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The performance of economic institutions in a dynamic environment: air transport and telecommunications in Germany and Britain

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discussion paper

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**The Performance of Economic Institutions
in a Dynamic Environment:
Air Transport and Telecommunications
in Germany and Britain**

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Abstract

Detailed case study material illustrates why the performance of two British national champions (British Airways and British Telecom respectively) was superior to that of their German counterparts (Lufthansa and Deutsche Telekom): beyond just the effects of privatisation, both the airline and telecommunications industries have been characterised by substantial technological and market change which has altered the parameters of competitive strategy. Under these new dynamic environmental conditions, the British institutional structure has out-performed the "denser" network of relationships within Germany.

This paper seeks to develop a theory of Anglo-Saxon competitive advantage that is not predicated only on the allocative efficiency of free markets, but precisely on the notions of "adaptive efficiency" or "dynamic efficiency" of non-market organisational activities. In other words, the hypothesis is that under specified types of industry conditions, the adaptive or dynamic efficiency of Anglo-Saxon firms may be superior to that of firms in Northern Europe's "industry-coordination" economies.

Zusammenfassung

Eine Analyse von umfangreichem Fallstudienmaterial läßt erkennen, warum Leistungsfähigkeit und tatsächlich erzielt Ergebnis der beiden britischen Spitzenunternehmen British Airways und British Telecom besser waren im Vergleich zu den entsprechenden deutschen Unternehmen Lufthansa und Deutsche Telekom: Neben den quasi automatisch auftretenden Wirkungen jeder Privatisierung waren die Luftfahrt- und Telekommunikationsbranchen durch tiefgreifende Änderungen der Technologien und der Märkte gekennzeichnet, wodurch die Kenngrößen für eine wettbewerbsorientierte Strategie geändert wurden. Unter diesen neuentstandenen, dynamisierten Umfeldbedingungen erwies sich die Institutionenstruktur Großbritanniens als dem „dichteren“ Beziehungsnetzwerk in Deutschland überlegen.

In diesem Papier sollen Elemente für eine Theorie über diesen angelsächsischen Wettbewerbsvorteil entwickelt werden, die nicht nur auf der Allokationseffizienz von freien Märkten basieren, sondern genau auf die Wahrnehmungen einer „Anpassungseffizienz“ oder „dynamischen Effizienz“ von nichtmarktlichen Aktivitäten unterschiedlicher Organisationen bezogen sind. In anderen Worten, es geht um die Hypothese, daß bei bestimmten, in einer Branche gerade herrschenden Bedingungskonstellationen, die Anpassungs- oder Reaktionseffizienz von angelsächsischen Unternehmen derjenigen von Unternehmen in den branchenkoordinierten Volkswirtschaften des nördlichen Europas überlegen ist.

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1. Introduction

Anglo-Saxon and Continental European economies can, to a significant extent, be distinguished by the 'richness' of their respective institutional contexts. Continental economies can be characterised as offering a dense pattern of networks between firms, industry associations, unions, and banks, alongside what many argue as government provided frameworks for collective thinking and planning that have been beneficial to firms and employees alike. By contrast, the more decentralised economic organisation in the UK and US has incorporated a greater focus on market signals, and a narrower view of economic processes because of the sacrosanct principle of autonomous decision-making by firms.

Contrary to the prior perceptions of neo-classical economists, and also the public policy wisdom of the Thatcher governments in the UK, widespread interpretations of the economic performance of the German economy in the 1970s and 1980s led many to the conclusion that rich institutional networks amounted to more than promoting positive social gains to stakeholders. Rather, these networks and the web of institutional arrangements they entailed have been interpreted as providing a clear source of national competitive advantage (Katzenstein, 1989). The gains in economic performance were perceived as deriving from the stability the system provided, from their ability to facilitate adaptation through the reduction in risk and uncertainty to stakeholders, a consensual approach to implementing change, and the clear acceptance of technological advance.

Changing perceptions of economic success in the 1990s has led to a reassessment of this analysis, and some regained respectability for the deregulatory policies introduced in the UK – at least in pure efficiency terms, even if the social consequences of such policies remain a subject of political and academic controversy. The vagaries of such perceptions abound. Aside from these, however, we utilise detailed case study material drawn from extensive and intensive research conducted in two core service industries (airlines and telecommunications) to illustrate why the performance of the British competitors (British Airways and British Telecom respectively) was superior to that of their German counterparts (Lufthansa and Deutsche Telekom).

Rather than supporting a neo-classical contention that deregulated markets necessarily perform better, we argue that the performance impact of economic governance institutions within British and German industry critically

depends of the nature of change in the industry environments. Both the airline and telecommunications industries have been characterised by substantial technological change which has altered the nature of competitive strategy and organisational demands. Under these new dynamic environmental conditions, which emphasise radical restructuring rather than incremental adaptation (Darbishire, 1997a), the British institutional structure has thus far out-performed the denser network of relationships within Germany.

The early privatisations of both British Telecom (in 1984) and British Airways (1987) in what had previously been heavily regulated markets undoubtedly increased the commercialisation of these firms. Yet it is important not to overstate the impact of deregulation alone. The extent of “political contingency” (Batstone et al., 1984) fell as the government withdrew to a more arms-length relationship. Perhaps the greatest manifestation of this was in the ability of BT and BA to reduce headcount through voluntary departure programmes.¹ In BA’s case these reductions came before privatisation and its most significant performance gains, and in BT they occurred in the 1990s, in a market nominally deregulated, but still dominated by the old national champion. In neither industry was the essential nature of the market altered as a result of either domestic deregulation or privatisation. Far more important has been the changing nature of technology, and the impact that this has had on optimal competitive strategies in the two respective industries.

Detailed analyses of airlines and telecommunications highlights that a deeper understanding than privatisation and deregulation alone is required to explain the *greater techno-organisational innovation* undertaken by BT and BA vis-à-vis their European counterparts. Comparisons with Deutsche Telekom and Lufthansa illustrate just how far the British national champions have advanced, and show that within the changing parameters of these industries BT and BA did considerably more than simply cut costs and personnel. Lufthansa, which had been a leader in European aviation for almost three decades, declined in the 1980s and was overtaken by BA in the 1980s in a series of technological and organisational innovations (Lehrer, 1997). Deutsche Telekom, which had technologically and organisationally out-performed its British rival, was similarly surpassed by BT in the development of a market-based organisational structure, while is also lost its historic lead in a rapidly changing technological and competitive environment (Darbishire 1997a,b)

¹ BT reduced its employment from 235,100 in 1984 to 133,000 by 1994, with the vast majority of this reduction coming during the 1990s. BA reduced its headcount from a high of 58,000 in 1979 to a low of 37,000 in 1983, while it also demonstrated its numerical flexibility after the Gulf War in 1991 when it she 4,600 positions through an emergence cost-cutting programme.

The balance of this article falls into three parts. Empirical evidence of the air transport and then telecommunications industries is presented to shed light on the precise nature of the innovative activities observed in each case. Subsequently, these findings will be placed into a larger theoretical context. It is argued that of substantial importance has been that in both industries technology has altered the nature of competition, and introduced new forms and elements of competition. Within this radically altered industry environment we argue that the institutional structure within which UK firms operated was able to facilitate greater organisational and operational experiments, innovation, and restructuring of activities to enhance performance. The German firms followed later along a path that had already been trodden by the UK leader because of institutional constraints upon their ability to undertake radical restructuring, rather than to implement incremental adjustment along a historically well-established competitive trajectory.

2. British Airways versus Lufthansa

The 1980s witnessed a period of rapid technological change and market liberalisation in European civil aviation. The ascendancy of British Airways from “Bloody Awful” to leading European carrier during the course of the 1980s contrasts with the relative decline of Lufthansa in that decade, and with the financial disaster of carriers like Air France. Detailed research in the industry reveals that of particular significance in the reversal of BA’s fortunes has been a strong technological component (Lehrer, forthcoming). However, this technological component has been of a different dimension to that historically apparent in the industry.

Technological changes within airlines have amounted to a ‘paradigm shift’ in the production regime, and in responding to these changes, by the mid-1980s British Airways had build up a 5-10 year lead over its rivals in the areas of information systems, organisational structure, hub planning, flight scheduling, and global selling across its network. Although the complexity of the issue is too great to cover at any length here, a list of the essential changes is contained in Table 1.

Table 1.

Paradigm Shift in European Civil Aviation		
System	Old Paradigm	New Paradigm
View of market	Separate markets to and from home country	Home-country hub serving global market
Customer base	Home country of loyal nationals	Any passengers who fly in, to, or over Europe
Scheduling, Pricing, Selling	Separate, sequential tasks in different dept's	Tight integration and control by Marketing Dept
Optimization of schedule & prices	On route by route basis	On O & D basis (Origin and Destination of passengers)
Sales Organization	Decentralized	Centralized coordination using IT tools
Information Tech.	Supporting technology	Core technology for competitive advantage
Human Resource Requirements	Specialists	Generalists

The difference between the old and new paradigms in European civil aviation corresponded to the shift from point-to-point and hub-and-spokes configurations in the US only to a certain extent. While the new paradigm adopted by British Airways (and much later by Lufthansa) did indeed mean intensifying the strategic centrality of the hub airports at London (and Frankfurt), it also required a number of other adjustments which were not entirely obvious merely from observing the behaviour of US carriers. These included overhauling information systems to optimise pricing structures ('revenue management'), transferring control over the planning functions to the marketing department, and centralising the sales organisation so that sellers optimise revenue across the airline's whole network of routes rather than just their own geographical profit centre.

Collectively, these changes serve the purpose of 'optimising the network,' which became a battle cry of airline managers when they realised the need to do so. However, none of the changes make sense in isolation, and nor could they be made incrementally. Rather, to 'optimise the network' the whole set of airline systems had to be changed in step. This interdependence among systems and the difficult-to-recognise character of the new paradigm makes it possible to classify the new paradigm as an 'architectural' innovation (Henderson, 1990) in civil aviation. Furthermore, and most importantly, the radical change required helps explain the rather surprising variation in the timing and speed with which the network-optimising paradigm was adopted among such airlines as BA, Lufthansa, and Air France (Lehrer, forthcoming).

Although BA's profitability in the late 1980s had been ascribed by some to factors like lower wages, social security charges, slot congestion at Heathrow, or greater protection from competition in the UK-US bilateral aviation agreement, by the early 1990s it became clear that the British carrier had

achieved technical dominance in certain key systems. For example, in late 1992 when Lufthansa CEO Weber was asked at a company 'town meeting' in Frankfurt what BA did differently to make high profits, he replied that there were three reasons:

1. BA's well established and sophisticated yield management system, with 20 booking classes, gave it a seat-load factor (i.e. percentage of the plane filled) of 14% higher than Lufthansa.
2. BA operated a centralised hub structure in London, whereas decentralised services (such as those at Lufthansa) were becoming less profitable
3. Profitable North Atlantic operations, thanks to the UK-US bilateral, were much more favourable than the Germany-US bilateral (*Der Lufthanseat*, 16 Oct 1992).

The achievement of BA's competitive advantage over Lufthansa, which resulted from its technological dominance and superior organisational structure and reforms, had its foundations in the differing national institutional contexts within each country. The institutional features within Britain that proved particularly advantageous in adapting to the paradigm shift within the industry were the high discretion of the CEO, high managerial mobility, and a national culture of generalist (as opposed to specialist) managers (Lehrer, forthcoming). These institutional traits were crucial enabling conditions in allowing British Airways' management to orchestrate the organisational experiments and manage the intra-firm power shifts that were needed to break with the conventional industry configuration. Similarly, they enabled BA to discover the need and ability to leverage their overall network. These were of course complemented by other factors, such as BA inheriting a visionary head of information systems, and the merger of BEA and BOAC in the 1970s which had led to the integration of their respective information systems. Nevertheless, national institutional differences are crucial in understanding the different trajectory of BA from Lufthansa, which was embedded in its web of German institutional rules.

Quite unlike Lufthansa in particular, and the German system in general, BA had the ability to restructure itself rapidly, and such reforms of their organisational structure facilitated experimentation and learning. Thus, in May 1982 British Airways restructured itself into three divisions (International Services Heathrow, European Services Heathrow, and Gatwick Services). Yet by July 1983 all three division heads had been 'retired,' and an entirely new airline structure had been designed and put into place, this time based around eleven profit centres: eight geographic 'market centres' for passenger operations, plus cargo, charter, and package tours. During the legendary Night of the Long Knives (11 July 1983), 161 of BA's top managers were sacked and the newly formed profit centres were entrusted to a group of managers in their thirties and forties, often promoted three to four levels overnight. All profit centres reported to a newly appointed Marketing Director. The 1983

reorganisation was planned in total secrecy by a handful of selected managers and announced as a total surprise, enabling BA to appoint young new managers to positions of power within the company. By 1986, and after a number of innovative experiments, BA was in a position to change its organisational structure once again, this time implementing the network-optimising paradigm described earlier. It achieved this by creating a centrally controlled World Sales organisation guided by state-of-the-art information systems.

Although the cause of this flurry of activity was the appointment of Colin Marshall to chief executive in early 1983, of more importance institutionally was the enabling condition of formal authority vested in the chief executive under the UK system of corporate governance. With the assured backing of the board (which Marshall had), Marshall could unilaterally dictate policy and alter top management appointments. The role of the CEO was critical in orchestrating two very different processes simultaneously – the one open and public, the other hidden and a private company matter. Outwardly, Marshall professed a religion of customer service, of people, of staff as the greatest company asset, of the need to boost staff morale in order to boost the quality of customer service and company prosperity. However, inside the company and hidden from public view, Marshall reshuffled the managerial hierarchy drastically and put a completely different spin on the conviction that BA's 'most important assets are its people.'

Marshall undertook a policy of promoting young promising managers to positions they could never have obtained under the previous organisation. Less than three weeks after Marshall took office, four internally promoted managers, all in their 30s, were named to a core marketing team which became the all-important Marketing Policy Group, the key spawning area for BA's marketing innovations in the 1980s. The top managerial ranks were systematically screened during Marshall's first months for 'set-in-their-ways' managers to be dismissed and younger, fresher talent to be promoted to run an entirely reorganised airline. Indeed, it was the 1983 reorganisation which radically altered the company's internal power structure to allow this to happen, while it was the 1986 reorganisation which altered the basic principle of the airline's operation. Highlighting the core power of a few key individuals further was the role of Michael Levin in both of these organisations. A long-standing consultant to Colin Marshall, Levin was also critical in the repositioning of the information management department as a strategically central unit within the company, which would not have happened without his strong intervention. Levin, who never held an official position within BA, essentially acted as Marshall's right arm, with high unilateral discretion.

The rapidity with which Marshall was able to restructure operations within BA, and the ability to learn through progressive iterations of organisational

reform, contrasts with what is possible within the German institutional context. As will be discussed in more detail in Section 4, German institutions sharply promote consensual decision-making in the top boards, as well as encouraging hierarchies of career specialists. These institutional features made it difficult for Lufthansa to match many of BA's moves (Lehrer, 1997). Instead, faced with a more competitive environment, Lufthansa's management decreed changes based on classic German strengths of a focus on high value-added segments, and local tailoring of products. Constrained from a reorganisation which paralleled BA's, the pillar of Lufthansa's strategy was that it could survive and prosper in a deregulated market by occupying a high-quality niche of the industry on its routes, and thereby charge the higher fares needed to support its German labour costs. As such, Lufthansa's constrained strategy was to conceive of itself as the aviation equivalent of Porsche, BMW, and Mercedes. However, this strategy, and Lufthansa's focus on classic German strengths, were out of synch with the evolution of airline industry economics. In spite of this, and even in the face of the progressive liberalisation of the European market from 1987, Lufthansa actually *enhanced* the centrality of 'German quality' and 'German productivity' in its strategic thinking. Indeed, it took the parallel with car manufacturers so seriously that it appointed a BMW marketing man to a newly created Vorstand position in 'product development and marketing' in May 1989, and after the Vorstand member in Sales resigned in early 1990, Lufthansa eyed VW's illustrious Daniel Goeudevert as a replacement candidate.

Lufthansa's focus on an outdated strategy was similarly reflected in other dimensions. While the industry was changing, and the critical competitive parameters were moving away from mastery of *aircraft* technology and towards the mastery of new *marketing* techniques driven by high-powered information systems, Lufthansa's focus on technology remained. As such Lufthansa remained a 'typically German' company. Its particularly prestigious and large maintenance division (*Technik*) supplied some a disproportionate number of influential top managers in the Vorstand, including the highly respected Reinhardt Abraham as deputy chairman (*stellvertretender Vorstandsvorsitzender*) in the 1980s and Jürgen Weber, the Vorstand chairman since 1991. Whereas the sales and marketing side of Lufthansa has struggled to find able members in the 1980s and 1990s, the *Technik* division has provided a steady stream of orderly internal successions throughout this period.

The continued emphasis on, and orientation to, technology continued almost to the point of caricature. In addition to the dominance of its *Technik* division, Lufthansa persisted in maintaining one of the youngest fleets in the world, with the latest aviation technology, partly achieved through taking advantage of rapid depreciation provisions of the German tax code. However, the slow shift in strategic thinking to sales and marketing, closely parallels developments within Deutsche Telekom, as discussed below. In neither case,

however, was the company oblivious to the strategic problem. Nevertheless, restructuring the internal organisation and the balance of power within the company to increase the emphasis on new marketing techniques driven by high-powered information systems was institutionally difficult. Yet the failure to do so prolonged the strategically out-dated emphasis on a service equivalent of the industrial strategy of 'diversified quality production' (Sorge and Streeck, 1988).

Within Lufthansa, the upshot of their strategy was that in 1986, the year when BA decided to centralise its sales organisation, the Lufthansa Vorstand voted to *decentralise* its marketing and sales operations. The sales organisation was reorganised into 34 different regional units, each given full responsibility for sales strategy within its area. Several product planners were recast as 'route managers' responsible for deciding the appropriate cabin configurations and service levels for their respective geographic markets. This meant that Lufthansa's 'products' – in airline parlance the lay-out of the cabins and the services provided in each passenger class – were 'customised' to fit the customer needs and competitive requirements on each of the routes it served. It was in this way, by trying to combine the advantages of economies of scale with those of customised production tailored to specific market niches, that the 1987 reorganisation of Lufthansa's planning and commercial operations can be considered the aviation equivalent to the German industrial strategy of 'diversified quality production.'

It is especially important to note that this corporate strategy was, to a significant extent, institutionally constrained, and that Lufthansa (like Deutsche Telekom in the telecommunications industry), had difficulties adopting a strategy based around a new conception of competition, customer service, and marketing. The constraints are significantly based in the nature of the system of *corporate governance* in German joint stock companies. Corporate governance as conceived and studied here goes beyond a preoccupation with the articulation of shareholder interests and with the separation of ownership from control (Berle, 1967; Jensen, 1976). Yet nor is it restricted to co-determination and joint-decision making between capital and labor representatives in large German companies (Streeck, 1992b). Rather it is necessary to consider in greater procedural detail the way decision-making at Lufthansa as a large German company works and the constraints that are inherent on the discretion of top managers.

It is not merely the voice of labour in the works councils, *Aufsichtsrat* (supervisory board), or even in the *Vorstand* (executive board, through the position of the "labor director") that imposes constraints on corporate decision making. Rather, it is also the legally enshrined two-tier structure of management boards (Vorstand, Aufsichtsrat) with rigidly codified voting rules that helps explain why the pattern of corporate decision-making at Lufthansa in

the 1980s and 1990s followed the course it did and why Lufthansa could not and did not follow the same course of strategic adjustments that the ascendant British Airways was able to pursue.

The institutional constraints within which Lufthansa and other large German companies (including Deutsche Telekom) operate emerge first by considering the role of the *Aufsichtsrat* (supervisory board). Following the Co-Determination Act of 1976, the parity principle means that both management and labour at Lufthansa elect ten representatives to the *Aufsichtsrat*. Along with its legally prescribed authority for approving quarterly accounts, dividend payouts, and major expenditures or acquisitions, the primary function of the German *Aufsichtsrat* is to ensure the competence of the *Vorstand* (Charkham, 1995). According to the 1976 law, appointments to the *Vorstand* normally require a two-thirds majority of the *Aufsichtsrat*. Moreover, the *Aufsichtsrat* normally deliberates on the best candidate for each position on the *Vorstand* individually; the CEO (*Vorstand* chairman) of a German corporation is not usually free to install his or her own team. At Lufthansa, the man heading the scouting searches for able managers to fill *Vorstand* positions was always the *Aufsichtsrat* chairman. This contrasts with the role and power of the CEO at British Airways.

Furthermore, within the *Vorstand* itself, decision-making is not concentrated in the hands of the chairman, again in significant contrast to the powers of the CEO in Anglo-Saxon companies. Instead, the rule is one-person, one-vote majority voting in *Vorstand* decision-making. In practice, this meant that newly appointed Lufthansa CEO did not have great unilateral power that equated with that held by Colin Marshall at BA. In the case of the last two Lufthansa CEOs, Heinz Ruhnau (1982-91) and Jürgen Weber (1991-present), they often had phenomenally little compared to their American or British colleagues. These institutional factors highlight the difficulties reorienting both intra-company power structures, organisational structures, and corporate strategy, in Lufthansa.

Lufthansa's CEO Heinz Ruhnau knew he had to do something to upgrade the marketing side of Lufthansa. But the problem was that German corporate governance institutions, with majority-based decision-making in the *Vorstand*, gave him little scope to do more than to propose new heads of Sales & Marketing on the *Vorstand*. As it was, the marketing seat on the *Vorstand* turned into an ejection seat, a ten-year succession of appointment misfits. The 1984 appointee turned out to be largely an administrator and was forced into resignation in early 1990. He had not been able to revitalise Lufthansa's marketing strategy, and in 1989 his division had been split into separate Sales and Marketing divisions, with the new *Vorstand* member of the latter being Falko von Falkenhayn from BMW. The search for a new Sales *Vorstand*

member lasted for the first nine months of 1990, with no winning and willing candidate emerging. Ultimately the Aufsichtsrat elected to promote Lufthansa's corporate strategy director, acceding to the preferences of the employees' representatives and against the preference of Ruhnau (interview sources; also mentioned in *Wirtschaftswoche*, 27 Sept 1990). Yet he too did not work out, and not until 1993 did Lufthansa find a Vorstand nominee able to effectively lead the reunified Sales and Marketing division. By this time, Lufthansa was in the throes of a do-or-die turnaround process described elsewhere (INSEAD, 1995).

3. British Telecom versus Deutsche Telekom

An analysis of the telecommunications industry both parallels and extends that of the airline industry, in a manner that corresponds to the greater technological and strategic changes that have occurred. Similarly, the performance outcomes, which reflect a significant relative deterioration of the German national champion and a rapid advance by its British counterpart, at least correspond to those in the airline industry. In effect, the substantial degree of strategic reorientation required in this industry, and the break from past practices, has meant that the same set of institutional constraints that hindered the performance of Lufthansa vis-à-vis British Airways, also hindered Deutsche Telekom vis-à-vis British Telecom. Yet since the required radical restructuring extends deeper into the workplace, so the institutional constraints inherent in the German system have had a greater impact. In contradistinction, the British institutional structures which perform less favourably in times of incremental corporate adjustment have performed comparatively better when a substantial strategic and organisational realignment has been required.

The increased application of digital technology to the telecommunications industry has massively raised the potential for new products and services, while increasing global pressures for deregulation and competition. Nevertheless, the core of the industry has remained nationally based, and the strategic reorientation of Deutsche Telekom and British Telecom considered here similarly has a national base. Within this domestic market, however, the potential of new technology has greatly increased the strategic dimensions on which companies can compete – including cost, quality, reliability, speed and flexibility of service, differentiation between market segments, software configuration in the use of both PABXs (private branch exchanges) and the network, the available range of value added network services (VANS), and the level of technical support (including consultancy activities and sales) by office or field technicians. Added to this are a broad range of new interactive services that are becoming feasible, many of which reflect the blurring of the computer, publishing, and cable television broadcasting markets.

The feasible dimensions of strategy within the industry facilitated by new technology require a sharp discontinuity with the past: Adapting from a bureaucratic, public service, technological focus to being commercially and consumer driven and a shift from a universal service requirement (characterised by mass production of simple dial tone) to a significantly differentiated market. Additionally, this strategic reorientation, and the nature of the new technology in telecommunications, implies a radical re-evaluation of previous craft skills (that have long been protected in German) and functional organisational barriers (among both white and blue collar workers), as well as having significant employment (downsizing) implications.

Far from being at a strategic disadvantage to BT (perhaps as a result of the lateness of privatisation), Deutsche Telekom has in fact possessed a significant strategic advantage owing to its ownership of both cable TV and basic telecommunications networks. Yet in spite of this, a regulatory framework that was in many respects more favourable, and higher investment levels than BT, Deutsche Telekom has under-performed against both BT and the US regional operating companies on a wide number of measures (Darbishire, 1997; Batt and Darbishire, 1997). These include the growth in its capital productivity, the availability of services, the integration of its computer systems, installation periods, fault rates, and prices. Of equal significance is that Telekom has performed well in much of its underlying technology, network structure, and the high technical competence of its staff. However, the explanation for Telekom's comparative weak performance lies in the fact that it is precisely these traditional advantages that are being diminished in importance by the changing nature of the industry, and yet institutional constraints have inhibited a realignment to a new strategic and organisational paradigm.

At an organisational level there are many parallels with the airline industry analysed above, including the underlying constraints imposed by decision making structures at the Vorstand and Aufsichtsrat level.² When Telekom undertook its a major series of reforms in 1989, which were associated with its creation as a company formally separate from Deutsche Post, it did so in an example of (in terms of organisational theory) structural inertia, with the old structure defining the new. This included the separation of switching and telephone services on the one hand, and transmission services on the other. While this suited a technological orientation in an analogue environment, the failure to reform this structure until 1992 inhibited the effective planning of the digital network. This was because operational requirements suggested the integration of switching and transmission in order to gain economies of scope, and to plan effectively the digitalisation of the network given that returns to the

² Strictly speaking, the constraints in the German telecommunications industry differ, in that until 1 January 1995 Deutsche Telekom was a public administration, rather than a joint stock company. However, the nature of the constraints mirror those in the private sector.

technology are considerably enhanced when technological updates occur in both operational areas (Darbishire, 1995). The organisational structure, however, hindered their integration at both centralised planning levels, and local operational levels. As in the airline industry, an important reason for this failure to implement necessary organisational reforms was because the Chairman of the Vorstand lacked significant authority, being “*primus inter pares*, but [with] no line authority vis-à-vis the other members of the management board” (Pospischil, 1993, p.610). Digitalisation was consequently slowed, and in spite of beginning the digitalisation programme in 1985, emphasis was given (up until 1992 especially) to optimising the use of existing analogue technology.

A prominent feature of the transformation of the telecommunications industry has been the conflicting pressures between the centralising tendencies of an increasingly integrated technological system on the one hand, and the decentralising pressures of providing differentiated services (and quality of service levels) to customers on the other. This conflict is also manifested in the pressure to give consistent levels of service to national business customers in particular, and the flexibility seemingly implicitly required in operational management to meet the varied product base. The overwhelming compromise observed internationally is a realignment of corporate structures from their previously functional organisation to one based on three principal divisions – residential customers, business customers, and the management of the network infrastructure.

In the case of Deutsche Telekom, this restructuring has been both late in coming, and slow in its implementation. In addition to any difficulties experienced within the Vorstand because of intra-organisational power shifts, the case of Telekom also highlights the constraints imposed by workers’ representatives in works councils and on the Supervisory Board. Although there are no codetermination rights on either organisational structure or the introduction of new technology, the central works council has utilised its codetermination rights on the *consequences* of these decisions to bargain the underlying strategy of change. For a range of reasons (in particular including concerns about the impact of divisionalisation on working conditions and conflicts between operational demands and union organisational structures), the works councils and union within Deutsche Telekom opposed the proposed (divisional) organisational reforms. The final impact was to amend and delay, rather than fully impede, the development of a new organisational structure, including the introduction or prevention of over 180 management proposals, affecting the organisation and delimitation of work, and the structure of tasks within local areas. The result was that although bargaining for reform began in 1991, the reorganisation did not begin until 1993, and has yet to be completed. This is in spite of the fact that the proposed structure is fundamentally similar to (and drawn from) those previously instituted in BT and several regional companies in the US.

The contrast with BT is significant. The authority of the CEO, and the absence of worker rights to influence organisational structures, has meant that BT has (at least in practice, if not strategically) used substantial *instability* of corporate structures as a mechanism to promote improvements in organisational performance, by continually altering the organisational structure to correct the most significant perceived organisation performance barriers. After privatisation in 1984 BT sought to use decentralisation and the creation of local profit centres to increase productivity. However, the conflict between consistent national performance levels with an integrated network led first to a recentralisation, and subsequently a divisionalisation in 1991. Substantial additional changes to this structure have followed, including the merger of two divisions in 1994.

The complex pattern of organisational instability and reforms has followed process improvements within the company, and the identification of additional process flaws in each structure. Of particular significance, however, has been that BT has been able to rapidly experiment, innovate, and develop alternative structural forms in an attempt to match the contradictory demands of new technology and emerging strategic requirements. Furthermore, with some of these massive reorganisations having been planned in secret, BT has been relatively unhindered (at least in this process) by the ensuing intra-organisational power realignments within senior management ranks. This can be witnessed by the greater success BT has had over Deutsche Telekom in shifting to a customer facing, sales and marketing driven organisation, with a downplay of the historically pre-eminent role played by technical operations. In a parallel with Lufthansa, Deutsche Telekom has found this shift far harder to achieve, and its characteristically German emphasis on technology has remained in spite of the strategic shift of the industry to sales and marketing operations guided by sophisticated information management systems in a customer-oriented service environment.

The depth of institutional constraints on Deutsche Telekom can also be contrasted with British Telecom through an analysis of the ability of each company to reorganise work in a rapidly changing technological environment. The detailed web of institutions in Germany have previously been held to be a significant comparative advantage in fostering or facilitating the introduction of new work organisation (Katz and Sabel, 1985). Institutional structures in Germany that confer procedural rights on stakeholders have been argued to create greater (internal) flexibility, owing to the absence of threats from workplace change. Such procedural rights are generated by the juridified system of codetermination in Germany, which “gives the workforces effective means to protect themselves from the negative effects of technical change....The result is a pattern of sometimes considerable rigidities in the external labour market going together with high flexibility of internal markets (Streeck, 1988, p.25). Job demarcations and restrictive practices have been

deemed unnecessary, since employees' own institutionalised position, working conditions, and the skills of workers are protected.

In contrast to this picture, the countering of managerial prerogative by custom-and-practice rules (possibly built around craft unionism) in the workplace in Britain (or contractual job control unionism in the US), are threatened by changing work organisation and high internal labour market flexibility. Thus, while institutions have been perceived as systematically facilitating co-operative behaviour and change in Germany, they have been regarded as hindering such change in the UK and US.

Evidence drawn from the 1980s supports this contention. However, a primary difference in the telecommunications industry has been the extent of the transformation underway, where fundamental changes in the nature of many jobs are occurring. Change in the telecommunications industry is not that of an incremental addition to existing skill sets in a potentially integrative bargain. Technical jobs are becoming increasingly software and clerically based, with a reduction in the direct maintenance and repair of switching equipment, the expansion of remote monitoring, and with the movement of customer service jobs to mega-centres which make use of integrated computer records. Furthermore, the new technology and wide-scale re-engineering have had a correspondingly substantial downsizing effect. These changes have combined to undermine the effectiveness of substantive rights (based in British custom-and-practice rules) to resist change. By contrast, even in the face of workplace changes which significantly threaten the underlying interests of workers, procedural rights (derived from German codetermination legislation) remain effective. Yet under these circumstances procedural rights do not appear necessarily to promote flexibility. And although substantive rights may not do so either, their influence is greatly diminished.

Work in the telecommunications industry has historically been organised in "functional silos" (Batt and Keefe, 1997), with departmental specialities such as network construction, installation, and repair; operator services; and accounting and billing. Strong hierarchies and internal labour markets have developed within each of these functional areas (Batt, 1995). The nature of the transformation of the telecommunications industry, however, is such that a fundamental change in the nature of many jobs is occurring, which has rapidly undermined the rationale for these functional distinctions. While substantive rights may provide workers with protection in certain circumstances, the fundamental nature of change in the telecommunications industry serves to undermine these rights. Thus, in BT employee leverage in work reorganisation has consequently been reduced, enhancing the degree of managerial prerogative. It has not been primarily a change in employment legislation or managerial attitudes following privatisation that facilitated the reassertion of managerial prerogatives, but the radical nature of the new technology, which

has meant that many craft jobs have changed substantially in nature (for example, with diagnostic testing of switching equipment having changed from a skilled, manual, 'hands-on' task, to a remote, part-clerical, software based task). The radical nature of this change served to undermine the traditional basis of job-control, and craft-based custom and practice rules. When combined with the substantial employment consequences of this technology this has greatly enhanced the extent of managerial prerogative in the introduction of new work organisation. In turn, and when combined with the corporate reorganisations into customer facing divisions, it has allowed a reduction in the focus on the network, a significant increase in the commercialisation and consumer orientation of both the company and the workforce, and the introduction of significant reorganisations of work through new technology, including cross-functional reorganisations which transgress traditional work boundaries.

By contrast, in Germany, the procedural rights (for example on the relocation of existing workers, the introduction of technology, and the re-grading of work), has given worker representatives *greater* voice precisely because the changes occurring are so substantial, and are subject (at least in part) to codetermination rights. In the face of technological changes which represent a fundamental challenge to workers, both in terms of employment and traditional craft-based skills, worker representatives have been reluctant to accept work reorganisation. Indeed, as in German industry more generally, work organisation in the telecommunications industry has been strongly founded on craft-based skills. In manufacturing negotiated adjustment in the 1980s centred around enhancing those broadly defined skills, frequently together with the introduction of new technology in pursuit of an up-market, high value added approach (Streeck, 1989; Jürgens et al., 1991). In the telecommunications industry, however, the transformation of work reflects the more radical nature of new technology, where potential gains derive from new skills sets and cross-functional organisational integration, rather than building on existing craft skills. This critical difference has been reflected in highly detailed programmes of work reorganisation in Deutsche Telekom, which have both significantly slowed adjustment and limited the degree of local experimentation.

The cautious negotiations and implementation of change has thus arisen because new technology does not build on existing craft skills. The focus consequently remained for longer on optimising the use of existing analogue technology, rather than promoting digitalisation. That is, work continued to be specialised around technology types, with a corresponding slow development of digital skills. This combined with a resistance to the centralisation of operational tasks implicit in digitalisation and 'computerisation' processes, and a continuation of the traditional functional organisational structure – which itself more generally reflects the traditional German emphasis on functional specialisation. However, this is in sharp contrast to a strategy that de-

emphasises technology in favour of a customer focus, and illustrates the difficulty Deutsche Telekom has had in making this transformation in a company (and German) tradition of management steeped in technology, not service.

The highly centralised nature of change in Deutsche Telekom, together with the continuing technological functionalism and clear hierarchical lines, mitigates against flexible experimentation of alternative structures. The incremental and bureaucratic process of change has thus helped ensure stable strategies, but in doing so has relied on utilising previous models of transformation (developed in the course of the 1980s and early 1990s in Britain and the US), without introducing experimentation or innovation. Workplace consensus in the implementation of change in Telekom has come at the expense of the slow and restricted introduction of new technology and development of computerised service capabilities, lack of experimentation, and significant constraints on what structural and work reorganisation have been possible.

4. Implications of Case Studies

The case studies of the airline and telecommunications industries focus on how company adaptations have occurred in response to technological change and a radical reconfiguration of the required strategic responses to changing industry structure. The focus of the change has included the managerial and corporate organisational level, and (in the case of the telecommunications industry where the impact of technological changes has been more far reaching) the restructuring of work processes. When contrast with prior research, both of these mutually consistent case studies suggest a similar conclusion: Even allowing for differences in state control and market reform,³ the performance impact of economic governance institutions within Britain and German industry depends on the nature of change in the industry environments.

The argument that institutions themselves are key to understanding the process and outcome of adaptation is not new. However, we argue that previously insufficient attention has been paid to environmental context. As such, the analysis here reassesses the new-found conventional wisdom that the 'stable flexibility' of German institutional structures is a clear source of economic advantage. Certainly German institutions are capable of adjusting to changed environmental conditions. Indeed, Katzenstein (1989) identifies "institutional adaptation" as a source of competitive advantage, derived through

³ These are considered in significantly greater detail in Lehrer 1997, and Darbishire, 1997a,b.

a reduction in risk and uncertainty, a consensual approach to implementing change, and an acceptance of technological change within existing craft (and perhaps functional) structures. However, by its very nature, the success of incrementalism is founded on the ability to make minor, but progressive, adjustments to existing strategy, corporate structure, and work organisation. Such changes do not challenge the underlying relationships within the companies — whether those be the role of functional departments, managerial ranks, or skilled (craft) workers.

Where a more fundamental break is occurring in the industry, however, the ‘stable flexibility’ implied by incrementalism can be slow in producing significant innovations, experimentation, and reorganisation in corporate strategy. This can be further compounded where the nature of the change involves a significant distributive element, such as intra-organisational power shifts, the downplaying of particular skill sets, or substantial employment reductions. However, the strategic dynamism of the airline and telecommunications industries highlights precisely these institutional limitations. In both the civil aviation and telecommunications industries, the critical change during the 1980s was a new industry environment that rewarded rapid innovation, experimentation, and a reconfiguration to organisational structures which emphasised cross-functional working and the development of new (individual and organisational) skill sets.

The significant changes that the air transport and telecommunications industries underwent in technologies and market opportunities was a shift to the advantage of the British national champion. On the one hand, it was significantly easier to initiate the work and organisational restructuring demanded in this new environment by managerial fiat in the UK. More importantly, however, in a market environment characterised by a high degree of uncertainty, it was not necessary in the UK context to fully determine in advance the exact nature of the changes required, thus allowing for flexibility and learning in the course of longer-term experimentation and implementation. The iterative organisational reforms in both British Airways and British Telecom highlight this capacity in their respective highly uncertain and contingent market places. Conversely, Lufthansa and Deutsche Telekom were penalised by an industry environment which no longer generated programmable productivity increases, where the costs and benefits of reform could not be fully calculated in advance, and where the nature of the reforms required was highly uncertain.

Although recent typologies of European business systems (Whitley, 1996) capture a wealth of dimensions along which national institutions vary in their effects, there is a need for a set of microfoundations to help explain why national institutions that work well under certain environmental conditions work better or worse when in particular industries these conditions change. Equally,

there is a critical need to develop the microfoundations to explain under which conditions Anglo-Saxon business institutions may provide a competitive advantage — beyond just the interplay of market forces.

The findings from the aviation and telecommunications case studies presented here do not accord well with the conventional wisdom which, crudely stated, is that Anglo-Saxon labour and capital institutions facilitate downsizing, industry exit, and diversification as means of industrial adjustment, and less so innovation or experimentation in work practices. Yet our findings are precisely that managerial prerogatives were actually key factors in experimentation and innovation in work practices. This makes it necessary to develop some kind of perspective of Anglo-Saxon institutional competitive advantage that is based not only on the allocative efficiency of free markets, but precisely on the notions of “adaptive efficiency” (North, 1990:80) or “dynamic efficiency” (Klein, 1984; Carlsson, 1989) that have been hypothesised as a particular virtue of more negotiated Continental institutional contexts (Hollingsworth, 1994).

The finding that under specified types of industry conditions, the adaptive or dynamic efficiency of Anglo-Saxon firms can be superior to that of firms in Northern Europe’s ‘industry-coordination’ economies can be brought under the umbrella concept of ‘comparative institutional advantage’ (Soskice, 1994; Lehrer, 1997). The notion is that the performance impact of capital and labor institutions depends critically on the nature of the economic tasks to be performed and the exogenous industry environment in which they have to be performed. Although alternative theoretical framings of our empirical findings are imaginable, one way of conceiving of Anglo-Saxon institutions is in terms of *incomplete contracts*, commensurate with the ease of ‘exit’ as a adaptive response in ‘free’ markets. Notwithstanding dismissive treatments of the transaction cost perspective (Powell, 1990; Sabel, 1993), it can be argued that business institutions are embedded in national “transaction orders” - to be contrasted with Sabel’s “constitutional orders” - which vary systematically between countries, in particular with respect to the completeness of contracts. There are consequently systematic differences in how risk and uncertainty are dealt with, and thus how institutions promote technological innovation, work restructuring, and corporate organisational change in the face of uncertain environmental conditions.

In the transaction cost perspective (Williamson, 1975, 1991), business institutions are seen to function as tool kits to manage or mediate ‘market failures’ arising from the ‘lumpy’ distribution of information in the economy at large, and within the firm in particular, and the costs associated with learning about, transacting for, and monitoring economic activity. There are consequently systematic differences in how risk and uncertainty are dealt with, and thus how institutions promote technological innovation, work restructuring, and corporate organisational change. These systematic differences facilitate

certain forms of organisational flexibility (Klein, 1984; Carlsson, 1989), while hindering others. The hypothesis developed here from the experience of two central service industries is that the UK 'transaction order' actually facilitates flexibility and learning in industry environments where change is radical or architectural, and where this change cannot be easily accommodated for by contracts conceding a high level of procedural rights to employees. By contrast, the German 'transaction order' favours flexibility and learning in industry environments where change is gradual, capability-enhancing, and can be accommodated within a framework of strongly codified procedural rights.

One illustrative way of arguing this point is to demonstrate that Anglo-Saxon institutions essentially allowed BA and BT to perform those tasks which Sabel (1994) credits the Japanese institutions of economic development with facilitating. In Sabel's view, 'contrarian regimes' (as in the US or UK) make it difficult for firms to reconcile learning with the monitoring of existing contracts between parties, because true learning results in an undoing of the production routines upon which prior contracting was based. In Sabel's stylised view of Japanese economic relationships, the identities of co-operating actors are fluid enough to transcend a rigid interpretation of prior agreements and continually reforge the identities and agreements between co-operating parties in the learning process. Sabel (1994:145] summarises his view thus:

But if, as in the Japanese case, the agreed rules do not fix the parties' action but rather define how they will act to revise their joint goals (and their standards for evaluating goals), then there can be no conventional monitoring. Because the behaviour of one party can influence the goals of the others, it is meaningless for either to define, let alone measure, a partner's performance in reference to an anterior agreement....

In a contrarian world, by contrast, there is no joint exploration of novelty and still less any redefinition of identities through persuasion. The world is presumed to be well understood....Each party, moreover, has settled interests in the form of ranked preferences for particular outcomes, and pursues them strategically.

Although Sabel's characterisations are too much of a caricature to be regarded as anything like an adequate depiction of Japanese-Western institutional differences, it is nonetheless useful to apply them to the two empirical UK-German comparisons discussed earlier. Essentially, the German model corresponds more closely to Sabel's ideal type of a 'contrarian regime,' certainly more so than the British model disclosed in BT and BA. The stasis observed in Deutsche Telekom and Lufthansa was seen to emanate, at least in part, from the rigidity of actors' identities. This derived from the DPG union's resistance to changes that would alter the identities and interest constellations of employees at Telekom, and the blocking effect of fixed board seats on the consensus-based Vorstand in the case of Lufthansa.

What the analysis shows, in contrast, is that Anglo-Saxon institutional patterns offer opportunities for altering the identities and interests of actors. High levels of managerial prerogative and high unilateral decision-making discretion of the CEO in Anglo-Saxon companies make it feasible for top managers, middle managers, and workers alike to be shifted around (not to mention outright replaced). The nature of 'substantive' rights of unions in the UK means that identities and interests are by no means as clear-cut as Sabel would have us believe. Indeed, fluid UK labor markets for CEOs, managers, and workers alike mean the 'completeness' of contracts will always be limited. However, to say this if, of course, not to deny the system's shortcomings in social protection nor even in promoting some of the 'incremental' productivity improvements that German companies appear to excel in.

5. Conclusion

The process of transformation of the telecommunications and air transport industries has clearly differed substantially between Britain and Germany, a difference we have attributed to different 'transaction orders' in the business system of the two countries. New technologies have been adopted more quickly in the British champions, the firms have reoriented themselves more rapidly from a technological objective to a consumer one, and there has been substantially more experimentation with new work practices than in Germany.

It is the fundamental nature of the transformation of the air transport and telecommunications industries that explains the differing adjustment paths. In the Anglo-Saxon case, the significant effects of new technologies have not hindered, and to some extent assisted, management in overcoming inflexibilities in traditional craft divides (as in telecommunications) and in the balance of power between functional units (Marketing and Operations, as in the flag carriers). There have, furthermore, been no restrictions on management altering corporate structures, or substantially reducing employment. By contrast, it is precisely the radical nature of the transformation that is showing the limitations of incrementalist adjustment in Germany.

The process of reform in Germany demonstrates that where adjustment does not build upon existing craft skills or traditional units of technical excellence, there is indeed a resistance to change. Furthermore, the functional organisation of work has been slow to change and a consumer orientation has been slower to develop in place of technological fascination. In Lufthansa, consensus decision making at the Vorstand level has appeared to retard management's ability to make the dramatic shifts of power between functions that the competitive environment appears to demand. In Deutsche Telekom, in

addition to difficulties in organisational reforms, the union and works council have utilised codetermination rights, and the broader institutionalisation of worker representatives, to limit the degree and pace of change.

Institutions of industrial relations have had very limited influence on business strategy in the British companies. More surprising still, on-going experimentation and innovation in work organisation in the British cases actually reflects the low level of institutionalised representation by employees and their difficulties in constraining business strategies. Amongst the stakeholders, shareholders have in particular benefited substantially. As a final note, this analysis suggests the necessity of distinguishing more carefully the sources of gain and performance limitations of institutional structures. The competitive challenges involved in the transformation of the telecom and air transport industry are highlighted by the difficulty in securing a climate in which integrative bargaining is possible, and suggest that many of Germany's institutional advantages do not always extend to industrial environments outside the shop-floors of manufacturing industries. Insofar as the principal source of gain in Germany has been from building upon existing structures and skills, and promoting the implementation of strategies that do that, the competitive advantages often associated with German institutional structures may vanish in fast-changing non-shopfloor industry contexts. Industry context matters, and innovative flexibility in a rapidly changing environment is not empirically borne out by our (admittedly limited) sample as an institutional strength of the German business system.

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