allow for a more direct client relation. The idea was to create 'companies within the company' who would be subject to individual evaluation in terms of the overall company's goals and to an independent competitive comparison.

⁷ Transplants are firms in the US automobile assembly and automobile related steel and rubber industries that are either wholly Japanese owned or have significant Japanese participation in joint ventures.

➤ *Reduced hierarchy in Management*

At the same time hierarchy levels were drastically reduced. At Daimler for example, management cut down their eight hierarchy levels down to five: plant manager, centre manager, area manager, group leader, and team leader.

Work Organisation

➤ *Team Work*

Michael Clauss, *IG Metall* union and Works Council⁸ member at Daimler plant at Untertuerkheim, recounts:

*“Management started a discussion on the introduction of new work organisation and team work. The union thought team work was a new chance for ‘humanising the labour world’, recalling a government initiative from the 1970s. This hope was based on concepts such as **job enrichment** and **job enlargement**.*

This was definitely a misunderstanding - this was not what management intended with lean production.

Instead, management wanted to tap on workers’ knowledge on possibilities to optimise production and work procedures for rationalisation. Workers were supposed to use the so-called ‘gold in their minds’ for continuous improvement processes and Kaizen.”

New greenfield plants like GM Eisenach became laboratories for a new work organisation.

A majority of the leaders of the metal workers union and its membership believed that the problems that workers in North America and Japan were facing with lean production were mainly due to the weakness of their unions. Thus, these problems would not affect German workers.

Therefore, the management and the union representatives began to evoke a ‘separate path’ (*Sonderweg*) for Germany which was supposed to reconcile ‘humanisation’ (job enrichment, job enlargement, partial autonomy) and ‘profitability’ (continuous improvement).

⁸ A **Works Council** is a "shop-floor" organization representing workers, which functions at the plant level and company level negotiating on working conditions existing at the plant or the company. This is complementary to the industry level national negotiation on wages and industry level conditions that results in the industry wide collective agreement.

Early 1990s: Period of Full Capacity Utilisation

The union's optimism was based on its trust in the own strength and the fact that car workers in Germany were mostly skilled workers, even those working on the assembly line. A majority of these workers was unhappy with their unqualified jobs, rendering them very open for changes that enabled any integration of qualified tasks such as partial maintenance and others into the assembly line work. Indeed, in contrast to new production plants specially built for lean production in regions with high unemployment and little union tradition, team concept and the work organisation changes introduced to the 'old' brown field car plants of VW, Daimler, and Ford during the early 1990s seemed to confirm the union's hopes. In these plants, at that time, team concept brought forth longer work cycles (> 2 minutes up to 60 minutes), the integration of indirect jobs into the line, increased self-organisation by allowing a certain leeway for autonomous decision making, and a somewhat more individual execution of jobs (to a certain extent workers were free to do jobs their way). The plan was to achieve higher profitability by full capacity utilisation, the reduction of indirect jobs, a flexible placement of workers, and Kaizen⁹. And in fact, research from this period shows that a majority of workers evaluated these changes as an improvement of their conditions.

Mid-1990s: Period of Productivity led restructuring and Precarisation

In the mid-1990s, the scenario changed again. The global automobile market stagnated throughout the decade, with overcapacities persisting or even growing. Moreover, the recent liberalisation created drastically intensified competition on the financial markets, increasing the pressure for capital profitability and return on investment (shareholder value). Combined, these two developments unleashed a cut throat competition and predatory acquisitions between car producing companies. Finally, despite their restructurings, the European automobile companies missed their goal of bridging the productivity gap between themselves and their North American competitors. American-Japanese competitors and role models, for these companies, too, had again increased their productivity enormously in the course of the 1990s.

As a consequence, German automobile companies aggressively demanded a new round of rationalisation.

'Productivity increase' became the magic word.

Management now openly asked for high capital return rates. Efficiency became an 'issue of economic survival', and 'everyone' was required to contribute: Works

⁹ Kaizen is the key management instrument for continuous improvement of all functions and involves all employees. Kaizen aims at continuously detecting and eliminating waste and continuously revising standardised operations for more efficiency and productivity.

councils were told to act as *co-managers of rationalisation*, and workers on the shop floor were supposed to add their knowledge to the expertise of industrial engineers. Management harassed workers and works councils with threats to close plants or outsource areas in case of failure to create sufficient productivity increase. In this situation, national and factory works councils accepted collective bargaining agreements which traded various transitional or permanent concessions for the 'assurance' that the factory in question would survive and layoffs, of permanent workers at least, would be prevented. Concessions included wage reductions (by cutting formerly paid wages and benefits above CBA requirements), partial and/or early retirement, flexibilisation of working hours (for ex. by an annualised hours system), and finally the concession of using more workers with precarious contracts, such as temporary, contract, or outsourced workers.

➤ **Standardised Team Work**

Team work was now renamed: the formerly so-called partially autonomous team work was now called **standardised team work**. This indicated several major changes:

- the reintroduction of short cycle times (< 2 minutes)
- the reduction of team sizes (< 8 workers)
- the reintroduction into the teams of specialists for quality, standardisation, Kaizen etc.
- the return to the standardised execution of jobs and movements
- a high team responsibility for the standardisation of tasks and planning activities

A Daimler-Benz brochure¹⁰ explains:

“Standardisation is the general approach toward the determination of the best method to execute a certain task or work procedure. Each standard represents the best and most secure way to execute a job at a certain point in time. (...) It is the basis for continuous improvement. Standardisation assures that the progress achieved by continuous improvement of products or procedures will be maintained.”

Workers or team members are now required to become key actors in advancing changes, Kaizen, and new standards. In contrast to the previous years, management now openly used a language resembling that of Toyota and the Japanese Transplants in North America. Just like the latter, and in order to prevent deviations from standardised job execution, they introduced visual management: **5S¹¹, standardised work sheets at every work station, Kanban¹²** etc.

¹⁰ See Mercedes-Benz Produktionssystem, 1999, p. 11f.

¹¹ 5S is the name of a workplace organization method that uses a list of five Japanese words: Seiri (Sort), Seiton (Arrange or streamline), Seiso (Shine or clean your own workplace), Seiketsu (Standardise), and Shitsuke (Sustain – regular audit, discipline). These describe steps to ensure efficiency and effectiveness in work space organisation.

¹² Kanban is a scheduling system for lean and just-in-time production. It is an inventory control system to promote continuous improvement. Problem areas in a production system are highlighted. One of the main

These changes however were mainly pushed through for the assembly lines where stress was now on a continuous rise, replacing the improvements achieved in the course of the preceding years.

II Team Work at Daimler-Benz in Germany

Despite all management efforts to introduce or transform team work into a pure management tool, the reality of team work implementation still heavily depends on the existing power relation, based on the unions' and works councils' strength or weakness. The following experiences of team work at Daimler shall serve to enable a better grasp of the discussion.

In February 1992, the national Works Council and management of Daimler in Germany signed a Collective Bargaining Agreement (CBA) on the introduction of team work pilot projects in the company. Three years later, team work was established all over the company, enforced by a CBA which continues to be in force even today. The works council succeeded to include in the agreement several elements most workers would still evaluate as an improvement of work organisation today.

These experiences can possibly provide an orientation for comparable work places, so some of them are listed below.

Team Meetings

Teams at Daimler are entitled to hold team meetings for a minimum 30 minutes per week. While permissible topics are outlined in the CBA, teams autonomously decide on the allocation of time to the respective topics (for example, 'continuous improvement' or 'promotion of team work', such as the next staff outing). The meetings are held within paid working hours, and evaluated by most workers as an additional break time.

In practice, 'strong' teams have been able to:

- often creatively explain to management why team meetings must extend beyond 30 minutes on various occasions.
- make sure that team meetings cancelled for production targets or other reasons by management will be held at a later point.

benefits of Kanban is to establish an upper limit to the work in progress inventory, avoiding overloading of the manufacturing system.

- keep away supervisors from these meetings. If their participation is required, it is in consultation with the team leader and only when a specific topic is being discussed in the meeting.

Thus, the dynamics of team meetings strongly depend on the specific team and the power relation at the shop floor. The meetings can be used to strengthen the class identity of workers and stronger trade union- but they might just as well be turned into a management practice to control workers in case the worker representatives and teams are weak. In such cases, workers would be directed and guided by management to advance the interest of the company without any union 'interference', thereby further weakening the existing unions. In such cases, management is also able to create competition between workers within a team for greater productivity and efficiency and hence greater profit.

Team Leader

Each team elects two team leaders, possibly more in larger teams, who enjoy the same rights and powers. Team leaders facilitate team meetings, organise task allocations such as job rotation, and are spokespersons for the team. For the time needed to do this job (around 2-3 hours per week), they are released from the line or task and also receive an extra bonus. For the rest of the time, they are integral part of the team. According to the CBA, they do not have any disciplinary or functional authority over other team members, and they do not replace the supervisor. In fact, workers in the teams do use their power to vote out leaders who act against workers.

During the last two decades, management has made several attempts to turn team leaders into some kind of supervisors. However all these attempts were successfully defeated by the works council till date. For example, the Works Council managed to maintain the rule that team leaders are exclusively elected by the workers in the team, which is the only way to ascertain that team leaders act in the interest of the workers.

Team Size

According to the CBA, teams generally consist of 12 workers, larger teams are possible, but remain an exception.

However, experiences with larger teams at Daimler show that they frequently do not consistently support workers' interests. Larger teams tend to develop informal sub-teams with possibly conflicting interests. This makes communication, planning, self-organisation, and joint steering more difficult. It took a lot of effort to keep larger teams from reducing job rotation and reintroducing 'specialists' who would do just one or few tasks, thus re-personalising tasks, particularly the cycle-independent ones, off the line (such as simple maintenance, planning etc.).

Team Composition

When team work was introduced, teams were composed with regard to the existing staff allocation structure in order to avoid disintegration into 'weak' teams. Using CBA contract language: "The assignment and integration of employees with limited fields of application must be guaranteed." In order to ensure this, management agreed to implement appropriate work organisation measures and arrangements.

Experiences show that team composition has been an ongoing challenge for union and works councils. With any restructuring, management and even workers themselves tend to pick highly motivated colleagues or 'high performers' when starting a new line or product, thus destroying existing group bondings and social structures. In order to assure integration instead of competition within and between teams, conscious workers are imperatively required, as is a union or works council playing an active role at the shop floor.

Lending out Workers between Teams

In case of low production team members are commonly lent out to other teams. Workers usually do not feel comfortable with being shifted to other teams, because it forces them to leave their familiar work area. Before team work, such temporary shiftings had been dictated by the supervisor, with no workers' influence. Possibly, it was always the same workers who were picked for displacement. The CBA now forces supervisors to 'consult' the team in such cases and to settle the issue with the whole collective instead of merely the individual person concerned.

Again, workers' chance for influence depends of the team's strength and assertiveness as well as the actual influence of union and works council at the shop floor.

Job Enrichment

Next to job rotation, job enrichment was a key issue of team concept introduction for the union and the national works council. The works council succeeded to ensure a CBA regulation which requires management to develop a qualification plan for each team member, ensuring job rotation and task diversification in order to reduce work stress and injuries caused by repetitive strain.

During the last two decades, the implementation of team work in the German car industry, not only at Daimler, exposed a marked disparity between the (final) assembly and other work areas. In several areas such as stamping, body assembly, and mechanical processing, job enrichment could pretty much be reached by adding to the teams' tasks more qualified (formerly: supervisor's) jobs such as quality

assurance, logistics, steering and planning. These additions also brought an average 5-10% wage rise per worker based on increased qualification.

On the assembly lines however, management widely succeeded to withdraw job enrichment in the late 1990s. On the assembly lines, standardised work, short cycles, and a reduction of indirect jobs were re-enforced, re-assigning the latter to specific workers. Logistics tasks, for example, were removed from the teams and outsourced. Frequently, only a few isolated elements of team work remained: team meetings, team leaders, vacation planning, or rotation between teams. Team workers on the assembly lines were now generally being deprived from the more motivating work environment they had temporarily enjoyed. Instead they re-emerged as the emblem for speed-up and stress, subject to an increasing number of strain and occupational disorders.

Team and Kaizen – Continuous Improvement

When Daimler Germany management opted for team concept, the aim was to introduce continuous workers' efforts at improvement. They wanted to turn the 'gold in workers' heads' into productivity increases. Experiences at Daimler and at other German companies, however, show that management wasn't able to realise this goal easily. In a way, team concept even re-politicised certain aspects of work rationalisation.

When introducing Kaizen, management sold the concept as a possibility for workers to improve their own workplace: to **work smarter, not harder**. And indeed there are examples of ergonomics improved by Kaizen efforts. Nevertheless it soon became clear that management was rather interested in productivity increases than workplace improvements. The workers, on their part, showed little inclination to consciously participate in rationalisation efforts once they started suffering from speed-up and stress.

The management strategy of encouraging workers to suggest improvements, promising financial bonuses and benefits, is not an invention of team concept, it was already used before. At Daimler, an individual worker or team is entitled to a 30% share of the annual savings yielded by the implementation of the suggested improvement. This can amount to an enormous sum for the workers. Before team concept, these suggestions usually came from maintenance workers, supervisors, or other employees who were not themselves affected by the potential work intensifications resulting from their suggestions, because they worked off the line. Today, these workers are frequently part of the teams. Potential effects are now generally discussed within the teams which can result in the rejection of a suggestion if a speed-up seems likely. Moreover, a larger number of workers is involved which reduces the individual bonus share. Martin Bott, works council member at Daimler Untertuerkheim, states: "Individual and even anonymous

suggestions are still possible. But the majority of workers oppose these, they are even seen as a betrayal.”

Still, workers are being drawn into Kaizen in indirect ways, by being held responsible and involved in reducing malfunctions and disruptions. With a preceding disruption, production targets might only be reached and/or the Just-in-time flow only kept up by workers doing overtime. Consequentially, workers have a genuine interest to participate in efforts to make production run smoothly in order to avoid overtime. In such cases, companies profit from workers’ participation.

Social Control or Collective Action

The experience at Daimler and other plants shows that, when it comes to team concept, it is crucial for unions to interfere at the shop floor. Whether teams become an instrument of management control or a space for shop floor control, depends strongly on the intervention and strength of the union and the workers.

Michael Clauss, works council member at Daimler Untertuerkheim where the union has always been very active, recalls: “In the course of the years we’ve seen various examples of collective worker action. For instance, the issue of holiday planning. Before team concept every single worker had to deal with his or her supervisor over his preferred dates. In those days you could hardly see any collective action or support from others who might have already settled their holiday planning with the supervisors. Today holiday planning is a team task and causes lots of discussion. We now see teams demanding additional staff in order to fulfil everyone’s wishes. Another issue is the **collective resistance to management behaviour or speed-ups, such as work intensification, workforce reduction, or break reduction**. As we see quite frequently today, workers’ reaction can be pretty quick and direct. Before team work, this took more time because first of all we had to bring people together and build a collective. Moreover, we see collective **resistance to bad working conditions** and design. Before team work, only the workers directly concerned by bad jobs reacted. Today, job rotation makes all team members experience the bad jobs from time to time which is why they react as a collective. However, we had to change our kind of intervention. Before team work, everything was just about contract language. Today, we must convince the workers if we want them to act in a collective way. As works council members and as union activists, we must be close to the shop floor. Otherwise we have no influence. On the other hand, the action space of union shop stewards might be limited to the level of individual teams. So there lies another challenge: to guarantee union action beyond the level of your team.”

Union Bargaining Principles regarding Team Concept:

- Teams shall be organised in a way that invests workers with a broadened scope of action, enabling the teams to organise and coordinate tasks by themselves.
- Job enrichment and job rotation shall allow alternation between cycle-bound and cycle-independent tasks.
- Self-organisation: teams shall be able to make their proper decisions on the internal distribution, execution, and sequence of tasks, on team meetings etc.
- Targets shall include time for team meetings, time for individual recovery or toilet breaks, and other personal time.
- Teams shall be small enough to allow direct communication, but also large enough to enable job rotation.
- Regular team meetings shall be counted as work time, held without the presence of supervisors, and organised by the team itself.
- Team leaders shall be elected by the workers and hold no functional or disciplinary authority.
- Teams must be consulted when lending out workers to other teams.

To sum it up, it is most essential in every regard to have the union play an active role on the shop floor in educating members, expanding membership, and ceaselessly struggling for collective action and solidarity.

III Lean Production and Precarious Jobs

Encouraged and accompanied by new legal regulations and government policies in the late 1990s, various forms of precarious work such as contract, temporary, and outsourced jobs emerged and flourished at the shop floor of the automobile and other sectors. The first work areas to be outsourced in the automobile industry were security, catering, facility management, cleaning, and other services. Soon afterwards though, outsourcing spread to areas close to the shop floor: logistics, parts delivery to the line, development, planning, engineering, IT-services, test driving etc.

Outsourcing became a constant threat to workers. The reorganisation of cost and profit centres enabled a partial or complete outsourcing of work areas. A broad spectre of subcontractor companies emerged - from very small to multinationals who 'follow' automobile companies around to their various international locations. Since then, workers with precarious contracts could be seen working hand in hand with permanent workers, sometimes in separate areas.

At **Daimler** the national works council tried to limit precarious work by limiting contract work to 8% of workers in production as a flexible buffer depending on demand. To limit outsourcing was much more difficult. Today generally no union rep or works council 'knows exactly' how many outsourced workers do actually work at a specific factory. While works councils are legally able to also bargain about working conditions of contract workers, they don't represent outsourced workers and have little information. **VW** created even an own company *Autovision GmbH* for precarious jobs with about 12.500 workers only in Wolfsburg.

Managements maintain the need for precarious jobs as buffers in times of volatile demand. Politically seen, though, these jobs have a severe effect: they divide workers. Precarious workers' wages are way lower than permanent workers' wages. Precarious workers are hardly ever organised. They generally accept lower salaries, more stress, more pressure, and even harassment, hoping for a permanent contract in the future. On a daily basis, these workers are confronted with understaffing, with problems to get their wages and/or remunerations for rendered services or overtime hours paid, with inadequate gear etc.

Workers and unions responses

The relation of works councils and the metal union to precarious workers has always been contradictory. While a consciousness does exist about the risk of dividing the workforce, with the union having started a broad campaign on contract work, most works councils ultimately accepted the function of precarious jobs as a buffer during the last decade. To their opinion, precarious jobs do reconcile the profit interest of the company with the interest of permanent workers to safeguard their conditions and jobs.

But various examples also show that an ongoing struggle about precarisation does exist. At Stuttgart, for instance, with its major metal and automobile industry, the *IG Metall* union made a serious effort to organise outsourced workers, hiring specialised organisers. A first target was *Voith Industrial Services*, a cleaning company for industrial facilities and social rooms. The union finally succeeded to organise the company; today the *IG Metall* reps have the works council majority and started bargaining for better working conditions.

At Daimler - Untertuerkheim, the works council struggle led to a re-insourcing of 220 jobs in logistics, effective from March 2015. The workers on the newly re-created permanent jobs are mostly the workers who had been doing the respective outsourced jobs before, then working for the subcontractor company.

At Daimler – Bremen, worker activists and the union are currently fighting the outsourcing of 140 logistics jobs and dismissal of 46 contract workers. In January

2015 the activists organised various minor strikes and stoppages of the line, with 5,500 workers participating and 761 workers receiving a warning for these actions.

IV Lean Production and Industrial Engineering – Methods-Time Measurement (MTM)

In contrast to lean production adherents stressing ‘self-organisation’ and ‘workers’ participation’ in production, industrial engineering, especially the implementation of **MTM (Methods-Time Measurement)**, an extremely successful **predetermined time system**, has played an important role in productivity increase in Germany and around the globe.

The criticism of such predetermined time systems has widely vanished from trade union discourse today while MTM adherents are enthusiastic about its triumphs. In numerous countries worldwide, companies from almost all economic sectors are relying on MTM for the analysis, design, and optimisation of their business procedures, thereby making MTM the globally most successful time management and work design system. By means of MTM, work design systems can be comprehensively optimised, making the method a worldwide standard for efficiency. It provides companies in all production locations with a uniform process language for consistently high standards in piece and batch production.

The German MTM Association’s handbook¹³ states:

Since workers have been confronted with time standards, the question emerged if the performance demands coming along with them are adequate. This question cannot be answered on the basis of scientific reasoning. To solve the problem of ‘setting a performance level’, social consensus is required, i.e. agreements on how you want to determine the performance demand level of process components, target times, or time standards; the so-called performance of reference. It is not possible to exactly describe or measure human performance. Any discussion of human performance can therefore only comprehend partial aspects of this phenomenon which are regarded as relevant. Even partial aspects, such as work outputs formulated as a quantity of units per time unit (f.i. number of assembled pieces per hour), cannot be deduced from any findings of labour science.)

Thus, MTM time standards are not ‘scientifically verified’, nor is it possible to describe manual work procedures ‘objectively’. A closer look exposes the real aim of

13 Bokranz, Rainer; Landau, Kurt, 2006: Produktivitätsmanagement von Arbeitssystemen. MTM-Handbuch. Ed. Deutsche MTM-Vereinigung e.V., p. 838, p. 491f.

the maintained 'scientificity' and 'objectivity' of target times: to conceal the process and actual purpose of squeezing maximum profit from work procedures.

A look at the history of MTM's origins is revealing. "Specific circumstances caused by the US entering World War II functioned as a trigger for the development of the elementary MTM module system MTM-1".¹⁴ Particularly in the armaments industry, enterprises felt under pressure to put an end to conflicts with workers who kept protesting piece wages based on manual measures of work operations. The emerging 'scientific' projects for the development of predetermined time systems in the US industry seemed to point out a way to solve this problem.

How MTM Determines Standards

*"MTM analyzes any manual operation or method into the basic motions required to perform it and **assigns to each motion a pre-determined time standard** which is determined by the nature of the motion and the conditions under which it is made."*¹⁵

Breaking down human manual operations into a set of components, the MTM developers defined 19 *basic motions* in a way that enabled them to describe any operation they looked at in terms of a combination of some of these basic motions. Eight of these basic motions are hand/arm movements, two are ocular movements, and nine are body, leg, and foot movements.

The single motions were then performed by workers and filmed at 16 shots per second. The time necessary to perform the motions was then determined by counting the shots, resulting, after a levelling process, in the definition of the *MTM standard time* for each of the motions.

The gauge of time in MTM is the so-called Time Measurement Unit (TMU). There are 100,000 TMU per hour, and 27.8 TMU per second. 1 TMU equals 0.036 seconds.

Motion Example: "Reach"

Reach is when the hand or finger is moved to a destination. Reach is usually a movement with an empty hand or finger. The time for performing a Reach depends on the following factors:

- 1- Condition (nature of destination)
- 2- Length of the motion
- 3- Type of Reach

The time to perform a Reach is affected by the nature of the object toward which the Reach is made. There are five classes of Reach:

¹⁴ *ibid.*, p. 508f.

¹⁵ Maynard, Stegmerten, and Schwab, 1948

A: Reach to object in fixed location, or to object in other hand or on which other hand rests

B: Reach to single object in location, which may vary slightly from cycle to cycle

C: Reach to object jumbled with other objects in a group so that search and select occur

D: Reach to a very small object or where accurate grasp is required

E: Reach to indefinite location to get hand in position for body balance or next motion or out of way

The MTM Reach data card partly shown below defines the standard times for concrete Reach operations, depending on the factors named above. Respective data cards exist for all other basic motions (Move, Turn, Apply Pressure, Grasp etc.)

Specific operations are described as follows: Motion - Distance - Type of Motion

Example: Reach for bottle in 10 inches distance

Motion: R for Reach

Distance: 10 inches

Type of Motion: Reach Type B

Name of concrete operation: R10B MTM time standard for operation R10B, according to the Reach data card: 11.5 TMU

Distance Moved in Inches	TMU				Hand in Motion		Case and Description
	A	B	C or D	E	A	B	
¾ or less	2.0	2.0	2.0	2.0	1.6	1.6	(A) Reach to object in fixed location or to object in other hand or in which other hand rests
1	2.5	2.5	3.6	2.4	2.3	2.3	
2	4.0	4.0	5.9	3.8	3.5	2.7	
3	5.3	5.3	7.3	5.3	4.5	3.6	(B) Reach to a single object in location which may vary slightly from cycle to cycle
4	6.1	6.4	8.4	6.8	4.9	4.3	
5	6.5	7.8	9.4	7.4	5.3	5.0	
6	7.0	8.6	10.1	8.0	5.7	5.7	
7	7.4	9.3	10.8	8.7	6.1	6.5	(C) Reach to a object jumbled with other objects in a group so that search and select occurs.
8	7.9	10.1	11.5	9.3	6.5	7.2	
9	8.3	10.8	12.2	9.9	6.9	7.9	
10	8.7	11.5	12.9	10.5	7.3	8.6	

MTM Standard Performance

Based on ‘scientifically validated’ standard times for each basic motion, MTM started collecting large numbers of data in implementation and research processes throughout almost all industrial and administrative sectors. Today MTM supporters claim that their collected process data (as shown in the exemplary Reach data card above), enables an ‘objective’ description as well as an optimisation of time and productivity efficiency for any manual work procedure. They praise MTM as a tool to “*detect and put into effect design potentials along the complete supply chain.*”

Its developers have described the MTM standard performance as “*the performance of a moderately high trained person who can show this performance in perpetuity without work fatigue.*”¹⁶ The definition of ‘standard capacity’ as provided by the MTM developers was discussed in more detail at an international trade union conference in Dortmund, Germany, in 1959: “*MTM time refers to the time required by a worker who works at standard capacity, i.e. who is neither particularly unfit nor unusually talented, who is qualified for this type of work, who works with no particular incentive, but no bad intentions either.*”¹⁷

Resistance by employees with ‘bad intentions’ was also explicitly addressed by the German REFA, a society originally founded in 1924 for the purpose of determining work times. Its *Methodology* of 1975 addresses the category of ‘troublemakers’: “*There will always be persons opposing requirements concerning performance and behaviour. They disturb the flow of operations and prevent their colleagues from delivering the performance required. A supervisor is obliged to protect the operations, by appropriate regulatory measures, from the damages caused by such persons.*”¹⁸

From a labour point of view, the introduction of MTM and its standards must be seen as an *effective regulatory measure* in the service of squeezing greater profit and repressing any opposition against exploitation - regardless of the pretended *scientificity* used to conceal this purpose.

Ergonomic Improvements: Maybe... - Densified Work Procedures: Certainly!

MTM supporters argue that the practical implementation of MTM leads to a large number of improvements in work procedures, with biomechanical findings taken into consideration and ergonomics promoted in a positive way. So if the analysis of a work procedure detects an action such as Bend down or Bow as ‘unnecessary’, this

16 *ibid.*, p. 509

17 IG Metall, 1960: Kleinzeit- und Bewegungselemente-Verfahren. Bericht der internationalen Gewerkschaftskonferenz Dortmund, 27. bis 30. Oktober 1959. Schriftenreihe der Industriegewerkschaft Metall, p. 15

18 Oldenburg, Refa. 1995: Methodenlehre des Arbeitsstudiums, 4th edition, p. 175

action can possibly be eliminated, ergonomically improved, and substituted by simplified work procedures. On the other hand, from the company's point of view, the elimination of 'unnecessary' - being unproductive - actions never causes the workers to have breaks. Instead, unproductive movements become substituted by new, productive movements. Basically, work is being densified because the central objective of improvements, in the practical dispute, must always be the gains of time for capital. For time savings by alleviated work procedures, the workers are confronted with the demand for additional work movements.

First Labour Reaction: Reject!

On the Dortmund trade union conference of 1959¹⁹, an American delegate stated his position clearly:

Management has never been happy to negotiate performance standards and piece wages. They always tried to put an end to these negotiations by struggling to convince the workers there was a 'scientific' method to determine fair standard times and wages. When the results of the first time studies were presented, workers became even more sceptical while company managements welcomed MTM as a new 'scientific' excuse to end or suppress collective bargaining. MTM is particularly attractive for companies because it hopelessly complicates negotiations over individual complaints concerning standard times or piece rates. The rejection of the MTM standard time for any individual task would imply the rejection of every single other task in the operation which included the same basic motions. (...) Considering the dangers and problems caused by MTM, our international representations and locals should be urgently instructed to oppose its introduction in our plants. First and foremost, our locals should be on their guard not to allow to be drawn into the introduction or implementation of this method in any way.

German trade union officials also levelled severe criticism. "Clamping people into a motion scheme resembling animal dressage gravely violates their human dignity!" comments the Leather Union Board in its 20 October 1959 resolution on MTM.²⁰

In a 1960s issue of its magazine *Der Gewerkschafter*, the *IG Metall* metal union expresses a similar critique: "The industry is developing work forms to be literally performed in an equal or even better way by trained monkeys."

In the 1970s, *IG Metall* experts and others are still criticising: "While the praise of predetermined time systems in the US takes a very business-based shape, it is invested with a more subdued, academically coloured sound in the Federal Republic

19 IGM 1960, p. 78

20 MTM bei Daimler Benz, Kollegen berichten über die Einführung eines neuen Lohnsystems. Brochure April 1978, p.14

of Germany. Everyone involved - including the consultants whose first and foremost motivation is business - is making an effort to create a neat scientific atmosphere where good fees and wages for the users and an intensified exploitation of people's working power do not seem to be subject of discussion. But this is exactly what it all is about. Everyone who keeps this in mind, will be particularly critical towards any statement whose purpose is simply to promote the sale of these methods *in the disguise of scientificity*.²¹

However, in Germany and other countries trade unions drew back from their critical position in the course of the 1980s and 90s. Rationalisation was now seen as a crucial prerequisite for competitiveness, wage increases, and improving living standards. It was thus accepted by the majority. In 1991, the Opel Germany works council accepted the introduction of MTM in all plants.

A Different Debate is Necessary!

The trade union and plant worker representations who had not been able to reject MTM methods for several reasons, now tried to control the method. For decades, works council members were being trained by the trade unions, and MTM was part of the daily conflicts between worker representation and company.

It seems important indeed to understand company strategies and methods, in order to be able to assess them and negotiate conditions more effectively. However, experience shows that works council participation in the implementation of MTM was not able to prevent work pressure and hustle from happening. MTM internal negotiations may succeed to improve certain tasks ergonomically or to add fractions of seconds to certain tasks. On the other hand, practice has led to unparalleled increases in work productivity, work densification, and work pressure during the last few decades, because time saving have led to an increase in tasks. Thus, workers are required to perform an ever increasing number of tasks, while so-called 'unnecessary' movements, such as 'far distances', were eliminated. This resulted in an epidemic increase in the numbers of muscular-skeletal disease and stress induced illness.

Therefore, complementing the rejection or possible control of the MTM process, a different debate is necessary. Rotation, extended tasks, and prolonged cycle times can reduce the workload. Any work with pre-determined times would be easier to endure if breaks were more frequent and shifts were shorter. The demand for breaks and reduced working hours is intricate, but it must urgently be maintained. The core issue is about negotiating what the time gained by rationalisation will be used for: further possibilities of work densification - or leisure time for the workers.

21 H.Porschlegel, R.Birkwald, procedure of pre-determined times, industrial metal union work booklet 807, 5th ed. 1977, p. 15 f.

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