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FULL LENGTH ARTICLE

## Coordinating Digital Transformation

### The discursive context of production in the knowledge economy

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ABSTRACT

This article introduces the concept of the “discursive context of production” in order to explain how the transition to the knowledge economy affects working conditions. Past episodes of economic adjustment saw national institutions in corporatist countries protect working conditions by facilitating coordination between employers and workers in the workplace. Where workers had the capacity to enforce these institutions, they succeeded, for instance, in defending against mass layoffs. Digital transformation, however, has led managers to adopt the market discourse of the knowledge economy, which allows them to dissuade workers from mobilizing. With their mechanisms for enforcement undermined, national institutions are less effective in protecting workers from employer discretion, thereby exposing them to the threat of job loss during economic adjustment. Relying on a case study of mass layoffs at a technology firm in Germany, this article uses process tracing to illustrate how discourse constitutes an important contextual feature that conditions the causal linkage between digital transformation and the ineffectiveness of national institutions. Understanding how digital transformation affects working conditions requires tracing how discursive change in the workplace reconfigures power relations between managers and workers.

## 1 Introduction

The digital transformation unfolding across the rich countries belonging to the Organisation for Economic Co-operation and Development (OECD) has unsettled received wisdom about regulating working conditions. Traditionally, corporatist countries relied on national institutions to facilitate cooperation between capital and labor in order to temper the social dislocations accompanying economic adjustment (e.g., Katzenstein, 1985). More recently, with the spread of models for economic growth based on information and communication technology (OECD, 2017), some countries have adapted corporatism's signature institutions for economic cooperation in order to promote technological innovation (Baccaro & Pontusson, 2016; Ornston, 2012). While scholars have shown how corporatism can be adapted to support productivity gains under new models for economic growth, this article turns to questions regarding working conditions: why are workers more exposed to social dislocation in digital transformation than during previous episodes of economic adjustment? Approaching this question from the perspective of power in the workplace, I argue that the discursive context of the knowledge economy disposes workers to acquiesce to management discretion, thereby undermining national institutions' mechanisms of enforcement.

Over the last several decades, nearly every country in the world has embraced digital technology to drive economic growth. These efforts include policy reforms designed to spark massive structural changes to national economies on par with the industrial revolution. Policymakers describe these efforts as “digital transformation” (Pfeiffer, 2017). Digital transformation takes different forms, from support for automating industrial manufacturing to producing technological innovation domestically, especially in the information and communication technology, or “tech,” sector.

Despite its popularity, digital transformation has seen mixed results. The tech sector, representing the vanguard of digital transformation, still constitutes less than 6 percent of GDP in the European Union (EU) and about 4 percent of employment, although knowledge-intensive occupations have exploded, constituting nearly 35 percent of employment in the EU in 2017 (Eurostat, 2019, 2021; OECD, 2019, p. 76, 2020). While digital transformation has produced mixed results in terms of structural change, it has decisively shifted the discourse that policymakers and employers use when discussing the economy. The discourse of “Industry 4.0” has become hegemonic when describing the industrial dimensions of digital transformation, while efforts to support technological innovation domestically are referred to as transitioning to the “knowledge economy” and are often based on mimicking Silicon Valley (Pardi et al., 2020; Pfeiffer, 2017; Rothstein, 2021). What these varieties of digital transformation share is the prediction that positioning digital technologies at the core of national models for economic growth will lead to large-scale shifts in employment.

A long tradition of research in comparative political economy leads us to expect that shifts in employment associated with digital transformation will be less disruptive in some countries than in others. Countries with corporatist institutions, which facilitate concertation among capital and labor in economic policy making and coordination in the workplace (Ornston & Schulze-Cleven, 2015), should see fewer job losses than countries without these institutions. Hall and Soskice (2001, p. 20) show that countries with corporatist institutions experienced lower unemployment rates up through the late 1990s, arguing that cooperation between capital and labor enabled adapting to structural change in ways that benefited both groups.

Given that tech is the vanguard of digital transformation in general, and of the knowledge economy in particular, we would expect workers in this core sector to be protected against job loss, just as workers in core sectors were protected in previous episodes of economic adjustment. However, even Germany's paradigmatic institutions for coordination have done little to protect tech workers from precarity. During the dot-com crash in the early 2000s, unemployment among German tech workers increased by 22 percent (Bundesanstalt für Arbeit, 2002, p. 134), raising questions about how to regulate working conditions in the current episode of economic adjustment. Why are workers in core sectors of digital transformation so exposed to job loss?

In this article, I argue that the spread of precarity in digital transformation is due, in part, to the shift in discursive context accompanying the transition to the knowledge economy. As countries attempt to emulate Silicon Valley, policymakers and managers have adopted the discursive context that took shape in Silicon Valley's early days. This discourse revolves around market fundamentalism, which frames market forces as the primary causal force in social life and can make it appear as though humans have little agency (Block & Somers, 2016). One indicator of this discourse's status as a contextual feature is that we observe it in national policy and in the workplace, so that it establishes background assumptions and notions of common sense across multiple levels of political life. While the causal connection between these two levels remains beyond the scope of this article, I seek to show that when managers establish market discourse as hegemonic in the workplace, they can convince workers to acquiesce to layoffs.

In the next section, I outline a theoretical framework for analyzing the regulation of working conditions that focuses on discourse in the workplace. I then describe the case study through which I develop this framework, along with the methods of data collection and analysis. I present the case study in two parts: First, I trace the discursive context of the knowledge economy back to its origins in Silicon Valley and how it has been adopted at the level of national policy in the form of the Silicon Valley model. Second, I illustrate how this discursive context is established in the workplace, where it can tilt the balance of power in managers' favor, enabling them to persuade workers to acquiesce to layoffs. The article concludes by highlighting directions for future research.

## 2 Perspectives on workers' vulnerability to employer discretion

From the perspective of comparative political economy, digital transformation reflects many of the patterns observed across the OECD since the beginning of the twenty-first century. National institutions in coordinated market economies have become less effective at protecting workers from job loss. At the same time, workers' vulnerability to mass layoffs depends to a large extent on power dynamics in the workplace, thus often remaining outside the analytical focus of comparative political economy, whose perspective is anchored at the level of national institutions. Explaining why workers are so precarious in digital transformation requires linking these two levels of analysis, and, in order to do so, I bring comparative political economy into conversation with research in organization studies that focuses on the role of discourse in the workplace.

Until the last couple decades, economic adjustment often unfolded more smoothly in corporatist countries like Germany than in liberal countries like the US. In Germany, the main pillar of employment protection legislation (EPL) is the Protection Against Dismissal Act (*Kündigungsschutzgesetz*, or KSchG), which restricts employers from firing workers except in three circumstances: (a) when a worker has violated the employer's trust, (b) when a worker is unable to fulfill their duties, and (c) when the firm faces urgent operational conditions such that its survival depends on firing workers. Moreover, the Works Constitution Act (*Betriebsverfassungsgesetz*, or BetrVG) enables workers to form a collective body from among their co-workers, the "works council," which is charged with representing their interests to management. These institutions for codetermination do not prohibit layoffs per se, but if management wishes to cut jobs, they must consult with the works council according to the guidelines set forth in the BetrVG, which is supposed to ensure that management complies with the KSchG. In past episodes of economic adjustment, these institutions ensured coordination among workers and employers, which often facilitated finding alternative business strategies that spared workers from mass layoffs.

Over the last decades, however, these institutions have become less effective. As a result, the gap in unemployment between corporatist and non-corporatist countries has shrunk, with the trend actually flipping in the early 2000s (see Figure 1). There are many reasons for this development, such as difficulties in creating new jobs (OECD, 1994), but the decreased effectiveness of core corporatist institutions, such as codetermination and EPL, has been a crucial factor. Designed to protect workers from unfair dismissals, EPL is central to the dynamics of cooperation that define corporatism because it secures workers' bargaining position in the workplace by limiting employer discretion (Emmenegger, 2014, p. 288). In previous episodes of economic adjustment, workers were able to use EPL as a power resource in order to defend their jobs against employers' threats of mass layoffs.



Figure 1: Difference in unemployment rates between coordinated market economies and liberal market economies, 1984-2019

*Note:* Own calculations based on (OECD, 2022b). Difference in unemployment rate is calculated by subtracting the annual average for coordinated market economies (CMEs) from the annual average for liberal market economies (LMEs). Following Hall and Soskice's (2001) categorization, CMEs include Austria, Belgium, Denmark, Finland, Germany, Japan, Netherlands, Norway, Sweden, Switzerland; LMEs include Australia, Canada, Ireland, New Zealand, Great Britain, United States.

In digital transformation, we observe widespread social dislocation, even in countries with corporatist institutions. Workers in countries with formally robust EPL are still less vulnerable to mass layoffs than workers in countries with less robust EPL, but these institutions are less effective in tech than in other sectors. Figure 2 illustrates the marginal effectiveness of EPL in the EU, comparing the rates of mass layoffs by sector in those countries with robust EPL to those with minimal EPL.

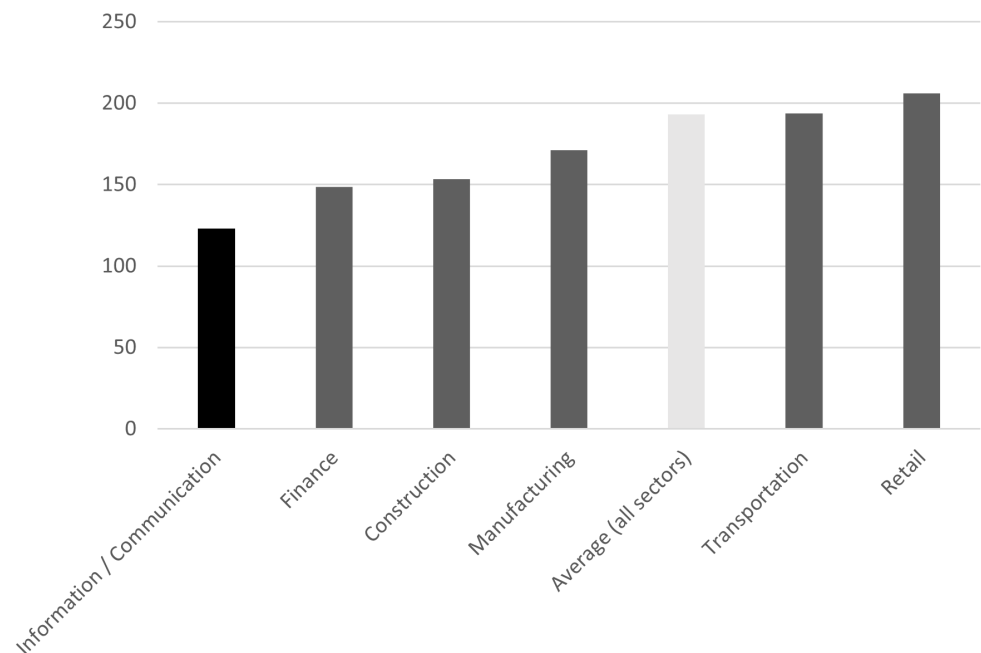


Figure 2: Marginal effectiveness of institutions for dismissal protection in reducing mass layoffs by sector in the European Union, 2002–2018

*Note:* Own calculations based on European Restructuring Monitor (Eurofound, 2018). Marginal effectiveness of EPL is calculated as the percentage by which the number of mass layoffs is higher in each sector in countries with lax EPL than the number of mass layoffs in each sector in countries with strict EPL. Countries were grouped in terms of strictness of EPL according to the OECD (2022a) database.

Research in comparative political economy has shown how corporatist countries whose economies were once characterized by institutions for non-market cooperation have increasingly shifted toward markets, in a process known as “liberalization.” Some scholars view liberalization as the result of a structural shift from manufacturing to services, which creates pressures for introducing more flexibility in the workplace, labor markets, and other spheres of the economy previously governed by non-market cooperation (Iversen, 2005; Streeck & Trampusch, 2005), while others view liberalization as the result of policymakers adopting neoliberal ideology (Schmidt & Thatcher, 2013). Despite differences in explanatory approaches, scholars agree that policymakers have reformed many of the core institutions in corporatist countries in a way that maximizes markets and minimizes non-market cooperation.

Theories of liberalization help explain the rise of some types of precarity in digital transformation, such as the increase in part-time work (Thelen, 2014), but cannot explain why tech workers are so vulnerable to mass layoffs. German institutions, for instance, have been liberalized across a number of spheres, but EPL has remained relatively unchanged (Emmenegger, 2014; Hall & Gingerich, 2009). However, scholars have long recognized that there is a gap between an institution’s formal design and its effects in the real

world (Streeck & Thelen, 2005, p. 14). This observation invites us to trace the linkages between national institutions and the workplace.

Even where EPL remains formally unchanged, we might observe changes in its effects if actors enforce these institutions differently or do not enforce them at all. In Germany, EPL limits when employers can fire workers, but there is a loophole for situations of “urgent operational necessity,” when firms face severe economic challenges. To the extent that digital transformation presents managers with structural imperatives that entail difficult business conditions, we might expect them to take advantage of these loopholes or simply not comply with EPL. However, even when managers refuse to comply with EPL, we would expect workers to enforce the regulations. As Emmenegger (2014, p. 135) points out, EPL provides workers an important power resource, but in most countries, including Germany, its effectiveness depends on worker mobilization. Seeing as EPL is ineffective in Germany’s digital transformation, but has remained formally robust, our question becomes: what is it about digital transformation that stops workers from mobilizing against mass layoffs?

Approaching workers’ precarity from the perspective of the workplace highlights the importance of discourse in determining whether and how workers mobilize. Research in organization studies shows that managers can develop discursive strategies to persuade workers to acquiesce to mass layoffs. Erkama and Vaara (2010) identify five techniques that managers use to justify mass layoffs, most of which revolve around leading workers to believe that job cuts are the unavoidable consequence of market forces beyond the firm’s control.

Scholars have observed similar patterns in digital transformation. Efforts to automate production may not have restructured the labor process, but they have changed the discourse that managers use to control the workplace. Focusing on how policymakers and managers use the discourse of “Industry 4.0,” Pfeiffer (2017) warns of an impending “digital despotism” because this new discourse can tilt the balance of power in the workplace in employers’ favor. According to Pardi et al. (2020), the “Industry 4.0” discourse undermines worker power partly through the mechanism of performativity: managers frame reduced job quality and increased job loss as the unavoidable result of automation, which is itself framed as inevitable, and when workers believe this to be true, it becomes actually true. When workers believe that collective action will be ineffective, they are likely to acquiesce to employer discretion (Kelly, 1998, pp. 29–30).

Each of these approaches builds on traditions in social science that recognize the workplace as a primary nexus of capitalist development. Pfeiffer (2017), for instance, situates her study of “Industry 4.0” discourse within Burawoy’s (1985) framework for analyzing the “politics of production,” which itself builds on Gramsci’s (1971) analysis that capital’s control of labor is anchored in the workplace. As Barley and Kunda (1992) illustrate in their study of

management discourse from the nineteenth century into the twentieth, capital's techniques for control evolve over time, and Pfeiffer (2017) and Pardi et al. (2020) apply this insight to the twenty-first century, providing an astute account of power in digital transformation by analyzing discourse in the workplace.

While these accounts focus on managers' techniques for controlling the workplace, they implicitly describe changes in what I call the discursive context of production, defined as the background assumptions linked to production practices in each era of capitalist development. The discursive context of production evolves over time, establishing the contextual conditions that shape the effectiveness of management's techniques for control.

Drawing on this tradition of analyzing the workplace as the nexus of capitalist development, I apply recent research on "Industry 4.0" to the other branch of digital transformation, namely, the transition to the knowledge economy. Doing so extends this research along four axes. First, focusing on workers' ability to enforce EPL includes institutions in the framework, thereby integrating an important power resource into our account of how the balance of power shifts in the contemporary workplace. Second, I pivot the focus from manufacturing to the tech sector, which represents the vanguard of digital transformation. Third, I extend analyses of the discourse of "Industry 4.0" to the discourse of the "knowledge economy," thereby providing a more comprehensive account of the discourses relevant to digital transformation. Lastly, and most importantly, the analysis that follows centers on the role of discursive *context* rather than causal mechanisms.

I argue that digital transformation threatens workers' job security not because it entails new structural dynamics that make long-term employment impossible, nor because it has endowed managers with new techniques for exercising power. Instead, I argue that digital transformation has introduced a particular discursive context that reinforces managers' ability to persuade workers to acquiesce to job cuts. As I illustrate in the following sections, the discursive context that took shape around digital transformation is anchored in market fundamentalism, which leads workers to believe that market forces determine working conditions. When workers believe they are powerless against layoffs, there is no sense in mobilizing to enforce whatever regulations nominally protect them against job cuts. The discursive context of digital transformation thus leaves workers vulnerable to mass layoffs, even where they may be protected by formally robust institutions.



### 3 The case of Infineon

On July 26, 2001, managers at Infineon announced that they were firing 943 workers from the firm's headquarters in Munich. Infineon was Siemens' semiconductor division until 1999, when it was spun off as an independent firm. In addition to being formally protected by the KSchG, workers at Infineon were represented by a competent works council that had the capability to engage Germany's institutions for codetermination. Despite the presence of robust national institutions, by the time management called off downsizing in July 2002, more than 900 workers had lost their jobs (see Table 1).

Table 1: Timeline of Workers' Response to Mass Layoffs at Infineon

July 26, 2001	Management announces 943 dismissals.
August 8, 2001	Management agrees to reduce number of dismissals of newly hired workers.
August 10, 2001	Works council holds information session for workers.
September 12, 2001	Works council holds all-employee meeting.
November 27, 2001	Works council holds all-employee meeting.
January 16, 2002	Agreement reached between works council and management: reduced dismissals to 847 [10% reduction].
February 20, 2002	Works council holds all-employee meeting.
July 31, 2002	Management calls off dismissal plan.

In 2014 and 2015, I performed nine months of fieldwork in Munich in order to identify why Germany's robust institutions left tech workers exposed to mass layoffs.<sup>1</sup> Fieldwork was primarily focused on gathering documents and performing interviews with actors involved with the layoffs at Infineon. My goal was to determine why workers were exposed to mass layoffs despite being protected by formally robust institutions.

Meeting with workers, managers, works councilors, union officials, and elected representatives, I gathered more than 1000 documents, which I augmented with interviews. This article draws on 19 of these interviews (see Appendix I). While interview subjects provided some internal documents from Infineon, including presentations to workers and shareholders, I also relied on publicly available documents, such as annual and quarterly reports and press releases. I transcribed interviews and entered them into the software program *MAXQDA*, along with primary documents and fieldnotes, in order to analyze the discourse

<sup>1</sup> This fieldwork was conducted as part of a larger study of the political economy of digital transformation. Some of the material from the case study below was published in Rothstein (2019, 2022).

that management and workers deployed around mass layoffs. This data provided the basis for qualitative discourse analysis, which shed light on the dynamics that undermined workers' job security. Exploring the hypothesis that the discursive context of the knowledge economy played an important role in explaining why Germany's institutions for coordination are less effective in this current episode of economic adjustment, I focused on identifying and verifying empirical fingerprints of the linkage between national institutions and the workplace.

Infineon is a useful case for developing an explanation for tech workers' precarity because it represents a deviant case when it comes to comparative political economy approaches to economic adjustment focused on national institutions. According to theories of liberalization, we would expect workers' exposure to layoffs to correspond to structural imperatives, which would have led managers to take advantage of regulatory loopholes for urgent operational conditions or to ignore institutional regulations altogether. We do observe some initial support for this hypothesis, as Infineon faced challenging business conditions in the period leading up to job cuts, with the price of semiconductors dropping by 90% in 2000 (Infineon Technologies AG, 2002a, p. 85). However, the firm was by no means on the brink of bankruptcy. Siemens maintained a majority share in Infineon until the end of 2002 (Siemens AG, 2002, p. 51), and lent Infineon €450 million in April 2001, three months before dismissals were announced (Infineon Technologies AG, 2001b). Analysts have long joked that Siemens is a bank with a side business in electronics (Börsch, 2007, p. 77); Infineon's access to Siemens' financial resources cannot be understated.

A further indicator that business conditions did not require layoffs is the way in which managers fired workers. The KSchG allows employers to cut jobs in cases of "urgent operational necessity," but management at Infineon largely chose not to rely on this provision. Of the 943 dismissals they announced, managers delivered only 53 actual dismissals, which amounts to about 5% of the total (IG Metall, 2002b). Of these 53, fewer than 20 were found to be valid by the Labor Court. The vast majority of dismissals unfolded via informal conversations between managers and workers, in which managers offered different types of exit packages (Erner, 2001; Former works councilor, Infineon, author interview, November 14, 2014). If Infineon really had faced such severe business conditions, we would expect management to have justified all dismissals on the economic grounds provided by the KSchG, and they should have won in court.

Instead, management largely ignored institutions for coordination. However, this becomes visible only by taking a closer look at the case. It is true that management negotiated with the works council over strategies to reduce the number of workers affected by layoffs. As a result, in January 2002, management agreed to a *Sozialplan* and *Interessenausgleich*, under which they

reduced the number of affected workers in Germany by 200 and agreed to a number of conditions, such as providing certain levels of severance pay (Gesamtbetriebsrat der Infineon Technologies AG, 2002; Infineon Technologies AG & Gesamtbetriebsrat, 2002a, 2002b). However, while negotiations likely improved conditions for affected workers, they did nothing for the more than 500 workers who had already left the firm by the time consensus was reached in January 2002 (IG Metall, 2001; Infineon Technologies AG, 2002a). On paper, the institutions for codetermination functioned at Infineon, but in practice, considering that the majority of the planned layoffs were executed *before* an agreement was reached, it would be a stretch to diagnose this as complying with the law. Moreover, by the time job cuts were called off, more than 900 workers had been fired (IG Metall, 2002a). Given that management had originally planned to fire 943, the works council's negotiations reduced the number of affected workers by less than 5%. Reviewing the path of layoffs at Infineon, an IG Metall newsletter from May 2002 concluded that, "The firm achieved its goal: to quickly and cost-effectively get rid of workers" (IG Metall, 2002a).

From the perspective of national institutions, Infineon, thus, presents a puzzle. Formally, Germany's institutions for coordination are no less robust in digital transformation than in previous episodes of economic adjustment. The fact that management was able to fire workers before consulting the works council suggests that explaining workers' precarity requires focusing analysis on the workplace. Clearly, management did not comply with EPL and institutions for codetermination, but it remains unclear why workers did not mobilize to enforce these institutions. Existing research on discourse in the workplace highlights the importance of management's discursive techniques to persuade workers to "voluntarily" give up their jobs. Is there something about digital transformation that makes these techniques more effective? To answer this question, I build on existing research in order to argue that digital transformation introduces a distinct discursive context, one that makes it easier for managers to persuade workers to acquiesce to mass layoffs.

## 4 Methods of analysis

In order to investigate discursive interactions between managers and workers during layoffs, I engage critical discourse analysis (CDA). There are many definitions of CDA, and I follow Vaara et al. (2006, p. 792) in treating this approach as a "discourse-analytic methodology that examines the role played by language in the construction of power relationships and reproduction of domination." I also follow Vaara et al. (2006) in applying CDA to understand the role of discourse in the workplace during job cuts.

In their analysis of mass layoffs in the pulp and paper sector, Vaara et al. (2006) found that the discursive mechanism of legitimation was central to managers' strategies for control, defining legitimacy as "a discursively created sense of acceptance in specific discourses or orders of discourse" (Vaara et al., 2006, p. 793). Applying the methods of CDA enables distinguishing between the two main elements of legitimation. The first element constitutes technique, in this case, the techniques that management uses to persuade workers of the legitimacy of job cuts. The second element constitutes the background context, namely, "the discourse and its characteristics that define what can be considered as legitimate/illegitimate" (Vaara et al., 2006, p. 793). What CDA makes clear is that discursive context is just as important as management's techniques in persuading workers to acquiesce to job cuts. However, contextual conditions are often relegated to the background, leading them to be understudied, which is why Erkama and Vaara (2010, p. 835) suggest that researchers investigate the role of discursive context in managers' execution of mass layoffs. This article does so by highlighting the importance of the discursive context of the knowledge economy in explaining the path of layoffs at Infineon.

Legitimation is a mechanism known to many methodologies, but what makes CDA distinct is the way that it enables studying the dynamics of legitimation in the employment relationship. Political scientists engage discursive institutionalism to analyze the dynamics of legitimation at the macro level, focusing on national policymaking and institutional change (Regan, 2010; Schmidt, 2009). Scholars of organization studies have developed communicative institutionalism in order to focus on micro-level dynamics in the workplace that affect the legitimacy of overarching institutional orders (Cornelissen et al., 2015). While building on and contributing to these approaches, this article takes a different track, focusing primarily on the role of discursive context in linking the macro- and micro-levels. The question here has less to do with how institutions' formal provisions have evolved over time or whether workers view them as legitimate. Instead, I engage CDA to investigate the role of discursive context in disposing workers to leave national institutions unenforced. Similar to both discursive institutionalism and communicative institutionalism, I am concerned with overarching patterns in the institutional order. However, my more immediate concern has to do with discursive interactions between managers and workers, and the patterns of collective action that follow these interactions.

Adopting a mechanistic approach to causation, the case study that follows identifies the role of discursive context in the causal linkage between digital transformation and working conditions. This linkage is composed of a four-part causal mechanism. First, I unpack managers' "legitimizing discourse" into the foreground and background elements that allowed them to convince workers to acquiesce. According to Fairclough and Fairclough, "legitimation is a type of argumentative justification, public justification, in which an action can be justified in terms of reasons and those reasons can themselves be justified

as collectively accepted and recognized (as ‘worthy of being recognized.’)” (Fairclough & Fairclough, 2012, p. 112). On the basis of this definition, I conceive of legitimation as composed of two initial pieces: (a) justification and (b) the background conditions that validate a particular justification. Drawing on the recognition that context is crucial to causal mechanisms (Falleti & Lynch, 2009), I focus primarily on those background conditions.

To capture how exactly the discursive context of production shapes the regulation of working conditions, I unpack each part of legitimating discourse into two further pieces. Managers’ justifications for dismissals are constituted by (a) managers’ framing of job cuts, and (b) workers’ judgment of whether managers’ framing is valid. Moreover, the discursive context of production is constituted by yet another two pieces, because the “manifest rationality” of a particular context must be constructed before it is accepted as common sense (Fairclough & Fairclough, 2012, p. 36). Therefore, I consider both (a) the broad discursive context of production, as well as (b) the specific discourse that managers established as hegemonic in the workplace (Burawoy, 2012). Deconstructing management’s legitimating discourse suggests a four-part causal mechanism, each with its particular set of actors (see Figures 3 and 4). After mapping each part, I identified the “empirical fingerprints” of each attendant process to shed light on how the market discourse of the knowledge economy (context) shaped managers’ ability to persuade workers to acquiesce to mass layoffs (cause), thereby leading to the ineffectiveness of EPL (outcome) (Beach & Pedersen, 2016).

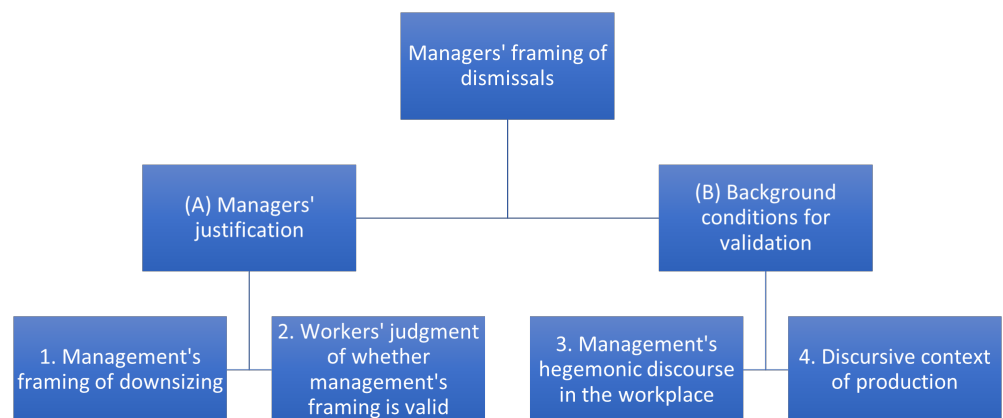


Figure 3: Constitutive elements of managers’ legitimating discourse

Table 4: Causal mechanism anchoring the decreased effectiveness of national institutions (outcome) in the discursive context of production in the knowledge economy

	→ Outcome				
Part	Managers' hegemonic discourse	Managers' framing of job cuts	Workers persuaded by managers' framing	Workers acquiesce	National institutions unenforced
Entity	Managers	Managers	Workers	Workers	
Activity	Frame the employment relationship in market discourse	Justify job cuts as necessary for the firm's financial survival	Believe managers' justification for job cuts	Choose not to participate in collective action	
Context	Discursive context of production: markets				

In what follows, I illustrate the importance of the discursive context of the knowledge economy in two parts. First, I show how this context took shape, tracing its origins in the early days of Silicon Valley, sketching its conceptual content by showing how it was engaged by policy entrepreneurs at the national level, and illustrating how this discursive context made its way to Germany when policymakers there embraced the Silicon Valley model. Second, I demonstrate how managers at Infineon adopted this discursive context and established it as hegemonic in the workplace. When managers announced layoffs in 2001, this background discourse was a crucial contextual condition that enabled them to justify layoffs and persuade workers to acquiesce. Because workers believed they could do nothing to save their jobs, they chose not to mobilize against job cuts, and Germany's EPL, while formally robust, remained unenforced and, thus, ineffective.

## 5 The discursive context of the knowledge economy

In the 1950s, the US federal government supported innovation of digital technology as an input for economic growth, but in the 1970s and 1980s, state involvement shifted to frame technological innovation as the output of certain economic forces, namely, financial markets. While much of the resulting market discourse has now been adopted on a national level and beyond, pinpointing three specific legislative developments illustrates the elements of this discourse that are particular to the knowledge economy's early days in Silicon Valley.

One of the most significant policies for the growth of Silicon Valley was the Bayh-Dole Act, which enabled universities to patent ideas they had developed with public funding. Bayh-Dole provided monetary rewards for scientists to

develop novel technologies (Lazonick & Mazzucato, 2013; Mowery et al., 2004). Beyond material incentives, Bayh-Dole “further legitimized” universities’ patenting activities, thereby extending market discourse to actors ordinarily considered external to market dynamics (Berman, 2008, p. 837). Moreover, Bayh-Dole legitimized the belief that technological innovation depends on market dynamics to incentivize inventors. A number of federal administrators involved with passing Bayh-Dole “believed that patents were often a necessary incentive to encourage the development of inventions,” and, with its passage, this belief became more widespread (Berman, 2008, pp. 849–850). Of course, academic science was never isolated from markets (Kleinman & Vallas, 2001), but Bayh-Dole nonetheless marked a significant step in reinforcing market discourse in Silicon Valley by marginalizing the alternative belief that inventors might pursue technological innovation for reasons independent of financial reward (e.g., Weber, 2004).

The state also legitimated market discourse in Silicon Valley through the Small Business Innovation Research (SBIR) program, which encouraged scientists to become entrepreneurs by facilitating their access to venture capital (VC). The program channeled investors toward risky innovations through signaling and certification mechanisms (Block & Keller, 2011). The state’s support for market mechanisms in Silicon Valley was anchored in the concept that technological innovation requires particular market dynamics. According to this framing, technological innovation in the workplace depends on market forces external to the firm.

In addition to the direct support for technological innovation provided by the SBIR program, the state introduced indirect mechanisms that reinforced the notion that technological innovation depends on market forces. In the late 1970s, the National Venture Capital Association (NVCA) joined the American Electronics Association (AEA), both based in Silicon Valley, to lobby Congress to lower the capital gains tax on the grounds that doing so would spur the technological innovation necessary for economic growth (Rothstein, 2021). They succeeded, and the capital gains tax decreased from 40% in 1976 to 20% in the early 1980s (Lazonick & Mazzucato, 2013, p. 1110). These lobbying efforts were based on the argument that increasing the financial rewards for innovation would lead to valuable technologies. On a material level, only a handful of actors have benefited from this legislation, which has contributed to the growing wealth inequalities in the US (Lazonick & Mazzucato, 2013). On a discursive level, this lobbying further legitimized the framing of the knowledge economy in market discourse.

## 6 The knowledge economy comes to Germany

In the 1990s, Germany was facing the beginning of an economic crisis. As the post-war economic miracle ran dry and unemployment rose, policy makers embraced the idea that they could boost economic growth by imitating Silicon Valley, where billions of dollars had been generated by companies' technological innovations (Adelberger, 2000; Posner, 2005; Vitols, 2001). A series of reforms followed this impulse, as policymakers pushed for what they understood as the drivers of Silicon Valley's success: "The German government worked with the financial community to introduce measures designed to stimulate the provision of higher-risk investment capital and allow technology firms to undertake rapid growth trajectories commonly seen within American technology clusters" (Casper, 2007, p. 81). Implementing the Silicon Valley model, policy makers reformed regulations around universities' administration of patents, developed programs that emulated the US's SBIR, and encouraged the growth of VC. Just as in the US, these reforms institutionalized market discourse as characteristic of the knowledge economy.

According to the Silicon Valley model, academic researchers had little reason to pursue profitable technologies because they were required to surrender their patents to universities. In order to better capitalize public resources invested in higher education, the state introduced competitions among academic researchers and supported public-private partnerships between academia and industry (Lehrer & Asakawa, 2004, pp. 65–67). The federal research ministry justified these efforts as necessary for innovations that would drive growth like in Silicon Valley. On the basis of their conviction that "Scientists themselves must be motivated to make the technology transfer of their knowledge succeed," the ministry set up "transfer organizations to assist scientists with contracts, patents, licensing, marketing, invention issues, and the build-up of contacts" (Bundesministerium für Bildung und Forschung (BMBF), 1996, p. 30, as cited in Lehrer & Asakawa, 2004, p. 65). These reforms legitimized a market framing of technology production.

Germany also instituted a program called the *Technologie-Beteiligungsgesellschaft* (tbg), which mirrored the US's SBIR program (Casper, 2007, p. 80). Similar to the government's shift toward using market mechanisms to encourage research output, the tbg marked a shift from subsidizing industry to providing equity. The tbg acted as a VC fund for startups by providing up to one million Deutschmarks, serving as the lead investor, and shouldering the majority of the risk (Adelberger, 2000, p. 114). Between 1998 and 2000, the tbg provided on average \$165 million (approximately 330 million Deutschmarks) to startups each year (Casper, 2003, p. 244). Rather than trying to simply improve startups' balance sheets, the goal of the tbg was to "forge competitive advantage for German firms in new technologies" (Casper, 2007, p. 80). To do so, the state encouraged VC to invest in the tech sector.



Just as in Silicon Valley, VC was the cornerstone of Germany's efforts to support growth in the knowledge economy. As more and more actors came to view VC as the reason for Silicon Valley's profitability (Pfirrmann et al., 1997, as cited in Vitols & Engelhardt, 2005), public discourse about supporting economic growth shifted from state-led efforts to financial markets. In 1989, leaders of an effort to support digital transformation still "argued that ideas about future technologies could not be relegated simply to the 'market,' but that German firms needed help [from the government] in anticipating the evolution of technologies from a broader range of expertise than they could find within their own technical staffs" (Lehrer, 2000, p. 95). By 1995, discussions of the tech sector strongly reflected Silicon Valley's market orientation. Frustrated with the government's efforts, two founders of German software firms declared that "What we need is not a Minister of Research, but a Minister of Marketing!" (as cited in Lehrer, 2000, p. 97). Throughout the 1990s, the view became ever more widespread that more finance capital should be made available, and politicians and the press began to speak of supporting "equity culture." Finally, in the late 1990s, policymakers passed a handful of reforms to encourage the flow of finance capital to the tech sector. Two of the most important include the establishment in 1997 of the *Neuer Markt*, a separate stock market for tech startups, and the 1998 "Law for control and transparency in firms" (*KonTraG*).

Germany's efforts to support the knowledge economy by imitating Silicon Valley marked a significant break from its traditional approach to economic policy. As Ziegler (2000, p. 208) points out, the *Neuer Markt* "consolidated a public-private effort to bolster a new equity-driven entrepreneurial sector in Germany that was quite different from the traditional *Mittelstand*." The shift in tactics from subsidizing firms to establishing the sector's equity base saw some early successes. The *Neuer Markt* ushered in a burst of public offerings, with more than 130 in 1999 and 2000 (Vitols & Engelhardt, 2005, p. 6). This success, however, was short-lived, as the *Neuer Markt* folded in 2002 amid widespread scandals. Despite its brevity, the *Neuer Markt* and the other policy reforms surrounding it left behind a significant legacy. Just as in the US, the efforts to pass these reforms, as well as their eventual institutionalization, framed the knowledge economy in market discourse. As I show below, the discursive context of the knowledge economy provided contextual conditions that enhanced managers' ability at Infineon to execute mass layoffs, despite Germany's robust EPL.

## 7 Mass layoffs at Infineon

As the following analysis highlights, the path of mass layoffs at Infineon illustrates how the discursive context of the knowledge economy contributes to undermining the effectiveness of EPL. At Infineon, managers established the market discourse of the Silicon Valley model as hegemonic in the workplace. Workers adopted this market discourse as the context within which they interpreted working conditions. When managers announced dismissals, and justified job cuts as the unavoidable result of market forces, their justification resonated with the discursive context that workers had already accepted. The discursive context of the knowledge economy thus played an important role in disposing workers at Infineon to acquiesce to mass layoffs, rather than mobilizing to enforce EPL.

### Managers' hegemonic discourse

Similar to German policymakers in the late 1990s, management at Infineon aspired to imitate Silicon Valley. They were explicit in their intentions, declaring that they sought independence from Siemens because they wanted “to start acting like a Silicon Valley entrepreneur” (Robertson, 2000), which had been impossible as a division of a slow-moving giant like Siemens. As Infineon set out on its own, managers established Silicon Valley's market discourse as hegemonic across the firm, including in the workplace.

Prior to Infineon's initial public offering in 2000, managers pledged their allegiance to shareholders: “We see the overwhelming demand [for Infineon shares], and the trust it implies, as a responsibility. We will do everything we can to live up to this trust” (Infineon Technologies AG, 2000b). Rather than simply responding to potential shareholders' interest, managers actively sought out shareholders. The firm spent €50 million on an advertising campaign to encourage individuals to invest in Infineon and sponsored a Formula 1 racing team to raise the firm's profile (Busse, 2000; Geiselberger, 2001). CEO Ulrich Schumacher was explicit in his intentions: “It's less about the product itself than the value of our image and name recognition for the stock price” (as cited in Geiselberger, 2001). Consistent with the market discourse of Silicon Valley, managers emphasized that Infineon's financial performance was their primary concern, even more so than the firm's products.

When managers did turn their attention to Infineon's products, they framed all operational concerns in market discourse, going so far as to use the English phrase of “shareholder value”: “Durch den Gewinn zusätzlicher Marktanteile in schnell wachsenden Segmenten mit hohen Margen wollen wir den ‘Shareholder Value’ weiter steigern [By securing additional market share in rapidly growing segments with high margins, we want to further increase shareholder value]” (Infineon Technologies AG, 2000a, p. 8). Managers established a discursive context at the firm that revolved around markets, especially financial markets, where shareholders' interests come before all else.

Proclaiming to the public that Infineon was oriented to producing value for shareholders, management also ensured that market discourse was hegemonic within the firm. In communications with workers, managers repeatedly emphasized that Infineon's financial performance shaped working conditions. Managers persuaded workers that market conditions established unavoidable parameters for working conditions, in part, by tying compensation to Infineon's performance (Infineon Technologies AG, 2001, p. 25). Moreover, in a move that broke with tradition in Germany but followed established practice in Silicon Valley, management offered workers stock options (Infineon Technologies AG, 2001a). Managers mounted visual displays on the walls to keep workers up to date with movements in Infineon shares, and reporters noted how workers' mood was significantly improved when the price was higher (Thym, 2000). Schumacher underlined how the employee stock-ownership plan incentivized workers to deliver value to shareholders "because there is a serious coupling effect: the people [workers] get rich when the shareholders get rich" (Deckstein & Steingart, 2000). By consistently framing production in market discourse, managers at Infineon established a discursive context that led workers to believe that whatever agency they had over working conditions was mediated by financial markets. According to this view, compensation and job security were determined by market forces, on which neither managers nor workers had significant influence.

Workers at Infineon internalized this market discourse, adopting it as common sense, which led them to believe that their agency in the workplace was limited. Persuaded by managers that Infineon was exposed to entirely different dynamics compared to when the firm was a division of Siemens, workers believed that "the problem was that all the managers came from Siemens...from the safe harbor. And they first had to learn what you do" (Former worker, Infineon, author interview, November 17, 2014). While Infineon certainly faced different dynamics as a publicly traded firm than as a division of Siemens, workers understood these dynamics exclusively through managers' market discourse, which exaggerated the power of market forces and minimized workers' ability to shape working conditions. Importantly, managers' invocation of market discourse was as consistent as it was vague, which enabled them to establish it as a background feature, simply constituting an encompassing discursive context. This context, however vague, was the lens through which workers came to understand specific issues in the workplace.

One result of internalizing managers' framing of the employment relationship was that workers viewed attempts to confront market forces as inherently unreasonable and potentially harmful to the firm. For decades, the union IG Metall has played a critical role in German corporatism by organizing workers to enforce national institutions. At Infineon, however, workers were disposed to view the union more as a threat than a resource. One worker shared, "I think that the union does lots of good things, but that IG Metall especially demands too much" (Former Infineon worker, author interview, January 22, 2015). According to

this worker, IG Metall may protect workers' rights in the short term by defending them against dismissals. However, in the long- or even medium-term, such efforts were likely to damage a firm's profitability, thus ultimately exposing workers to job loss when their firm went out of business. In the discursive context of the knowledge economy, this view makes sense because, according to its underlying assumptions, workers' job security is determined not by managers' discretion, but by market forces.

### Managers' framing of layoffs

Managers relied on market discourse in order to frame the employment relationship during normal times, but the hegemony of this discourse became even more apparent once Infineon entered a period of crisis in 2001. As the price of semiconductors dropped, so did Infineon's orders, along with the firm's revenues and share price. Schumacher insisted that these challenges could be overcome only once market conditions, namely, the price of semiconductors, corrected themselves (Heise News Online, 2001). Although many news outlets repeated management's view by reporting that Infineon's future depended on market developments, this was by no means the only perspective. Some argued that Infineon's survival depended as much on updating its strategy internally, by investing more in research and development (Windeck, 2001). Alternative analyses of Infineon's situation illustrate that management had a choice in how they framed the firm's position, and that they chose to justify dismissals in a way that resonated with the market discourse of the knowledge economy.

In late July 2001, management announced a cost-reduction plan called *Impact*, which was supposed to save "about €1 billion over the next 12 to 18 months, and thereby significantly improve the firm's cash position as well as its earnings" (Infineon Technologies AG, 2001b). In a press release, management justified *Impact* as a necessary response to drops in the price of semiconductors: "The global semiconductor market will decline in 2001 by approximately \$60 billion, and in relation to market prognoses from October 2000, by more than \$100 billion. Infineon will not be able to avoid this exceptionally strong downturn" (Infineon Technologies AG, 2001b). *Impact* included strategies to optimize existing business processes, but its most notable feature was the plan to reduce Infineon's global workforce by 5000. Of those 5000, 943 were to be cut from the firm's headquarters on *Balanstraße* in Munich (Works Council, Infineon, 2002b).

Throughout the process of layoffs, managers consistently justified dismissals as necessary for ensuring Infineon's survival against market challenges. Reporting on *Impact*'s progress in late September 2001, Schumacher situated layoffs in direct relation to market forces by announcing that, "With these measures we have effectively pushed against the current tough market situation and will emerge strongly out of the semiconductor market's global crisis" (Infineon Technologies AG, 2001c). Schumacher and other executives maintained this framing as the months passed. In January 2002, Schumacher assured a reporter

that further dismissals were not necessary, but added, “Unless there is another crash in the semiconductor market” (Der Standard, 2002).

Schumacher was not the only manager who justified layoffs using market discourse. When managers faced the critique that job cuts were a result of their errors, they unfailingly invoked the view that powerful market forces had constrained their agency. Sönke Mehrgardt, former Chief Technology Officer, accepted that management made some mistakes prior to layoffs, but these were only “that we did not recognize the brutally hard truth of the market in time.” According to Mehrgardt, managers could have done a better job recognizing the immovable parameters set by market forces and also “maybe we needed to convey this hard truth of the market more intensively” (Wintermayr, 2002, p. 13). Mehrgardt echoes Schumacher in justifying dismissals as the necessary consequence of market forces beyond managers’ and workers’ control.

IG Metall recognized the techniques managers were using to justify layoffs in this discursive context. The union tried to rally workers by critiquing managers’ attempts to displace responsibility for layoffs onto market forces. Following negotiations over ways to reduce the number of job cuts, management again reiterated that “the dramatic crash in the global semiconductor market also required Infineon to implement far-reaching measures to strengthen its cash position” (Infineon Technologies AG, 2002b). IG Metall responded by showing that global markets had in fact improved. The union circulated a newsletter acknowledging Schumacher’s position that layoffs could be called off only if markets improved, along with evidence that chip prices had improved (Mueller, 2002). With market discourse setting the standards for legitimation, dismissals should now have been avoidable. However, hundreds of workers had already been terminated, and the workers who remained were persuaded by managers’ justification, so they continued to acquiesce to the ongoing job cuts.

### **Workers persuaded by managers’ framing**

Workers acquiesced to layoffs because they believed management’s justification for job cuts. Managers’ invocation of market discourse reinforced workers’ belief that Infineon faced entirely different market conditions as when the firm was a division of Siemens, and that these new conditions made layoffs unavoidable. Having absorbed management’s arguments that Infineon was similar to a “Silicon Valley entrepreneur,” workers believed that “during the Siemens time, the market conditions were not so bad. And this market, how important it is, that only came into focus now for the workers” (Former Infineon worker, author interview, November 17, 2014). Perhaps even more importantly, workers believed that these market forces were new for managers as well, who were leaving the “safe harbor” for the first time (Former Infineon worker, author interview, November 17, 2014). As an independent firm, Infineon certainly faced a different environment than it did as a division of Siemens. However, workers understood this environment exclusively through the framework of market discourse, which

exaggerated the power of market forces while minimizing both management's and workers' agency in shaping working conditions.

One indication that workers accepted market discourse as an encompassing discursive context is that they adopted it to explain prior experiences. Workers at Infineon were aware of a number of technologies they developed that were admired for their scientific sophistication, but had failed. According to the discursive context of the knowledge economy, these products failed because there was no demand for them. Workers extended this logic in order to make sense of managers' justification for layoffs. If markets determined whether a technology was successful, and workers were assessed on the basis of whether they produced successful technology, then it did not require a great leap in logic to infer that markets determined working conditions. Workers who produced technology that failed on the market were unlikely to keep their jobs: "They had this insanely innovative high-performance data-transfer product. Nobody wanted it, because nobody needed the rate of data transfer. Today, it's a must. [The problem is] that it was just 14 years too early. And that's why the division is gone" (Former Infineon worker, author interview, November 17, 2014). After a handful of unprofitable development runs in Infineon's earlier years, workers came to believe that working conditions depended on more than their own ingenuity or on managers' assessment of their abilities. Instead, accepting the discursive context of the knowledge economy, workers came to believe that market forces played a much more important role than their own agency.

Embedded in this discursive context, workers at Infineon believed managers' justification that dismissals were unavoidable due to market forces outside their control. According to a former worker, "I think that [layoffs] were not just about optimizing profits or something. No, I think that the dismissals actually made sense, that you basically wanted to keep the entire firm alive" (Former worker, Infineon, author interview, February 12, 2015). Indeed, to many workers, layoffs seemed like a logical response to conditions that everyone could observe: "We knew that a third of our business was in mobile telephones. And suddenly there were no more Siemens mobile phones. And so we couldn't sell all the chips that we had stockpiled. We didn't have any new customers... and it was clear to everyone: if so much was cancelled, we can't go forward with the same team" (Former Infineon worker, author interview, January 13, 2015). For workers disposed to understand working conditions as directly shaped by market forces, the disappearance of a major customer logically resulted in layoffs.

As noted above, workers at Infineon were represented by a competent works council, but works councilors did little to defend workers against layoffs. In fact, they reinforced management's justification for job cuts and did not question the discursive context that made management's justification so persuasive for workers. According to one former worker, it was widely believed that mobilizing would have been senseless: "Everyone agreed about the causes [of layoffs]. I don't think there were any doubts. Of course, the works council side

and the union side said, ‘yeah, you [managers] should have seen that earlier’” (Former Infineon worker, author interview, January 13, 2015). The works council’s affirmation that market forces made job cuts necessary for Infineon’s survival helped dissuade workers from collective action. Managers accepted the works council’s and union’s critiques that they should have planned better, but these critiques actually further supported managers’ justification for dismissals because all parties accepted the belief that, however regrettable, the firm was in a situation where layoffs were the only way to remain in business.

The works council at Infineon initially opposed dismissals. Less than a month after management announced layoffs, the works council emailed workers on August 24 to announce that “These firings, in the works council’s opinion, are illegal (because there’s still no *Interessenausgleich/Sozialplan* [agreement with the works council])” (Former Chair, Infineon Works Council, personal communication, August 24, 2001). Believing that negotiation was the best way to protect workers’ rights (Former Infineon works councilor, author interview, October 24, 2014), the works council finally pushed management to agree on November 27, 2001 to spare 100 workers’ jobs by introducing part-time work and other measures. However, as noted above, these efforts protected no more than 5% of the targeted workers from layoffs.

Workers at Infineon were subjected to mass layoffs because neither they nor their representatives mobilized. Workers noted that while the works council did critique management’s dismissal plan, their engagement avoided direct confrontation. One worker compared this strategy to how the works council resisted management discretion at later points in Infineon’s history, such as when executives introduced a forced-ranking system for assessing performance. In contrast to the resistance at these later times, “that was actually really good cooperation then [during *Impact*]” (Former Infineon worker, author interview, January 13, 2015). However, while peaceful, the works council’s negotiations with management were not effective at protecting workers’ jobs.

In newsletters and all-employee meetings, the works council reinforced managers’ justification for layoffs. The works council argued that pressure from shareholders made layoffs unavoidable. As a result, implied the works council, workers’ resistance would be ineffective and, thus, senseless. Even if they pressured managers to reconsider layoffs, the real decision makers remained out of reach, because “the executives are not responsible for this [approaching bankruptcy]. There is a very influential majority shareholder who has a heavy hand in these decisions” (Works Council, Infineon, 2002a). Rather than challenging managers’ justification for layoffs, the works council at Infineon reinforced it, replicating the discursive context of the knowledge economy and affirming managers’ framing of the employment relationship as determined by market forces. Works councilors thus reinforced workers’ belief that their control over working conditions was minimal in comparison to the market’s. On such a view, collective action would be ineffective in protecting their jobs.

In the discursive context of the knowledge economy, management's justification for layoffs in terms of market forces made sense to workers. In this context, even when workers have access to formally robust EPL, the most reasonable response to the threat of job loss is to acquiesce.

## 8 Conclusion

Throughout the twentieth century, workers in corporatist countries were better protected from social dislocation during economic adjustment than workers in liberal market economies. With the transition to the knowledge economy, however, we no longer witness such a close correspondence between national institutions and working conditions. In order to explain why digital transformation has made workers in corporatist countries just as vulnerable to social dislocation as workers in liberal market economies, this article developed the concept of the “discursive context of production” by analyzing workers' vulnerability to mass layoffs at a German tech firm.

As observed in the case study of Infineon, Germany's embrace of the Silicon Valley model has seen the widespread adoption of the market discourse that grew up around the tech sector in its early days. This discourse has become a contextual condition of digital transformation, guiding policymakers' efforts to reshape national institutions and framing managers' techniques for controlling the workplace. As a contextual condition, this market discourse has no direct causal effects, but it does affect the environment in which capital and labor confront questions of economic adjustment. At Infineon, managers established market discourse as hegemonic in the workplace, which led workers to believe that market forces shaped working conditions. This discursive context made it easier for managers to persuade workers to acquiesce to layoffs instead of mobilizing to enforce employment protection legislation. The German workplace remains *formally* subject to corporatist institutions, but the discursive context of the knowledge economy enables managers to exercise as much discretion as their counterparts in liberal market economies like the US. In contrast to previous episodes of economic adjustment, it appears that digital transformation will not be coordinated.

The concept of the discursive context of production developed here contributes to research on the future of work in two important ways. First, it provides a theoretical framework to fill gaps in the causal connection between digital transformation and working conditions. Rather than assigning digital transformation causal powers, this approach identifies aspects of economic adjustment that act as contextual features that reshape the power relations between managers and workers. Analyzing digital transformation as a discursive phenomenon enables tracing the effects of the transition to the knowledge economy while still



reserving the assignment of causal powers to actual actors, in this case, managers and workers. Moreover, this framework enables explaining individual cases and identifying common patterns across cases, thus overcoming one notable limitation of existing research on the future of work (Butollo et al., 2021). Orienting analysis around discourse enables linking micro-level and macro-level investigations, and can thus assist future researchers in making sense of how working conditions evolve within the broader context of capitalist development.

Second, analyzing working conditions from the perspective of the discursive context of production shows how the traditional “social question” has assumed new forms in the knowledge economy. The question of how to govern the social outcomes of economic adjustment has not just moved from the national level to the workplace, it is also being asked by new actors and from new perspectives (Doellgast et al., 2018). In the knowledge economy, high-skill high-wage workers may face the same threat of job loss as low-skill low-wage workers (Häusermann et al., 2015). Moreover, embedded in the market discourse that surrounds the tech sector, high-skill high-wage workers are likely to articulate their precarity in terms of market forces, rather than social citizenship. The growing importance of mobilization in the workplace rather than at the national level complicates existing theories about possible cross-class alliances, and invites closer attention to what it takes for workers to participate in collective action at the current juncture (Ibsen & Thelen, 2017; Iversen & Soskice, 2015). Viewing these changes through the lens of the discursive context of production can identify common assumptions shared among otherwise disparate actors and highlight possible axes for new types of coalition building.

Future research can build on this article’s limitations in order to extend its contributions. By highlighting the way in which market discourse characterizes power struggles in the workplace just as much as it does policymaking at the national level, this article sought to illustrate that market discourse constitutes a contextual condition across different spheres of political life. However, questions remain about the concrete causal linkages between policymakers’ efforts to update national institutions and the patterns we observe in the workplace. One way to address this question would be through comparative analysis, investigating whether the market discourse that developed around Silicon Valley has spread to other countries beyond Germany, and if one can identify linkages between different paths of policy development and different patterns of power in the workplace.

More broadly, the concept of the discursive context of production can be integrated into broader frameworks for studying the political economy of capitalist development in order to shed more light on emerging dynamics of imbalance among the OECD’s wealthy democracies (Rothstein & Schulze-Cleven, 2020). Perhaps most importantly, future research can investigate efforts to develop alternatives to the market discourse of digital transformation (Doellgast, 2022), particularly what it would take for workers to transform management’s techniques for control into resources for collective action.

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## Appendix I. List of interviews

<b>Date</b>	<b>Subject</b>	<b>Location</b>
July 11, 2014	Union official, IG Metall	Munich, Germany
July 24, 2014	Member of parliament, SPD	Telephone
October 24, 2014	Former works councilor, Infineon	Munich
November 1, 2014	Former union official, IG Metall	Berlin, Germany
November 4, 2014	Member of parliament, SPD	Berlin
November 11, 2011	Former union official, IG Metall; and works councilor, Infineon	Munich
November 14, 2014	Former works councilor, Infineon	Munich
November 17, 2014	Former worker, Infineon	Munich
November 25, 2014	Union official, IG Metall	Munich
November 25, 2014	Activist	Munich
December 5, 2014	Policy coordinator, Gesamtmetall	Berlin
December 8, 2014	Policy coordinator, Gesamtmetall	Berlin
December 9, 2014	Labor policy specialist, Bundesvereinigung der Deutschen Arbeitgeberverbände (BDA)	Berlin
December 9, 2014	Policy coordinators, Industrie- und Handelskammer	Berlin
December 12, 2014	Division head, Verband der Bayerischen Metall- und Elektro-Industrie (Bayme)	Munich
January 19, 2015	Former worker, Infineon	Munich
January 22, 2015	Former worker, Infineon	Munich
February 5, 2015	Software engineer, Infineon	Munich
February 12, 2015	Former worker, Infineon	Munich