

Telecommunications Reforms  
at the Periphery: Role Models  
or Followers?

by Eli M. Noam

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**Telecommunications Reforms at the Periphery:  
Role Models or Followers?**

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## I. INTRODUCTION\*

A question of interest far beyond telecommunications is the direction in the flow of reform and institutional innovation: does change originate at the center and flow outwards to the periphery, or is it the other way around? Or is reform more in the nature of historical tide, flowing in and out depending on some larger forces of the moment?

The first view, which can be termed the "imperial" perspective, is based on a belief that reform is an activity requiring the kind of expertise, sophistication, and leadership found primarily at the center. A variant of this view is that reform must be coordinated to succeed. Thus a reform at the periphery will not be effective, and hence by elimination viable reforms must originate in the center.

The opposite view may be termed the "laboratory" position. Change requires the overcoming of a status quo, and where is the latter more strongly entrenched than at the center? In contrast, someone at the periphery is likely to experiment with innovation, if given leave to do so. The stakes are lower, and new approaches are possible.

The proponents of each view have historical anecdotes and much political science literature (on the core versus periphery) to support their view. The French and Russian revolutions originated at the center; the American at the periphery. Most New Deal reforms were fashioned at the center of America, but the progressive movement originated in the prairies. In telecommunications, the main impetus for change in the U.S. in the 1960s and '70s came from Washington and was resisted by the states. In the late '80s, however, the momentum of reform in the center began to slow down, and the states were in some instances more innovative.

And Europe? The question of center versus periphery is even more important in Europe, as it inches (to use a Euro-politically incorrect measure) towards economic and political union. In Europe, the center holds ambitions, couched in the technical jargon of bureaucracy and the

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inspiring language of integration. The center consists, formally, of the Commission of the European Community. Close to the center are the two pillars of the Community, Germany and France. Historic agreements between them had led to the Coal and Steel Community, Euratom, the European Common Market, the admission of Britain, and the Maastricht Treaty. The periphery begins with the other member states of the EC, both those of the original six -- Italy and the Benelux -- and half-hearted latecomers such as the U.K. and Denmark. Further outside are the EFTA countries which for a variety of reasons did not join, such as Switzerland, Sweden, and Finland; and still further out are client states in Eastern Europe and the non-European Mediterranean.

Where did telecommunications policy reform originate? In a major sense, the correct answer would not assign a territorial or jurisdictional location, but a functional one. Policy changes are based on underlying changes in user patterns of information, the technology of information processing and transmission, and the expansion and redistribution within a national network system. In that sense, reform originates in the telecommunications departments of large corporate users, and in the laboratories of electronics firms. I have traced and modeled the underlying dynamics in several writings.<sup>1</sup> Yet to look at larger forces does not negate the usefulness of observing where and how governmental policy responded to them. Such is the task of this paper.

Much of the impetus of policy reform in Europe seems to have come from the European Commission. The reasons are varied, and are part of a much larger game of empowering the common bureaucracy at the expense of the particularized ones. In telecommunications, this is done through alliances of Brussels with the large transnational users, with large high-tech firms seeking industrial policy subsidies, and with national ministries that are closer to these interests than the traditional postal ministries are. Whatever the reasons, the outcome of Brussels' efforts since the "Green Paper" of 1987 has been policy change in terminal equipment approval and

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<sup>1</sup> See, in particular Eli M. Noam, 1992, *Telecommunications in Europe*, Oxford University Press, New York.

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interconnection, value-added access, standard setting, and the restructuring of traditional postal civil service entities into semi-autonomous corporate bodies. It is therefore easy to jump to the conclusions that, but for the Brussels supra-European directives, those changes would not have occurred. But to reach such conclusion one would have to show that these changes might have not happened otherwise, for example by demonstrating that no countries instituted similar or farther-reaching reforms on their own. It is therefore important to look beyond Brussels.

Change did certainly not originate in the outermost periphery. Eastern Europe had a historic chance, but seems to waste it. Beggars can't be choosers; nor, it seems, can reformers, where the reforms must be underwritten in material terms by telecommunications traditionalists in the West. For example, the opportunity to create in the former East Germany a regional telephone organization as a long-term rival to the West's DBP Telekom was never seriously considered.

Close to the center, the core consisting of France and Germany has shown little reform initiative until recently. In both countries, coalitions of powerful interests kept the traditional PTT (post, telegraph, telephone) monopoly system alive, and provided for a long time many of the arguments for telecommunications *ancien regime*. Germany's Heinrich von Stephan, Bismark's remarkable postal contemporary, had created the PTT system domestically and internationally, and it was largely unchanged on its home turf until recently. In the 1990s, Germany, badgered from the outside by trade partners and from the inside by academic critics and rival ministries, embarked on reform, fortuitously just before the unexpected national reunification would have provided the rationale for another decade's delay.

France, after an embarrassing first telecommunications century, moved the traditional system to its technological peak, a triumph of state-sponsored engineering and investment. France in the 1980s took a traditional statist approach and increased the role of government. The Socialist government made high-technology a national priority and nationalized much of the French electronics and telecommunications equipment industry to meet this goal. The effect was that the French actually created, for a time, a state-owned analog of the old AT&T system: a

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vertically integrated complex of equipment manufacturing coupled with a telecommunications transmission monopoly and an R&D laboratory. Conservatives, returning briefly to power in 1985, re-privatized several of the equipment firms, and the telephone administration was gradually made more independent. But the state and its affiliated institutions remained in charge, continuing the tradition of industrial policy for the telecommunications and electronics sectors. In the early '90s, France, increasingly at Europe's institutional rear guard, reassessed its position. For the public-sector entrepreneurs and technocrats of the telecommunications sector, change made sense, because it also came with independence from erratic politics, and financial restrictions. Hence, institutional reform was accomplished in the early '90s. To conclude, change in Europe's core countries legitimized reform, but did not cause or advance it.

And what about the other countries of Europe? We find several categories of countries. One grouping are the **Traditionalists**, countries that were some of the strongest proponents of institutional status quo, such as Portugal, Greece, Switzerland, and Austria. (The latter two contradict the view that economic development leads to institutional change.) For a long time, Belgium was also part of this category.

A second grouping are the **New Reformers**, the UK primarily, and, more cautiously but perhaps more influential, the Netherlands.

In the U.K., the conservative government of Prime Minister Thatcher created and privatized British Telecom, and opened the market to facilities-based competitive entry. For the rest of Europe, these changes were far too revolutionary. The classic evolutionary model was set in the Netherlands, where the traditional administration was split in 1989 into postal and telecommunications bodies under the managerial autonomy of a public corporation. This model was eventually followed in most European countries when the initial resistance of PTTs gave way to increasing support. The Netherlands targeted its telecommunications system in order to establish itself as a major European center of services.

The Dutch reorganization was particularly effective as a model for other European countries. The extensive competitiveness in the United States made its system institutionally too

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distant to be directly applicable. The British policy, favoring privatization and the establishment of a competitive carrier, was also too radical for the continental countries. The Japanese model suffers from the lack of transparency of Japanese governmental and economic processes. Ireland and Israel, which had successfully instituted much of the same changes earlier, in 1983 and 1984, were too far at the periphery to matter. Holland, on the other hand, is a close and respected neighbor, and its policies cannot be easily dismissed as attempts at hegemony. The Dutch PTT reform was therefore watched with particular interest by other European countries.

These two countries have been well-covered by academics and other countries. Yet there is a third grouping of countries, which I find to be highly interesting in many ways, both for their institutional diversity and for the way their telecommunication institutions provide insights into the future of European 'mainstream' telecommunications. And yet, interestingly, they had very little impact on the rest of Europe. The reason is: (a) that these changes had often taken place decades earlier; (b) that these countries had no missionary zeal or ability, in contrast to the United States, to export their system to the rest of Europe; and (c) some of these systems worked, but others didn't. In consequence, the alternative models remained confined to their own countries and did not travel. Indeed, these countries in some instance moved backwards in the direction of traditionalism, in the name of European harmonization. These countries, which I call the **Non-Conformists**, are Denmark, Finland, Greece, Italy, Portugal, Sweden, and Spain. Their experience, and the lessons they bear, will be the subject of discussion below.

## **II. TRADITION AND ALTERNATIVES**

The process of providing telecommunications services and equipment in developed countries has traditionally involved a closely knit community of interest groups. Until the late 1980s, most countries combined postal and telecommunications functions under the same roof. These civil service PTTs go back to the age of European absolutism when postal monopolies were first established and have since spread to most of the world. The PTT's operations were typically controlled and operated through state institutions like ministries of post and

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communications. They held a monopoly over all mail and telecommunications services and were closely allied with domestic manufacturers of telecommunications equipment. Internationally, they collaborated through various cartel-like organizations and coordinating agencies. Additional support groups in this "postal-industrial complex" were labor unions and rural populations.

After a century of institutional stability, the PTTs underwent a metamorphosis in the 1980s. They were separated from postal functions and in some cases from direct civil service status, and renamed themselves public telecommunications organizations (PTOs). They followed different institutional and legal models, and pursued varied strategies. Major elements of this change will now be discussed, together with the policies of the non-conformist peripheral countries and their experience with these approaches.

## **1. Corporatization**

Corporatization is the transformation of a PTT into a semi-autonomous structure, which may still be state owned, but controls its own managerial and administrative functions. The monopoly status is not touched by corporatization as such. It is asserted that once the close link to the government is severed, a process is set in motion that makes further changes more likely. Sometimes the corporatized entity is described as a "private" firm, in the sense that it may be organized under private law provisions which determines its status in, for example, contract and labor law. But that description confuses legal detail with the reality of control, which is still very much governmental. In other instances, a minority or shares may be issued to the public, though control is still retained by the state. (For more detailed discussion of the elements of European policy, see Noam and Kramer, 1992.)

Because corporatization loosens direct administrative controls, it is usually accompanied by the creation or strengthening of a government regulatory mechanism. Such was the case in the Netherlands, where the Dutch PTT was split from the state control into a public corporation, with regulatory authority vested in the Ministry of Transport and Public Works. Belgium, after

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three years of debate, a reform bill passed in 1991 which separated the traditional RTT administration into an operator Belgacom and a regulatory body, the Belgian Institute for Telecommunications. Belgacom provides basic transmission as a monopoly, and enhanced services in competition. However, authorized VAN licenses may be denied in the public interest, or if the license would cause financial losses for Belgacom.

After a national debate over telecommunications reform, France Télécom was corporatized in 1990. In Germany, corporatization created the Deutsche Bundespost Telekom, with its employees retaining their attractive civil service status.

Brussels exhorted other European countries to corporatize. Yet, there is nothing new about corporatization. Sweden's Televerket, to use an outstanding example, has long been has such status. So were parts of Denmark's, Finland's, Spain's, and Italy's.

Sweden's telephone system is a major success story. It has been an interesting mix of effective social agenda combined with liberalization. In 1988, telephone density was 66.2 main lines per 100 inhabitants (ITU, 1990a). In addition to Televerket's high telephone penetration, its technical innovativeness is high; its rates are the lowest in the world; and its entrepreneurial spirit is well-developed.

Part of Televerket's reason for success has been that it was long outside the postal administration. It is a crown (state) corporation subject to regulation by the Ministry of Transport and Communications. But while Sweden's corporatized system seems to have worked well, one cannot generalize from it. Take as a counter-example Greece's telephone operating entity OTE, the Hellenic Telecommunications Organization. OTE lags by most European standards. In 1988, the waiting time for a telephone installation was three to five years, with a waiting list of 1.05 million (ITU, 1990) in a network of about 3 million lines. Even highest-priority orders, such as for hospitals and business users, had to wait for more than a year. The quality of lines was such that only 5 percent of modems were connected to the PSTN in 1985. Despite the backlog, OTE prohibited the dual use of both voice and data.

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OTE's problems were not simply those of resource shortage in one of Europe's poorer countries. The company was frequently embroiled in allegations of improprieties, favoritism, and politicization. Its hiring practices and installation priorities were subject apparently to party patronage. It was part of the scandal involving the charge of several state companies' kickback of funds to the then ruling Pasok party. Its director general openly bragged about wiretapping the opposition, and cut off communication links to broadcast stations of the opposition during the heated election campaign.

One should further note that some of Europe's best-functioning telecommunications systems are not corporatized, for example Switzerland's.

Thus, the mere legal status of a telecommunications organization is neither a necessary nor a sufficient condition for efficient service, or for a public interest orientation.

## **2. Privatization**

Privatization involves the government sale of shares in the telecommunications organization to private investors. However, ownership need not affect the monopoly status. In the United States, AT&T was private and near-monopoly for a very long period. In Canada, private regional monopolies exist, and long distance competition has only recently been contemplated. 65 percent of Spain's Telefónica was private, but the government still controlled the appointment of its chief executive and top management. In Denmark, the state sold 49 percent of the shares in the newly created teleDenmark, but a large block was purchased by the state pension fund.

Privatization may encourage efficiencies of operation. But quality of service may fall if an unconstrained monopolist cuts cost without regard to its captive customers. Privatization can also strengthen a monopoly, as shareholders become a political constituency to preserve a monopoly. Widespread shareholder involvement in the U.K. created a force opposed to curbs on BT's dominance which might threaten profitability. In Spain, Telefónica gets protection from

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the "widow and orphan" status of its stock.

There is nothing new about privatization. In most European countries, telecommunications started as private enterprises, often for several decades. In France, for example, the private sector played a significant role during the establishment of telephony. Eventually, the government, backed by a coalition of dissatisfied business users, small towns, and leftist republicans, decided to take over the entire network, fired by the national enthusiasm of the French Revolution's centennial (Bertho, 1984, pp. 60—64). The main company, SGT, refused to surrender its property peacefully, and was taken over by force.

In Norway, the early rapid expansion of telephone service was neither supervised nor operated by any central state organization. Most of the local telephone systems were built by small joint stock associations, cooperatives, or public ventures. The majority were small efforts with neighbors helping each other and contributing rights of way, materials, and labor. By 1906, provision of both local and long-distance service was about half private and half public, with the government serving primarily the larger cities and the private companies serving the rural areas. This is the reverse of situations ordinarily prevailing in countries with mixed public-private systems, and is at tension with the assertion that the state is necessary to serve low-density areas. Eventually, the state system absorbed all private and cooperative networks.

In Spain, the American company ITT owned the national system since 1924. It also became Spain's dominant service and equipment firm. In 1945, however, it was forced to relinquish ownership of its network operation CTNE to the Spanish government, which then directly or indirectly controlled about half of its shares. In 1986, CTNE was formally renamed Telefónica.

In Italy, between 1907 and 1925, telecommunications were jointly provided by the state and by sixty-three regional private concessionaires. Local telephony was legally franchised to private firms, but long-distance communications remained under state control. Subsequently, under Mussolini's Fascist regime, five telephone regions were established and assigned to different concessionaires. They were later consolidated into the national system, SIP, owned

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by the STET holding company that in turn was controlled by the state holding IRI. The PT administration ASST was established to provide long-distance interconnection between the five regions and international services with European and Mediterranean nations. STET also owned the satellite operator Telespazio. Both SIP and STET were always part private firms, and the private ownership had increased, by 1990, to 40 percent of SIP, and 42 percent of SIP's parent company STET, though the government retained overall control.

Thus, privatization has been around Europe for some time. Has it worked? There is no evidence that SIP or Telefonica operate more efficiently than DBP Telekom or France Telecom. On the other hand, the Finnish independent companies seem to have done very well. Ownership status, by itself, means little. It is the industry structure that counts. A privatization of a monopoly, subject to inadequate regulatory supervision, is a prescription for inefficiency, the exercise of monopoly power, and both. In Spain and Italy, the supervision of the companies is weak, and no market competition exists. In Finland, on the other hand, a tradition of efficiency in public services is joined by a rivalrous relationship of the two types of telephone providers, the comparability of the various independent local companies, and their accountability to their users. The result is an efficient and responsive system.

### **3. Liberalization**

Liberalization means the introduction of competition into monopolized markets. It may include the ability to interconnect equipment, the approval of equipment, and the licensing of new entrants for all or particular services.

Liberalization should not be confused with deregulation. Deregulation is a reduction in government-imposed constraints on the behavior of PTOs. One may, for example, have a deregulated monopoly, or a tightly regulated multi-carrier system. The experiences in the U.S. and the U.K., two of the most liberalized markets, reveals that more rather than less regulation is instituted in the early stages after markets have been opened.

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Other than the U.K., one European country that has gone far in liberalization has been Sweden. Sweden never had a legal monopoly. Competitors could always be licensed. But what was the reality of entry? A look at history is revealing.

The International Bell Telephone Company opened in 1880 local systems in Stockholm, Gothenburg, and Malmö. The first non-Bell network, established in 1881, charged lower rates than Bell. In 1883, the General Telephone Company was started (*Allmänna Telefonaktiebolag*), and within one year served three times as many subscribers as Bell. The two firms engaged in a lively head-on competition in price and service, particularly in Stockholm. In 1887, General Telephone opened the world's largest exchanges (7000 lines). By 1888, Bell succumbed and relinquished control to its Swedish competitor, which merged the two systems.

But the demise of Bell did not signal the end of competition. Small stock companies, mutual associations, cooperative societies, and municipal systems rapidly established themselves in rural areas and began to coexist through long-distance trunk lines. The government Telegraph Company (*Telegrafverket*) also began to construct long—distance lines, and in some instances acquired or built local networks. It expanded its small system in Stockholm which had previously operated for official administrative use only into a general public network. General Telephone had 37,000 subscribers in Stockholm, and the government had 13,000. Within Stockholm the vigorous rivalry led to reduced rates, high technical performance, and experimentation with new types of service and billing (including usage-measured tariffs), making Stockholm's telephone system the most advanced in the world. Whereas the original flat rate of the Bell company had been about \$40 in Stockholm, after a few years of this unique competition, rates fell to about \$12 (Holcombe, 1911:384). The government with its power over long-distance interconnection ultimately took control of General Telephone in 1918, and integrated it by 1923. General Telephone's management moved to L. M. Ericsson (Gustafsson, 1987).

Today, we are witnessing a second round of entry in Sweden. Liberalization of service was introduced in 1989, when third-party traffic and international service were opened to new

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producers (Bertil Thorngren, 1990, Communication). Comvik's Skyport service opened leased circuits for competition and resale. Subsequently, Sweden's national railway also planned to resell capacity on its fiber—optic network.

Behind Comvik is Jan Stenbeck, a major Swedish industrialist who also owns Kinnevik, a media company, and its subsidiary Comvik. Comvik was the first to compete with Televerket with mobile telephone service and international satellite connections. Stenbeck's TV3 channel, Sweden's first commercial cable channel, is transmitted from London via the Astra satellite, in which he is also a part owner. He also owns the pay service TV1000 and cable television systems (Finvik) and is a partner in an American DBS venture. Through his diversified communications holdings, and subsequent partnership with Britain's far-flung cable and wireless, Stenbeck positioned himself to be a Nordic equivalent of Berlusconi or Murdoch, but with a much stronger telecommunications presence.

Yet in another sense, competition in Sweden would not be possible without Televerket's acquiescence. The company came to the conclusion that achieving more managerial flexibility, including in its pricing, was worth the price of admitting rivals. It was confident in its ability to hold them at bay. Hence, PTTs that are most efficient mind liberalization least. And those who are less efficient fear it most. Service liberalization thus does not happen where it is most needed.

When it comes to liberalization in terminal equipment, for which Brussels takes credit, there is less than meets the eye. In most cases, such liberalization by the various European countries was simply an acknowledgement of reality, namely that millions of subscribers had already bought the readily available low-price, high-option equipment and interconnected it in a do-it yourself liberalization.

And what about deregulation? If we mean by it not liberalization, but the reduction, in some relative sense, of governmental rules in the telecommunications field, there is no evidence

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of deregulation in Europe, center or periphery. Nor can it be expected to be. Competitors may require new rules on access and interconnection. Brussels imposes a new layer of requirements. Users establish various forms of private networks. New services abound. What emerges are partly monopolistic, partly competitive markets, and the mixture is more intensive in regulation rather than less.

#### **4. Decentralization (Devolution)**

Decentralization is a policy focusing less than monopolistic provision of telecommunication services. The service provisions need not be in competition with each other, but they are not under one control. Devolution is a policy of dismantling a single monolithic structure into several units. The prime example is the divestiture of AT&T in America into local and long distance operations. It is under consideration in Japan. Devolution is not a necessary condition for either liberalization or privatization, although it addresses the problems of competitive barriers to new entrants. Devolution serves the long term policy objective of isolating market segments which may at some point be subject to competition. It can also be part of liberalization, where some segments of the market are opened to competitors, and others are not.

The opposite strategy to devolution is consolidation. The rationale for consolidation is to capture the economies of scale and scope, and to eliminate actual or potential competition.

For all the talk about reforms, no European country has seriously considered to tackle a monopoly market structure by the radical step of a devolution. To the contrary, there is a fixation on economies of scale. Yet in several of the non-conformist peripheral countries in Finland, Denmark, Italy and Portugal, a decentralized system existed for a long time. While the traditional image of European telephone administration is one of total centralization, several of the European peripheral countries have actually long been operating in a decentralized system. Portugal and Italy cannot be cited as a success, but Finland and Denmark were doing very well under the decentralized system.

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The Finnish telephone system is one of the most interesting in Europe. Instead of a national monopoly, there are about fifty companies, either subscriber cooperatives, municipal enterprises, or private firms that provide local telephone service and are directly accountable to subscribers, about 72% of all telephone lines. There is also a national PTT (the P&T), which is the largest operator of local telephone service (covering about one-third of all subscribers and three-quarters of the land area). The P&T also offers domestic and international long-distance service, mobile telephony, and other services. The P&T had considerable regulatory power, which after 1987 was transferred to the Ministry of Communications.

This unique system originated when Finland was a reluctant Russian province and subject to the imperial and imperious Russian telegraph bureaucracy. By forming local cooperatives, the Finns became less dependent on the Russian authorities. After 1917, the new Finnish government inherited the system.

By their charters, the cooperatives' pricing is supposed to be cost based and not for profit. Subscribers elect management and directors, either at a general meeting or by mail. This process is taken seriously. At the board election of the Helsinki Telephone Company, 50 percent of the 350,000 owners participated in the mail balloting. Subscribers, when joining the system, provide a payment and receive a negotiable share certificate. Nearly three-quarters of subscribers are shareholders. This system affords about 1 million telephone subscribers a direct role in telecommunications matters (Mylo, 1984). A wide variety of organizational structures exists among the companies, including in several cases outright municipal ownership.

Thus, the Finnish telecommunications system has foregone the economies of scale and the unity of control that are sanctified in many larger countries. Yet its telephone system is among the most advanced in the world, moved along by a healthy rivalry among the various participants, and especially by the responsiveness of local companies to their subscribers/shareholders. The number of equipment options is high. Despite the alleged need for a monopoly to coordinate and fund industrial policy in electronics, and despite the country's

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small domestic market, Finland's electronic and telecommunications industries are quite successful both in domestic and export markets, while not being closed at home.

The relation between P&T and the local companies is characterized by both cooperation and conflict. The local operators are collectively represented by the Association of Telephone companies of Finland. Known also as *toimilupalaitokset*, or "licensed ones," they are a strong voice against the P&T. The P&T has long claimed that to ensure the goal of social equity, a full national monopoly is required; but the local companies have stressed, just as adamantly, their century-old tradition of technical progressivity and broad political responsiveness through the participation of owners/subscribers. Continuous friction arises over the extent of the P&T's protected range, control of advanced services, and revenue and cost allocations.

The independent companies must pay for carriage on the P&T's long-distance network; these payments help keep the P&T's local telephone rates low. Sixty percent of the independent companies' income goes to the P&T for long-distance charges, whereas 80 percent of all calls are local. Not surprisingly, the independent companies are interested in long-distance competition that would provide them with alternatives. (In the United States, long-distance carriers support, through access payments, the local exchange companies, not vice versa.)

A 1987 telecommunications law was an effort to define jurisdictions and thus end the disputes. Regulatory powers moved to the Ministry of Communications. Although the new law allowed the local telephone companies to enter parts of the market for data services, various overlapping service issues remained unresolved. An example is the long-distance data communications services offered by *Datatie*, owned by a number of local telephone companies. The P&T maintained that *Datatie* required a license by the P&T itself to enter this market. Similarly, overlap problems exist for electronic mail and videotext which are now regarded as competitive services.

A similar though lesser diversity used to exist in Denmark. Denmark's telephone system was unusual in Europe insofar as it was a shared arrangement of several state-dominated organizations. An 1897 law established a government monopoly for Danish telephony, but

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concessions transferred actual operations to several telephone companies. This structure, revised by 1986 and 1990 legislation, was remarkably similar to that of the United States after its AT&T divestiture: several regional companies offering local service, and a national carrier (the PTT) providing national and international long-distance service. A separate body served regulatory functions. This system contradicted traditional PTT tenets of unified structure, end-to-end technical responsibility, and economies of scale.

The local companies were not private in the sense of independence from the state. The government held a majority control of the Copenhagen and Jutland telephone companies as well as 100 percent of the South-Jutland telephone company. The Funen Company was a cooperative of local councils, and the government owned the remaining 45 percent.

The need for long-distance interconnection and approval of rates required a regulatory presence. In 1950 an agreement, the "concordate", was reached between the state and regional companies with the state as arbitrator on issues of standards, pricing, cost-sharing, and traffic planning (Olsen, 1988). But this agreement proved unstable in the 1980s when new technologies were being introduced. Danish policy then see-sawed between decentralization and consolidation. A 1986 reorganization strengthened the regional structure by adding a fourth concessionary state enterprise for South Jutland, which was divested from the PTT, though it was still owned by it. The PTT which had called for a unified system under its control also lost its operating divisions for data transmission, mobile telephone terminals, telex, telefax, and other customer services to the four concessionary companies.

But the advocates of centralism ultimately prevailed, ironically due to the winds of European integration blowing from Brussels. In 1990, the government proposed to purchase the Copenhagen and Jutland telephone companies, arguing that replication of costly services such as ISDN and intelligent networks was inefficient in a small country soon facing European competition, and that diversity reduced services quality. It believed in protecting monopoly by consolidating it instead of using institutional diversity as an invigorating factor. In 1990, the four regional companies were placed in a new holding firm, teleDenmark. The government kept

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a 51 percent stake and retained control of the teleDenmark Board, selling the rest to private investors. Much of the private investments, however, are pension funds with close ties to the government.

Italy's system of telecommunications provision is even more complex. It was best described as a shared monopoly of five organizations. Two of these organizations are government administrations; the other three are nominally private groups, owned by the same state holding company. The state directly ran the State Agency for Telephone Services (ASST), which handles long-distance and European telephony, and the Post and Telecommunications Administration (PT), which handled telegraph and telex networks. The three other groups are Società Italiana per l'Esercizio Telefonico (SIP), for local exchanges and some long-distance service; Italcable, for intercontinental service, and Telespazio, for satellite service, all of which are part of the state-dominated Società Finanziaria Telefonica (STET) holding company, which in turn is owned by the mostly government owned holding company IRI. In theory, the system separated segments of network control as the AT&T divestiture did in the United States, and it reduced monopoly power. In practice, however, the system in its aggregate was an inflexible bureaucracy, with service problems for small and large users. There were few performance rivalries, but frequent jurisdictional and political disputes. These revolve around financial transfers, particularly over dominance in new fields, such as data transmission and ISDN.

On the positive side, the existing complex institutional system allowed for relatively easy modifications. For instance, a privatization of the STET network firms and their separation from equipment suppliers has been gradually taking place, although not as part of a planned telecommunications policy. The shared service monopoly could have broken down in the future through rivalry and competition in the marketplace rather than the political arena. But this was counteracted by the government, whose chief initiative in telecommunications was to try to unite the various institutions into one giant provider. The Christian Democrats offered a plan in 1988 to consolidate the telecommunications agencies into a "Super-STET" —including SIP, ASST, Italcable, and Telespazio— aggregated as "Italia Telecom." But this project was prevented by

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the PTT minister and by southern Italian Christian Democrats, who traditionally were influential in telecommunications personnel matters and were concerned with loss of patronage. An alternate plan to create a "Super-SIP" was introduced by Socialists, but this was blocked by the Christian Democrats. Eventually, the government decided to merge ASST into STET, though with a temporary independent identity. By the end of August 1992, all the services and equipment run by ASST were transferred to a new company owned by IRI-STET.

Portugal, too, had no monolithic system. Telecommunications were the charge of three organizations, two of which, Correios e Telecomunicacoes de Portugal (CTP) and Telefones de Lisboa e Porto (TLP), operated according to the directives of a common General Board; the third, Companhia Portuguesa Radio Marconi (CPRM), derived from the Anglo-Portuguese telephone company. CTPs service area covered most of the country; it is also responsible for international telephony within Europe and for the Portuguese telex network. TLP operated telephone service and networks within a 30 kilometer radius of Lisbon and a 15 kilometer radius of Porto, the two largest Portuguese cities. The nominally private CPRM provided satellite links and submarine cable service. Its franchise covered all public overseas international telecommunications.

A 1990 law, whose advocates alleged that it was inspired by the guidelines from Brussels, created a single holding company for the telecommunications operators, named Telecom Portugal. The state retained control over 51 percent of TLP. The law also created the Instituto das Comunicacoes de Portugal to coordinate development and liberalization; regulatory powers remained with the Ministry of Communications.

## **5. Internationalization**

Internationalization is the ability of national telecommunications organizations to expand beyond national markets. This can be done through acquisitions, international service offerings and foreign subsidiaries. The European Commission has actively sought the lowering of national

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barriers for communication services, though primarily within Europe only. But international activities, too, have been going on independently of Brussels by the periphery.

Historically, there was substantial internationalization in the early years of telecommunications. In telephony's early years, the Bell companies offered service in Switzerland, Sweden, Germany, Britain, France, and elsewhere, before they were squeezed out or nationalized. This also led to AT & T's departure from European equipment manufacturing. Similarly, Britain's Marconi played an early role across Europe in radio-telephony.

In recent years, internationalization took place in Scandinavia through the highly successful joint Nordic cellular telephone system NMT. In 1981, the initial year of its operation, Televerket had cautiously predicted it would have 50,000 subscribers by 1991. But in 1987, there were already 120,000 subscribers, and by 1990 there were 450,000, in 9 percent of all automobiles (Boan, 1990:3). Televerket also joined with PTT Telecom Netherlands and Sprint to form the joint venture, Unisource, to serve large users and for international presence.

Spain's Telefónica was remarkably active internationally, especially in Latin America. After the Argentine government announced in 1988 that, after forty-two years of state ownership, Argentina Empresa Nacional de Telefónica (Entel) would be privatized, Telefónica outbid six European and American competitors for controlling interest of Entel's southern operations. The Telefónica consortium consisted of an investment company, including Citicorp's (20 percent), Telefónica (10 percent), and the Argentina's Techint Group (15 percent). Telefónica agreed to install 610,000 lines by 1996, at a cost of \$1 billion.

In Chile, when the telephone system was privatized, Telefónica initially lost to Australian financier Alan Bond in the bidding for a portion of Compañía de Teléfonos de Chile (CTC) But in 1990, Bond, in financial difficulties, was forced to sell his 43.7 percent stake to Telefónica for \$388.5 million. It also owned part of ENTEL, Chile's long-distance carrier.

Telefónica was also a bidder for a part of Mexico's telephone system; it gained a 40 percent share in 1991 in Venezuela's privatized system, in a consortium led by GTE. It also purchased a stake in the U.S. firms Infonet (5 percent), along with several other major European

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telecom organizations, as well as in Geostar (3 percent) and in Mercury's micro-cellular subsidiary. On the other hand, It does not appear that reciprocal entry into Spanish telecommunications are possible at this stage, and Spain has strongly opposed effort by the European Commission to open upper level services.

The Spanish example also shows that internationalization can cause problems back home. At the same time that Telefonica expanded globally, there were more than one half of a million applications for lines left unfilled in Spain. Public outcry forced the company's president to resign.

## **6. Industrial Policy**

In almost every country, telecommunications policy is part of a larger concern with industrial development, and PTOs were given a major role in national high-technology. These industrial policies tended to support the establishment of "national champion" electronics firms, and implicitly assured them major shares of public procurement contracts at prices that often shared in the monopoly profits of the operator. In some cases, direct financial support for the electronics and telecommunications sectors was provided by PTTs. They also deployed and supported proprietary technologies and protocols.

France has been particularly identified with an active industrial policy for telecommunications. In the French government's high-technology agenda for the IT sector, the "filière électronique," France Télécom was assigned a central role, with Alcatel the national champion, controlling 84% of central exchange procurement and influencing the disposition of the remaining 16%.

But some peripheral countries have been just as active, and earlier, in such industrial policy activity. In Spain, the government assigned to Telefónica a role of locomotive in high-technology development. Telefónica owns a majority of the stock of twelve equipment firms and

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holds minority interests in seven others. It has a direct stake in determining which firms are allowed access to the equipment market.

The Socialist government that came to power in 1982 increased Telefónica's importance in the equipment field by giving it a central role in its ambitious high-technology plans. It was required to establish four-year plans of investment and development. When Standard Electric threatened to eliminate 6000 manufacturing jobs in 1985, the government pressured Telefónica to increase its purchases of that company's equipment.

Telefónica's actively sought to spur the development of Spanish telecommunications by entering into more joint ventures with Spanish and foreign companies, including Pacific Telesis, Ericsson, AT & T, and Fujitsu. In each case, it could offer market access in return for investment and technology.

In Italy, SIP's equipment procurement is from Italian companies, or Italian operations of foreign companies. In the words of SIP's deputy chairman and managing director Dr. Paolo Benzoni, "A major company like SIP cannot ignore the fact that as long as the technical and economic factors are correct, tens of thousands of workers in the manufacturing industries depend on our orders for their employment". Italtel is Italy's major telecommunications equipment manufacturer, with 1986 sales of around \$1 billion and 17,745 employees. It supplies more than half of SIP's switching equipment needs and 40 percent of its transmission equipment.

When it comes to industrial policy, the Spanish experience shows both advantages and problems. Telefonica has indeed helped the Spanish electronic industry on one level. Yet at the same time, it became the Spanish electronic industry, financing, owning, and procuring, and admitting foreigners according to its corporate policy and interests. This may be useful for the take-off phase of industrialization, but it is doubtful whether such control can work for the more mature environment of most of western Europe. Finland demonstrates that even without the fanfare of a national policy, a country with a small population can have a well-developed electronics industry. Nokia, the major manufacturer, exports 68% of its sales. It holds 35 percent of the digital transmission market in Sweden, 95 percent in Qatar, and supplies the

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U.K., France, China, and the United Arab Emirates with its DX-200. In 1990, Nokia had 37 percent of the mobile phone market in Thailand, 35 percent in Hong Kong, and 10 percent in the United Kingdom. In 1990, it formed a joint venture with Moscow Telephone Network to provide the U.S.S.R.'s first mobile telephone network. Nokia has found a niche market in small rural exchanges with less than 1000 lines. Its success contradicts the conventional wisdom that it takes a large company and a protected home market to survive internationally.

## **7. Vertical integration**

The new managerial freedom permit some European PTOs to enter new activities, including telecom equipment. British Telecom thus acquired, for a while, the Canadian PBX maker Mitel. But there is nothing new to such vertical integration. In North America, AT&T, GTE, and Bell Canada have far-reaching manufacturing operations. In some European countries, too, several PTOs had long integrated vertically into the manufacturing of telecommunications equipment.

In Spain, Telefónica holds a large stake in Standard Electrica, Spain's largest electronics firm, as well as several other high-tech firms. In the 1980s, Telefónica controls 21 percent of Alcatel Standard Eléctrica; 20 percent of Citesa, another Alcatel subsidiary; 10 percent of Telettra, the Spanish subsidiary of the Italian telecommunication manufacturer of that name, owned by Fiat; and 7.6 percent of Amper, a Spanish telephone set manufacturer (Burns, 1985). Until a 1986 reform giving equipment approval power to the Ministry of Industry, the manufacturer not only had to meet both CCITT and Telefónica technical standards, but also often needed to cultivate a good relationship with Telefónica, their own competitor, including the disclosure of information, in order to secure approval for the sale of their products. The closer vertical relation led to an action by the EC in Brussels.

Sweden's Televerket owns the major domestic equipment firm, Teli, since 1891. It is

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also a partner, with L. M. Ericsson, in the development firm ELLEMTEL. TELI has 3500 employees and produces much of Televerket's domestic equipment needs. Ninety percent of TELI production is destined for Televerket. For many years, Televerket controlled all customer hand sets. After the 1970s equipment was liberalized for secondary sets, telex, and low-speed modems, and in 1989, for PBXs and high-speed modems. TELI produces digital AXE switches, PBXs (including Northern-Telecom-licensed products), hand sets, and a variety of other transmission and data-processing equipment.

Ericsson and TELI established ELLEMTEL in 1970 after earlier disappointing experiences for each in the development of electronic SPC switches. The partners divided the market for ELLEMTEL products, especially its AXE digital switch, with TELI getting its traditional Swedish (i.e., Televerket) market and Ericsson getting the rest of the world.

The experience of the peripheral countries in vertical integration points to its problems. Televerket claims that vertical integration into manufacturing enabled it to purchase equipment at favorable prices and pass these savings on to its customers. It also sought to avoid being captive of one national equipment firm. Before liberalization, however, subscriber terminal hand sets were available in competitive markets at one quarter of the Televerket price (Brown, 1985). Televerket argued that through its manufacturing arm, it gains useful information about manufacturing costs, which helps it in its other procurements. Although in theory Televerket has no "buy Swedish" procurement policy, only 10—20 percent of Televerket's telecommunications equipment was imported. On the other hand, after TELI ceased handset production in the face of Asian competition, Swedish handset imports rose to 50 percent.

Televerket's vertical integration has its critics. In 1980, the Swedish parliament passed a telecommunications law requiring Televerket's competitive activities be undertaken in separate subsidiaries. Teleinvest, the resulting company, was set up with several affiliates. A 1982 law made certification of privately supplied equipment subject to a liberalized procedure. Other equipment still required type approval for which a department of Televerket itself was in charge. Suppliers had to submit technical drawings and detailed descriptions of their equipment to their

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major manufacturing and marketing rival for approval. Since 1984, suppliers were allowed to have their equipment tested by any independent laboratory, private or public, and even, in some instances, to be self-certified. But approval was still lodged in Televerket (Gleiss, 1983). A 1988 parliamentary decision mandated open markets for pay phones, PBXs, and modems of any speed, partly in response to trade friction with the United States, where Commerce Secretary Malcolm Baldrige had threatened to bar Ericsson from the United States if no reciprocity was established. In 1989, the technical approval functions of Televerket were moved to a separate regulatory entity, the National Telecommunications Council (Statens Telenämnd, or STN).

In time, the world-wide dynamics of new technology, shorter product cycles, higher R&D cost, and low-cost foreign production made TELI a drag on Televerket. As long as Televerket controlled equipment access, had no service rivals to fear, and was not accountable to private investors, vertical integration even with a high-cost producer like TELI was acceptable. But with these conditions disappearing, vertical integration was much less attractive. Thus, in 1992 Televerket was expected to substantially restructure the relationship.

In Italy the STET operating companies SIP and Telespazio, are owned by the same STET holding that also controls several manufacturing firms, notably Italtel, the country's dominant telecommunications equipment maker. The protected market shares made Italy's electronics industry less dynamic than several other segments of its economy. One exception is Olivetti, which is outside this arrangement, and hence vulnerable.

In 1985, SIP bought 75 percent of Italtel's production. In contrast, Italtel's exports are relatively anemic. In 1985, they totaled roughly \$30 million, or 5 percent of total sales, but they consisted primarily of government-subsidized aid to developing countries, including Zambia and Guatemala (Italtel, 1989).

In the U.K., BT's acquisition of RITEL proved a loss. It took BT major efforts to unload the company, even at a loss.

These experiences point out that vertical integration is a decidedly mixed blessing in a competitive environment.

### III. CONCLUSIONS

This then brings us to the initial question, whether reform in telecommunications flowed in Europe from the center to the periphery, or the other way around. The answers we find are:

- \* Important reform impetus came from the institutional center of Europe, the European Commission, as part of its effort to open Europe against the barriers created by national monopolies and of a larger effort to extend power over national bureaucracies.
- \* There was only a limited reform impetus emanating from the two countries central to European integration, France and Germany.
- \* Many of the reforms of European telecommunications--corporatization, privatization, liberalization, devolution, industrial policy, internationalization, and managerial autonomy to enter other markets, such as other countries or manufacturing, are neither new nor did they originate in Brussels. Most have been practiced in some of the European peripheral countries for some time. Yet they did apparently have only little influence on the rest of Europe.
- \* The experience of the peripheral countries does not indicate that privatization and corporatization make an unequivocal impact on performance. More significant than the difference between public and private may be the difference between North and South.
- \* The experience of peripheral countries in Europe indicates that a managerial flexibility that permits international expansion and vertical integration is a mixed blessing to the operating company after competition is introduced.

Why did the peripheral countries have such minor influence despite their providing models that were later adopted across Europe, even if their experience had been a mixed one? There are two explanations. The first is that innovation at the periphery gets inadequate

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recognition, and hence is not adopted more generally. To be adopted, a model must have credibility, and it is in the nature of larger entities to belittle smaller ones. It is easier for Kansas to adopt a reform based on the California experience than the other way around. Information flows better from the center outwards, and it has more amplification methods at its disposal. Hence, it is not innovation as such that flows from the center, but rather information about it while the often further-reaching activities at the periphery remain little known or understood.

This paper has shown that most of the European reforms considered "hot" today were instituted years ago in several peripheral European countries: corporatization in Sweden and Greece; privatization in Spain, Italy, and Finland; industrial policy and internationalization in Spain. Yet these arrangements in many cases either had no particular impact, or created new problems.

What has been the impact of alternative model in ownership and control ? Here, the peripheral experience shows that corporatization can substitute managerial and financial autonomy for the direct governmental operational control and the political accountability that came with it. At the same time, government regulation tended to be ineffective. The regulatory ministries have only a handful of experts to confront huge telephone organizations. In Sweden, Televerket had 42,000 employees, and the regulative ministry a telecom staff of only six. Most of those perished in a single plane crash in 1989.

Similarly, privatization strengthens PTOs, as the peripheral experience shows. Privatization creates a wide constituency of shareholders who oppose sweeping reforms. This used to be the case in the US in the past, and is now with Telefonica and British Telecom. Judging from the examples of Spain and Italy in comparison with , for example, the staunchly governmental Swiss PTT, it is hard to argue that private ownership leads necessarily to better performance.

Internationalization has similarly strengthened the PTO position as they become far-flung global organizations, involved in numerous activities that cease to be transparent to governments.

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Telefonica's competitors assert that these activities are supported by the monopoly profits from basic service. At the same time, many PTOs have also formed alliances among themselves, often as a market sharing arrangement.

Vertical integration is closely related issue. Here, the examples of Sweden, Italy, and Spain do not demonstrate major technological advantages of vertical integration. Where vertical integration is coupled with a service monopoly, the procurement need not be price sensitive. Where, as in Sweden, service competition is emerging, the vertical equipment connection becomes a burden, if alternative equipment is better and cheaper.

For all the rhetoric, liberalization is limited in practice. The actual reduction of monopoly tends to be exaggerated. In Denmark, where much is made of the extent of liberalization, a Danish political agreement illustrates the doublespeak: "There will be competition within all spheres of telecommunications in the next few years, apart from telex, ordinary telephony, radio-based mobile services, satellite services, the infrastructure and the use of the telecommunications network for broadcasting radio and television programmes." (Danish Ministry of Communications, 1990). In other words, "everything" is liberalized, except for the remaining 95 percent. The notion of an infrastructure monopoly still has substantial political support almost everywhere. Basically, only the US, Japan, the UK, Sweden, and New Zealand permit alternative physical non-mobile networks. Similarly, PTOs almost everywhere have also found political support for their monopoly over voice service, and its resale is rarely permitted. Brussels did not attack the PTOs control over "basic services," which included both the provision of voice service and the physical telecommunications infrastructure. This has turned the debate over liberalization into nitpicking arguments over what constitutes "value-added".

Sweden was open for competition for a long time, yet none was forthcoming until Televerket decided that it was in its own long-term interest to permit reality to match the legal status of openness in exchange for greater managerial flexibility.

In Britain, after eight years, Mercury has under 3 percent total market share and its core business remains serving firms in London's City as a second source for data transmission

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capacity, and the carriage of trunk calls for business. Its residential service failed to gain even one percent of the market (Noam and Kramer, 1992).

Liberalization is slow, partly because its pace is substantially under the control of the PTOs. They will affect the extent of future liberalization through their cooperation in industrial technology development and in the provision of social services, which governments seek.

The institutional diversity of decentralization was one of the most interesting aspects of the peripheral countries' alternative models. Yet, with the exception of Finland, the new Europe has no room for it. The supporters of national centralism were quick to use European centralism as an argument to consolidate national diversity as a protective device.

One major element of reform in the Brussels context is harmonization. Harmonization is the coordination of telecommunications policy among countries. It may include the creation of common standards for equipment or the development of common policies for provision of service. In the European context, harmonization is managed through the European Commission directives, ETSI standards, the International Telecommunications Union and its coordinating body CCITT, as well as through bilateral negotiations. It may lower barriers to entry in markets by providing a single set of regulations. But such rules may also be set in a restrictive fashion, such as a cartel-like prevention of certain forms competition to monopolies. There is nothing new about harmonization, either. For many years, harmonization was a code word for international restrictiveness, as exercised by PTT organizations such as CEPT and CCITT. For example, the harmonized rules of the CCITT prevented competition in telex service from indirect routing through cheap service countries. It took the European High Court to abolish this coordinated restriction.

While harmonization may eliminate restrictive national rules, it is just as likely to be used to prevent competitive behavior by establishing a policy cartel. This leads to a further conclusion. There is a tension between policy reform and harmonization. The former seeks to advance substantive goals. The latter is procedural, aiming at eliminating inconsistencies among countries. It is less important what the proper policy is than that it is uniform. So far, the EC

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has been able to be both a reformer and a harmonizer, pursuing at once the goals of overcoming monopoly power and of creating Europe-wide regulatory arrangements. That in the process the Commission's power increased considerably is not an accidental byproduct. But the two approaches inevitably conflict, as will be observed in the future. For example, some countries such as Britain will want to forge ahead with various forms of liberalization that, coupled with Europe-wide access, would directly challenge important PTOs. The most likely outcome, given experience in agriculture and other sectors, is a common compromise. In other words, harmonization would be permitted to slow down reform. There is nothing wrong with this balancing of interests, but historic experience provides ample warning: in telecommunications, international cooperative agreements have been usually cartel arrangements. What is it about the present situation to change that scenario? Powerful and effective telecom organizations are still dominant in every country, and if the literature on regulation means anything, they will sooner or later capture the regulatory process in Brussels, as they have in their respective countries. At that point, harmonization at the center, even if initiated in the interest of reform, will not be a tool for reform, but its opposite. It is for that reason that the ability of the periphery to formulate its own policies is so important, even if it includes, as it no doubt will, some regressive elements.