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Changing Work and Employment Relations
in German Industries –
Breaking Away from the German Model?

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Abstract

In this paper, we examine employment relationships as an important dimension of the „German model“. There is a long tradition of debate regarding a specific “German model” comprised of institutions and practices in this area, including the partnership of labour and capital symbolised by the system of co-determination; patterns of long-term employment for many employees, an emphasis on skills and correspondingly high investments in vocational training, competition based on quality production, often targeting upper market segments. Is this model changing? Do we even witness a break of this model?

We analyse processes at the micro and meso level. We suppose that the reorganisation of industry structure and of value chains, and the transformation of business models of enterprises are important drivers of changing employment relationships. We have chosen three industries for our analysis that allow a “most different cases” comparison: The automotive industry, the telecommunications equipment industry, and the video games industry. First, the automotive industry is a successful and highly competitive case of industrial development in Germany and represents best the “classical” German model of employment relationships. The telecom equipment industry and the video games industry are parts of the large complex of so called infocom industries representative of the “New Economy”. It is often claimed that the development of these industries is not compatible with the framework for employment relations characterizing countries like Germany. Is this assertion true?

We find *similar trends* but *differences in patterns and pace* of change in the automobile and in the telecommunications equipment industries. In both industries, the binding force of industry-wide agreements declines. In both industries, the employees have to accept wage reductions and increasing flexibility to maintain their employment security. In both industries, the outsourcing and offshoring pressures are very strong and entail deep changes in the balance of power between actors. The video games industry stands apart because the institutions of the German model have very limited applicability to this industry.

But do the changes represent a break with the “German model”? It seems that in the current situation, two scenarios of development are still possible: A gradual adaptation to new conditions and a radical break from the hitherto trajectory.

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Preface

This discussion paper is part of research conducted in the European research network on “European Socio-Economic Models of a Knowledge-Based Society” (ESEMK). This project addresses two main questions: Which socio-economic models exist in Europe and which trends emerge in European countries on their way to knowledge-based societies? How do socio-economic models develop in interaction between institutions at the macro level and companies at the micro level?

In this context, the WZB team is examining work and employment models at the company and industry level. We are concentrating on the following three change dynamics:

1. The orientation of European societies with regard to the Anglo-American model. Convergence towards this model could lead to stronger market-type regulation in personnel policy and the individualization of income and employment risks. Is a contrasting, independent socio-economic model of development discernible in Europe?
2. The trend towards production and innovation networks. How do these flexible forms of cross-company coordination affect work and employment systems?
3. The transnationalisation of production. Companies can shift production between countries to locations where they find favourable institutional conditions. What are the repercussions for work and employment systems both at home and abroad?

The research consists of company case studies and the analysis of industry developments. We examine change dynamics in the automotive industry, the telecommunications equipment industry and the software industry (video games). We are concentrating initially on Sweden, Germany, and Poland. Germany and Sweden represent two so called “high-road” economic and social models that have experienced strong pressure for change during the last ten or fifteen years. Poland is a low-wage country and a very attractive host economy for foreign investment from Western Europe, which in turn exerts strong competitive pressure on labour regulation and work and employment models more generally in its western and northern neighbour countries. The interactions between work and employment models in these three industries play an important role in our research.

The ESEMK research network includes four main research areas and 12 participants: macro-analysis of socio-economic models in Europe (CEPREMAP, GERPISA, GRES, MPIfG, University Bielefeld, University Padova), financialisation and its impact on industrial firms (University Manchester, INSEAD, CEPREMAP), work and employment relationships (Science Center Berlin [WZB], University Bristol), product policy and productive organisation (GRES, University Bordeaux, University Toulouse, University Padova). It is financed through the 6th Framework Programme of the EU

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1. Introduction

Against the background of an economic recession beginning in 2003, the debate regarding Germany's socio-economic model and its basic institutions has revived, and demands for fundamental reforms have become increased. Indeed, critics of the German model insist that a radical break with established institutions is needed. The lack of a fundamental reform program along the lines of what Thatcher implemented in Great Britain is blamed for sluggish growth and high unemployment rates. On the macro level, fundamental reform of the welfare system and of labour regulation is advocated. In 2005, the electorate seemed ready for such radical reforms and the elections of 2005 were expected to signal a sea change for "Model Germany".

Also on the micro- and meso-level critical voices have become louder and louder during this period. Executive managers of leading companies publicly question the future viability of their operations in Germany, while reports of Germany's non-competitive cost levels are juxtaposed with testimonials about the advantages of relocating to Eastern Europe or China. The CEO of Opel puts it succinctly: "Out of Germany or out of business!" (Forster 2004). Yet beyond the dire assessments of Germany's future offered by advocates of reform, a more complex and differentiated picture emerges across companies and industries, with diverse evaluations reflecting a variety of firm and sector level characteristics. In fact, conversations with a wider range of business leaders and managers will even yield surprisingly positive evaluations of the German situation.

In this paper, we focus on changing employment relationships as an important dimension of the „Modell Deutschland“. There is a long tradition of debate regarding a specific "German model" comprised of institutions and practices in this area, including the partnership of labour and capital symbolised by the system of co-determination; patterns of long-term employment for many employees, an emphasis on skills and correspondingly high investments in vocational training, competition based on quality production, often targeting upper market segments. Is this model changing? And if so, how is this change best characterized: A gradual adaptation to new conditions or a radical break from the current trajectory?

The background of this paper is a European-wide project on "European socio-economic models of a knowledge-based society" (cf. the preface to this paper). In the context of the ESEMK project, we examine employment relationships at the company and plant level and their interaction with national institutions of labour regulation. The term "labour regulation," as we use it, refers to policies, rules, customs and practices which influence actors when they develop solutions to issues and/or problems regarding employment relations.¹ These can range from norms, which orient employers

1 Labour regulation refers to what regulation theory calls the "wage-labour nexus". Boyer and Saillard (2002) define the wage-labour nexus as the "institutions framing the employment contract" and the "set of legal and institutional conditions that govern the use

to what is socially acceptable or common, to laws, which oblige them to act in a certain way when managing the tension between job security and labour flexibility; or between organization-centred incentives which foster social cohesion and individual-centred incentives to promote ambition and motivation. We distinguish the following aspects of company and sectoral employment relationships in order to organise the empirical research and evidence:

- employment and status protection,
- flexibility (numerical flexibility, time flexibility, functional flexibility, mobility),
- competence and skill development (qualification, personnel development),
- performance regulation (incentive and control systems), and
- equality and inequality of working and employment conditions within and between enterprises.

We are analysing processes at the micro and meso level. We suppose that the reorganisation of industry structure and of value chains, and the transformation of business models of enterprises are important drivers of changing employment relationships. We are not primarily concerned with the views of managers regarding the general debate about the German model; rather, our question is to what extent corporate and industry actors, in responding to the changing environment and the new challenges and opportunities it presents, have introduced changes – incrementally or radically – or rather continued on established paths. If we see an intensification of changes, are they basically following the established trajectories or are there indications of new directions which suggest a departure from the existing model of employment relations? In our view a break with the “German model” would be the cumulative result of significant changes on four dimensions, which we outline below:

- The withdrawal from or abandonment of the negotiation arenas of social partnership (e.g. the collective bargaining system or the works councils) and a move towards individualised bargaining and incentive models, i.e. an institutional break;
- The abandonment of the idea of the recognition and balance of all interests in the enterprise (e.g. through the domination of the shareholder value concept), i.e. a break in the governance logic;
- The decline of solidarity and the increase of inequality within and among enterprises, i.e. an important change in the distribution of security, risk and wealth; i.e. a break with previous value orientations;
- Determined steps to relocate activities outside Germany i.e. to take the exit option.

While this operationalisation of the German model obviously is value-laden we do not mean that a break from it would automatically imply the opposite, i.e. lack of solidarity, inequality, authoritarianism – a partisan of the Anglo-American model might describe the same dimensions with words like opportunity, efficiency, accountability.

of wage-earning labour”. In his empirically oriented work, Amable (2003) distinguishes three subsystems of the wage-labour nexus: Rules governing employment protection, industrial relations, and public employment policy.

What evidence suggests that such changes are occurring? Is there an interaction between changes occurring at the macro level with those at the micro/meso level? These are the questions we discuss in this paper. We link the conceptual question of what would constitute a “path break” with a discussion of preliminary empirical evidence from our project, concentrating on change dynamics since the beginning of the 1990s. We start our analysis at this point because, until the end of the 1980s, Germany seemed to manage the economic crisis of the western “fordist” societies better than other countries. The critique of the “German model” began in the first half of the 1990s, as a reaction to the economic stagnation that followed the reunification boom.

We have chosen three industries for our analysis that allow a “most different cases” comparison: The automotive industry, the telecommunications equipment industry, and the video games industry. First, the automotive industry is a successful and highly competitive case of industrial development in Germany. It represents best the “classical” German model of employment relationships, but even in this industry, changes are taking place, leading us to ask, how deep are these changes? The telecom equipment industry and the video games industry are parts of the large complex of so called infocom industries representative of the “New Economy”. It is often claimed that the development of these industries is not compatible with the framework for employment relations characterizing countries like Germany. Is this assertion true? Can we trace the weaknesses of the telecom equipment and video games industries in Germany to prevailing forms of employment relations? And what changes in employment relationships are occurring in these industries?

Table 1: Most different cases – choice of three industry research fields

	Automotive industry	Telecom equipment industry	Video games industry
Perceived industrial development in Germany	Successful	Problematic	Weak
Questions	How important are models of employment relationships for successful industrial development? Which compatibilities/incompatibilities exist between modes of industrial organisation/business strategies and employment relationships? What does that mean for economic development in Germany and stability of (versus pressure for change in) employment relationships?		
Expected changes of employment relationships	Stability or gradual adaptation	Contradictory development, in part stability, in part orientation to Anglo-American patterns	New forms of employment relations, orientation to Anglo-American patterns
Questions	Which changes of employment relationships occur? Do these represent a break with the “German model”? What future dynamics and consequences are likely?		

In the first part of this paper we summarise the debate about the German model of work and employment relations, its future and its implications for German competitiveness. The main part of the paper discusses our expectations and reviews preliminary findings concerning the development and change of employment relationships in Germany. We start with a short summary of general trends and proceed to discuss evidence at the sectoral level. We present a preliminary analysis of changes in the three industries: automotive, telecom equipment, video games. We conclude by comparing industry-level developments and offer an assessment of their meaning for the general development of the German model.

2. The debate about the “Modell Deutschland” and main characteristics of the German system of labour regulation

The notion of the “Modell Deutschland” was introduced by Helmut Schmidt in 1976, Chancellor of the first post-war social-democratic government, and was meant as a proud statement of its policy to harmonize economic competitiveness with progressive labour and welfare regulation. Esser et al. (1980, 1983) took up this notion as a critical concept at the end of the 1970s. Referring to the export of technologically advanced consumer and producer goods that they observed as the dominant growth strategy in Germany, these authors saw an increasing trend of social segmentation between a well-trained and well-paid social core integrated into this strategy on the one hand and on the other, a growing portion of the workforce excluded from it for a number of reasons.. The latter group was to be dealt with by state social policies in order to prevent “destructive forces” and assure a minimum of social cohesion. While previously according to Esser et al. 1980, the welfare state had tried to reintegrate these marginalised groups by means of social “repair”, the strategy of “reparative” reintegration by the welfare state was replaced by the strategy of repression in the late 1970s.

This critical perspective on the “Modell Deutschland” was reversed into a more positive perspective in the context of the debate about the supposed attributes characterizing the model of “diversified quality production” (DQP). The DQP-debate arose in the mid-1980s as an attempt to explain the success of the German economy vis-à-vis its international competitors. According to Streeck and Sorge (1988), in the 1970s mass production of standardised products and craft production of customised products dominated the German economy. In the 1980s, the development of microelectronics and the deployment of computers and robots lead to the development of a new productive model: diversified quality production. DQP means the volume production of customised products and a focus on competition on quality instead of price.

The social compromise embodied in the German model of labour regulation seemed to be particularly well-suited to the DQP-strategy. Evidence of this could be seen in the multitude of company or plant-level agreements dealing with the introduction of microelectronics in the second half of the 1970s. In exchange for increased flexibility and the acceptance of new technology, labour gained employment protection, an increase in apprenticeship training, and increased works council participation in work design. The national government supported this pact with various programs (Jürgens 2003: 220).

However, disillusionment about the stability and the survival chances of the “Rhine model” (Albert 1992) spread in the mid-1990s at the latest. Streeck and Kitschelt state (2003: 1): “The same institutions that once provided for economic prosperity and social cohesion today impede adjustment and stand in the way of a

sustainable response to new problems.” In an earlier publication, Streeck identified three causes for the decline of the German model: The incompatibility of the German labour and capital market regulation with globalisation, the costs of German reunification, and particularly the immanent exhaustion of the potentials of the DQP-model (Streeck 1995: 18ff.). Along this latter line of argument, one of the key problems was said to be deficient product innovation. According to Streeck, the German economy lost its winning margin in quality competition but retained its institutional rigidities and high social costs.

While the DQP concept was dropped by Streeck (1995) who predicted a decay of the “institutionalised high-wage economy”, the DQP-argument resurged in the “varieties of capitalism”-approach (Hall and Soskice 2001). The “varieties” approach stresses the comparative institutional advantages of a “coordinated market economy” like Germany, which provides for the competitiveness of industries in which incremental innovations prevail: “It will be easier to secure incremental innovation where the workforce is skilled enough to come up with such innovations, secure enough to risk suggesting changes to products that might alter their job situation, and endowed with enough work autonomy to see these kinds of improvements as a dimension of their work. Thus, incremental innovation should be most feasible where corporate organization provides workers with secure employment, autonomy from close monitoring, and opportunities to influence the decisions of the firm, where the skill system provides workers with more than task-specific skills and, ideally, high levels of industry-specific technical skills, and where close inter-firm collaboration encourages clients and suppliers to suggest incremental improvements to products or production processes” (Hall/Soskice 2001: 39).

However, according to the authors, the institutional arrangements of the “Modell Deutschland” seem less suited to support the development of radically innovative industries. It is difficult for German firms to move quickly in and out of markets characterised by rapidly evolving technologies. The high level of protection against dismissals makes fast changes of the competence profile of enterprises difficult. Large enterprises renounce the introduction of highly market-related incentive systems and opportunities for rapid career advancement for managers in order to safeguard the established institutional framework and compromises between stakeholders (Casper and Soskice 2004: 356). The German system of labour regulation does not support organisational destruction which the authors see as a prerequisite for the development of radically innovative industries.

The “varieties” approach draws a dichotomous picture: There are industries characterised by “incremental” innovation in which countries like Germany will be successful. The prime example is the automotive industry. However, Germany has little chance to develop competitive industries where “radical” innovation is required, as is the case for the infocom industry.

As to the empirical evidence at a sectoral level, however, the “varieties approach” has difficulties defending its case. In view of the innovation dynamics at an industry level, a clear cut separation between “incremental” and “radical” forms of innovation is frequently impossible (Jürgens and Sablowski 2005: 128). Thus, Casper

and Whitley (2002: 35) admit: “There are more ‘degrees of freedom’ between the orientation of national institutional frameworks and the ability of managers across groups of firms to develop innovative competencies than is suggested by varieties of capitalism-theory.”² A similar point was made by Jürgens in the context of the DQP-debate. In reviewing the development of the German automobile industry since the 1980s, Jürgens concluded “that there may be no production model that is stable in the long run. Instead, the ‘fit’ between institutions and company strategies is much looser than is often argued” (Jürgens 2004: 412).³

If these “degrees of freedom” exist, it is not possible to explain satisfactorily the success or the failure of industries by the national institutional arrangements. Sector and firm level specificities have to be taken into account. Here we draw from the concept of “productive models” developed in the framework of regulation theory. Productive models represent governance compromises which balance the requirements from three domains: Product policy, employment relationships, and the productive organisation of the value process (Boyer/Freyssenet 2003: 42). If stable solutions to the requirements in these three areas can be found, then they can be regarded as “governance compromises” – i.e. compromises between interests not just in the relation of labour and capital, but rather between all relevant requirements and stakeholders (Boyer/Freyssenet 2003: 43).

In the following we discuss empirical evidence that links changes in employment relationships to broader changes in value chains and business strategies in the automotive, telecom equipment, and video games industry. We concentrate on the development of questions and hypotheses from preliminary empirical evidence in our research fields. Important questions are: Which processes of value chain restructuring and which changes of business strategies take place? What effects in the area of employment relations can we expect, and what are our preliminary empirical findings consistent with these expectations? Do these changes represent a path immanent development or a break with the hitherto trajectory?

While the “varieties of capitalism” approach emphasizes the strength as well as the weaknesses of the German political economy, a more radical critique of the German model is brought forth in the so-called “Standort” debate.⁴ “Standort” critics see high wage costs at the root of high unemployment and low growth rates in Germany

2 See Larrue/Lazonick/O’Sullivan (2003) and Casper/Whitley (2002) for further empirical evidence that contradicts the expectations of the “varieties of capitalism” approach.

3 “It is true that German car producers developed a number of characteristics and strategies in the 1980s which could be interpreted as supportive of the DQP thesis. However, none of the car-makers ever adopted DQP as an explicit strategy. Furthermore, the strategies adopted in the 1980s have hidden structural problems which became quite apparent during the crisis in the early 1990s. This forced the companies to develop new strategies that were only partially complementary with DQP. However these new strategies also had their inherent problems, which became visible by the end of the 1990s” (Jürgens 2004: 412).

4 The German word “Standort” means location or site. The highly controversial public “Standort” debate arose in the mid-1990s about the question of the competitiveness of Germany as a location for production.

(e.g., Sinn 2003a). The analysis is based on the neoclassical market ideal and denounces all institutions suspected to hamper the adjustment capability of the labour market. The “Standort” critics demand a decentralisation of the collective bargaining system. They interpret the industry-wide collective agreements as a result of a cartel policy of trade unions that must be broken by the government (Sinn 2003a: 134), and call for the abolition of legal employment protections so that the threat of dismissals would force trade unions to moderate wage policy (Sinn 2003a: 142). Finally, they argue for a decisive reduction of social security benefits. “Even worse than the cartel policy of the trade unions, the welfare benefits are the main reason for unemployment. They give birth to wage demands that cannot be met by a market economy” (Sinn 2003a: 162).

Meant as a final blow against those who argue that Germany’s export performance is evidence of the continuing strength of the “Modell Deutschland,” the notion of “bazaar economy” was introduced to suggest that the industrial strength of the German economy has already been hollowed out to a large extent: “Due to the outsourcing to Eastern Europe, the products of the German industry excel at the global markets and the German export statistics proudly present increases. However, the Audi cars enter the German export statistics with their full value but their motors are produced in Hungary. The ‘made in Germany’ becomes a false labelling. Only the assembly takes place in Germany. The value-carrying parts come more and more from Eastern Europe. Germany is on the way to become a bazaar economy selling on global markets low-price and high-quality products that are no longer produced in Germany itself” (Sinn 2003b: 28, own translation).

Which diagnosis is correct? Has the German work and employment model been hollowed out by economic restructuring and relocation processes and on the verge of a rupture, as the “Standort” critics suggest, or does it still represent a competitive environment but only for *some* industries as argues the “varieties” approach? And do not both the “Standort” critics and the “varieties” approach overlook clear differences between developments in different industries and changes that took place over the last fifteen years?

3. Changing employment relationships in Germany

3.1 General trends – a short review

The German model of employment relationships did not remain unchanged during the last fifteen years. In the following we review briefly some general trends of change before we discuss specific developments in the automotive, telecom equipment and video games industries. In view of the pattern-setting role of the metal working industries and of the IG Metall some repetition in this account will be inevitable.

Withdrawal from negotiation arenas of social partnership? Changes in collective bargaining

The system of industry-wide collective agreements⁵ is one of the main elements regulating the determination of wages, work and employment conditions in Germany at the sectoral level. In the past, the system of industry-wide collective agreements played a dual role: On the one hand, the levelling function of these agreements could be seen as an expression of solidarity between workers in different companies. Workers from small and medium firms benefited from the power of organised labour in big companies. On the other hand the system functioned as a “productivity whip” for enterprises lagging behind industry standards of productivity and costs. The price that the trade unions had to pay under the system was the obligation to moderate their wage claims by taking the economic conditions of small and medium companies into account and to abstain from exploiting negotiation margins in particularly successful enterprises. On a company level, works councils used such leeway to achieve wage and benefit increases in a second bargaining round, thus leading to a strong wage drift in many cases.

Do we observe a withdrawal of actors from this negotiating arena and an increase of inequalities within industries? The system at the time of this writing is still largely in place. About one half of all German enterprises and about three-fourths of all employees in Germany are still covered by a collective agreement, the large majority of which are industry-level (see table 2). About one half of those enterprises not covered by a collective agreement nevertheless orientate themselves to existing agreements for their own wage level and benefit packages. Finally, while differentiating between blue and white collar employees, in many respects the collective agree-

5 Actually, the term “industry-wide” is misleading: The German “Flächentarifverträge” often cover more than one industry. The metalworking collective agreement, for instance, covers enterprises in the automotive, machinery, electronics and telecommunications equipment and other industries. The term “Flächentarifvertrag” refers to the fact that these agreements cover all those companies, whether big or small, which are members of the employers association. Other companies may have company-specific collective agreements (“Haustarifverträge”).

ments cover both status groups⁶ – except for the group of upper level (non-pay scale) salary personnel employed on the basis of individual contracts (*außertarifliche Angestellte*). We return to a discussion of this group later.

Table 2: Coverage by collective agreements in Germany in 2003 (in % of employees)

	Industry-wide agreements	Firm-level agreements	Orientation to existing agreements	No agreement, no orientation
West Germany	62%	8%	16%	14%
East Germany	43%	11%	24%	22%

Source: IAB-Betriebspanel

Despite the relatively stable structure of collective bargaining, however, there are four trends that challenge the collective bargaining system. First, lead enterprises exert pressure on their suppliers in systematic ways to reduce costs and increase flexibility. This pressure in many cases can hardly be met within the common framework provided by the industry-wide collective agreements. Either the suppliers break the industry collective agreement or they find other ways to pay less than the industry-level standards demand. This fosters a tendency towards a two-tier system.⁷ Second, enterprises restructure organisationally by creating profit centres or spinning off business units. This is one of the major drivers of the movement towards company or plant level “concession bargaining” which has been spreading in Germany since the 1990s. Third, enterprises use outsourcing to shift tasks into “cheaper” collective agreements or to remove them from the protection of a collective agreement altogether. According to a survey from 2002, outsourcing led to an abandonment of a formerly existing collective agreement in 19% of outsourcing cases; in a further 39% of cases, a new – probably “cheaper” – collective agreement came into force for the employees concerned, while in the remaining 42% of cases, the employees continued to be covered by the former collective agreement (Bispinck/Schulten 2003: 158). And fourth, enterprises relocate operations to other countries i.e. change the labour regulation regime altogether. The option of “off shoring” to low-cost countries has increased since the accession of most of the countries of Central and Eastern Europe into the European Union.

6 The status differentiation between hourly and salaried employees is being abolished currently by the introduction of common pay scales between the two groups (ERA-collective agreements).

7 The IG Metall now discusses the possibility of a two-stage wage policy distinguishing between high-profit and low-profit enterprises. According to Berthold Huber, vice chairman of the *IG Metall*, the trade union wage policy has, despite its “solidarity” ideal, either to recognise productivity and profitability differences between enterprises or to stay “systematically overstrained” (Bispinck 2003: 400).

An institutional break with the German model in the sense of an abandonment of the negotiation arenas of social partnership (e.g. the collective bargaining system or the works councils) cannot be observed despite all the gradual changes noted above. However, the increasing inequality of risk and profit distribution within industries challenges the established industry-level and company-level compromises. Beyond these general trends, we expect considerable sectoral differences. Both the automotive and the telecom equipment industry belong to the metalworking sector but they differ in the strength of the trade unions and in their models of organisation: While manufacturing belongs to the core competencies of the lead enterprises in the case of the automobile industry, the telecom equipment industry represents a case of a vertically disintegrated industry where product innovation and marketing constitute the core competencies and manufacturing tends to become outsourced to contract manufacturers (Sturgeon and Lee 2002). The power relations and the pressure from outsourcing and off-shoring should be different in both industries and have different consequences. The video games industry, last but not least, seems to develop outside of the German collective bargaining system. Does this mean that there are no forms of collective regulation?

The decline of solidarity? New forms of flexibility and shrinking employment protection

The high importance of employment protection is one of the main characteristics of German employment relationships. The unions have accepted from the beginning that this policy had to be complemented by the promotion of flexibility. In Germany, the company level became the paramount place of compromises about flexibility, often supported by the state. External labour market flexibility did not play an important role. In the 1980s and 1990s, working time flexibilisation represented the core of the flexibility strategy of German enterprises. In addition, the modernisation of the vocational training system in the mid-1980s provided for more comprehensive job definitions and increased the internal flexibility of companies. Thus, the tension between flexibility and employment security was dealt with compromises offering employment protection to core employees while using as flexibility buffers changes in working time regulations, early retirement, internal mobility of employees, and, to a lesser extent temporary employees.

Since the mid-1990s and particularly in the second half of that decade, the German government stepped up its efforts to facilitate the use of fixed-term work contracts and temporary agency work. The aim is to narrow the core of the “secure” jobs and to extend the “insecure” flexibility buffer. Since the law on promotion of employment (*Beschäftigungsförderungsgesetz*) was passed in 1985, the possibilities to hire employees on fixed-term contracts have been gradually extended (Linne and Vogel 2003). However, the aggregated effects of legislative deregulation on the actual use of fixed-term contracts seem to be quite limited: Since the first half of the 1990s, the ratio of fixed-term employment remained stable at around 8% in Western Germany or even experienced a small reduction from 16% to around 12% in Eastern Germany (IAB-Betriebspanel).

The case of temporary agency work indicates a similar limitation of legislative action. Although the use of temporary work has been made easier, the share of agency work in total employment increased only slightly from 0.2% to 1% between 1985 and 2000 (Rudolph 2003: 9). However, the aggregate numbers hide differences between industries. The share of agency workers in some firms in the German telecommunications equipment industry can amount up to 30% (e.g. in the Infineon works in Dresden), while for the most part it does not exceed 5% in automotive plants. In the computer games industry, temporary agency work does not play any role.

Apart from the relative insignificance of temporary work in quantitative terms, its regulation is quite characteristic. New legislation fostering the integration of temporary agency work into the collective bargaining system can be seen as an effort to revitalise the institutional framework of the “Modell Deutschland.” According to the 2004 law on temporary agency work (*Arbeitnehmerüberlassungsgesetz*), wages and employment conditions of agency workers have to be regulated by a collective agreement. If a temporary work agency is not covered by a collective agreement, the agency workers have to be paid according to the collective agreement valid for the host company. If the agency itself is covered by a collective agreement pay can be lower, however. The pattern of legal regulation is interesting in itself: it requires agreements within the collective bargaining arena in order to allow for a discrimination of pay between agency and regular workers, thereby strengthening existing institutional patterns of labour regulation.

In the context of increased competitive pressure and relocation threats, the so called “plant-level pacts for employment and competitiveness” (*betriebliche Bündnisse zur Beschäftigungssicherung und Wettbewerbsstärkung*) have developed as a means to reconfigure the compromises between flexibility and employment protection. These agreements are negotiated between the company or plant management and works councils and aim at securing jobs. Most often they are initiated by companies that are trying to restore the competitiveness of the enterprise through costs reductions and a flexibilisation of working time and offer employment protection in exchange (Rehder 2003: 95). The opening of a company/plant level bargaining arena additional to the sectoral level takes place on the basis of so called “opening clauses,” which have been introduced into industry-wide agreements since the late 1980s. Opening clauses allow the enterprises to bargain for different forms of deviations from the industry-level agreement. This bargaining takes place with the works council of the enterprise and the trade union responsible for the industry-level agreement.

In 2003, plant-level employment pacts existed in 23% of all companies with works councils.⁸ They are most widespread among large enterprises (42% of companies with more than 1,000 employees) (Massa-Wirth/Seifert 2004). In 2004, the collective agreement between IG Metall and the Metal Employers Association (*Pforzheimer Abschluss*) opened the way for an even broader movement toward such pacts. Triggering this development was a “blood and tears” speech of chancellor

8 All sectors incl. public services.

Schröder. He challenged the collective bargaining partners that if they did not facilitate local bargaining he would introduce a law limiting their collective bargaining autonomy (*Tarifautonomie*). The 2004 agreement still keeps the industry-level actors in control of local bargaining. IG Metall requires companies to provide balance sheets and asks external auditors to prepare an expert assessment prior to agreement in local plant-level negotiations. As a prior formal requirement for local bargaining, the companies have to prove that they are experiencing economic difficulty. Nevertheless, on the basis of the Pforzheim agreement, any company wishing to get special bargaining can force the union to enter into this procedure. In fact, in the bargaining districts the IG Metall now is engaged heavily in plant/company level bargaining.

The aim of management in these plant-level employment pacts is unequivocal: To exchange employment protection for cost reductions and flexibilisation of working and employment conditions. Only 13% of the employment pacts contained *no* measures for securing employment at all (Massa-Wirth/Seifert 2004). However, three caveats to this general rule have to be taken into consideration (Rehder 2003: 99): First, employment protection is guaranteed only for a certain time period. Second, enterprises always preserve the right to renegotiate the agreements if the market conditions change. Third, the employment protection has a “defensive” character and aims at ruling out dismissals or plant closures. Only in a few cases do the agreements include commitments from companies and/or plants regarding future investment or production programs.

In summary, employment protection is becoming a more and more costly goal for organised labour. We expect, however, that the differences in power relations and forms of industry organisation result in different degrees of pressure for change in different industries. For instance, we have mentioned already differences in the use of temporary work. It is particularly the “new economy” industries, like telecom equipment production, that are characterised by a very high need for flexibility and a high level of vertical disintegration. The inequality in the distribution of risk between core and non-core employees and between employees of focal enterprises and those of subordinate supplier firms in the value chains should be higher in the telecom equipment industry and the video games industry than in the automobile industry. This increasing inequality could be also an indication that the idea of the recognition and balance of all interests in the enterprise is losing importance and support – to the point of a fundamental change in the organisational logic of enterprises.

Increasing inequality? Organisation-centred and market-centred incentive systems

The question here is whether a transformation from “organisation-centred” to “market-centred” incentive systems is taking place in German enterprises. Organisation-centred systems focus on employment security, long-term career opportunities and hierarchical control. Market-centred systems try to make use of the motivating and disciplining effects of inequality and market risks in the wage and employment conditions.

There are two forms of incentive system regulation in Germany: incentive systems for blue and white collar employees covered by collective bargaining agreements and systems relating to mid and upper level employees not covered by collective “pay scales”. The latter group consists of top management and the group of non-pay scale employees (*Außertarifliche*). The definition and accordingly the number of such employees itself is a contested issue in companies, and so we find considerable variance as to their number as a percentage of the total workforce. Unfortunately, there are no systematic data on the number of non-pay scale employees, although it can be assumed that it has strongly increased over the last years (Blanke 2003: 22). In the chemical industry and in the electronics industry (e.g. Infineon), for instance, the share of such employees amounts to about 20% of total employment (Tesler 2002; Infineon 2001). The incentive systems for non-pay scale employees are negotiated individually – the incentive systems for rank and file employees are regulated by industry-wide collective agreements.

In the course of the decentralisation trend in the collective bargaining system and the introduction of cost and profit centres (Moldaschl 1998), German enterprises have fostered the introduction of new incentive systems. The first main trend is the spread of target agreements (*Zielvereinbarungen*). While in some companies (such as DaimlerChrysler) target agreements at the level of production teams have been practiced, in the area of blue collar work since the mid-1990s this is still the exception. Target agreements with individualised performance criteria have become widespread in the mid- and upper-levels of white collar employees however.

The second main trend is the increase of the share of variable parts of the salaries for non-pay scale employees and the introduction of new forms of incentives – stock options, for instance. An individualised and market-centred incentive system has existed already in Germany for a long time for non-pay scale employees, though not to the same extent as in Anglo-American countries. Until the mid-1990s, however, no stock option programme existed in Germany. Since that time, more than 80% of the enterprises listed in the DAX-30 have implemented stock option programmes (FAZ, 24.3.2003). The New Economy boom gave rise to start up companies remunerating their employees with stocks or stock options, i.e. with the promise of future value increases.

While we expect little inter-industry variance concerning blue-collar workers, the telecom equipment industry should be the forerunner of the transformation of incentive systems for white collar and non-pay scale employees. Due to changes in the social structure of enterprises, the transformation of incentive systems for white collar and non-pay scale employees has important effects. In the course of outsourcing and restructuring activities, the number of white collar and non-pay scale employees in lead industrial enterprises increases step by step. Telecommunications OEMs in particular become increasingly “white collar enterprises” and remove themselves from the collective regulation of wage conditions. But can we observe this trend in the automobile industry, too? And how are the incentive systems shaped in the video games industry, where forms of collective bargaining do not exist?

High-skill work organisation

Since the governmental programme for a Humanisation of Work in the late 1970s and early 1980s the connection between work organisation and skill development has been regarded as a central element of the German system. This connection was seen as the precondition for developing “intelligent solutions” for manufacturing problems, giving Germany a specific edge in this regard over international competition. On the basis of this understanding, companies were ready to invest in skill development in the form of apprenticeship training of school graduates and of introducing new forms of work to systematically use the high-skill levels resulting from this training.

The upgrading of skill levels was seen as a prerequisite for coping with the introduction of new technologies and the increase in process automation (see Jürgens et al. 1993 for this development in the car industry, as well as Herrigel 1989). As a consequence of this “qualification offensive” the proportion of manual workers completing an apprenticeship, which traditionally had been high in German manufacturing companies, rose even further. This difference in skill structures can be clearly seen in Table 3, which compares skill levels in the USA, UK and Germany in 1993. Most of the employees in the “intermediate” skill level are workers who have finished an apprenticeship (the so-called *Facharbeiter*, or skilled manual worker). In the German auto industry this intermediate level makes up two thirds of the whole manufacturing workforce, as compared to one third in the UK and less than one sixth in the American auto industry.

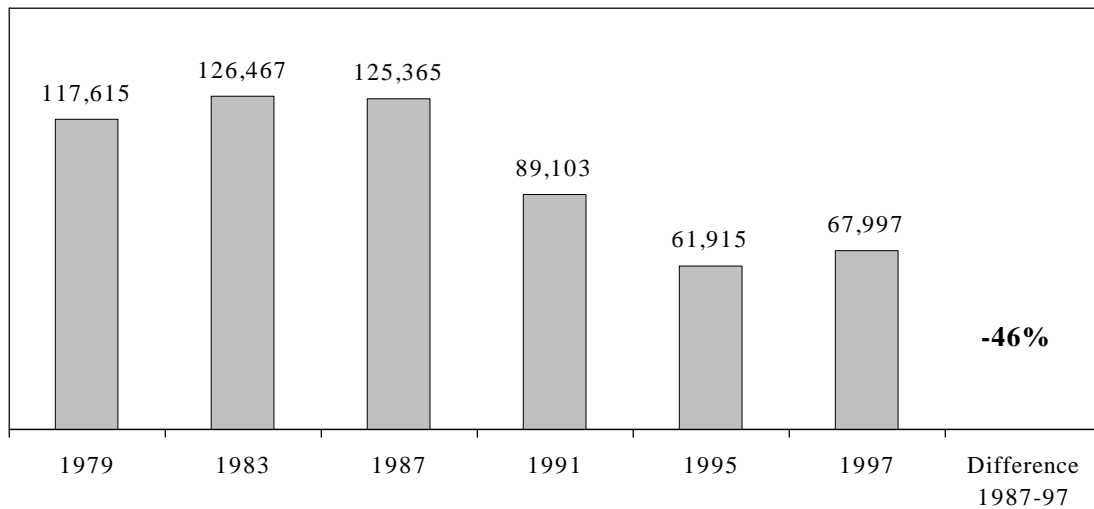
Table 3: Skill level distribution of the manufacturing workforce in the motor vehicle industry (in percent)

Skill level	US	UK	Germany
High	16.6	7.3	6.7
Intermediate	15.1	37.7	65.4
Low	68.3	55.0	28.0

Based on 1993 figures. Source: Mason and O’Mahony (1998)

The system of vocational training and the *Facharbeiter* had played a central role in the production strategies of German industrial companies in the 1980s in general, not just in the auto industry. When looking at the intake of new apprenticeships for skilled trades in the manufacturing sector as a whole it is clear that around 1990 a fundamental shift in policy occurred. As Figure 1 shows, the level of intake of new apprentices in manufacturing in the 1990s was almost half of the level in the 1980s.

Figure 1: New Apprenticeships for Skilled Trades in Manufacturing



Source: Senatsverwaltung für Arbeit, Berufliche Bildung und Frauen (1999: 23), based on Statistisches Bundesamt, Fachserie 11, Reihe 3

What does this decline in the number of apprenticeships indicate? Have German enterprises abandoned their investive orientation towards skill and competence development? Are there differences between the automobile industry where manufacturing remains a core competence, and the telecom equipment industry, where manufacturing is being outsourced to contract manufacturers and low-wage countries? And what role does qualification and skill development play in the video games industry as a young sector?

Off-shoring as the “exit” option

A relocation of production to other countries whose primary motive is to evade the regulation framework and the wage costs in Germany would obviously mean a clear break with the “German model”. The foreign direct investments (FDI) of German enterprises is often cited as proof that German companies increasingly take the “exit” choice. At the same time the negative FDI balance in Germany (FDI in Germany – FDI of German enterprises abroad) since the 1980s is cited as proof that Germany is an unattractive site for foreign investors.

The Council of Economic Advisors (*Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung*), in an attempt to dampen down the heated public debate about relocation, has argued that the actual importance of relocation processes is considerably lower than the public debate suggests. In its last publication, the Council stressed three points: (1) a negative FDI balance is nothing unusual for an export-oriented economy like Germany and has no clear implications for the development of employment; (2) the size of German FDI in comparison to the investments of German enterprises *in* Germany has declined since the 1970s, suggesting that German enterprises invest increasingly more in Germany than in foreign countries; (3) for the most part, German FDI is driven by the motive of opening up new

markets and does not rule out the expansion of employment in Germany (Sachverständigenrat 2005: 485-487).

The Council's general argument includes one caveat: It acknowledges that German FDI in Eastern European countries and in China is driven by the motive of lowering production and wage costs and could result in a reduction of production and employment in Germany (Sachverständigenrat 2005: 487). However, as only 6.7% of the German FDI in 2002 was directed to Eastern European countries and China, the quantitative importance of these locations remains limited, according to the Council.

In view of the apparent differences between industries, a closer look into industry dynamics is necessary. In the case of the German automobile industry, recent studies stress the increasing relocation of production to Eastern Europe (e.g. Ernst and Young 2004; Nunnenkamp 2005). Off-shoring seems to be particularly strong in the telecom equipment industry (e.g. Brown and Linden 2005), including the domain of IT services (Boes and Schwemmler 2005; DB Research 2005). With regard to our third industry, the video game industry, there seems to be little pressure for relocation at this stage.

Besides the question of the quantitative importance of off-shoring, the qualitative question of changes in employment relationships driven by off-shoring processes in host and in home countries will be an important aspect of our further research. Studies belonging to the "national business model" approach stress the transfer of work and employment models to the host countries of FDI, while contributions to the literature based on the "productive model" approach have emphasised the "hybridisation" processes which result in a combination of elements of the home and host countries (Boyer et al. 1998). Particularly for the German case, various authors have emphasised a tendency of a "regime/model flight" (*Modellflucht*), however (Meardi and Toth 2005). In this case, companies do not even try to implement their home country work and employment model. The same argument is advanced by Bluhm (2001) for the case of Siemens and Dörrenbächer (2002), who examined the development of the sites of ten German enterprises in Hungary. To what extent can we observe the "Modellflucht" and what repercussions does it have for work and employment in Germany?

4. Changes and trends in the automotive, telecommunications, and video games industry

4.1 Automobile industry

The automobile industry is one of Germany's core industries. It is one of the major employers and has been of the few "growth engines" of the Germany economy in recent years. With 802,000 employees, the automotive industry (as defined by NACE 34) accounted for 12% of employment and 20% of investments in the German manufacturing sector, and for 23% of all German exports (VDA 2004; OECD 2004).

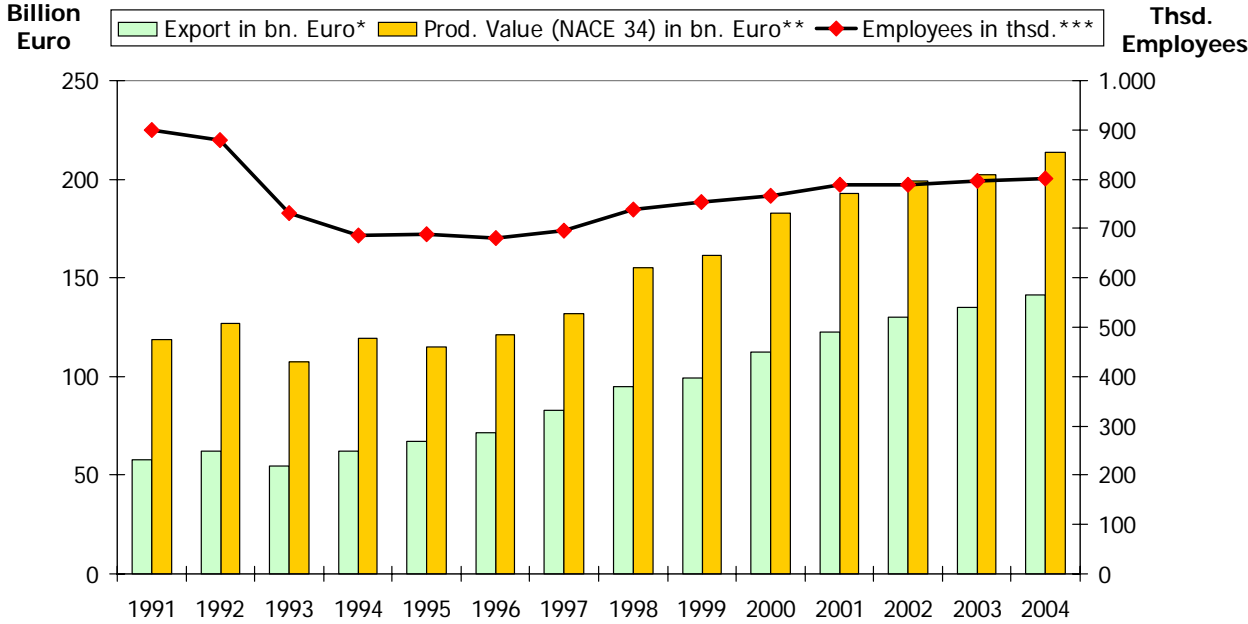
The automobile industry is a traditional labour union stronghold; its patterns of industrial relations have a large influence on the manufacturing industries and the German institutional setting of labour regulation as a whole. In 2004, the unionisation level was 75% in the German car industry, whereas the unionisation rate of the overall economy was an average of only 30% (Euro observer 01' 04: vi). All automotive OEMs have powerful works councils. Metal-industry collective agreements play a central role. A special case is Volkswagen. The company is not a member of the employers association and therefore not subject to the general collective agreement (*Flächentarifvertrag*); it has its own company collective agreement with the metal-working union. The automobile industry seems thus to be the prime example of the "German model."

1991 was the year with the highest employment level in the history of the German car industry to date: 806,000 employees. Employment fell over the subsequent five years to 682,000 in 1996 before increasing again. By 2004, auto industry employment had recovered to 802,000. As to domestic production, the first half of the 1990s was characterized by stagnation, followed however by a sharp increase to almost double its level of the early 1990s by 2004. This increase in domestic production was accompanied by an even higher increase in the value of exports over the same period. The fact that the German car producers expanded drastically their foreign operations at the same time – the proportion of cars produced by German car makers outside of Germany in their total production rose from 27% in 1991 to 46% in 2004 – demonstrates a remarkably strong performance by the German car industry.

But it's not all roses with the German car industry. As Figure 2 shows, the industry experienced a severe crisis in the first half of the 1990s. Between 1991 and 1994 over twenty percent of the workforce lost their jobs. The number of German employees at Mercedes-Benz decreased by 36,000, at Volkswagen by 18,000, at Opel by 9,000, at Audi by 7,000, and at Ford by 5,000. The industry-wide workforce reduction would have been far greater without the introduction of the 35-hour week. At Volkswagen, the 28.8-hour week became the new work time standard at the end of 1992 (Haipeter 2000). In addition to this, other measures like early retirement were used in

order to prevent dismissals.⁹ This crisis served as a trigger for the restructuring of industry organisation. And under the surface of stable, even increasing employment levels, problems have accumulated during the first half of the 2000s again. Thus the German workforce of General Motors/Opel was cut by 10,000 in 2005, and Daimler-Chrysler, Ford and Volkswagen also announced major redundancies.

Figure 2: Production Value of Domestic Production, of Exports and the Development of Employment of the German Car Industry (1991-2004)



* excluding used cars; **according to the official production statistics (company with more than 20 employees) based on NACE 34; until 1994 based on SYPRO. *** based on plant figures

Sources: VDA Tatsachen und Zahlen, Volumes 1995-2005 and own calculations

The question of how they can be facilitated within the context of the employment guarantees stipulated by company agreements (see below) is an open question at this stage. Increasing overcapacities and the stagnation in demand lead to a fierce competition among mass producers. Although the premium segment producers still report increasing sales revenues and high profitability, they are also engaged in intense cost and productivity competition that enforces rationalisation measures. Thus, the picture of a rather steady and continuous upwards development is misleading. It

9 The employment of OEMs is concentrated in large companies: in 2002, 97.7% of employees have worked in 21 companies with more than 1,000 employees each. Small companies with less than 100 employees contribute less than 1% of employment. Employment of suppliers is significantly less concentrated. In 2002, large scale companies with more than 1,000 employees encompassed 64% of overall employment in the supplier industry, while small companies in the supplier industry with less than 100 employees accounted for 12.6% of employment (Statistisches Bundesamt, Fachserie 4.3.).

conceals a drastic restructuring of the productive organization of the industry, organizationally as well as spatially. In particular, the following three trends should be mentioned in this regard:

- the restructuring of supplier relations, and with that increased outsourcing of activities to suppliers, the tiering of the supplier structures and the specialization of companies on specific roles (such as modular or system supply);
- measures to achieve a closer integration and coordination of cooperation processes within and between companies;
- the increase of foreign activities, relocation of work to enter new markets or benefit from low-cost conditions.

Each of these trends has deep effects on existing structures and governance compromises concerning work and employment relations.

The decline of solidarity? New forms of flexibility and shrinking employment protection

Since the experience with personnel reductions in the wake of the first oil crisis in 1973, the guarantee of employment security traditionally has been considered high in the car industry. The prevalent consensus between management and labour was that “secure jobs” foster cooperation and motivation and therefore are instrumental for productivity increases. Behind this common understanding was the clear commitment of works councils and unions to protect employment while at the same time supporting productivity measures.

Since the 1990s, increasingly intense competition has challenged the former consensus on employment protection. The possibilities to compensate productivity increases through an expansion of production diminished. The fall of the Iron Curtain and the following integration of the Eastern European countries into the European Union provided the German automotive enterprises with the opportunity to benefit from a low-wage and highly-trained work force close to Germany. Management openly threatened to relocate, and “whipsawing”, i.e. playing off plants against each other, became a widespread practice.

So called *company-level pacts for employment protection* have been the primary result of these efforts to renegotiate the balance between employment protection and flexibility. These employment pacts between the management and works councils/trade unions develop on the basis of “opening clauses” in industry-level collective agreements that allow for enterprise-level collective bargaining under certain circumstances. In the metalworking sector, the first opening clauses appeared in the context of the reduction of weekly working time to 35 hours, realised step-by-step between 1984 and 1994 (Bispinck 2004: 239f.). In 1990, the IG Metall agreed to concede to enterprises the possibility to prolong the weekly working time for part of the workforce up to 40 hours (depending on the bargaining district for 13% resp. 18% of the em-

ployees of a company which wants to apply this clause).¹⁰ The second phase of the introduction of opening clauses was initiated by the crisis of the East German metalworking industry. In 1993, the IG Metall and the employer association Gesamtmetall introduced a so called “hardship clause” into the industry-wide agreement. In case of economic difficulties, the enterprises were allowed to suspend the agreed wage adjustment in Eastern Germany to the West German level. The third phase began in 2002. In this year, the metalworking agreement provided for the possibility of deviating from the agreed wage increase in case of a “danger to the economic survival of an enterprise” (Bispinck 2004: 240). In 2004, this clause was extended by the Pforzheim agreement mentioned in the previous section, which covers not only wages but all regulation areas.

There have been three main waves of employment pacts in the automobile industry: The first started in 1993 and was initiated by the crisis of the German automobile industry at that time; the second took place during the consolidation phase of the industry between 1996 and 2001; the third wave comprised agreements concluded in the years 2004 and 2005. The agreements of all three waves contain employment guarantees and investment promises. The duration of employment guarantees increased from two years on average in the first wave of agreements to a duration of six or seven years in the third wave.

While the first two waves focused on working time flexibility, the third wave concessions of trade unions and works councils indicate that the balance of power between labour and enterprises has changed profoundly. Pointing at international comparisons of labour costs and productivity levels, companies extensively use the threat to relocate production to low cost countries (cf. Eiro observer 1’ 04: v). A spectacular case was Opel. The agreement here followed an earlier one at Mercedes and triggered a similar bargaining process at Volkswagen. Despite many differences, the principal elements of the agreements are quite similar. Taking as an example the Mercedes agreement “Securing the Future 2012” (*Zukunftssicherung 2012*) which covers the German sites of Mercedes, the essential elements are the following: The management side committed to certain investment levels and product allocation plans and it ruled out redundancy measures until the end of 2011. Management also agreed to keep the level of vocational training, i.e. the number of apprentices employed during this time. The works council, on the other side, accepted a reduction of basic wages by 2.79 % for all employees and a special regulation for so called “services” employees with less favourable working time and salaries. The wages for newly recruited workers starting in 2005 were reduced by 8% on average. In addition, company-internal mobility was increased by establishing a new unit called DC “Move”. All new recruitments and graduated apprentices enter DC “Move” for 36 months maximum and can be moved to all sites of the company. An extension to earlier age groups eligible for early retirement, a further flexibilisation of working time for

10 In 2004, these agreements were extended: the new metalworking industry agreements allowed for a return to the 40 hours week for up to 50% of the employees on the basis of an agreement between the enterprise and the works council.

R&D-employees, and the specification of the maximal number of agency workers in Mercedes plants (4%) round out the agreement.

While agreements in the early 1990s had focused on working time and working time flexibility, straight wage concessions constitute one of the main elements of the recent company pacts for employment. The trade unions and works councils succeeded in defending the employment security of the employees at the German automotive OEMs only at the expense of wage reductions and an increasing differentiation and segmentation of wage and employment conditions.

The *employment of agency workers* is a further important trend in the car industry – however, compared to other industries it takes place in a regulated and negotiated way. The expansion of agency work in the German automotive industry is negotiated with works councils. The case of Ford illustrates the negotiation processes: The corporate works council and the management of Ford have agreed that agency workers in their assembly plants at Cologne-Niehl and Saarlouis will be paid on the basis of the IG Metall collective agreement. This plant agreement means that agency workers will receive 750 Euros more per month than before. The plant agreement also sets a limit for the number of agency workers: they must not exceed 3% in each of the production areas, except during product launches, at which time they may reach 8%. Workers will only be hired from those agencies that follow the collective agreement between the unions and the Bundesverband Zeitarbeit, the federal association of agencies.

The most advanced approach to the use of agency work can be found at Volkswagen and is worth discussing in some detail. Already in the mid-1990s Volkswagen's personnel department demanded an own temporary work agency. A first step in this direction was realised in 1997 with the establishment of the Wolfsburg AG, a public private partnership between the city of Wolfsburg and Volkswagen which besides running a personnel service agency (PSA), engaged in a number of different business areas: an innovation campus, an agency to facilitate the settlement of suppliers, a fun and science park, a health project, a network called "economy and sustainability". The original aim was to create 1,500 jobs in services in the Wolfsburg region. Up to the end of 2004, the Wolfsburg AG reports to have created more than 8,000 jobs: more than 2,000 jobs through the personnel service agency, about 1,500 jobs in the innovation campus with 243 start-ups, and about 3,900 jobs at suppliers opening up plants in Wolfsburg (<http://www.autovision-gmbh.com>, 14.4.2005).

In order to expand beyond the city limits of Wolfsburg to which the WOB AG is restricted, Volkswagen established another personal service agency in 2001: AutoVision. In 2005, AutoVision provides 2,000-3,000 temporary workers mainly for the company's own purpose but also to external companies like DaimlerChrysler. In addition, it employs a further 2,000 workers for service, logistics and manufacturing activities that are in threat of being outsourced from Volkswagen plants. When compared with Volkswagen, Auto Vision offers not only high employment flexibility but also cost advantages that result from its specific collective agreement. AutoVision offers wages according to the metalworking industry agreement which sets nominal monthly wages 10% lower in comparison to VW's workers. However, taking into account that the

regular working week at AutoVision has 35 hours while it is only 28.8 hours at VW, the difference in hourly wages amounts to 26%.

Increasing inequality? Organisation-centred and market-centred incentive systems

Compared to the general trends in changing forms of employment protection and flexibility discussed above, changes in incentive systems are rather weak in the automotive industry and do not show a clear trend. Incentive systems in the automobile industry are regulated by collective bargaining agreements. Highly formalised rules in these agreements prevent a performance-based individualisation of wages for blue collar workers (interview auto D1, 31.10.2004). In the area of non-pay scale employees, however, individualisation of variable wage components plays an increasing role. In the case of Volkswagen, variable wage components for non-pay scale employees can amount for up to 23% of their yearly remuneration. Besides the individual bonus, there is a company bonus. The bonus for individual performance is increasingly linked to target agreements.

Besides the increasing role of target agreements and individualised, market-related salary components for non-pay scale employees, it is worth pointing to Volkswagen's innovative Auto5000 concept, often known under the name "5000x5000" (see Schumann 2005). The Auto5000 collective agreement of 2001 was the result of negotiations between VW management, the works council and the IG Metall and a reaction to off-shoring pressure and competitiveness problems of VW's German plants. 3,500 employees in the production of the minivan "Touran" are covered by this agreement. One of its highly contentious elements is the levelling of the wages: a standard wage of around 2,500 € (5,000 DM) is paid to all employees. Another disputed element is the linking of the working time to the achievement of the production plan, the so called „program wage" (*Programmlohn*). If the employees fail to realise the production goals during the regular working time they have to accept unpaid overtime work – provided that the enterprise can prove that the workers are responsible for not achieving the production goals. However, the collective agreement for Auto5000 limits the maximum unpaid overtime work to one hour a day.

Segmentation of employment conditions within companies and in the supply chain

One of the main trends concerning the employment relationships in the German automotive industry is the increasing cost and relocation pressure on suppliers and an increasing segmentation of employment conditions among and within enterprises. Traditionally, the industry-wide collective agreements in the metalworking sector have limited the extent of differentiation of wage and employment conditions in the automotive sector. The vast majority of suppliers were covered by the industry collective agreements, and the OEMs paid wages that surpassed the industry standards. This differentiation of wage levels can be illustrated on the example of Volkswagen:¹¹

11 Basic wages for skilled production workers are the basis for this comparison.

- The hourly wage level of Volkswagen's collective agreement (*Haustarifvertrag*) for employees with an entry date before 2005 is around 25% above the metal-industry collective agreement,
- The wage level of important suppliers like Bosch is about 10-12% below that of VW,
- Wages of all metal-related suppliers are defined by the metal-industry agreement,
- The wages at suppliers covered by other collective agreements (textile, chemical industry etc.) are below the metal agreement by 10-30%.

Since the mid-1990s, two main processes have affected the differentiation of wage and employment conditions within the automotive sector. First, most of the OEMs have begun to reduce the wage gap (including indirect wages) vis-à-vis the general metal-industry level. Thus, since the mid-90s, Opel has stepwise reduced its wages from about 130% of the metal-industry level to about 115%. The new collective agreement of Volkswagen adapts the wages of new recruitments from 2005 onwards to the metal-industry level. After several steps of reducing the payments exceeding the industry level in the 1990s, Mercedes has concluded an agreement with its works council in 2004 that, from 2005 on, lowers the wages by 8% for newly recruited employees. These changes mean a tiering of wage levels at the OEMs and, on the average, a movement toward the industry-level standards.

Secondly, there is considerable pressure on suppliers to reduce their wage levels even more. Being bound by the industry-wide collective agreements, the suppliers have two options: to break the industry collective agreement or to find other ways to pay less than the industry-level standards demand. Both can be observed. Suppliers leave the industry collective agreements and "hardship clauses" are introduced in the industry-level agreements to create possibilities to pay considerably lower wages in the case of a difficult economic situation.

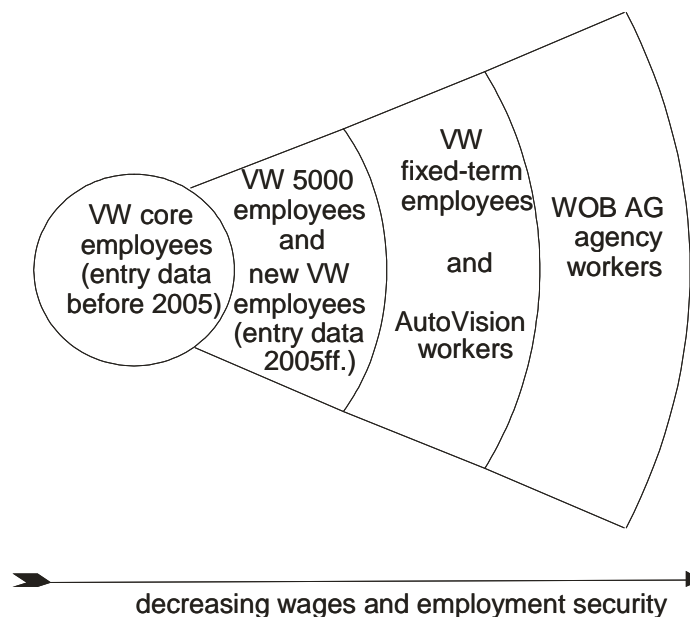
There is also an increasing tendency toward differentiation of wage and employment conditions within the OEMs, as the example of Volkswagen illustrates. Since Volkswagen could not achieve wage reductions for the whole of its employees, it has started to introduce special collective agreements for those parts of the enterprise where changes could be enforced. There are now the following employment status groups at Volkswagen:

- The core group of employees which have entered the company up to the end of 2004: At this time the standard working time for this group is 28.8 hours a week and the monthly wage for skilled workers 2,603 €
- The group of newly hired Volkswagen employees with entry date 2005: According to the collective agreement of 2004, special clauses apply to this group regarding pay and working time. While the employment protection is the same as for core employees, the monthly wages of this group are on average 8% lower and the working time is at 35 hours a week. Due to the longer working time, the hourly wages for this group of employees are 24% lower compared to the core group.

- Similarly, the Auto5000 employees receive monthly wages 5% lower than the core employees. The extension of working time to 35 hours per week compared to 28.8 hours for the core employees means that the hourly wages are in fact 21% lower compared to what the core group receives.
- Employees with fixed-term contracts and employees of AutoVision GmbH that work as agency workers for VW constitute a third layer. Besides the fact that the employment protection does not apply to this group they receive lower wages and work the 35-hours week. This leads to a factual difference on average of 26% in hourly wages.
- Agency workers employed by the personnel service agency of Wolfsburg AG constitute the fourth layer. The hourly wages for this group of employees are on average 40% below the VW core employees.

It is not only important that the segmentation of employment conditions increases at VW, but that there is meanwhile no longer permeability between the segments: there is little chance for the individual to make a career from the periphery to the core.

Figure 3: Segmentation of the employment status at Volkswagen



Outsourcing and Off-shoring – Out of Germany or out of business?

The diagnosis of the CEO of the Opel AG is stark: “Out of Germany or out of business” announces Carl-Peter Forster (2004). Indeed, transnationalisation and relocation of production have gained in importance in the German automobile industry. Eastern Europe, in particular, becomes the preferred location of investment. The motives for investments by German automobile OEMs in Eastern Europe have changed: The reduction of production costs is gaining in importance relative to the opening up of new markets: Eastern Europe becomes a platform for exports to Western Europe

and exerts a considerable pressure on Western European production locations (Nunnenkamp 2005).

The proportion of German-make vehicles that are made abroad to newly registered vehicles in Germany has increased markedly in recent years. Overall, a fifth of German carmaker's vehicles registered in Germany are made abroad (*Automobilwoche*, 13.7.2004, p.4) In 2003, the share of total passenger cars made in Poland, the Czech Republic, the Slovak Republic, and Slovakia amounted to 18% of all German make vehicles produced abroad (VDA 2004, *Tatsachen und Zahlen*: 55) The front runner was the Volkswagen Group which integrated the Czech Skoda between 1991 and 2001 and stepped up the development of production in the Slovak Republic (Podevins 2004). The Volkswagen subsidiary Audi now produces all engines and the sports car TT at Győr in Hungary. Other motor vehicle manufacturers which had already built new works in CEE countries in the 1990s were Fiat in Poland, GM/Opel in Poland and Hungary, Toyota in Poland, and Suzuki in Hungary. In 2003, the French credit risk insurer Euler-Sfac estimates total investment in Poland, the Czech Republic, and the Slovak Republic in the motor vehicle sector since the demise of communist regimes at US\$ 20 billion.

The supply industry is especially attracted by the low labour costs in CEE locations, since, labor costs account for a percentage of total costs in this segment of the industry (25% of total costs for suppliers as compared with 15% for final assembly (Dudenhöffer 2004: 3). As the supplier basis in Central Europe catches up with final assembly, this sector can, as surveys suggest, be expected to record similar or higher growth rates than in the automotive industry as a whole.¹² In recent years considerable amounts have been invested by major suppliers. The American supplier Delphi, for example, now employs 5,000 people in Poland alone. Its total investment there amounts to US\$ 250 million.¹³ Small and medium-sized companies in the supplier sector are often under particular pressure, since their financial structure obliges them to generate the capital needed for growth directly from profits out of their revenues. In view of the massive cost pressure from final producers, relocating to Central and Eastern Europe is often the only solution.

As table 3 shows, there are enormous discrepancies within Europe in wages and salaries and in labour costs as a whole. In table 4 the German level is set at 100. Even within Western Europe, values scatter up to 50% of the German level; and in Eastern European countries they range from 20% in Hungary down to 13% in the Slovak Republic, 6% in Romania, and 4% in Russia. The data in table 3 are based on annual wage and salary amounts and on total per capita labour costs in the automotive industry, i.e., the often proportionately higher white-collar salaries are

12 The Journal Automotive News Europe already anticipates higher growth dynamics in the supplier sector, cf.: Chew, Edmund (2004): "The Expanded European Union: Low wages had lured suppliers to 5 countries already", *Automotive News Europe*, May 03, 2004, autonews.com archive. On supplier outsourcing dynamics see also Roland Berger Strategy Consultants (2004) and Ebel, Bernhard; Utikal, Hannes; Hofer, Markus B. (2004): *Trendstudie Zulieferer 2004*, Simon Kucher and Partners.

13 The American Chamber of Commerce in Poland (2004); http://www.amcham.com.pl/ai_01_2004_9.phtml

included. Furthermore, these figures include payments like the "13th monthly salary" and the like, which, as often happens, are not taken into account in comparisons with hourly wages.

Table 4: Indexed (Germany = 100) Yearly Wages/Salaries and Labour Costs per Person Employed in the European Automotive Industries 2003

	Wages and Salaries	Total Labour Costs
Germany	100.0	100.0
UK	75.9	69.9
France	70.2	78.3
Sweden	66.4	77.7
Spain	55.6	59.5
Italy	49.5	57.4
Slovenia	23.2	–
Hungary	20.3	22.0
Poland	18.1	17.8
Czech Republic	16.4	17.9
Slovakia	12.9	13.9
Romania	5.6	6.2
Russia	4.0	–

Source: VDA: International Auto Statistics, edition 2004, p. 350f., 361f.; own calculations. The average per-capita figure for wages and salaries in Germany was €45,700; for total labour costs €57,200.

Table 5 shows the instance of German suppliers and their plans regarding new plants or expanded production and development capacities at new locations. The table shows that at the beginning of the current decade, Eastern Europe was playing just as great a role in new production capacity planning as Germany (East and West), and that medium term investment perspectives in the region already exceeded those in Germany. The same is true in the medium term for the establishment of production capacities in Asia. Table 4 also shows the – far weaker – increase in the importance of these location regions for research and development tasks.

As we have seen, the combination of low-wage conditions and EU integration in CEE produces a special constellation which can undermine the previous win-win situation in relations between Western Europe and the Eastern European transition countries, through the rapid relocation of value-added resources and jobs to the detriment of the industrial countries.

Table 5: Plans of German Suppliers to Expand Production and Development Capacities at New Locations, Short and Medium Term

	short term 2001-2006		medium term 2006-2011	
	<i>Production</i> %	<i>Development</i> %	<i>Production</i> %	<i>Development</i> %
BRD – old federal states	15,8	27,1	9,6	29,0
BRD – new federal states	7,3	7,5	5,1	6,5
Europe	10,3	9,8	8,8	11,2
Eastern Europe	21,8	8,3	20,6	9,3
Russia	1,2	0,0	6,6	1,9
North America	14,5	14,3	10,3	10,3
South America	5,5	3,0	8,1	2,8
Asia	13,9	8,3	18,4	10,3
Others	0,6	0,0	1,5	0,0
not planned	9,1	21,8	11,0	18,7

Source: Dudenhöffer et al. (2002): Gemeinschaftsstudie Automobilstandort Deutschland, p. 17-18

Summary

The automotive industry remains one of the strongest German industries and the main pillar of the German export success – so far, it seems to be the best proof of the competitiveness of the “German model”. Under this surface, however, there are important changes that should be noted.

Continued off-shoring of production to Eastern European countries is taking place, and this exerts considerable pressure on work and employment models in the automobile industry. Several of the concessions made by trade unions in the last years (2004-05) were enforced by relocation threats: Mercedes considered shifting production to South Africa, Opel to Sweden and Poland, Volkswagen to Portugal and the Czech Republic. The stagnating demand in the mass market segment and the fierce productivity competition in both the mass market and the premium market segment exert high pressure on employment.

To date, the works councils and the IG Metall succeeded to deal with this pressure by means of company-level employment pacts to defend the “German model” of employment relationships. The dynamics of outsourcing and off-shoring certainly unleash new pressures, but they do not necessarily result in the collapse of the existing industry-wide collective bargaining structures. The labour union and works-council system, with the help of the social-democratic governments, managed to limit

the use of precarious employment forms and to regulate the deployment of agency work.

However, the situation resembles a powder keg. The difficulties facing enterprises such as Volkswagen or General Motors in combination with high productivity increases in all segments of the industry could soon necessitate employment reductions of a dimension that could signal a break with former governance compromises. Can the actors at the enterprise level find solutions that would avoid such a break? Do the measures differ between Germany-based enterprises like Volkswagen and American-led companies like GM? And how do suppliers react?

4.2 Telecommunications equipment industry

“Siemens buys itself off from the mobile phone business” (*FTD*, 7.6.2005) or “Siemens to shed sagging phone unit” (*NYT*, 8.6.2005) – these were the headlines announcing the sale of the German Siemens group’s mobile phone division to the Taiwanese BenQ. Does the exit of Siemens from the mobile phone business confirm the longstanding critique of the factors constraining the competitiveness of Germany’s telecommunication industry? Is the “varieties” approach right to claim that employment relationships in “coordinated market economies” like Germany create barriers to the development of “radically innovative” enterprises and industries?

Let us briefly review developments in the German telecom equipment industry during the last decade. The general figures do not suggest a particular weakness of the sector. Over the ten years, the telecommunications equipment industry in Germany experienced rapid growth. Between 1996 and 2002, the turnover of the production of telecom equipment climbed from 14.5 to 20.0 billions euros. While the export ratio in output reached 28% in 1995, it rose to 51% in 2003 (Statistisches Bundesamt, Fachserie 4.1.1.). The employment in the telecommunications equipment industry increased from 73,000 in 1996 to about 75,000 in 2003.¹⁴ Many of the global players in the telecommunications equipment industry have affiliates in Germany. Alcatel (5,600 employees in Germany), Nokia (3,500 employees), Motorola (2,800 employees) and Lucent (500 employees) have both product development and production facilities, and Ericsson has a large development centre employing 800 people. However, by far most important are the production and development sites of Siemens. In 2004, Siemens Communications employed about 60,000 persons worldwide and about 27,000 in Germany – that is, one third of the total employment in the German production of telecommunications equipment (Siemens 2004).

It is quite difficult to estimate the telecommunications-related employment in supplier enterprises because most of the suppliers do not work exclusively for the telecommunications sector. Between 1996 and 2003, employment in the most impor-

14 Employment is concentrated in a few big enterprises: In 2002, 76% of all employees of the telecom OEMs worked for ten enterprises with more than 1,000 employees. Small enterprises with less than 100 employees made up only about 5% of the employment (Statistisches Bundesamt, Fachserie 4.3.).

tant group of suppliers, the producers of electronic components, rose from 67,000 to 72,000 in Germany.¹⁵

When ranked by employment, Germany is the most important location of the telecommunications equipment industry in Europe, closely followed by France. Sweden and Finland; the two Nordic countries with a very successful telecommunications equipment industry have lower absolute numbers in both the production of electronic components and the production of end products, but the relative importance of the telecommunications industry is higher than in Germany given their much smaller overall labour force. It is noteworthy that Finland reaches the same level of turnover in telecommunications equipment production as Germany with a much lower number of employees (see table 6).

While in the European context, the employment figures and the turnover suggest that the German telecommunications equipment industry is rather strong, comparison with the U.S. and Japan yields a more cautious assessment. In 2002, employment in the production of telecom equipment in Germany was 2.5 times lower than in the U.S. and 3.5 times lower than in Japan. The turnover of the German telecom equipment industry did not reach but a quarter of the U.S. The differences are even greater in the production of electronic components: In 2002, the German industry reached a sixth of the American and a tenth of the Japanese employment. The U.S. electronic components industry's turnover exceeded the German by ten times.

Even if German telecom equipment industry does not reach the strength of the U.S. or of Japan, it would still appear to be a strong player in Europe. Behind the general figures, however, are obvious signs of weakness. The German flagship company Siemens has just divested its mobile phones business, which until recently has been regarded as one of its core areas. What role did labour regulation play in this development? More generally, what changes can be observed in the area of employment relations in this industry?

In the following we discuss the development of the German telecommunications equipment industry taking the example of Siemens Communications, the telecommunications equipment and services division. The analysis is based primarily on publicly available data and the secondary literature, as our own empirical research on this industry has just begun. The first reason for basing our discussion of the Siemens case is that it is quite well documented. The second and more important reason is the flagship role of Siemens in the German telecommunications industry. Siemens is a classic example of the "Modell Deutschland": As a member of the metal industry's employers association, its labour regulation follows the collective agreement standards; a powerful works council system from shop floor to the corporate level exists; and traditionally, employment security has been regarded as a basic principle of personnel policy. With this strong tradition of "social partnership", Siemens differs from

15 Employment is less concentrated than in the production of end products. In 2002, 54% of all persons employed in this supplier industry worked for large enterprises with more than 1,000 employees. Small enterprises with less than 100 employees made up about 11% of the industry (Statistisches Bundesamt, Fachserie 4.3.).

Table 6: Employment and turnover in €mn. in the telecommunications equipment industry

	1996				2002			
	Telecom equipment		Electronic components		Telecom equipment		Electronic components	
	Employees	Turnover	Employees	Turnover	Employees	Turnover	Employees	Turnover
Germany	73,300	14,554.4	67,300	7,667.5	80,400	19,661.5	71,600	16,962.5
France	72,700	12,204.4	47,700	7,148.1	69,800	16,124.1	66,000	12,172.1
Sweden	32,800	9,866.1	3,900	430.2	34,000	10,818.2	5,800	514.8
Finland	19,400	4,542.0	4,100	440.4	30,400	23,955.6	4,400	498.5
Poland	13,900	516.2	10,600	129.5	10,300	1,096.9	5,500	161.8
United States	294,900*	73,489*	587,300*	123,366*	191,900	69,690.6	435,600	118,308.3
Japan	n.s.	n.s.	n.s.	n.s.	270,000**	n.s.	730,000**	n.s.

Sources: Statistisches Bundesamt, Fachserie 4.1.1. for Germany; Eurostat for the other European countries (NACE 1.1.); Bureau of Census for the U.S. (NAICS); Statistics Bureau of the Ministry of Internal Affairs and Communications for Japan.
* 1997. ** 2005.

the average of the German telecommunication industry, in which only about half of the employees are covered by works councils.¹⁶ The strength of trade unions at Siemens (i.e. IG Metall), however, does not really diverge from the general pattern in the infocom industry. The rate of trade union membership at Siemens amounts to 26% (industry average: 10% varying between 50% at production plants and 5% at white-collar sites (Martens 2005: 55)). We will see how the work and employment model at Siemens changes.

Outsourcing and Off-shoring – Siemens on the way out of Germany?

Siemens began its efforts to become a global player in the telecommunications equipment industry at the end of the 1980s in the context of the liberalisation of telecommunications markets. A wave of acquisitions and joint ventures led to rapid expansion of the two main product divisions of Siemens Communications: the production of mobile phones and the production of network infrastructure for network operators and other enterprises. The production of mobile phones was concentrated in three locations: the German plants in Bocholt and Kamp-Lintfort, and the Chinese plant in Shanghai. The production of network infrastructure remained distributed in a large network of about 30 sites (Dörrenbächer 1999).

Despite the continued efforts to establish itself as one of the leading telecom equipment producers, the mobile telephone branch became the biggest worry of Siemens. Siemens' world market share in mobile telephones oscillated around 8% over the previous years, fell to 7.2% in 2004 and reached 5.5% in the first quarter of 2005 (FTD, 5.6.2005), and was far from reaching the share of 15% required for a profitable production, according to von Pierer, the former chief executive of Siemens (FTD, 31.7.2003). Siemens has had more success in the production of network infrastructure. Here, the enterprise reached a world market share of 13% in 2003 and even 23% in the market for UMTS-network infrastructure (<http://www.insidehandy.de/news/1269.html>, download 7.3.2005). In 2004, Siemens reported a 30% market share for UMTS-network solutions and was the worldwide leading equipment producer in this segment (Siemens 2005).

Due to acquisitions and joint ventures, foreign employment increased but Siemens' employment in Germany remained stable, as table 7 illustrates. The situation of the Siemens Communications division did not differ from the whole group. With 27,000 employees, the Communications division in Germany represented 44% of Siemens total employment in Germany in 2004, making it the largest division in terms of employment. Table 7 illustrates the size of Siemens Communication division's employment in Germany as compared with the size of its workforce in Asia, the Mecca for the production of electronics. The 8,500 Asian employees of Siemens Communications constituted 14% of the division's total employment.

Table 6 also shows the development of employment at Infineon and Epcos, two important suppliers of the telecom equipment industry and former subsidiaries of

16 Available information about union membership and collective bargaining relates to the infocom industry as a whole, there are no data on the telecom equipment segment.

Siemens. Infineon, a producer of semiconductors, makes over 30% of its turnover in the telecom equipment industry and maintains anchored to Germany, even if Asian locations gain in importance. In 2004, 46% of Infineon's total employment was located in Germany. Important changes were announced in 2005, however. Infineon announced that it would sell its memory unit, which was in deficit, and concentrate on electronics for the automotive industry. Its sale to a foreign investor could put at risk up to 4,500 jobs in Germany (one fourth of employment in Germany), according to the IG Metall (*Handelsblatt*, 23.9.2005).

The situation is different at Epcos, a producer of electronic components. Epcos makes about one third of its turnover in the telecom equipment industry. The share of German employment at Epcos fell within four years from 28% to 14% while the share of employment in Asia doubled. The relocation to low-wage countries is a stated strategy of Epcos (Epcos 2004).

Table 7: Siemens, Infineon, and Epcos – Employment in Germany and Asia (in thsd. and in % of total employment)

		2000	2001	2002	2003	2004
Siemens	Germany (%)	167 (40%)	181 (40%)	175 (41%)	170 (41%)	164 (38%)
	Asia (%)	36 (9%)	44 (10%)	43 (10%)	44 (11%)	52 (12%)
Infineon	Germany (%)	14 (49%)	17 (50%)	16 (52%)	16 (50%)	16 (46%)
	Asia (%)	9 (30%)	9 (25%)	7 (24%)	8 (25%)	10 (29%)
Epcos	Germany (%)	4 (28%)	4 (28%)	3 (21%)	2 (17%)	2 (14%)
	Asia (%)	3 (26%)	4 (30%)	5 (35%)	5 (40%)	7 (46%)

Siemens without Infineon and Epcos. Source: Annual reports

Since the beginning of this decade, Siemens intensified its efforts in outsourcing and off-shoring. In 2000, Siemens made a step already taken by other OEMs (cf. Lühje, Schumm, Sproll 2002): It outsourced the production of 33 mn mobile phones until 2003 to the contract manufacturer Flextronics (*Electronic News*, 8.7.2000) – this volume corresponded to one year of production i.e. one third of total production between 2001 and 2003. The Flextronics plant in Hungary took over the production.

Relocation threats have started to shape the collective bargaining at Siemens. In 2003, Siemens announced that it would shift a large part of its software development to Eastern Europe. At the time, the company employed about 50,000 software developers: 30,000 in Germany, 2,700 in Eastern Europe, and the rest in Western Europe, North America and Asia (*FTD*, 12.12.2003). The announcement clearly portended a massive relocation of jobs from Germany to its Eastern neighbours.

The next step was that the relocation threat became part of the general policy of the company. In 2004, Siemens presented the “Siemens Management System” (SMS) that was perceived as a means to relocate workplaces to low-wage countries (see the statement of the Siemens group works council/Positionspapier GBR/KBR 2004). The SMS linked the employment of Siemens in different world regions to their turnover and value added share. At this time, 38% of Siemens's employees worked

in Germany while the share of turnover in Germany was 23%. The SMS provided for three projects: The relocation of production to low-wage countries (“worldwide manufacturing concept”), the centralisation of internal services from different sites (“shared services”), and the relocation of software development to low-wage countries (“software initiative”).

In 2004, several conflicts broke out. Some commentators spoke of a “turning point in the history of the enterprise” (FTD, 19.11.2002). Siemens announced the relocation of the production from different plants (Bocholt, Kamp-Lintfort, Bruchsal, Kirchheim/Teck, Nürnberg) to Eastern Europe and China. These plans were rescinded only after wage and working time concessions were made by IG Metall.

However, all the trade union concessions that Siemens secured in 2004 could not prevent the failure and eventual sale of the mobile phones division in 2005. Siemens was so eager to get rid itself of mobile phone production that in summer 2005 it transferred this business area for free to the Taiwanese contract manufacturer and telecom equipment producer BenQ. Siemens even provided most of the financing for BenQ’s purchase of the division by itself acquiring 50 mn. € of BenQ shares. Soon after the takeover of the Siemens mobile phones production by BenQ in summer 2005, the Taiwanese enterprise announced a reduction of mobile phone production in Germany (ap, 16.6.2005).

Due to the high degree of standardisation in production processes of the electrical goods and telecommunications industry, outsourcing and off-shoring is an easy step to take (Jürgens and Rehbehn 2004). The relocation of production to Eastern Europe or China signifies a withdrawal from the German model of labour regulation. This withdrawal leads to a high pressure to lower labour costs and to change labour regulation in Germany, especially for production and assembly workers. In the following, we discuss recent changes in the work and employment models at Siemens under the pressure of the relocation threat.

The decline of solidarity? New forms of flexibility and shrinking employment protection

Employment protection belongs to the core elements of the German work and employment model. As was already mentioned, Siemens has had a long tradition of providing stable long-term employment protection. Employees were seen by the company, and they saw themselves, as members of the “Siemens family”. And even in times of difficulties no member of this family was let down. In cases of difficulties early retirement games and the use flexible working time and other measures were used to reduce labour in a consensual, socially acceptable manner. Since the end of the 1990s, however, the enterprise increased its efforts to gain new sources of flexibility. The main measures taken are the following:

- Demands for wage and working time concessions in exchange for continued employment protection. After an intense conflict in summer 2004, Siemens secured an extension of the weekly working time in its two main German telecom equipment production plants in Kamp-Lintfort and Bocholt from 35 to 40 hours with no extra pay; combined with a reduction of bonus pay, this led to a reduction

of hourly wage costs by 30%. In exchange for this concession, Siemens gave an employment guarantee for the workers in these two plants just for two years, i.e. until summer 2006. A similar compromise was reached in autumn 2004 for the plant in Bruchsal.

In addition, Siemens tries to use plain dismissals as a flexibility instrument. In 2002, a conflict broke out as Siemens announced to dismiss 2,600 of its 7,300 white-collar employees at the Munich site (development site for telecom network infrastructure) (see Martens 2005: 95ff.). Although the trade union membership was low (about 6%), a grass root organisation developed. The works council and the self-organised employees mobilised massive protests. Finally Siemens agreed not to dismiss more than 1,100 persons and to offer to the dismissed a change to a “job creation company” (*Beschäftigungsgesellschaft*) for one year. “Job creation companies” are institutions that offer skill training programmes and arranging employment for workers who are on short-time work contracts or faced with unemployment. Their use allows to circumvent the social selection criteria for redundancies and to benefit from a public co-financing for so called short-time work. This company attempts to find new jobs for the concerned employees. While 400 employees transferred to the “job creation company,” a further 350 refused and were dismissed. However, the German labour regulation still makes it difficult and particularly expensive to push dismissals through against the works council. In the case of the redundancies in Munich, the works council took legal action for 200 of the dismissed employees and won most of the suits at the industrial court.

- The segmentation of employment conditions. In order to create different regulation areas within the enterprise and to redistribute the burdens of flexibility, Siemens negotiated supplementary collective agreements for parts of the enterprise. In 2002, for instance, a conflict about the future of the service units in the Siemens network section broke out. After the management announced dismissals, the works council and the IG Metall made a new proposal for an agreement for the service unit that was finally accepted by the management. Siemens and the IG Metall agreed to transfer the 6,500 employees from the metalworking collective agreement into a collective agreement for services. This meant lower wages and higher working time flexibility for the employees.
- Agency work – Siemens and its subsidiaries increasingly use temporary work as a flexibility buffer in production. In some plants like the Infineon works in Dresden, temporary workers represent about 30% of the workforce. The trade unions lack effective levers to control the use and the spreading of temporary work. Like Volkswagen, Siemens has created an own temporary work agency called KompTime. According to the IG Metall, KompTime recruits personnel from the “job creation companies” of Siemens and lends them back to Siemens.
- While the role of temporary work increases in production, fixed-term employment contracts increase among white-collar employees. About 5-10% of all employees in the infocom industry have fixed-term contracts. In contrast to previous prac-

tices, even new recruits from universities often get fixed-term contracts (interview telecom D1, 21.2.2005).

- Contract manufacturers serve as a flexibility buffer. Siemens has outsourced a large part of its production to Flextronics since 2001. With the exception of plants taken over from OEMs, the production sites of contract manufacturers are located in low-wage countries. The low wages and the flexible employment conditions exert strong pressure on the remaining sites in high-wage countries like Germany.

Increasing inequality? Organisation-centred and market-centred incentive systems

In the case of Siemens, the “Ten-Point-Program” of 1998 signifies an important step in the restructuring of incentive systems. It was presented on the eve of the company’s listing on the New York Stock Exchange. Apart from measures designed to transform its business portfolio and management instruments, it contained a shift from organisation-centred to market-centred incentive systems. For about 500 executives, 40% of the salary is fixed, the other 60% depends on the achievement of profitability objectives defined for each business segment. Since 1999, Siemens has introduced two stock option programmes for its executives. As to the upper-level white collar employees (*außertarifliche Angestellte*), a system of differentiated individualised incentives based on target agreements has been introduced.

The changes for white-collar employees can be illustrated with two examples from companies other than Siemens. T-Mobile, the Deutsche Telekom subsidiary established in 1993, is a good example of the introduction of target agreements (Bender 2000). The firm agreement signed in 1997 distinguishes three salary components: a basic part, a monthly performance-based bonus, and an annual bonus related to the fulfilment of an individual target agreement. The monthly performance-based bonus is subject to standardised criteria and was introduced as a concession to the trade union. According to Bender (2000: 172), the management perceives the annual individualised bonus as the most important part of its incentive system. The individual target agreements are settled annually in a two month top-down procedure from the executive board down to the lowest hierarchy level.

Interestingly, an agreement between DaimlerChrysler’s services division and IG Metall had a pilot function for the introduction of new pay systems in the infocom industry. According to this agreement for rank-and-file employees of Debis, DaimlerChrysler’s IT services company, paid an annual bonus depending on the achievement of an individual target agreement and on the financial results of the enterprise (Lücke and Gutbrod 2002: 407). This annual bonus amounted to 10-20% of the annual income. For non-pay scale employees, the annual bonus was higher and the calculation more complex. The annual individual bonus for a unit manager, for instance, could reach 40% of the annual income as the maximum (Deller 2002: 414). In 2001, Debis was taken over by Deutsche Telekom and integrated into its T-Systems branch. In the following year, the union ver.di concluded a collective agreement for the employees of T-Systems International (TSI). In the new wage system, variable

wage components amount to 10% - 30%. Employees can individually agree upon higher variable remuneration components.

Summary

The balance of power between trade unions and enterprises in the telecommunications equipment industry differs from the automotive industry. Changes in employment relations have been accelerating and deepening in recent years. The collective bargaining system has become more and more decentralised, agency work expands further, and redundancies begin to play an increasingly important role as a flexibility instrument. Siemens, as the flagship company in the industry, has been playing a lead role in publicly criticising the consensus-based character and job-security orientation of German employment relations. In the telecommunications equipment industry, there are indications of a break with the “Model Deutschland”.

There are several causes of this change. One of them is the relative weakness of trade unions. The second cause may be found in the high level of standardisation in production processes allowing for fast shifts of production capacities to low-wage countries. The plausible threat of closing production sites in Germany exerts pressure on the social compromise of the “institutionalised high-wage economy” (Streeck 1995: 2) in Germany.

Many questions remain open, however. Is the failure of Siemens – the core of the telecommunications equipment industry in Germany – really due to the “German model”? Several economic analysts have pointed to the fact that Siemens failed to anticipate important market trends in the mobile phone market like built-in cameras and flip-phones, and lagged behind market leaders like Nokia in the technological development (*Handelsblatt*, 6.6.2005; interview telecom D2, 10.6.05). How successfully do other enterprises of the German telecom equipment industry develop?

4.3 Video games industry

The video games industry is one of the fastest growing industries worldwide and a significant part of the entertainment sector. The value of world market leaders in this industry like Electronic Arts or Nintendo reaches or even exceeds the value of traditional German industry giants like Volkswagen. In 2005, the stock market value of Electronic Arts was 19.4 \$ bn, while the value of Volkswagen amounted to 18 \$ bn (Teipen 2006: 15). The recent costly efforts of Microsoft to enter the video games market and establish its own game platform illustrate the increasing attractiveness of the video games industry.

The German video games industry is not among the globally leading actors in this sector. Four segments can be differentiated in the value chain of the video games industry: The developers of video games and the publishers constitute the two core segments. Upstream of them on the value chain are supplier firms for software, sound effects, graphics, and animation, and downstream are the retail stores. In 2004, 70 development firms and 31 publishers existed in Germany. There were about 6,000 employees in the entertainment software segment (interview games D2,

10.12.2004). If we add the so-called edutainment segment (learning software), the industry has maximally 10,000 employees. If we extend the definition and count even advertisement agencies et al., the video games industry would have 19,000 employees altogether (ibid.). Statements about the amount of game developers among the employees vary between 500 and 3,000.

Most employees in Germany work in marketing and distribution departments in branch offices of foreign enterprises or in small development firms. There are hardly any globally successful German publishing and development firms. Neither do the global market leaders entertain development locations in Germany. The German publishers and developers concentrate almost exclusively on the German market; German productions do not play any role outside of Germany. But even in Germany, the market share of German publishers and developers is only 5-8% (interview games D2, 10.12.2004). Most development companies are extremely small – 5-10 employees is the average firm size of German development studios (interview games D1, 15.11.2004). This weakness in development contrasts with the huge importance of the German user market for video games. After the U.S., Japan and Great Britain, Germany is the third-largest national market in the world.

Table 8: Employees in the video games industry in 2000¹⁷

	Video games industry altogether	Developers
USA	about 43,000	n.s.
Great Britain	about 20,000	6,000
Germany	about 19,000	580
France	about 15,000	2,620
Spain	about 11,000	300
Italy	about 11,000	200
Scandinavia	about 8,000	900
Benelux	about 9,000	500

Source: Spectrum (2002: 21/22)

The dismal international position of German developers and publishers is weakening further as consoles gain importance against the segment of PC-based games. In the global market, the segment of consoles already plays a more important role than the computer segment. Two Japanese and one American company control the console platforms, and consequently the access to the console games market: Sony (Play-

17 To account for the importance of the industry as an employer, the indirect employment effects would have to be calculated in. For the USA, IDSA (2001) estimates direct and indirect employment effects of the video games industry at 124,500 jobs in the general IT industry and 219,000 jobs in the national economy altogether. This means that the employment generated by the video games industry exceeds by five times the employment in the industry itself.

station 1 and 2), Nintendo (GameCube, Gameboy Advanced), and Microsoft (Xbox). In the German market, however, the dominance of the console segment is delayed (VUD 2004: 41). German producers of video games still focus on PC-platforms which offer open standards and open access to the market, but which have smaller and smaller market shares in the world market. The global market for the development of entertainment software is dominated by US American, Japanese and British enterprises – other nations follow only at a very large distance.

Table 9: Market share of different platforms in the entertainment software market in 2003

Platform	PC	Consoles					
		PS2	PS1*	GC	GBA	XBox	Others*
Global market share	19%	44%	–	10%	11%	11%	5%
Market share in Germany	50%	24%	5%	6%	7%	6%	2%

Source: DFC 2004; VUD 2004. * For the global market share PS1 is counted under “others”.

A recent development in the field of hardware platforms could play in the hands of German producers: The mobile phone is catching on as a new mobile game platform, along with the Gameboy by Nintendo (interview games D3, 20.12.2004). As mobile phone games need comparatively low development and personnel expenses, this could be a possibility for developers in Germany to regain market shares. But this is only a dim hope on the horizon at this moment.

What explains the weak position of the German video games industry? Do work and employment models provide an explanation? Does the example of the video games industry illustrate the incompatibility of “new economy” industries and the “German model,” as the “varieties” approach suggests?

The decline of solidarity? Flexibility and employment protection

According to the “varieties” approach, the German economy is characterised by a high level of employment protection that makes fast organisational change and modifications of the competence profile of enterprises difficult and hampers the “creative destruction” required in the “new economy”. The situation in the German video games industry contradicts this diagnosis. Surely, the video games industry is not an example of a successful “new Economy” sector in Germany. This weakness, however, is not linked to limited organisational and employment flexibility – the factors emphasized in the “varieties” approach. Employment flexibility of development companies is very high. At development firms, staffing level of permanent employees is on the short side and is completed by fixed-term recruitments or freelancers if required (interview games D2, 10.12.2004). Typically only members of the core teams have regular employment contracts. While fixed-term contracts play a central role as

flexibility buffers, there is no agency work in the industry. Employment security of developers often depends on the success of a single game, because companies are frequently too small to develop several projects simultaneously.

The situation in publishing companies is somewhat different. Managerial employees of publishers have fixed-term contracts, which are often signed for a time of two or three years (interview games D3, 20.12.2004), but for marketing and sales as well as for clerical staff permanent employment contracts are prevailing in the publishing companies. However, the commitment to specific products is low and the fluctuation between functions and companies is high. Employees tend to switch between companies in search of better wage conditions or career positions.

The acceptance of the low level of employment security can be explained above all by the high importance of intrinsic work motivation and individual opportunities for self-realization in the work. The attractiveness of the video games industry arises neither from wage incentives nor from long term employment or career perspectives. The love for gaming and the possibility to transform a hobby into a job is an important source of motivation that most employees in development firms see as compensation for low job security and wages (Interview games D3, 20.12.2004).

Increasing inequality? Organisation-centred and market-centred incentive systems

Contrary to the Silicon Valley version of the “New Economy Business Model” (Lazonick 2005), a compensation for low job security by strong monetary incentives does not exist, at least in development firms. In these small firms, variable bonuses play a minor role. It is the content of the work that forms the core of the incentive structure. Game development derives its attractiveness from the fact that it offers a high level of autonomy in organizing work and of the absence of standardised or hierarchically structured work. Some small businesses try to imitate organisational structures of large scale companies. However, these attempts are rare because of the small firm sizes and the missing management know-how of the employees (interview games D2, 10.12.2004).

The situation is different in publishing enterprises. Variable wage components for managers amount for up to 50% of their pay and 25% for lower-level employees (interview games D3, 20.12.2004). A bonus is usually paid if employees meet individual target agreements. These targets refer to turnover figures, costs and returns, and are determined for the whole company, for single departments and for individual functions. This is all the more the case as the parent companies of most publishing firms are affiliates of foreign companies. The latter may explain also the widespread application of performance evaluation and target systems even in the case of low level jobs. An orientation towards performance targets belongs to the typical management culture of these companies. The nature of the guidelines varies, however, from company to company.

All global players in the industry, and the two stock exchange-listed German publishers, offer stock options to employees. However, while stock option plans of leading American firms cover most of the employees and are the main financing instru-

ment of the enterprises, the stock option plans of German publishers are much smaller and restricted to the top managerial staff.

Professionalisation and the vocational training system

The so called “dual” vocational education system is one of the main pillars of German work and employment models. It is interesting that to this point, the system has not managed to develop vocational education adequate for the video games industry. The existing apprenticeship profiles of media designers and graphical designers are not well evaluated by development firms. “Self-made” people dominate among employees – the majority without formal qualifications –, who can be divided into computer specialists, graphical designers and generally “creative” people. 95% of the employees enter the companies without a formal university degree and pass an internship there. Most of these lateral hires have a high-school diploma (*Abitur*), but they have often dropped out of university (interview games D2, 10.12.2004). Characteristic competencies consist of a mixture between knowledge of computers and creativity (interview games D3, 20.12.2004).

Educational institutions for employees have begun to emerge only recently. Since 2003, the university in Magdeburg has a chair dealing explicitly with entertainment software in the faculty of informatics. A university of applied sciences (Iserlohn) offers study modules about management in the entertainment software production. Besides, the *Game Academy* in Berlin offers vocational training for game developers (interview games D2, 10.12.2004). Compared to the situation we found in Sweden, these efforts to organize training and create job profiles come rather late.

The lack of adequate vocational education and the absence of clear career patterns seem to result in the very low labour market attractiveness of the video games industry. The work force consists primarily of video games enthusiasts, and the organisation and management of video games development firms exhibits low levels of professionalisation. In contrast to related industries like the media industry, it has not generated any industry-wide “sets of rules and resources” (Windeler and Sydow 2001: 1051). At most there are informal standards about wage levels, working times and typical careers.

In contrast, clearly outlined job profiles are common in publishing companies. Most of the jobs here, however, are not video-game specific. Marketing and sales employees make up 75% of the staff. The importance of university graduates in the field of managerial positions is increasing, but commercial apprenticeship training is more widespread in these functions (interview games D3, 20.12.2004). In contrast to developer firms, where standardised professional paths do not exist, typical promotion prospects in publisher companies can be outlined. Having obtained a marketing degree, a typical career path leads from the position of a junior product manager (being in charge of single products, but under the control of a senior product manager) to the senior product manager (being independently in charge of single products) and to the marketing director of a company, who has an executive function for product managers (interview games D3, 20.12.2004).

Work organisation in developer firms is project-oriented with little degree of standardisation. Work processes mostly reflect an absence of hierarchies, but specialisations concerning different jobs have already emerged. On average, a project leader guides a team of 10 to 15 employees: 2 to 3 programmers, 3 to 5 graphic designers, a game designer, a level designer, and if necessary temporary workers for manuals and similar responsibilities. When compared with the production of television or cinema films, development of games takes a course which is less formal and planned: A “trial and error” procedure dominates. This open development process can be regarded as a precondition for bringing the creative potential of the employees into play. However, it simultaneously creates a high risk, too, since delivering results on time is the decisive basis for success in video game development.

It is not yet clear how the lack of industry-wide vocational education standards influences labour mobility vis-à-vis other knowledge or creative industries. Many analyses of labour markets in Silicon Valley stress the importance of labour mobility and exchange between different forms of companies and different industries (Benner 2002: 49). From first interviews conducted in the video games industry it seems that the exchange of labour with other industries is rather low. If this proves the case, one could argue that despite the absence of management commitments to employment protection, the efficiency of the labour market is hampered by the lack of vocational education standards and the low level of professionalisation – a situation that limits the access of companies to the “right” employees.

Equality and inequality of wage and employment conditions in the industry

The weak position of German publishers and developers in the global competition leads to a high inequality of risk distribution, and as a consequence, also of employment conditions between different types of firms. The global players in the video games industry are generally characterized by a high degree of vertical integration: They have their own development studios and cover all main steps of the value chain from development to distribution. German publishers do not have the resources to manage the risks of such an integration strategy and mostly respond to high competitive pressure by outsourcing development, and with it, the financial risks to independent firms. The position of these small development companies vis-à-vis the publishers is very weak, and contract conditions are extremely unfavourable. Contracts are said to be a “farce”, since independent development firms have no choice than to sign them due to their own financial weakness. As a rule, development companies can only cover their costs during the development time and the following months by their proceeds. Profit sharing is very rare (interview games D2, 10.12.2004). There is little indication of trust and orientation toward long-term relationship between firms in the value chain.

The weak bargaining position of small developer firms is strategically perpetuated by publishing companies. Publishers often cooperate with a team of developers for the development of maximally two games and afterwards look for new cooperation partners – unless these manage to win an exceptional hit. Although long-term

cooperation would potentially be more advantageous in terms of efficiency, most publishers prefer to avoid extended cooperation because this kind of relational dependence would enable developers to make higher demands as well. As publishers possess market rights to the games, they can change the developer team even in the case of a market success. The relatively low technological level of games being produced in Germany makes it particularly easy to change development teams.

The unfavourable contract conditions between publishers and developers make the growth of development companies very difficult. Their small financial assets limit the recruitment of more employees and prevent companies from building up adequate personnel resources, which would be necessary for more complex development projects. Hardly any German development company reaches the critical mass to be internationally competitive in the field of demanding and complex games. One can already foresee that this weak competitive position will deteriorate further. For example, it is likely that no independent German development company will get licenses for the development of a game based on the next version of Sony's Playstation console, which is expected to enter the market in 2006/07. Sony cooperates only with firms having at least 100 employees in development and enough experience with older Playstation variants – conditions that apply to hardly any German development company. Due to a lack of resources, German developers seem to be locked in an underdeveloped state with low growth prospects.

While the publishers pass on the financial risks to development firms, there are only a few tasks that can be outsourced by the latter. Programming and game design are the absolute core components of in-house development. However, activities like graphics or music can be outsourced and outsourcing is more and more common. This is how development costs can be reduced, because graphical designers need not to be employed during the whole time a game is being developed.

Off-shoring to low-wage countries and in particular to Eastern Europe remains limited. The skill levels needed for programming and other tasks surely do not exist in adequate supply in Eastern Europe. Two German publishers have already established development studios in Poland and Slovakia but this is still the exception, as table 10 illustrates. While the publishers at least have the possibility to shift development to low-wage countries, the capacity of independent German development firms to off-shore activities is very low due to their lack of resources. In addition, according to our interviews, German developers fear language and cultural problems (interview games D4, 21.1.2005).

Table 10: Own development studios of leading German video games publishers (2005)

Germany	Western Europe	Eastern Europe	Asia
6	2	2 (Poland, Slovakia)	1 (Singapore)

Publishers: JoWooD, Sunflowers, Ascaron, 10tacle, Zuxxez

Finance and capital markets – an explanation for the weakness of German enterprises?

At several points of the discussion above, we have touched upon the question of financing conditions of the video games enterprises. It seems that this point is crucial to explain the weakness of the German video games industry. The duration of game development varies greatly, but it can be remarkably long. Simple, so-called casual games can be developed within six months. Complex top games take up between two and four years of development time. The costs of the development of quality games amount to several millions euros.

During the last ten to fifteen years, the high and further growing costs of game development have initiated a wave of mergers and acquisitions in the global video games publishing sector. American and French publishers were particularly active in pursuing M&A, benefiting from the good financing opportunities in their national finance markets. This concentration process continued until today. In the particularly costly segment of console games, for instance, the fifteen largest publishers controlled 92.3% of the world market in 2005 (DFC 2005). In Germany, 14 large companies generate 80% of the market's turnover in Germany and the American goliath Electronic Arts alone has a market share of 23% (*Welt am Sonntag*, 9.5.2004). Surprisingly, British companies could not convert the strong position of their country in the development market into success in the publisher market, whereas French publishers could narrow the gap to American market leaders even without a strong national base of developers. Larrue, Lazonick and O'Sullivan (2003) explain this with reference to the different financing conditions of the companies: The small interest of the British financial market in investments for companies publishing video games has led to a decline of British firms in the global market.

The high level of concentration in the industry sets very high market entry thresholds, as can be illustrated with the example of the Austrian publisher JoWood. JoWood is the largest publisher in the German-speaking region and the most prominent example of an attempt to catch up with the American, French, and Japanese Global Players. Since its IPO at the Vienna stock exchange in 2000, JoWood was able to mobilise a capital inflow of 37 mn €. It was not enough.

Table 11: Market entry threshold: A comparison between Electronic Arts and JoWood

	Electronic Arts	JoWood
Published video games in 2004	43	22
Marketing expenses per game in thsd. € (2004)	6,914	76
Revenue per game in tsd. € (2004)	56,300	770

Source: JoWood (2005)

Table 11 illustrates the financial power of JoWood and of the American market leader Electronic Arts. In 2004, EA published 43 games, i.e. about two times more

than JoWood. However, while EA disposed of a marketing budget of nearly 7 mn € per published title, JoWood could spend 76,000 € on marketing per video game. The revenues differed accordingly: EA earned 56 mn € per game, i.e. 70 times more than JoWood.

The situation of small German development firms is even worse than that of the German publishers. Usually, they finance the development of a new game through the returns from the previous one. Therefore, each flop can endanger the future existence of a company (interview games D3, 20.12.2004). In contrast to other media areas, state subsidies do not play any role. Moreover, since the burst of the New Economy bubble in 2000/01 it has become even more difficult to receive bank credits or venture capital for the development of a game.

Summary

What factors explain the marginal role of German video game firms in the international industry? Do questions of labour regulation play an important role? We have discussed findings from our research and pointed to a poor vocational training system, the low attractiveness and transparency of the labour market for game developers, and the low level of professional management in the German video games industry. These problems surely hamper the development of the industry, but they are not rooted in the institutions, rules and practices of the German work and employment model. The lack of professionalisation and vocational training even suggests that a stronger inclusion into the traditional German vocational training system could support a better development of the German video games industry. We find vocational training institutions in countries with a longer history of video games production like the USA or Japan but also in Sweden, where the development of the video games industry is a recent phenomenon (Teipen 2006: 51). In general, the video games industry seems to “ignore” the patterns of the German model and to follow the worldwide work and employment practices of “new economy” industries. Rather than in questions of work and employment, the weakness of the German video games industry seems to result from high market entry thresholds to late comers in this sector, and to unfavourable financing conditions of German enterprises. It is primarily this last point that touches on the question of incompatibility between the development of the “new economy” and the German institutional and regulatory framework.

5. Summary and conclusions

Summarising: Do we observe a break with the German employment model? We have discussed the question of a break with the “Modell Deutschland” in three industries and we saw considerable differences.

In the automotive industry, the institutions and regulatory forms of the “Modell Deutschland” have remained in place. Employment protection maintains its high importance, and working time flexibility and company-internal mobility remain the main flexibility resources of the personnel policy. New forms of flexibility like agency work are introduced but in a form controlled by works councils. Notwithstanding the stability of company compromises, there are indications of deeper changes: Work time and wage concessions become more and more the price of employment guarantees. We expect these changes to be deeper at supplier enterprises than at the OEMs. But the situation resembles a powder keg. Stagnating demand, high productivity increases and off-shoring exert increasing pressures on employment in Germany. Up to now, trade unions and works councils have succeeded in dealing with these pressures but it is far from clear that the existing governance compromises can be sustained into the future.

The telecommunications equipment industry represents a contrasting case to the automotive industry. At a first glance, the “classical” institutions of labour regulation in Germany – works councils and industry-wide collective agreements – remain in place here, too. Due to the comparatively weaker position of trade unions and the threat or reality of relocation of production to low-wage countries, however, the company compromises on labour issues in the telecommunications industry differ from its automotive counterpart. The core of “secure” employment relationships shrinks faster, precarious employment forms like agency work and fixed-term contracts expand more rapidly. Siemens – the flagship of the German telecommunications equipment industry – pursued a rather conflict-oriented policy towards trade unions in pushing for changes in the prevailing work and employment model.

The video games industry, finally, is a sector where the usual forms of labour regulation in the “Modell Deutschland” are barely in evidence. This industry is characterised by a sharp opposition between publishing and development enterprises. The core of regular employees in development enterprises is relatively small as compared to the broad “margin” of fixed-term employment relationships and freelancers. There are hardly any regulations regarding working times. Institutions like works councils and collective agreements do not exist. The small size of both the publishing and the development enterprises, coupled with employees’ individualistic and creative culture, specific qualifications, and strong identification with the work, result in governance compromises that differ from traditional industrial patterns. In particular, game developers appreciate the participation possibilities and the high autonomy offered by their work, and in turn accept the very high flexibility requirements.

In conclusion, we find *similar trends* but *differences in patterns and pace* of change in the automobile and in the telecommunications equipment industries. In both industries, opening clauses weaken the industry-wide agreements. In both industries, the employees have to accept wage reductions and increasing flexibility to maintain their employment security. In the telecommunications equipment industry, the outsourcing and off-shoring pressure is very strong and entails deeper changes in the balance of power between actors and of the contents of governance compromises than in the automotive industry. In the latter, we have to differentiate between changes in work and employment at the OEMs and at supplier enterprises: While there are gradual changes at the OEMs at the top of the value chain, the pressure to lower work and wage standards and to shift production to low-cost countries is much higher for suppliers. The seeming stability, however, could be illusory and the fierce competition for stagnating markets could lead to break with former governance compromises even at the OEMS.

Finally, the video games industry stands apart because the institutions of the German model have very limited applicability to this industry. Interestingly, the position of the German video games industry is weaker than the other two, a fact which in any case cannot be explained by rigidities due to the traditional German employment model.

But does this mean a break with the hitherto development path? Referring to the four elements of a potential break defined in the introduction, we can summarise our discussion as follows. The decentralisation of collective bargaining and the development of company- and plant-level employment pacts points rather to a change than to a withdrawal from negotiation arenas of social partnership (e.g. the collective bargaining system or the works councils). In contrast, several studies have put forward the argument that the off-shoring processes of German enterprises represent a withdrawal from the German model of labour regulation, a "Modellflucht" (Bluhm 2001; Meardi and Toth 2005). The numerous "employment pacts" in the auto industry, however, are evidence that it is possible to reach governance compromises admittedly with increasingly painful concessions from the labour side. In the telecom equipment industry even greater concessions have to be made and at the same time we observe indications of more radical breaks in the form of exit instead of voice evidenced by increased off-shoring. Table 12 summarises our findings of changes in work and employment relations in the three industries.

Table 12: Changing work and employment relations in German industries

	Automotive industry	Telecom equipment	Video games industry
Employment protection	Still a vital part of governance compromises but becomes increasingly “expensive” in terms of wage/work time concessions and restricted to a core group of employees	Similar to automotive, compromises – here, however, more fragile and bought by higher concessions	Only legal protection, no evidence of company-specific compromises
Instruments of flexibility	Working time corridors and accounting schemes; use of temporary agency work capped by works councils	Working time corridors and accounting schemes; partially intense use of temporary agency work	No specific regulation; a lot of unpaid overtime; temporary agency work of no importance
Incentive systems	Highly individualised, only for non-pay scale/white collar employees; in one case target agreements for production teams in blue-collar area	Individualised incentives highly important for non-pay scale employees, the proportion of which increases	No collective bargaining and individual contracts; investment in skill development
Investment in skill development	Still high commitment to vocational training, this however increasingly controversial	Not yet investigated	No investment in training, lack of vocational training institutions
Exit options (outsourcing, off-shoring)	Less outsourcing than in the 1990s, partially insourcing; increasing differentiation of working conditions in supply chains; off-shoring mainly for cost reasons (efficiency seeking FDI)	Outsourcing continuing including total sell-off of business areas (BenQ case); strategic off-shoring to Eastern Europe, China	Weak position of developing firms vis-à-vis publishers; publishers pass nearly all cost and flexibility pressures to developers; off-shoring potential low for language/cultural reasons

It is clear that the German model of labour regulation is under considerable pressure, even if this pressure and the resulting change dynamics vary considerably among industries. But do these changes represent a break with the “Modell Deutschland” or do they initiate a path-immanent adaptation to new conditions and problems? And what kind of a break would it be:

- A decomposition of institutions and social compromises underlying the German work and employment model and a move towards the Anglo-American path of development?

- The creation of a new or a hybrid model successfully combining different institutional elements?
- A decomposition of institutions and social compromises that is *not followed* by the development of a new, consistent work and employment model.

An important aspect in this regard could be the capability of the institutional framework to deal with heterogeneity of requirements by different industry dynamics, i.e. with different requirements to labour markets, vocational training systems and governance compromises in different industries. Is the “German model” too rigid to allow for heterogeneity or does its multi-layer system of collective bargaining allow for “a pragmatic strength of conflict and cooperation” which enables adaptation as Fichter points out (2005: 105)? Do not the changes of the collective bargaining system (opening clauses, company-level employment pacts) represent an example of the capability of collective actors in Germany to negotiate and regulate heterogeneity? This will be one of the questions for further research.

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