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Institutional Determinants of Deregulation and Restructuring in Telecommunications: Britain, Germany, and United States Compared

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Keywords

human resources, telecommunications, deregulation, privatization, industrial relations

Comments

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Abstract

Virtually all countries are undergoing deregulation and privatisation of their telecommunications sectors. Yet despite the globalisation of markets, technological borrowing, and great similarities in public sector legacies across countries, the outcomes of deregulation and restructuring are not converging to a single point. Rather, the differences in national and sub-national industrial relations institutions have allowed key stakeholders to shape new market rules, or re-regulate the market in ways that privilege some actors more than others. The new rules, in turn, more or less constrain managerial prerogative and lead to substantially different outcomes for key stakeholders, including firms, unions, workers, managers, and consumers. This article uses evidence from British Telecom, Deutsche Telekom, AT&T, and the Regional Bell Operating Companies in the United States to elaborate this thesis.

Institutional Determinants of Deregulation and Restructuring in Telecommunications: Britain, Germany, and United States Compared[1]

I. Introduction

This article draws on evidence from Britain, Germany and the United States to examine two critical questions. First, how do national and sub-national variations in industrial relations institutions shape the course of market deregulation, re-regulation, and corporate strategies for work restructuring? Second, to what extent do these differences in institutions and corporate strategy translate into different outcomes for key stakeholders – firms, unions, employees, and consumers?

The telecommunications industry is a particularly useful and interesting one to use as a lens for analysing the relationship between institutions, corporate strategy, and stakeholder outcomes for a number of reasons. First, it is itself a substantial industry, which typically employs 1-2 percent of the workforce (Katz, 1997). Furthermore, in spite of the massive restructuring it is not a mature industry, but is the heart of the rapidly evolving information services market. It is thus increasingly central to the competitiveness of both national economies and their component firms.

Second, historically the telecommunications industry has been organised in a very similar manner across countries, with highly regulated public telephone monopolies providing a basic service through quite similar organisational structures. The telephone companies themselves were large, bureaucratic organisations which offered lifetime employment with high wages and benefits to employees who considered themselves public servants (and were frequently officially part of the civil service). In other words, the internal labour market conditions faced by employees in different countries and regions appear to have been remarkably similar, while union membership levels were also ubiquitously high. This case, therefore, should represent a 'strong test' of whether institutions differentially affect the strategies and outcomes of work restructuring.

Third, the technological changes underlying much of the restructuring of the industry are universal, as are the intense pressures of ‘globalisation’ of telecommunications markets. The increasing trend of international joint ventures serve not only multi-national customers, but also facilitate organisational learning across countries. British Telecom (BT), for example, has formed a partnership with the United States' carrier Microwave Corporation Iinc. (MCI). AT&T has established its World Partners consortium, while the Regional Bell Operating Companies (formerly local service providers under the AT&T Bell System), are leading players in the UK cable TV and rival telephony market. Deutsche Telekom is connected with France Télècom and Sprint. These joint ventures, together with the oligopolistic structure of the industry's equipment and service providers, create more opportunities for benchmarking and learning, increasing the likelihood of a convergence in corporate strategic responses and stakeholder outcomes.

Finally, both the product market and corporate restructurings pose substantial threats to existing stakeholders, including unions, employees (management and non-management), the company itself, dominant equipment suppliers, and residential customers in particular. For the union and non-management employees, the threats include the undermining of employment security and their wage and working conditions, as well as challenges to institutional structures of employee representation. The telecommunications industry thus provides a particularly insightful opportunity to examine the impact of national industrial relations institutions on industrial restructuring where the threats to existing stakeholders are substantial.

Despite similarities in organisational and regulatory history, as well as recent trends in markets and technology, we present evidence of quite different national and sub-national approaches to market re-regulation and corporate strategy. These, in turn, are producing significant differences stakeholder outcomes. We argue that differences in industrial relations systems play a central role, both at the industry level in shaping regulatory policy, and at the firm level in shaping corporate strategy and work restructuring. We distinguish cases along a continuum from highly unconstrained, ‘market driven’ cases of AT&T and BT, to "consumer driven" cases of Regional Bell Operating Companies (RBOCs) in the U.S., to the highly constrained, 'labour mediated' approach at Deutsche Telekom.

With respect to the politics of market deregulation and re-regulation, AT&T and BT provide examples in which labour and consumer organisations had little influence over the course of change. Deregulation was primarily a response to corporate constituents who pushed not for complete deregulation, but a re-regulation of the market that would favour new entrants: a policy of 'regulatory asymmetry' ensured that the dominant players would lose market share. This included prohibiting the dominant players from entering certain product markets – local and cable TV in the case of AT&T, and cable TV in the case of BT. The RBOCs represent an intermediate case in which corporate constituencies failed to win their version of local deregulation because elected political leaders worried about the potential negative effects on universal service for consumers -- their political constituency. Local deregulation has proceeded slowly and in ways that privilege continuity of local service under the RBOCs. These examples contrast with the 'labour mediated' approach in Germany, where the powerful Deutsche Postgewerkschaft (DPG) union successfully constrained government to a much slower-paced deregulation in ways that have privileged Telekom, for example through its continued monopoly control of cable TV.

With respect to firm-level restructuring and labor market outcomes, AT&T and BT have been characterised by a failure to develop joint labor-management work reorganisation strategies, and by radical downsizing in which the workforce has borne the major costs of restructuring. This latter effect is the result of restrictions on entering new markets coupled with the scale economies of new technology, and the cost pressures from new, non-union entrants. In the US and UK, where worker rights are not strongly institutionalised, the radical transformation of the telecommunications industry has reinforced the extent of managerial authority and strategic choice. In the case of the RBOCs, managerial prerogative has been more constrained by state Public Utility Commissions (PUCs) which continue to regulate service access and quality. Regionally-based unions, in turn, have used this political concern over consumer welfare to gain leverage for managment policies that benefit labor -- such as constraints to excessive downsizing and cost-cutting which often undermine service quality.

By contrast, the strongly institutionalised rights of employee representatives in Germany has assured the union and works councils full participation in work redesign, while simultaneously constraining corporate strategic choices so that it has focused on revenue enhancement rather than cost-minimisation or technological displacement. Nevertheless, the slow pace of restructuring has meant that consumers have absorbed more of the costs of restructuring because Telekom has lagged in the adoption of new technologies, in the adoption of a customer oriented approach, and in the quality and availability of new services.

II. Managerial Prerogative: AT&T and BT

AT&T

The break-up of the Bell System in 1984 marked the culmination of forty years of corporate efforts to undo the AT&T monopoly. Deregulation redefined the nature of the telecommunications industry from one of an integrated national system to provide universal public service to one of supporting economic competitiveness in a global economy. The importance of telecommunications as an input into other industries has been the central driver in deregulation and restructuring, far surpassing concern for universal service or employee welfare.

The integrated monopoly that provided universal service to the overwhleming bulk of the US population broke down for four reasons. First, emerging technology, such as microwaves and satellites, facilitated the by-pass of AT&T's public wireline service. Second, a series of regulatory decisions designed to ensure universal service required AT&T to cross-subsidise local telephony from long distance revenues. This created the incentive for business customers to by-pass AT&T and for new firms to enter the lucrative long-distance market. Third, such technological developments as digitalisation led to an early perception of the rapid integration of computer, entertainment and telecommunications markets. This created the incentive for IBM and others to enter the new data processing and equipment markets. Fourth, a series of legal decisions (such as the 1969 MCI decision) progressively opened niche areas in telecommunications markets to competition, which created a dynamic substantially beyond that intended when the initial decisions were made. The result of these factors was the creation of a business cohort, led by IBM, multinational financial service companies, and airlines, which strongly promoted deregulation.[2]

The 1984 break-up of AT&T occurred with very little political support. Over seventy percent of telephone customers opposed the break-up (Keefe and Boroff 1994:316), as did state PUCs and independent telephone companies[3]. Even the Reagan administration opposed the break-up. However, the pluralistic (or fragmented) structure of the US government meant that "interested parties could approach that part of the government most sympathetic to their cause" (Temin 1987:341). In the early 1980s, MCI, IBM, and business customers achieved their goals through the Department of Justice and the courts, since they were frustrated with Congress, and temporarily blocked by the FCC. The court order that dismantled the Bell System responded to the interests of the anti-AT&T coalition in several ways. MCI and other alternative providers gained access to long distance markets. Multinational corporate users obtained reductions in the cost of long distance and equipment inputs. AT&T retained its long-distance and equipment operations, but was forced to compete a system of 'asymmetric regulation,' which ensured that AT&T's long distance market share dropped steadily — by 1994 it amounted to 60 percent (FCC 1992/3). AT&T's 22 local telephone companies were merged into the seven RBOC monopolies, who were barred from participation in equipment production.

Stakeholders, such as unions, employees, and residential customers, were excluded from the deregulatory process and were unable to promote either the status quo or the security of union institutions — a sharp contrast to Germany. In spite of the fact that Bell system employees numbered over one million, or almost 1 percent of the workforce, neither job security nor the future of collective bargaining structures was addressed at divestiture (Darbishire, 1997b).

In response to deregulation, AT&T focused on converting itself from a public service bureaucracy to a lean, sales maximizing global enterprise. Three factors shaped AT&T's

business and labor strategy: its strategic focus on global over domestic markets; its lack of political constraints; and its need to immediately compete in an asymmetrical regulatory environment against new low cost competitors such as MCI and Sprint. Union influence on AT&T's strategy has been limited to maintaining high relative wages and negotiating generous severance and early retirement packages in exchange for labor peace. Joint labor-management work innovations, while receiving considerable publicity in the 1990s, have had little impact on actual practices.

First, with respect to globalization, AT&T focused on the 'natural' extension of its long distance market. By leveraging its competitive advantage in long distance service to create international networks, it reshaped itself into a global entity. Global service means providing integrated voice, data, and video services though a seamless international network, particularly for multinational businesses. This global strategy has included political efforts to reduce international trade barriers, including a strong push to deregulate public monopolies in all countries.

Second, the historic division of labor between AT&T and the RBOCs within the US means that AT&T largely has indirect contact with its massive customer base. Long distance service is provided through access to local networks operated by the RBOCs, who themselves have a more direct and on-going relationship with customers. AT&T continues to be regulated by the FCC, but does not have political ties to states or regions and is not constrained by state PUCs. While RBOCs, for example, cannot move operations out of their state jurisdictions without state PUC approval, AT&T has taken advantage of its national structure to consolidate and move operations to whatever location offers the lowest cost.

Finally, the cost advantages of new competitors have been signficant: they lack bureaucratic organization; they begin with more maintenance-free technologies; they do not have sunk costs in obsolete technologies nor do they have to re-engineer complex systems; and they operate with a younger, non-union workforce with labor costs of roughly half those of the Bell companies. To respond to these cost pressures, AT&T reorganized into cross-functional business units targeting distinct market segments: large business, small business, and residential customers. To achieve segmented marketing strategies, business unit reorganization, and geographic consolidation, it relied primarily on its traditional strengths -- technology and engineering to achieve scale economies -- rather than human resource strategies. The technology-based strategies are designed to maximize the multiple goals of reducing costs, increasing the speed and quality of transmission, expanding the variety of services offered, and improving response time.

On the network side, it upgraded the long distance network by replacing copper with fiber optic cable and completing the digitalization of switching and transmission systems[4]. Together these technologies create a system which is largely maintenance-free and has greater capacity to transmit voice, video, and data, and higher quality service. Digitalization allows employees to remotely diagnose and repair network systems. This has lead to a reduction in demand for blue collar craft workers with high levels of electro-mechanical skills. They have been replaced by a smaller number of white collar computer specialists and a much larger number of computer monitoring clerks paid at 80 percent of former craft wages. Central office switching was consolidated into two major centers --- one serving the east and one serving the west --- plus a handful of remote regional centers (MacDuffie and Maccoby 1986).

On the sales and service side, AT&T cut costs and labor by consolidating hundreds of local operator and customer service offices into a handful of remote national centers with 800-number access[5]. Rather than reduce Taylorism and machine pacing, it has used new computer and software information systems to introduce greater rationalization and functional specialization into these jobs. This strategy, however, varies significantly by market segment. Automatic call distribution systems determine the call volume of customers, and automatically link them to the appropriate labor market segment. College-educated managers handle large business customers and provide on-site 'one-stop-shopping.' Non-management service consultants serve small business customers, handling 25-30 calls per day. Residential representatives serve the mass of consumers and handle roughly 80-90 calls per day.

Management and union representatives alike agree that these have become the most stressful jobs in the industry because of intense pressure to sell, to be courteous, and to turn over calls quickly, all within the context of ongoing electronic monitoring.

In sum, the market segmentation strategy increases inequality in service across customer segments according to the ability to pay; the strategy also increases labor market segmentation within companies, as the design of jobs, skill-requirements, and wage levels are equated to the customer segment being served. This segmentation strategy coupled with the downward pressure on wages from non-union competitors, particularly at the lower end, has led to increased labor market inequality within occupations, companies, and the industry as a whole. Between 1984 and 1994, for example, wage inequality within customer services more than tripled.

Two additional effects of these strategies on the workforce have been paramount: labor displacement and declining morale. While initially viewed as a temporary strategy, downsizing became an increasingly routine part of business for AT&T in the decade following deregulation. AT&T reduced its domestic non-management workforce by 60 percent between 1984 and 1995 (from 250,000 to 100,000); it reduced management ranks by one-third. Over time, involuntary rather than voluntary separations came to represent an increasing proportion of the terminations, with later rounds of downsizing offering employees smaller severance or early retirement packages. In the first two years of post-divestiture operations, for example, AT&T reduced its head count by 56,000 positions. Only 25 percent involved layoffs, with the remainder leaving through attrition, voluntary severance or early retirement, transfers within AT&T, or transfers back to the RBOCs. Between 1984 and 1992, 58 percent of separations in the unionized workforce involved layoffs, while 42 percent involved voluntary separations. In the company's 1996 announcement of another round of downsizing, it indicated that most separations would occur through layoffs.

For the survivor workforce, restructuring has had profound effects on morale. While in 1981, 68 percent of the non-management employees felt that the company provided job security and only 8 percent did not, by 1991, the opposite was true: 73 percent said there was little job security while less than 4 percent felt there was any job security. Two-thirds felt unable to affect the course of events at AT&T, and 80 percent had little confidence in management's ability to lead the corporation (Keefe and Batt 1996). Career opportunities also fell. Whereas in the past, employees would follow job ladders in local communities, now they often must move their families across the country to accept promotional opportunities. A 1991 survey found that those employees that were surplused and stayed at AT&T, were surplused an average of 2.5 times (Keefe and Boroff 1994:26). Some 87% of the survey respondents said they wanted to keep their current jobs until they retired, but less than 10% believed they would be able to do so.

AT&T's cost-cutting labor strategy also included shifting from a predominantly unionized (67%) workforce in 1984 to a predominantly non-unionized one (42%) in 1995. This occurred by downsizing the unionized core, expanding non-union enterprises, and expanding management titles. AT&T established two non-union subsidiaries -- American Transtech (the largest US telemarketing service) and AT&T Universal Card (the second largest US credit card company). It acquired two non-union equipment manufacturers: Paradyne (data communications equipment) and National Cash Register (NCR). American Transtech and NCR were subsequently spun off as separate companies. In addition, by expanding the scope of managerial job titles and employment, the company in 1995 had over 50 percent of the workforce classified as managerial and exempt from collective bargaining laws, as compared to 29% in 1984.

Labor management relations, historically cooperative, collapsed under these pressures, as did the Quality of Worklife (QWL) program negotiated in 1980. Beginning in the late 1980s, the company initiated some experiments in total quality and self-managed teams, but most fell apart with the instability of downsizing and restructuring. A 1992 negotiated pact ("Workplace of the Future") was designed to reestablish cooperative labor-management relations by involving the union and workers in work innovations at several levels of the organization — from the strategic business units to the workplace. Successful adoption, however, depends on managerial choice at decentralized business units, and few managers have chosen to participate. Many managers, workers, and trade unionists remain highly skeptical about top management's commitment to this effort. They cite a history of AT&T in presenting a positive image through public relations campaigns, but in not following through on implementation of cooperative workplace change.

British Telecom

In contrast to AT&T, historically the performance of BT was substandard, hindered by lack of investment in new technology, political intervention in decision making, and over-manning (Carter 1977; Batstone et al. 1984). The extent of under-funding was illustrated by the fact that even by 1981 the vast majority of telephone exchanges were still using the electro-mechanical Strowger system, with only 15 percent using a fully electronic switching system (Dowling et al. 1994). Although attempts have been made following the 1969 Post Office Act to increase the degree of commercial independence in BT, even where management had room for manoeuvre, there was confusion as to what policies were most ‘favoured’ by politicians. Within this debate, however, the principal union, then the POEU, strongly argued for reform, but did not act as an effective counter-weight to short-termist political pressures.

As in the US, the principal proponents of reform were large corporate users, frustrated by BT’s performance standards, while new domestic and foreign computer manufacturers (led by IBM) wanted to supply both advanced equipment and services to the British market (Davies 1994). The dominance of large, multinational firms in British industrial organisation, together with the influence and importance of the financial services industry, combined to create a powerful deregulatory cohort. This combined with the Thatcher government’s political objective of reducing their role in the economy to promote both privatisation and (limited) re-regulation of the product market in 1984. The corporate and political constituencies out-weighed those of unions and consumer groups who opposed the government’s policies, by creating a “minimum winning coalition” needed to introduce fundamental industrial reform. There was no union or stakeholder participation in the decision of how to re-regulate the product market.

In line with this pluralistic and political structure of deregulation, stakeholders were unable to assuage their fears of the effect of privatisation and deregulation on employment, bargaining structures, or their own institutional position, which had traditionally been one of significant involvement in decision making, operated through the Whitely tradition of public sector management. Indeed, the political changes were fundamentally designed to challenge the position of existing stakeholders. The government was driven by a desire to reduce the roles of unions, which it regarded as excessive in the public sector, where consultation was regarded as being too extensive, and the unions were seen to be unconstrained by market forces, leading to collusive bargaining structures and excessive pay levels (Smith and Terry, 1993).

Along with the introduction of a duopoly for network provision for six years, the Office of Telecommunications (Oftel) was established. This quickly established the goal of creating competition in the market, and seeing BT's market share fall to between 60-70 percent. Where this could not be achieved, an increasingly restrictive price cap structure was established, which currently requires prices to rise by 7.5 percent less than inflation. The regulatory asymmetry against BT has also been reflected in the 1990 prohibition on BT providing entertainment services on its network, designed to given nascent cable TV companies a strategic advantage by being able to offer telephony and cable services. Nevertheless, BT has retained a 92 percent share of the local, 81 percent of the national, and 70 percent of the international markets.

The regulatory asymmetry in the UK has acted as a form of industrial policy against the national champion, and has prevented BT from adopting a domestic strategy of up-market, multi-media provision, in spite of offering to invest £15 billion by 2004 to install fibre-optic cable to the home, and to upgrade to full broadband switching if it were able to provide and convey entertainment services. The restrictions on BT have led it, like AT&T, to focus on developing its global interest, leading to its $1 billion joint venture with MCI to provide global links to multinational customers. Furthermore, the regulatory pricing structure, which entails BT losing £0.5 billion revenue annually, and the need to demonstrate its efficiency and ability to respond to shareholder interests, has led BT to adopt a cost-cutting and workforce reduction strategy.

Employment in BT fell from 235,000 in 1984 to 130,000 in 1996 – a 45 percent fall, almost all occurring after 1990, after which 100,000 employees have left the company. BT's objective is to reduce employment further to 100,000 by the year 2000. As in the US, BT has used new technology to shift from human resource practices emphasising stability of employment and strong internal labour markets, to one with substantial insecurity and instability, where reductions have been sought as a central component in a new strategy stressing cost reduction. Indeed, the elimination of jobs has been a target in and of itself in BT, rather than employment decisions being driven by detailed calculations of where employment savings could appropriately be made. In contrast with AT&T, however, BT has retained its commitment to voluntary redundancies in spite of the rapid downsizing, through the use of packages with an average cost of £35,000. The NCU union has played a largely reactive and defensive role in this process. Although it has continued to negotiate terms and conditions of workforce reductions, while feeling under constant threat that more are to follow, it has had no influence on BT's strategy of relying primarily on employment reductions to yield cost savings.

Similarly, the unions in BT have had minimal influence on the structure of work reorganisation. With a unionisation rate of 90 percent, BT has not been able to ignore the unions. Nevertheless, management has used the voluntaristic nature of labour-management relations to progressively restrict the bargaining agenda within apparently stable institutional structures, a significant change from the public sector 'Whitely' model of consultation and negotiation through joint committees. The union's ability to negotiate work organisational strategies has been challenged by BT management restricting those programmes open to negotiation, as opposed to information. Where negotiations have occurred, BT has also narrowed the bargaining agenda, while using total quality management to increase direct communication with the workforce, and marginalise the union.

BT has also progressively moved away from the traditional model of joint regulation and high-trust, low supervision, instead developing a 'control' or 'supervisory' human resource strategy. This is illustrated in the high-volume, low value residential market, with the introduction of standard times for jobs, the use of sophisticated computer systems to measure the performance of workers, and a changed role of 'field managers' from that of an administrative support to that of a supervisor whose pay is significantly contingent upon the (productivity and quality) performance of the supervised technicians. The marginalisation of the union was also illustrated in its unsuccessful opposition to changes in work rules and scheduling designed to increase efficiency – such as the introduction of a standard seven day work week for network technicians as part of a strategy to increase flexibility in response to customer service calls.

More generally, the shift in human resource strategies has been to one emphasising a reassertion of managerial prerogative in a hostile (and privatised) regulatory environment. BT management has increased the intensity of work, reduced the focus on the network, and introduced significant work reorganisation. This has had the effect of leading to a greater polarisation of worker skill, a speed-up, the substitution of technological capabilities for human resources where feasible, and the marginalisation of the union. Although the unions have not been ignored, their influence has been severely constrained. This has been particularly so with the managerial union, the STE. Between 1990-1995 7,000 workers were moved from the union bargaining unit onto personalised contracts. Furthermore, pay structures for managers increasingly emphasise new forms of performance appraisal with pay linked to performance. Meanwhile, pay for higher level managers has tripled, with the justification that BT needs to attract top private sector talent. Employee attitude surveys reveal a dramatic demoralisation of the survivor workforce as workers face increased pressures to improve productivity with fewer staff and no reciprocal commitment from their employer.

III. Regional-Embedded Cases: BellSouth and NYNEX

Compared to AT&T, the political debate and approach to regulatory reform for the RBOCs has taken a considerably different path because of their central role in providing basic universal service. The issue of consumer welfare has figured more prominently, both at the national and state levels, as elected officials respond to their constituents; labor often has benefited as an unintended consequence. While long distance service is viewed as inessential, local service is considered a necessity for emergency medical and life-threatening circumstances. Because costs exceed revenues in local service, regulators historically ensured universal service by requiring AT&T to pay an access fee to connect to the local Bell infrastructure -- a requirement extended to all long distance companies after 1984.

The central problem in local service deregulation, therefore, was to figure out how to ensure continued universal access, particularly in small towns and rural areas. A "free market" solution would result in dramatic price increases for basic service -- an unacceptable political solution. This, in fact, did occur as a result of long distance deregulation, where long distance rates dropped by 40 percent and call volume doubled, but basic residential rates increased more than 60 percent — from $11.58 to $18.66 (Keefe and Boroff 1994:318)[6].

The RBOCs, therefore, continued their monopoly in local service in the decade after divestiture while regulators considered alternative solutions. While benefiting consumers, the longer time horizon also benefited the workforce by allowing the RBOCs to reduce force through attrition, early retirement offerings, or through retraining and replacement in growth sides of the business, particularly cellular. Finally in 1996, a politically-powerful RBOC coalition successfully pushed through its version of legislative reform in the US Congress -- a "fast track" version that favored incumbent providers over AT&T, MCI, and new entrants. In this version, local companies could offer long distance service as soon as they opened their markets to competitors; but because of their established base, the RBOCs were considered to have a competitive advantage. Moreover, in May, 1997, FCC regulators finally issued rules to handle the cross-subsidy problem. The compromise gave the RBOCs transition time by phasing in reductions in access charges over a 5-year period, again a longer time horizon that will ease the negative effects on labor adjustment. The long distance lobby (AT&T, MCI, etc.) had sought complete, immediate reductions. Regulators also protected low-end users, raised monthly rates by $1.50 for second lines to residences (e.g., higher-end consumers) and $3.00 for business consumers, and created a special fund to subsidize internet access to schools and public libraries (Landler, 1997).

Meanwhile, at the state level, the on-going oversight of public utility commissions constrained the RBOCs' business strategies in ways that directly favored consumers, and indirectly, labor. In the first half of the 1990s, for example, PUCs cited several RBOCs for poor service delivery (Bell Atlantic, NYNEX, and US West), and in some cases (e.g. Bell Atlantic and US West) required the companies to increase staffing levels to meet consumer demands.

State PUCs differ considerably in their standards and policies, however: BellSouth and NYNEX represent opposite ends of the spectrum. While NYNEX has historically faced a 'tough' state utility commission (with respect to rate setting and service standards), BellSouth has faced a more lenient one. BellSouth and NYNEX also operate under distinct labor laws (BellSouth operates almost entirely in 'right to work' states, with laws that weaken union institutional security). Thus, differences in the political role of the regulator and in labor laws create distinct institutional frameworks at the regional level. However, institutional variation does not fully explain regional variation in restructuring processes and outcomes. Rather, in light of weak institutional structures for stakeholder participation, the strategic choices of the companies and unions have played a far stronger role in determining the variation of outcomes (Turner, 1991).

On the one hand, the BellSouth strategy has emphasized joint partnerships to improve customer service, relatively high levels of employment stability (force reductions of roughly 20 percent), but low relative wage and benefit increases. The CWA union (District 3) has emphasized labor-management cooperation as the most effective way to build union membership and power in the context of weak labor laws. Yet even here, it has been difficult to sustain a cooperative approach to implementing work reorganization in the face of anticipated local deregulation. On the other hand, the NYNEX strategy consists of no union involvement in workplace innovations, high wage and benefit increases, and high levels of workforce reductions (roughly 35-40 percent). The regional union at NYNEX (District 1 of the CWA) has the most militant record of the seven regional districts, and pursued the most aggressively adversarial strategy against NYNEX in its six northeastern states. In response, the company sued for labor peace beginning in 1992, a shift in strategy that has led to high employment security for the survivor workforce through the most extensive retraining and replacement program in the industry.

BellSouth

Even though BellSouth operates in a relatively weak regulatory environment in 'right to work' states, union membership is high (in 1994 over 80 percent of union-eligible employees), and the union and management have adopted a cooperative relationship. This cooperative approach dates to a particularly bitter strike in 1956, after which the company accepted the union as a fact of life and began building a relationship of trust and mutual respect. The union also made the strategic decision to pursue cooperation to keep membership levels high in a right to work environment where workers feared management retaliation for union membership. Regular interactions between union leadership and management followed the negotiation of a "responsible relationship clause" between AT&T and the CWA in 1966, while by 1971 a problem-solving approach to grievances had reduced the number reaching the state executive level by 50%. In 1977 negotiations, the parties agreed to a procedure to expedite arbitrations (Crane, 1990).

Experiments in "participatory management" began by the late 1970s (Crane 1990:34-46), and when AT&T and the national CWA negotiated the joint QWL program in 1980, Southern Bell and CWA District 3 actively implemented it local worksites. While QWL efforts soon died out in most companies, at BellSouth they still numbered over 600 in 1989 when they were merged into a total quality program. Workers generally viewed QWL programs as a benefit — an example of where management listened to workers' concerns. Additionally, the parties developed a joint QWL oversight structure in which management at the district (local), state, and corporate levels invited union leaders to attend regularly-scheduled business meetings -- an important precedent for subsequent labor-management information sharing and consultation.

In the early 1990s, the parties formalized union participation in monthly business meetings and set up a three-tiered joint structure for union-management collaboration in total quality. The union backed the strategy to improve competitiveness and save jobs. Joint labor-management training teams developed curriculum and provided training to virtually all employees in the company over a two-year period. The parties also negotiated the parameters for local experimentation in workplace innovations, including tele-commuting, self-managed teams, and bringing subcontracted work back in house.

Local experimentation with total quality and self-managed teams was substantial, and by 1994, both management and the union considered the efforts successful. Twelve percent of workers in network and customer services had participated in total quality problem-solving teams, and 5 percent were participating in self-managed teams. Quantitative evaluation comparing performance of self-managed and traditionally-supervised work groups showed significant positive effects of teams for the company, workers, and the union: performance of teams was significantly higher, indirect labor costs fell, workers preferred the arrangements, and non-management jobs were saved at the expense of management jobs (Batt 1995, 1996). A 1996 customer service survey by an independent consulting firm found that BellSouth had the top ratings in customer service of any telephone company (J.D. Power and Associates 1996). A 1994 survey found that 92 percent of managers and 81% of local presidents supported the union's participation in total quality. Seventy-seven percent of managers and 77 percent of union presidents believed that union participation was critical to the success of TQM. Ninety-seven percent of local union presidents were participating in monthly business meetings, and 32 percent were participating in weekly management staff meetings. Similarly, 90 percent of workers believed the union should participate in total quality, and 60 percent believed union participation was critical to the program's success (Batt, 1995, 1996). The union also supported the company in going before state PUCs to gain regulatory reforms that would shift rate regulation from fixed to incentive-based systems, a shift that allowed the company to keep some of the profits from efficiency gains.

The union's participation in partnership strategies depended fundamentally on the company's long-standing commitment to employment and union institutional security, and the mature bargaining relationship that the company and union had achieved. At the time of divestiture, for example, when BellSouth set up a separate subsidiary known as Advanced

Systems, Inc. (ASI), it negotiated a separate contract with the CWA rather than operate ASI as a non-union subsidiary (in contrast to AT&T). In the first round of bargaining after divestiture, BellSouth was the only RBOC to agree to the union's request for regionwide bargaining (as opposed to the more decentralized approach of bargaining with each telephone company in the region). All post-divestiture contracts have been approved by the membership without strikes. Other negotiated clauses offset the membership declines associated with attrition. A 1989 joint union-management task force studied the content of managerial jobs and returned 550 jobs to the bargaining unit. A 1995 joint study team studied the costs of subcontracting-out work and negotiated an agreement to bring the work in-house.

Compared to AT&T and NYNEX, BellSouth has pursued a high relative employment strategy with low relative wages. This strategy may reflect the market characteristics of the region, where the population is more rural, geographically dispersed, and growing. Employment fell through attrition by roughly 10,000, or 12 percent of 83,000 between 1990 and 1993; another 10,800 were targeted to leave between 1994 and 1996, with roughly equal percentages of managers and workers effected. Wage increases have been relatively low (averaging about 2-3 percent annually since divestiture).

Cooperative labor relations have been critical to the considerable experimentation in work innovations at BellSouth. Yet this cooperation is based on the strategic choices of management and labor, rather than through the institutionalization of stakeholder participation. Cooperative work reorganization occurred in a context in which the threat of reassertion of unilateral management rights always existed. In fact, by the mid-1990s, BellSouth was also adopting a strategy of re-engineering, reducing the emphasis on self-managed teams (in spite of their success), and increasing its emphasis on downsizing. This strategic withdrawal from cooperation strained union-management relations, and in 1995 bargaining, the union and management reduced their commitment to joint activities. The future of joint strategies, therefore, remains uncertain. The focus on re-engineering and consolidation illustrates the weak institutionalization of cooperative practices, in spite of prevailing attitudes of management and the union.

NYNEX

In contrast to CWA District 3 at BellSouth, the official position of the regional leadership of both the IBEW and the CWA District 1, which represent NYNEX workers, has been one of non-participation in joint quality and performance-improvement teams. Both unions have a militant history and both have continued a traditional approach of "effects bargaining.[7]" That is, management makes technology and operational decisions, and the union negotiates the effects of those decisions. Both unions collaborated very effectively in a successful three-month strike in 1989 over maintaining health care benefits; they formed a consumer coalition and successfully convinced the New York PUC to refuse the company's request for a rate increase during the strike, a decision that was a major factor in the company's decision to settle the strike. The unions' militant strategy over the course of the 1980s and early 1990s resulted in the highest wage and benefit increases in the industry. NYNEX negotiated 3-4% annual wage increases in all four rounds of bargaining since divestiture (almost double those at BellSouth); it is the only company to continue to provide fully-paid health insurance without the requirement of shifting to health maintenance organizations or co-payments.

As a result of the 1989 strike, the company made the strategic decision to bring in a seasoned labor relations expert from AT&T (James Dowdall), whose sole purpose has been to develop a mature bargaining relationship with the two unions. For 1992 bargaining, Dowdall hosted the unions in a two week joint training session in mutual gains techniques and paved the way for labor peace. In 1992 bargaining, the company and unions established formal joint committees around technology and workplace issues, but by management and union accounts alike, these existed on paper only. The bitterness evoked during the 1989 strike continued for several years, undermining any real possibility for joint labor-management efforts. Because both unions give considerable autonomy to locals, local union leaders have the choice of participating in joint committees. Only a handful have done so, however; the overwhelming majority of local leaders have consistently followed district policy, refusing to participate in joint productivity-enhancing programs such as the kind overwhelmingly supported by union leaders at BellSouth. Meanwhile, work restructuring has followed a path emphasizing re-engineering, the creation of customer service 'mega-centers,' and labor displacement to obtain cost savings.

In spite of the traditionally adversarial bargaining relationship, in 1994 the parties negotiated the most far-reaching employment and union security clauses in the industry. The NYNEX strategy is to build a highly educated, flexible, and productive technical workforce, but without employee or union participation in work redesign. In addition to wage increases above the industry average, NYNEX agreed to heavy investment in a two-year training program which creates a new multi-skilled craft title of "Telecommunications Technical Associate" or "Super-Tech." In the first two years of the program, roughly 1,100 employees enrolled (Clifton 1995, personal communication, November 24, 1996). The new contract also developed a force reduction plan with incentives aimed at voluntarily eliminating 16,800 of 57,000 non-management jobs at an estimated cost of over $2 billion or $77,000 per participating employee. In addition, the contract enabled all NYNEX employees with five years of service to take a two year educational leave; created a job bank and a new job sharing provision; guaranteed union workers access to all new NYNEX ventures; ensured that new subsidiaries are required to offer union workers the opportunity to bid into the new jobs; and further enhanced union institutional security through card-check recognition, company neutrality, and access to non-union workplaces. These provisions helped the CWA win a closely contested union election victory among 1500 customer service representatives in New England, a unit that had historically been anti-union and had turned down representation in previous campaigns.

In sum, in exchange for high wages, retraining, and union security and expansion into non-union subsidiaries, the unions agreed to much more substantial employment reductions than in other regional companies, although these have occurred through attrition and early retirement buyouts. By 1993, NYNEX had eliminated 19,000 jobs, but only 6,000 were among union members who accepted generous early retirement offers. The remaining 13,000 were among managers, who either accepted generous settlements or forced layoffs. Under the 1994 contract, the 16,800 non-management jobs targeted for elimination by 1996, amounted to an overall drop of at least 35 percent. The company strategy is to build a (smaller) highly skilled, flexible, and productive workforce while maintaining unilateral management rights with respect to operational decision-making.

Furthermore, while the provisions in the 1994 contract were generally designed to improve NYNEX's relationship with the CWA, of perhaps greater significance was that the agreement was also *contingent* upon the union and company developing "public policy issues of common interest," including union support for the company's deregulatory goals with the PUC (which were achieved in September 1994). Indeed, provisions governing union institutional security in new businesses were explicitly contingent upon that, and the support of the CWA was significant. What is thus striking is that although the company and the union have reached amicable settlements in recent negotiations, they continue to have very 'traditional' labor-management roles, with management retaining decision-making authority and the union negotiating the effects of management actions.

IV. Labour Mediated Strategies: Deutsche Telekom

The German approach to restructuring the telecommunications industry has been one of ‘mutuality,’ involving the full participation of stakeholders at both the industry and firm level. Stakeholders have been instrumental actors in determining the speed, form, and structure of the re-regulated product market, and in the development of new work practices, labour adjustment, and corporate structures. Unlike in the US and UK, stakeholders have used their institutionalised participation to alter the timing and the balance of costs of adjustment, as well as the strategic path chosen. That is, institutions of industrial relations in Germany have affected corporate strategies by restricting the degree of managerial prerogative and the acceptable adjustment path.

Although there were repeated attempts to reform the Deutsche Bundespost in the 1960s and 1970s, including proposals to create a management structure with greater independence from political influence and to operate Telekom on business principles, these failed largely because of union opposition (Duch 1991; Noam 1992). In 1982 the Bundespost as a whole was responsible for 3.4% of German GNP; contributed 10 percent of its revenues to the government; employed 500,000 workers; and was by far the most important purchaser of equipment from Siemens. However, this is insufficient to explain the slow process of deregulation. Rather, the quasi-corporatist decision making structures within Germany allowed the stakeholders within the Bundespost to form a passive coalition against any fundamental shift in the strategic orientation (or organisation) of the telecommunications industry. In contrast to the US and UK, no dominant reformist business cohort was able to form in Germany to promote a significant deregulation of the industry, in large part because of the institutionalised position of existing stakeholders, including not only employees, but also suppliers (Darbishire, 1997b).

Nevertheless, two reforms have been passed. Post Reform I in 1989 led to limited deregulation and the separation of Telekom from the other Bundespost companies (Post and Postbank). However it also led to the preservation of the core monopolies of voice telephony and the network infrastructure, contrasting with both the US and UK. The second reform, Post Reform II, which became effective in January 1995, amounted to the privatisation of Telekom, but surprisingly did not address the issue of deregulation. This is explained by the fact that the pace of deregulation was instead being driven by the European Union. This in itself brought an important exogenous force into the reform process, thereby challenging the quasi-corporatist institutional structures within Germany, which had prevented change. In addition to this helping drive reform, privatisation was prompted by German unification which involved Telekom in a DM60 billion project to upgrade the east German network, and the growing globalisation of the telecommunications industry which left Telekom management needing more independent latitude to enter international joint ventures.

In this process of deregulation the DPG union was able not only to affect the timing of change, but equally it was able to address the concerns it had with the effects of product market re-regulation. The DPG union was able to utilise its institutional position to perpetuate its prevailing strength and structures. The DPG was particularly concerned with the risks that deregulation and privatisation would hold for employee and union institutional security. At the industry level, both the Länder and the DPG were concerned with how EU policies to liberalise the product market would be enacted in Germany. The influence of stakeholders on the structure of the product market was ensured through the creation of a Regulatory Council as a result of the Post Reform II restructuring. An illustration of the continuing influence of stakeholders in this respect was seen with the adoption of a high standard of universal service (of general ISDN availability) at end 1995. By establishing the general availability of a high level of service as a matter of public policy, stakeholders have had substantially greater input into the product market structure than in the US, while simultaneously constraining the strategic options available to Telekom.

The telecommunications market in the US illustrates the emergence of non-union competitors (including MCI and Sprint), while the experience at AT&T demonstrates the potential for the effective deunionisation of the core company through the creation or acquisition of non-union subsidiaries (see above). By contrast, during the political negotiations over Post Reform II, the DPG was able to secure the *right* to bargain with Telekom in all of its subsidiaries, which are in turn *bound* to negotiate with the DPG. Thus, although Telekom has indeed been establishing new subsidiaries with different employment conditions than the core company, Telekom is nevertheless constrained from even considering a non-union employment strategy (Darbishire, 1997a). The structure of works councils was also altered in response to employee concerns about their post-privatisation structure, while employee representation on the Supervisory Board was made uniquely strong, even in a German context. Furthermore, the DPG secured the continuation of the contractual rights of all its employees, including their impressive employment security guarantees (which apply to civil servants who constitute half of Telekom's workforce, as well as to all workers aged 40, with 15 years service).

At Telekom employee representatives have been able to use their influence to perpetuate both their institutional voice, and the role of employee representatives. When combined with strong employee rights, the DPG and works council within Telekom have been able to exert significant influence on corporate strategies and the pattern of work restructuring. In contrast to the US and UK, stakeholders at Deutsche Telekom have been able to constrain the company from adopting a technological displacement strategy, or one focused on downsizing and cost minimisation. Rather, the constrained corporate strategy has been characterised by its overall cautious nature. It has emphasised a revenue-enhancing, up-market approach, with slow, heavily negotiated change. The institutional constraints on Telekom's labour market approach are illustrated by the company's relative employment stability. Between 1984 and 1994 Telekom employment in west Germany was virtually unchanged, with a decrease of only 4,000 from 191,000. Total employment, including the former East German workers, stands at 225,435. Only in March 1995, did Telekom officially doubled its goal of eliminating 30,000 jobs throughout both east and west Germany to 60,000 (26 percent of the workforce) by the year 2000.

While the extent of technological displacement should not be underestimated, the underlying strategy emphasising revenue generation is more significant. In contrast to the predominant US objective of establishing of lines per employee as a basic performance measurement, Telekom established a corporate objective of revenue per employee, set at DM470,000. This has underlain Telekom's strategy, substantially promoted by the DPG, of seeking new employment opportunities. By mid-1995, the DPG had presented Telekom with in excess of 50 proposals of how to generate new business to enhance employment security. Telekom had taken these proposals seriously, not least because of the constraints they faced in downsizing given the strong opposition of the DPG, who had made employment security their top priority.

The constraints on Telekom adopting a cost-minimisation strategy, or adopting a technological displacement strategy and downsizing its workforce, have been substantial. Half of Telekom's employees have legal employment security owing to their civil servant (or *Beamte*) status. Furthermore, other workers over the age of 40, and with 15 years of service, have contractual employment security guarantees. However, two thirds of Telekom's employees are under that age, and their effective employment security emanates from the need to sustain the co-operation of the DPG in on-going work restructuring. For the DPG, the extensive nature of rationalisations brought about by digitalisation increases their power with respect to short-term employment protection. The rights of the works councils concerning the introduction of new technology and rationalisations, the regrading of employees, transfers, and appointments requires that Telekom work co-operatively with the union. The significance of this is illustrated in that, between June 1993 and March 1994 the DPG negotiated a unique contract in light of the 11,000 posts being eliminated by a work restructuring program known as Telekom Service 2000. This contract guaranteed all workers employment security, while also specifying compensation for those otherwise adversely effected by the rationalisation plan. In late 1994 the DPG was able to extend this, in negotiations over a broader reorganisation plan, to *all* workers, thereby guaranteeing comprehensive employment security until end June 1996. The plans to downsize Telekom by 60,000 have also been premised on these being accomplished through expensive voluntary redundancy and early retirement packages.

While Telekom's labour market strategy has been one of mutual advantage, it is important to note that the impact of industrial relations on business strategy has been facilitated by the favourable regulatory environment, and the absence of countervailing financial market pressures, that Telekom has enjoyed. Rather than being constrained by asymmetric regulatory structures from entering closely aligned market segments, as in the US, Telekom has continued to operate the largest cable TV company in the world, with a *de facto* monopoly, and 14.6 million subscribers by end-1994. Combined with the largest ISDN network, this has provided Telekom with the potential for an up-market strategy.

The protected regulatory status that Telekom has operated under has given it additional time to undertake organisational restructuring, technological modernisation, and integrated service provision. Nevertheless, in spite of this additional stability and the strategic advantages offered by the positive regulatory climate, restructuring has in fact been slow to materialise.

Telekom is, indeed, in the process of undertaking substantial corporate restructuring, divisionalisation, decentralisation, and rationalisation. Nevertheless, in spite of the substantial rights of works councils in Germany, and the influence of the DPG within Telekom, work restructuring has been cautious. While the highly detailed negotiations concerning corporate reorganisations have emphasised the substantial role of employee representatives, and the near impossibility of undertaking reform without works council and union co-operation, this has ironically not led to more innovative work practices or rapid restructuring.

Thus, rather than adopting a cost-minimisation or labour intensification strategy, Telekom has instead fully involved works councils and the union in the process of restructuring. While the scale of work reorganisation in the US has undermined both morale and many of the co-operative union-management programs that had existed, this has not been so within Telekom. Nevertheless, although this has ensured that employee representatives have been full participants in the reorganisation, this has generated a slow pace of change, while simultaneously limiting the extent of workplace experimentation or innovation. There have been no decentralised workplace trials. Three factors have underlain this: First, Telekom has been slow to decentralise its operational structures, characteristic of its public sector legacy. This has restricted their potential for workplace innovation. Second, the union and works councils' principal concern has been with the technological displacement and downsizing implications of the restructuring of the industry. Third, and relatedly, employee representatives fear that such restructuring is a negative-sum game. They have thus been concerned to minimise the downside implications of this by conducting highly detailed, centralised negotiations about new work organisation practices. Together, these factors have combined with the more cautious restructuring of the product market to generate a significantly different outcome in the labour market.

V. Conclusion

In this paper, we have argued that prior institutional arrangements shape the ways in which globalization is defined by industry, labour, and government actors. These actors take different strategic approaches to the re-regulation of product markets, which privilege some players more than others. In the AT&T and BT cases, government regulators were committed to a concept of fast-track deregulation and competition, the costs of which were largely absorbed by labour through high rates of displacement; unions were thrown on the defensive and had little or no influence on restructuring. In the US local telephone market, RBOCs have remained relatively sheltered from competition because of their political and regional embeddedness. They have been successful in convincing legislators to deregulate local services in ways that privilege the Bell companies – allowing them to take advantage of their large customer base, to provide integrated multi-media services, and to retrain and deploy the current workforce without suffering the kind of tumultuous displacement suffered by workers at AT&T and BT. Politicians support this strategy to support their political constituencies and to avoid high levels of unemployment and displacement that would strain public resources and negatively effect state economies.

The German case offers a more radical version of this scenario in which industry, labour, and government policy makers have taken a deliberately slow and carefully negotiated approach to deregulation. Indeed, it has only been as the European Union has usurped some of Germany's decision making autonomy that deregulation has been pushed more vigorously. Yet even as stakeholders' interests have been altered by the changing product market structure, the cautious approach to deregulation has limited the negative effects on worker welfare.

What have been the comparative outcomes for consumer welfare? In the short run, the market-driven approach allows telecommunications providers to take advantage of the full implications of new technology and market flexibility, both in terms of process and product innovation. In Germany, by contrast, the influence of government policy makers, unions, and corporate stakeholders in slowing the pace of restructuring has prevented Telekom from taking full advantage of new technologies, limiting performance improvements for business and residential consumers. The US and British telecommunications industries, therefore, have outperformed Germany in terms of speed of delivery, response time, product diversity, and price reductions -- as an input into other industries and as a contributor to national economic growth.

The effects on consumer welfare in the United States, however, have been highly unequal, benefiting large businesses the most. Small business and residential consumers have also benefited, through greater product diversity and prices reductions in long distance offsetting increases in basic service. Notably, however, residential consumers were protected because regulators slowed the pace of local deregulation. Otherwise, basic rates would have skyrocketed in the 1980s. Low-end consumers fared worse under deregulation in the 1980s and early 1990s because basic rates rose, and they could not afford to take advantage of long distance price reductions. While new FCC regulations seek to ensure universal service as well as internet access to low income residents, the implementation of regulations will determine long term outcomes.

In the longer term, the outcomes for consumers are uncertain. AT&T's and BT's divestiture and deregulation were premised on the assumption that new microwave technologies would erode the natural monopoly argument in telecommunications. However, the digitalization of network switching and transmission systems substantially increased network economies of scale and scope. This has led some who are strongly pro-deregulation admit that technological efficiencies may lead to a recentralization of the industry (e.g. Huber 1989). In addition, researchers have found significant reductions in productivity growth that have accompanied this period of duplication and over-capacity. Using three different measures of productivity used in the industry,[8] Keefe finds that productivity growth in the 1984-1991 period (3.4% annually) was half that of the 1974-1983 period (6.9% per year) and the 1951-83 period (6 percent per year). By the early 1990s, when AT&T served 60 percent of the long distance market, MCI and Sprint together had the capacity to meet the needs of the entire country (Keefe and Boroff 1994:321-2).

By contrast, in the German case, institutional stakeholders deliberately chose an approach to re-regulation that privileges Telekom by retaining it monopoly in telephony and Cable TV. This choice provides the opportunity for a carefully-managed, integrated approach to restructuring and the provision of multi-media services. While the role of the EU may alter the adjustment path, Germany has the potential to avoid the duplication of infrastructure experienced in the US, in an industry where the systemness of technology continues to favor scale economies. The German "social market" solution has the potential in the long run to create "mutual gains" for firms, unions, employees, and consumers. Yet the promise is yet to be fulfilled.

Finally, it is noteworthy that none of the approaches to reregulation and restructuring has achieved a new system of "high involvement" work organization comparable to the innovative team-based or lean production systems in manufacturing. While more experimentation has occurred in the US, those experiments have been short-lived, overcome by broad-scale cost-cutting. Meanwhile, Telekom and the German unions have positioned themselves for greater labor-management cooperation in workplace innovations. Rather than adopting a cost minimization or technological displacement strategy, Telekom has focused on a revenue enhancement strategy. This has the potential to create a "high involvement" approach to work organizaiton while limiting the ultimate costs and adjustment burden borne by employees and union. Of key importance, however, is whether the cautious but sustained cooperative approach to restructuring will produce performance gains in the long-run. This will be strongly influenced by the ability of stakeholders to successfully implement changes to sustain the up-market strategy in spite of on-going downsizing, and before new competitive entrants can erode market share.

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[2]2 Details of the break-up of the Bell System are found in Coll 1986; Temin 1987; Stone 1989; Teske 1990; Cohen 1992.

[3] AT&T unsuccessfully led a coalition of consumers, unions, independent telelphone companies, and state PUCs.

[4] The system of production in telecommunications services is best viewed as a continuous process industry. Highly skilled and autonomous craft workers with electro-mechanical skills built and maintained the network infrastrurcture, and installed and repaired equipment on customer premises. Digitalization involves replacing analog transmission and switching equipment with fiber optic cable and digital switching, shifting the demand for skill from electro-mechanical to computer-based skills.

[5] Traditionally, customer service workers worked in local business offices providing “universal” service to customers by answering all types of inquiries, including orders, billing, repair, and collections. They knew the local infrastructure well, and interacted frequently with network craftsmen to identify customer problems and find solutions.

[6] Moreover, heightened transaction costs and consumer confusion, for example, are a consequence of the package deals to consumers (MCI's Friends and Families, AT&T's Reach Out and True Voice, etc.). This trend is in sharp contrast to current theories of quality in customer service that argue that customer loyalty and longevity are the key to competitiveness (e.g., Schlesinger and Heskett l991a, l991b).

[7] A 1996 union election replaced the long-standing CWA district leadership with a leadership team more open to joint strategies so that future union strategy may change.

[8] These measures are average annual increases in access lines per employee hour, in switched minutes per employee hour, and in adjusted revenue per employee hour.