

Collegio Carlo Alberto



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No. 397

December 2014

Carlo Alberto Notebooks

www.carloalberto.org/research/working-papers

The Role of State-Firm Relationships in Fostering Competitiveness: Telefonica's Upgrading

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Abstract

This paper examines the structures behind competitive transformation in telecommunications. The analysis is based on qualitative evidence from Telefonica's transformation since the mid-1980s and comparisons with BT, Orange, and Deutsche Telekom. Telecommunications is a critical industry whose services are crucial inputs for most economic activities. Telefonica's upgrading remains a rare example in which a non-leading firm reached the efficiency frontier. I argue that Telefonica's upgrading cannot be explained without defining business-state interactions in Spain and characterizing the impact of the shift from the natural monopoly to the market paradigm. Spain resolved the tension between government objectives to universalise service and Telefonica's concern for profitability through a non-hierarchical system of negotiated interactions and mutual exchanges that helped the state and the incumbent further their respective goals. Overall, this paper enters into the debate about the state's role in industrial transformation and provides insights about the conditions that favour competitiveness in telecommunications.

Keywords: political economy, telecommunications, business-state relations, upgrading, competitiveness.

JEL Classification: L1, L16, L96, L98

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1 Introduction

In 1985, as the liberalisation of telecommunications services started, few could have imagined that Telefonica—a monopoly operator that lagged behind its European peers in terms of network development, quality of service (QoS), and profitability—would become one of the world's largest, most profitable, and better managed integrated operators.

Scholars of industrial upgrading and institutionalism rarely study competitive transformations in high value-added service sectors such as telecommunications. Instead, they tend to build their frameworks over examples of manufacturing industries. Telefonica's case in particular is not yet fully understood. One strand of the business literature (Guillén, [2005](#); Guillén and García-Canals, [2010](#); Vives, [2010](#)) has studied Telefonica's international expansion to Latin America, but these authors fail to explain how expansion into less developed markets helped Telefonica overcome historical comparative disadvantages with leading operators such as BT, Orange, and Deutsche Telekom and beat them at their own game. Another strand of the internationalization literature (Chislett, [2003](#); Rozas Balbotín, [2003](#); Martínez, [2008](#)) underscores the role of the state in supporting international expansion, but it fails to account for the shift from natural monopoly to market competition and the changes in the balance of power between the state and Telefonica that followed.

This paper evaluates the forces and structures that enabled Telefonica to reach, and sometimes redefine, the efficiency frontier of its industry. I contend that Telefonica's upgrading cannot be explained without defining the nature of business-state interactions in the telecommunications sector and without characterizing the impact of the shift from the natural monopoly to the market paradigm in the Spanish context. The paper argues that in Spain the permanent tension between government objectives to enhance the telecommunications network and universalise service and operators' concern for profitability was resolved through non-hierarchical negotiated interactions and mutual exchanges. This system enabled both the state and Telefonica to further their respective goals: Telefonica made its capacity for infrastructure

development available to the state, enabling the government to achieve its developmental public policy goals. As compensation, Telefonica benefited from non-neutral regulation that enabled the operator to undertake the organisational changes necessary to upgrade.

The argument rests on the triangulation of empirical data from specialised databases, parliamentary session transcripts, laws, and newspapers. I use input from sixteen semi-structured interviews with civil servants, scholars, and Telefonica decision-makers to contrast and interpret publicly available data, fill-in gaps, and flesh-out industry and firm-level developments.

The paper contributes to the literatures of industrial transformation, upgrading, and institutionalism in at least three ways. First, it stimulates debate about the state's role in industrial transformation by challenging the firm-centric view of competitiveness. Second, it moves beyond conventional analyses of functional upgrading by shedding light on the conditions that support business model upgrading in an understudied, high value-added service sector. Third, it questions the institutionalist "market versus strategic coordination" dichotomy by showing that strategic coordination is a structural feature of some sectors.

The rest of the paper is divided into four parts. Section two characterizes the Spanish telecommunications sector and Telefonica's trajectory. Section three discusses business-state interactions in telecommunications, outlines standard explanations for Telefonica's upgrading, and discusses their limitations. Section four issues an alternative explanation and supports it through empirical evidence. Section five concludes.

2 The Telecommunications Sector

This section is divided into two parts. The first showcases the trajectory of the Spanish Telecommunications sector through a cross-country analysis. The second provides further detail on Telefonica's trajectory.

2.1 *Cross-country Comparison*

This subsection provides two snapshots of Spanish Telecommunications at key points in time: the start of liberalization in 1985 and in 2009—in the middle of the Great Recession. The analysis is based on cross-country comparisons of network coverage, investment, and profitability. Data comes from the OECD internet and telecommunications statistics database and The International Telecommunications Union (ITU) information and communication technology statistics database (2010 Edition). The choice of variables for 2009 has been adjusted to reflect industry changes.² Spain is compared to a selection of leading countries in telecommunications and two rapidly developing countries: Ireland and Korea.

In 1985, only 52.2 percent of Spanish homes had a telephone compared to 90 percent of US homes in 1960 (Telefonica, [1985](#); Faulhaber, [1995](#)). Low penetration translated into a lack of coverage in rural areas and large variations by region, mirroring Spain's income distribution. Thus, Madrid had 45.5 lines per 100 inhabitants, while Extremadura, Spain's poorest region, had only 16.8 (Lera Laso, [1986](#)). As Spain's GDP grew in the second half of the 1980s, the situation worsened; pending applications for service peaked at 350,000 in 1989, at which point they had nearly disappeared in every other large Western European country (ITU, [2010](#)).

² For 2009, the total number of access paths includes mobile and broadband accesses in addition to conventional fixed lines. Waiting lists and the percentage of connections to digital exchanges have become irrelevant.

Table 1. Networks, Profitability, and Investment in 1985

	Standard access lines per 100 inhabitants	Revenue per access channel in USD	Investment per access channel	Investment as percentage of revenue	Investment as percentage of fixed capital formation	Investment per inhabitant in USD
Sweden	62.78	347.50	104.36	30.03	2.56	66.44
UK	52.93	358.93	73.14	20.38	2.65	38.78
US	49.24	946.76	180.17	19.03	2.58	88.97
France	40.69	381.55	161.94	42.44	3.46	65.89
Japan	37.48	474.81	152.83	32.19	1.88	57.36
Germany	32.95	447.22	195.74	43.77	3.50	64.49
Italy	30.74	363.54	159.69	43.93	2.99	49.10
Spain	24.21	267.69	113.84	42.53	3.03	27.56
Ireland	19.85	670.91	204.16	30.43	3.84	40.55
Korea	18.48	253.39	177.65	70.11	4.98	32.84

Source: OECD Telecommunications and Internet Statistics

Table 2. Digital Exchanges and Waiting Lists

Country	Percent fixed lines connected to digital exchanges (1990)	Waiting lists (1985)
Korea	46.5 (1)	279,988
France	75	37,741
Ireland	55	27,726
UK	47	0
US	43	0
Japan	39	0
Sweden	38	0
Italy	33	330,064
Spain	28	252,762
Germany	12	28,369

Source: ITU Telecommunication Statistics 2010. Own elaboration

(1) Data for 1991

Spain's network lagged in the incorporation of the latest generation of equipment. Table 2 shows that as late as 1990, Spain was behind in shifting from analogue to digital switches. The only exception was Germany, due to reunification. Spain's low levels of investment per access channel and investment per inhabitant indicate that its network was on a slower route to catch up than Korea's and Ireland's.

Finally, Spain's monopoly operator was less profitable than its counterparts. Spain's revenue per access channel was lower than those of most other countries in the comparative set. Lower profitability can be partly attributed to less service use associated with economic underdevelopment: Spain's per capita income in 1985 was 50 percent of Germany's and 48 percent of France's (World Bank, [2012](#)). However, an unfavourable comparison of revenue per full-time employee with Ireland and Korea (Table 3) suggests that there were also operational inefficiencies.

Table 3. Revenue per Employee (USD) in 1985 and 2008

Country	Revenue per full time employee 1985	Revenue per full time employee 2008
US (1)	104,148	378,335
Japan	69,293	11,321
Italy	57,622	985,220
France (1)	56,743	448,224
Germany	53,889	463,751
UK	45,780	na
Sweden (1)	44,131	710,136
Korea	39,413	430,649
Spain	33,400	795,285
Ireland	29,178	na

Source ITU Telecommunications statistics. Own elaboration

(1) Revenue per employee in 2007

By 2009, Spain had caught up in terms of network coverage and infrastructure equipment. Furthermore, investment per access channel was aligned with or even superior to those of other leading economies, suggesting that large infrastructure gaps were unlikely to reappear. Operational deficiencies had also been addressed; in fact, Spain was one of the most profitable countries in terms of revenue per access channel and revenue per employee. The magnitude of Telefonica's structural transformation in Spain attests for a change in operational variables: the operator passed from as many as 75,000 employees in Spain in 1994 to only 32,000 by the end of 2009, making it one of the world's leanest integrated operators (Telefonica, [1995](#); CMT, [2009](#)). In addition, Telefonica had built a strong international position.

In 2008, it obtained 64 percent of its revenue from outside of Spain versus 50 percent for Deutsche Telekom (DT) and BT.

Table 3.4. Networks, Profitability, and Investment in 2009

Country	Total access channels per 100 inhabitants	Revenue per access channel in USD	Investment per access channel in USD	Investment as percentage of revenue	Investment as percentage of fixed capital formation	Investment per inhabitant in USD
Japan	146.98	816.78	128.71	15.76	2.42	189.18
Ireland	162.83	767.76	84.07	10.95	1.06	137.41
US	151.97	759.08	123.96	16.33	2.44	201.85
France	200.02	724.11	81.18	11.21	1.33	128.46
Spain	177.10	713.15	73.03	10.24	1.29	129.33
Germany	201.90	507.19	50.22	9.90	1.16	101.78
UK	197.78	500.06	63.20	12.64	1.42	129.85
Korea	205.45	464.10	53.43	11.51	1.65	92.49
Italy	158.23	399.16	73.08	18.31	1.79	143.05
Sweden	163.45	351.94	72.40	20.57	1.39	145.38

Source: OECD Telecommunications and Internet Statistics

2.2 Telefonica's Trajectory

Telefonica was founded in 1924 as a fully private corporation with foreign capital, technology, organisation, equipment, and talent. The company operated on an initial 20-year exclusive service concession. By the expiration of the contract in 1945, the state purchased all foreign stock at the hands of ITT—Telefonica's foreign partner—and became Telefonica's largest shareholder with 41 percent of the stock. The operator remained the sole service provider.

Telefonica expanded during Spain's economic boom in the 1960s and early 1970s. Output per employee between 1967 and 1975 quadrupled, employment between 1960 and 1975 almost trebled, and investment in 1975 represented 11 percent of Spain's GDP, more than in any other country in the comparative set (Calvo, [2010](#); ITU, [2010](#)). Nonetheless, Telefonica continued to lag behind other western European PTOs in teledensity, profitability, and QoS.

Expansion continued throughout the 1980s, but access to capital became a major bottleneck. To overcome the constraints of Spain's narrow stock markets, Telefonica listed its

stock in the Paris, London, Frankfurt, and Tokyo exchanges in 1985, followed by the New York Stock Exchange in 1987. But network expansion did not meet demand and waiting lists continued to rise until 1989.

Expansion picked up again between 1989 and 1996, at which time service universalisation was accomplished. Overall, 1982–1995 was an expansionary period. The number of physical lines in Spain almost doubled from 8.6 million in 1981 to 16.1 million in 1995 (Telefonica, [1995](#)). Productivity rose between 1981 and 1996 as the number of lines managed per employee passed from 118 to 228 (Telefonica, [1995](#)), and by 1998 productivity was only slightly below the OECD average (OECD, [2000](#)). Profitability increased as well. Between 1992 and 1996 net benefits from operations in Spain increased by 45 percent, and between 1995 and 1996, market capitalisation increased by 70 percent, which was half the growth of the Spanish stock market in that period (Telefonica, [1996](#); Telefonica, [1999](#)).

In the 1990s, Telefonica jumped on the bandwagon of international expansion. After a failed participation in Unisource—a consortium led by the Swedish incumbent—Telefonica shifted its focus from high-revenue markets in Europe and North America to Latin America. Through the 1990s, Telefonica purchased small participations in newly privatised operators across Latin America in cooperation with local investors.

In 2000, Telefonica consolidated its presence in Latin America through *Operation Veronica*, a coordinated series of IPOs that aimed at achieving control of its properties in the region. Telefonica continued its Latin American expansion by acquiring all of BellSouth's properties in 2004 and by making additional consolidation purchases. In the 2000s, Telefonica also targeted Western Europe. The most significant European operation until 2014 has been the purchase of UK's mobile operator O2 in 2005. By the end of fiscal year 2009, Telefonica was the fourth largest operator in the OECD by revenue and the second largest in terms of clients (Table 5).

Table 5. Major Public Telecommunications Operators in OECD Countries in 2009

Company	Country	USD (Millions)							Units (000)	
		Revenue	Net Income	Long-term debt	Capital expenditures	R&D spending	Fixed access lines (000_	DSL/Cable /FTTH lines	Mobile subscribers	
AT&T	US	123,018	12,535	64,720	16,595	na	49,392	17,254	85,120	
NTT	Japan (1)	108,810	5,261	36,087	14,651	2,972	38,330	16,632	56,082	
Verizon	US	107,808	3,651	55,051	17,047	na	na	na	91,249	
Deutsche Telekom	Germany	89,745	490	58,068	12,783	278	38,100	na	151,700	
Telefonica	Spain	78,810	10,802	66,135	10,548	963	40,606	15,083	202,333	
Vodafone (Group)	UK (1)	69,280	13,467	44,604	10,866	436	na	na	302,600	
France Telecom	France	64,603	4,163	42,883	7,942	na	na	na	132,593	
Telecom Italia	Italy	38,126	2,196	48,881	6,311	1,170	18,525	na	30,856	
Vivendi	France	37,692	1,153	11,558	3,679	960 (2)	na	na	na	
KDDI	Japan (1)	36,787	2,274	9,327	5,285	331	2,850	2,544	31,872	
Comcast	US	35,756	3,638	27,940	5,639	na	na	15,900	na	
BT	UK (1)	32,495	1,601	14,834	3,909	1,714	na	na	na	
Sprint Nextel	US	32,260	(2,436)	20,293	2,194	na	na	na	na	
Softbank	Japan (1)	29,533	1,034	18,490	2,392	6	1,670	4,006	21,880	
America Movil	Mexico	29,209	5,692	7,486	3,938	na	27,383	11,986	211,297	

Source: OECD Telecommunications Outlook 2013, data for Fiscal Year 2009, (1) Fiscal year ending March 2010, (2) of which EUR 393 million was capitalised

3 Standard Explanations

To date, major analyses of Telefonica's trajectory have focused on the operator's international expansion rather than on upgrading. The creative destruction argument grounds Telefonica's international expansion in the operator's know-how, whereas the state-driven argument sees it as the result of a government-directed plan. This section states the two arguments and outlines their shortcomings in explaining Telefonica's competitive transformation.

3.1 *Creative Destruction Argument*

Proponents of this argument (Guillén, [2005](#); Guillén and García-Canals, [2010](#)) contend that the key to Telefonica's international expansion was a combination of time-tested competitive advantages in project execution, negotiation, and risk evaluation. In Latin America, these advantages helped Telefonica address challenges associated with low rates of teledensity, red tape, and risks associated with political and economic instability.

For Guillén and García-Canals, Telefonica's advantage in project execution involved the ability to make cost-efficient investments in infrastructure, to satisfy unmet demand, and to improve QoS. They argue that the Spanish operator developed its project execution skills during the modernisation and expansion of the Spanish telecommunications infrastructure in the 1980s and 1990s. Strong negotiation and networking skills were the result of decades of building strong personal relationships with Spanish decision-makers to anticipate and manage public policy shifts in Spain's highly regulated environment. Networking skills were especially useful in Latin America, where bureaucratic procedures were long and complex, and personal connections constituted an essential part of the business culture.

Vives ([2010](#)) further points out that Telefonica had a different perception of the risks and opportunities of investing in Latin America, especially when compared to its North American rival, AT&T. This argument is best understood in its historical context. In the 1980s and early 1990s, US corporations in Latin America were potential targets for attack by those who opposed

US foreign policy in the region. By comparison, Spanish investors faced a lower risk of armed attacks. In addition, in the early stages of liberalisation, leading international operators such as AT&T, BT, Orange, and DT, concentrated on maintaining control of their home markets and expanding into high-revenue markets in Europe and North America. As a smaller operator from a poorer country and with less international experience, Telefonica was at a disadvantage in this race and found investment opportunities in Latin America more compelling.

3.2 *State-driven Argument*

Other authors see Telefonica's expansion to Latin America as the outcome of a government strategy (Chislett, [2003](#); Rozas Barbotín, [2008](#); Martínez, [2008](#)). Rozas Barbotín speaks of the state's "iron grip" on the operator's transition toward a competitive environment and of a public strategy that aimed to ensure Telefonica's survival through "a dramatic increase in the operator's critical mass" (Rozas Barbotín, [2008](#)). He contends that the gradual sale of the state's participation in Telefonica between 1985 and 1996 enabled the government to control the operator's corporate strategy through its ability to appoint the CEO. After full privatization, control was exercised through the enactment of a golden share (Law 5/1995), which was only revoked in 2005.

Martínez likens Telefonica's expansion in Latin America to a form of neo-colonialism in which the operator profited from the political climate and the economic downfall of state-run enterprises in the wake of Latin America's *lost decade*. Martínez puts Telefonica's rising star in the context of Spain's policy of reinforcing cultural, political, and economic ties with Latin America. Since its transition to democracy in the late 1970s, Spain sought to reconnect with the region by supporting anti-authoritarian and pro-democracy movements, taking an active role in conflict mediation, fostering pro-democratic debates, and launching a regular meeting of leaders from all Hispanic nations. Within this context, Martínez contends that Telefonica benefited from a unique window of opportunity: the debt crises of the 1980s made Latin America receptive to foreign investment. In addition, US support for corrupt political regimes, its record of human

rights violations in the region, and the risk of guerrilla attacks against US business interests temporarily eliminated competition from North American rivals.

3.3 *Rejecting Standard Explanations*

The two standard arguments assume that Telefonica's expansion in Latin America enabled upgrading but this connection is problematic. In the 1990s, Latin America's emerging economies represented a different set of challenges than the more sophisticated markets of North America and Europe. As of 2014, there remain persistent differences in network characteristics and corporate strategies between emerging and mature markets. Therefore, it is unclear how Telefonica's experience in Latin America helped the operator overcome historical deficiencies relative to more sophisticated rivals such as BT, Orange and DT and compete with them successfully.

Furthermore, a comparative analysis questions whether the competitive strengths highlighted by the creative destruction argument constituted competitive advantages relative to the world's leading operators. Although Telefonica added an impressive number of new lines in Spain in the 1980s and 1990s, incumbents in Germany, France, UK, and Italy added many more (Table 6). Furthermore, Germany expanded the network through previously underserved areas in the East, weakening the claim that Telefonica's experience with infrastructure projects was fundamentally different from those of leading operators because they focused on modernising pre-existing networks rather than laying new ones.

Telefonica's advantage satisfying demand also appears weak. Table 7 shows that waiting lists in Spain rose until 1989, the year Telefonica started its international expansion. Meanwhile, waiting lists declined sharply in France and Italy, the two Western European countries that took the longest to eliminate them. Quality of service was not Telefonica's strength either. Improving QoS was one the main objectives of Telefonica's incoming CEO in 1989 (Telefonica, [1989](#), [1990](#); Vives, [2010](#)), but as late as 1994, Telefonica was still being

prompted by the competition authority to address complaints of deficient service (Hernández, [1994](#)).

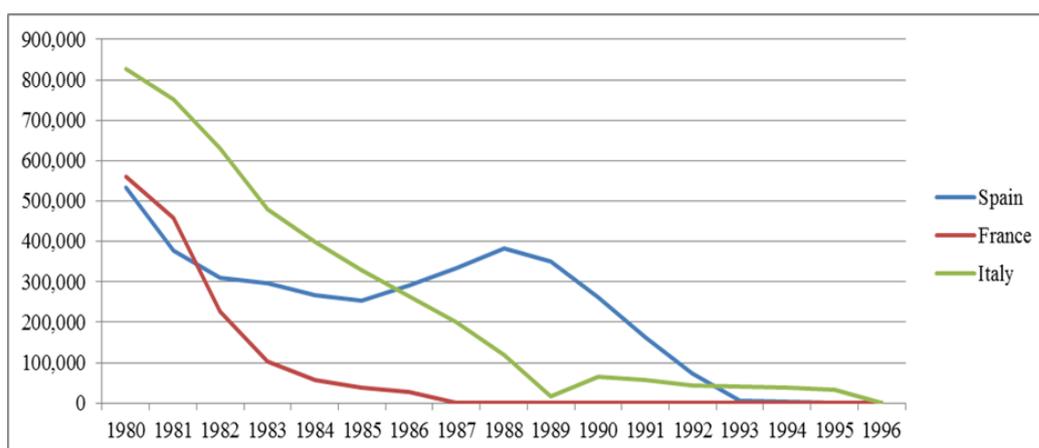
Lastly, the state-driven explanation highlights the role of the state in supporting Telefonica’s internationalisation, but this argument takes for granted the capabilities and resources of the Spanish state and its ability to influence the outcome of negotiations between Telefonica—a private company—and the governments of foreign nations in Latin America. The state-driven argument also fails to account for the change in the industry’s dominating paradigm from a natural monopoly to market competition and for the impact of that change on the state’s ability to exert control over Telefonica.

Table 6. Network Expansion by Country in 1985–1996

Additional fixed lines (000)			
Country	Increments 1985-1989	Increments 1989-1996	Total increments 1985-1996
US	15,519	34,941	50,460
Japan	7,154	11,583	18,737
Germany	3,456,000	15,252	18,708
Korea	5,274	7,809	13,084
France	3,912	5,958	9,869
UK	3,622	5,881	9,503
Italy	3,869	3,994	7,863
Spain	2,457	3,616	6,072
Poland	637	3,408	4,045
Portugal	789	1,633	2,422
Switzerland	507	787	1,294
Ireland	213	474	687,000

Source: ITU 2010. Own elaboration

Table 7. Waiting Lists for Fixed Telephone Lines in 1980–1996



Source: ITU 2010 Own elaboration.

4 Peer Coordination and Telefonica's Upgrading

The section is divided into three parts. The first discusses the structural character of state-operator coordination in telecommunications and the shift from the natural monopoly to the market competition paradigm. The second uses cross-country comparisons to show the impact of the paradigm shift on state-operator coordination. The third characterises state-operator relations in Spain and connects it to Telefonica's upgrading.

4.1 *Institutional Transformation in Telecommunications*

Telecommunications networks and the services they support are critical for national economic growth. However, the high costs and long-term returns of securing licenses, laying out, and maintaining network infrastructure make telecommunications one of the world's most capital-intensive industries. From this context derives a permanent tension between policy objectives to universalise service in order to stimulate economic activity and operators' economic logic to provide service only where revenue can be maximised through traffic.

Until the 1980s, the tension between economic considerations and public interests was resolved through the natural monopoly paradigm, which enshrined the subordination of economic interests to political aims. In Europe, the public telephone and telegraph (PTT) model

was structured on a hierarchical relationship in which the state owned or controlled the public telecommunications operator (PTO), and strategic decisions were made at the ministry rather than industry level. In addition to full or partial ownership, subordination was articulated through state prerogatives over capital and equipment. States exercised control over capital through annual budgets, approvals of tariff increases, and new stock emissions (in cases such as Spain where the operator was a listed company). States controlled equipment procurement through vertical integration schemes and import tariffs that forced operators to purchase their equipment from local producers.

From the 1970s on, technological changes highlighted the limitations of the PTT model and led to changes in the needs of operators, governments, and major users. The subordination of long-term decisions about infrastructure investment to annual government budgets delayed network expansion and modernisation, leading to long waiting lists and deterioration in QoS. The transition from analog to digital signal transmission systems exacerbated the problem by increasing the costs of fixed network equipment, especially digital switches.

The technological complexity and high fixed costs of developing new switches spurred the global consolidation of the equipment industry and made vertical integration at a country level unsustainable. This was especially true in Europe, where local demand from the PTO was not large enough to cover the costs of developing state-of-the-art equipment locally. As a consequence, European operators suffered important delays in the delivery of digital switches and faced prices that exceeded those of US suppliers by up to 80 percent (European Commission, [1987](#)).

The tension between economic considerations and public interests heated up in the 1980s as the industrial crises placed competing demands on states' resources. Battling industrial stagnation and public deficits, European governments were not inclined to commit the massive amounts of capital necessary to modernise and expand telecommunications networks. Moreover, as technological complexity increased, governments were forced to deal with

technical matters that were difficult to grasp for public officials with generalist skills. Lastly, the attitudes and preferences of critical corporate clients shifted. The financial sector—the largest consumer of telecommunications services—experienced structural changes that led to higher demand for data transmission services, which required advanced digital networks.

Political pressure to discard the PTT model came from PTOs, governments, and major users, all of whom supported a framework based on competition. The new paradigm involved a growing layer of supranational norms and a shift in the balance of power between national states and PTOs. The first changes toward the competition paradigm were negotiated in the WTO Uruguay Round (1986–1994). In the late 1980s, the EU also started to develop a common framework that enshrined competition and separation between policy making and service provision.

The competition paradigm transformed the hierarchical relationship between states and PTOs; states lost traditional sources of power over operators, and PTOs gained independence and leverage. Legal separation between policy making and service provision—one of the bases of the competition paradigm—and the need to raise large amounts of capital for network overhaul, triggered initiatives to incorporate and privatise PTOs, decreasing states' ability to control the operators' strategic planning process. In addition, the onset of PTOs' financial independence via access to capital markets and a shift from government-approved tariffs to alternative pricing methods, such as “rate of return,” debilitated state control through capital. Lastly, the liberalisation of the equipment industry and generalised decreases in import duties eased government controls over equipment procurement.

Conversely, PTOs gained influence over states due to their sheer size, the concentration of the sector, and the market resilience of most PTOs (Macher et al., [2011](#)). As technological complexity increased and the pace of change quickened, PTOs gained leverage over bureaucrats with generalist skills thanks to PTOs' combination of technological, financial, legal expertise,

and day-to-day contact with a fast-changing market. Most PTOs developed dedicated research and policy departments to leverage their advantage.

But despite the shift toward international harmonisation and the state's loss of historical forms of hierarchical control, national-level coordination remained a crucial feature of telecommunications. Liberalisation led to increasing regulation of most aspects of an operator's daily functions, such as tariffs, contractual conditions for the use of infrastructure, interconnection agreements, spectrum, and QoS. Consequently, states acquired new sources of power through their roles as legislators, regulators, and competition arbiters. Furthermore, despite an increasing degree of supranational coordination, key competences—such as spectrum allocation and management, design and development of infrastructures, and daily competition oversight—remained with states.

The power shift described above forced states and PTOs to find new ways to interact. The literature under-theorises the conditions that lead to competitive advantage and therefore upgrading, in this new context. Classic contributions from the varieties of capitalism literature (Zysman, [1983](#); Whitley, [1999](#); Hall and Soskice, [2001](#)) are either too old relative to the liberalisation of telecommunications or too focused on manufacturing industries. More recent contributions (Thatcher, [2004](#), [2007](#)) focus on the supranational aspects of institutional change but have not connected it to operators' competitiveness. The literatures of telecommunications governance and information and communication technology (ICT) (Noam, [2007](#); Simpson, [2008](#); Bauer, [2010](#); Breznitz and Zyman, [2010](#)) expect a return of national states to telecommunications, but they have yet to articulate the character of state contributions.

4.2 *Varieties of Coordination in Telecommunications*

Germany

As Germany shifted away from the PTT model, it adopted an inclusive form of strategic coordination characterised by a strong presence of the state and employee representatives in

DT's strategic decision-making organs. In 2014, the state continued to hold a 32 percent stake in DT.³ The operator's management board—its decision-making body—is elected and controlled by a supervisory board in which employee representatives hold 50 percent of the seats and the state is represented through its stock in the other 50 percent. Employee representatives at the supervisory board normally hold positions in leading trade unions or are part of the work committees. Despite an overarching EU framework that establishes the separation between policy making and service provision, this structure ensures that DT's strategy integrates the perspectives and interests of a broad set of stakeholders, as is customary in the German ecosystem.

Germany's inclusive approach translates into a relatively even distribution of benefits across the system. Germany is the only European country in which the incumbent operator voluntarily provides universal service in the absence of a stated obligation (Garcia Calvo, [2012](#)), and DT voluntarily collaborates in efforts to bring broadband service to public schools (Lexis and Hassel, [unpublished](#)). In exchange, DT controls the fixed market segment, of which it holds 73 percent; it has captured a healthy 32 percent in the more dynamic mobile segment (US Department of Commerce, [2011](#)); and it has benefited from public sector contracts to strengthen T-systems, DT's technology arm.

However, the German model has not been effective at delivering stockholder value or fostering DT's internal restructuring, hurting the operator's competitive position. The T-share has been one of the worst performers in the DAX index, and analysts estimate that excessive debt was the main reason behind DT's inability to bid O2 away from Telefonica in 2005 (BBC, [2005](#)). By 2006, the PTO's decreasing share of new broadband customers forced a comprehensive internal restructuring.

³ 14.3 percent the federal government and 17.4 percent KfW (DT, 2014).

France

In line with France's state-driven tradition, France's PTT model initially evolved toward a structure in which the PTO remained under control of the state and became instrumental in delivering broader industrial policy goals, namely developing the telecommunications equipment industry and maintaining employment levels (Thatcher, [1999](#); Owen, [2012](#)).

The state subsequently decreased its participation in the operator, but in 2014 it still maintained a 13 percent stake in Orange and occupied three seats in its board of directors. This structure guarantees that the state has a say in the operator's strategic decisions. Furthermore, it enables the state to appoint top civil servants to the board of the operator, maintaining the revolving door pattern between public and private sector elites that is characteristic of the French institutional environment.

Like Germany's, the French structure has enabled Orange to maintain strong market shares in key segments. At the beginning of 2011, the operator held 51 percent of the fixed market and 42 percent of the broadband market (European Commission, [2012](#)). In 2013, despite aggressive competition from three other operators, Orange held 37 percent of the mobile market (Bloomberg, [2013](#)).

However, France policy instrumentalisation of Orange came at the expense of the operator's strategic autonomy, high debt levels, and long-lasting organisational problems. At the end of 2002, Orange's debt represented 146 percent of its annual revenue and the operator had to be rescued by the state (OECD, [2003](#); BBC, [2005](#)). In addition, the agreement to maintain the civil service status of employees hired prior to privatisation has been linked to significant organisational problems. In 2012, the French judiciary undertook a formal investigation of 35 suicides by Orange employees linked to a case of corporate psychological harassment. The case was presumed to be connected to Orange's 2008 restructuring effort, which involved more than 20,000 job cuts and many thousands of relocations but no mandatory redundancies (Carnegy, [2012](#)).

United Kingdom

The transformation of the British PTT model was deliberately designed to epitomise the Thatcherite transformation of the UK into a liberal market economy (De la Dehesa, [1993](#); Thatcher, [1999](#)). The UK's telecommunications structure aimed to guarantee competition through a strict separation of policy making, policy implementation, and service provision functions. Responsibility for each of these functions was allocated to a different autonomous entity: the secretary of state for telecommunications, the regulator, and private operators, respectively.

The UK's arm's length model fostered the development of the most competitive telecommunications market in the EU and enabled the emergence of the world's largest, non-incumbent telecommunications operator, Vodafone. However, the UK's institutional structure was not as effective at supporting BT's competitive stance. BT did not benefit from early liberalisation or from the relatively soft landing that the initial duopoly provided to establish itself as one of the world's leading firms. As Table 5 shows, BT has been surpassed by all operators from other large European countries in terms of revenue and income. BT also lost its leadership in the local market and suffered heavy losses as a result of a less-than-successful expansion into the ICT market. In 2012, BT's market share for fixed telephony was 38 percent and for fixed broadband was 30 percent, the lowest of any incumbent in the EU (Ofcom, [2013](#)). BT's global revenue in 2009 was less than half of that of its main competitor, Vodafone (Table 5), and BT's ICT arm—BT Global Services—lost £1.9 billion between 2003 and 2009 (Mackenzie-Wintle, [unpublished](#)).

The comparison between Germany's, France's, and the UK's transitions from the PTT model shows that as European countries adopted the competition paradigm they relied on forms of state-operator coordination that reflected their national institutional models. Germany and France relied on variants of strategic or non-market coordination, whereas the UK opted for market or arm's length coordination. Each of these models translated into different constraints

and advantages for PTOs. Germany's and France's models enabled incumbents to defend their positions in their home markets better than the UK's. Nevertheless, the power-sharing structures of the two strategic coordination variants slowed the transformation of PTOs by imposing compromises linked to other policy objectives and by creating obstacles to internal restructuration.

4.3 *Spain's State-Operator Coordination and its Role in Telefonica's Upgrading*

4.3.1 *Spain's Economic Transition (1982–1996)*

The characteristics of state-operator coordination in Spain are directly linked to Spain's economic transition. The socialist government formed after the 1982 election came into office with a commitment to modernise Spain—a goal that reflected the aspirations of most Spaniards. This commitment provided focus and direction for policies aimed at overcoming the country's economic backwardness by universalising and improving the quality of basic services, such as health care, education, and utilities (Benegas, [2007](#)). The Spanish telecommunications network lagged behind those of other large European countries in terms of coverage, network equipment, and investment (Section 2). Consequently, government goals concentrated on universalising access to telecommunications services and overhauling existing infrastructures.

However, the state could not expand and overhaul the telecommunications network on its own. First, the state did not have the human resources necessary to develop an integrated, long-term strategy for telecommunications. Under the terms of the 1946 contract between Telefonica and the state—which continued to regulate telecommunications in the first half of the 1980s—the state delegated most policy-making functions to Telefonica. There were no specialised ministry or civil service responsible for and knowledgeable about telecommunications. Second, the state lacked the financial capacity to fund the telecommunications network expansion at a time when it was struggling to address high public deficits, double-digit inflation, and a severe banking crisis. Approving higher service tariffs and enabling Telefonica to issue new shares in the Spanish stock markets were not suitable solutions

from the state's perspective. Telephony services were part of the basic price basket, and higher service tariffs therefore meant higher calculated inflation. Issuing new stock was problematic because the state was obliged to purchase additional shares to maintain its participation in the company, which had a direct impact on public spending (Calvo, [2010](#)). Furthermore, Telefonica was Spain's largest corporation and the ministry of economics and the central bank were hesitant to accept new stock issues out of fear that a large concentration of national savings within a single company could lead to a market collapse and otherwise constrain resources for other sectors (Telefonica, [1999](#); Adanero [2006](#)).

Telefonica was reluctant to expand the telecommunications network to rural areas because network investments in Spain's poorer regions and sparsely populated areas were unlikely to generate positive returns. However, Telefonica was keen to respond to the demands from large Spanish banks for the development of high-capacity data networks. The banking sector consumed more than 64 percent of non-residential telecommunications services in Spain (European Commission, [1987](#)) and was therefore Telefonica's largest and most profitable client. Furthermore, in 1983 large banks occupied the three vice-presidencies of Telefonica and several additional positions at the operator's board of directors. The state's goal of overhauling the public telecommunications network, therefore, was compatible with Telefonica's long-term objective "to incorporate advanced technologies in order to modernise infrastructures, and adapt them [the infrastructures] to the future range of services demanded by users" (Telefonica, [1985](#)).

But like the state, Telefonica was unlikely to accomplish its long-term objective autonomously. Telefonica's five-year strategy (1985–1990) stated that modernising and adapting its infrastructures would require a wide-ranging transformation of the operator along the following three lines: (1) deploying high-capacity data networks, (2) developing state-of-the-art research capacity through partnerships with global technological leaders, and (3) improving procedures and human resources (Telefonica, [1985](#)). Deploying high-capacity networks required massive capital investments, but as mentioned earlier, Telefonica could not raise it in the Spanish stock markets without authorisation from the government and the central

bank. In addition, Telefonica's historical reliance on its large industrial arm for network equipment was delaying the deployment of high-capacity data transmission systems. Delays became so persistent that in 1984 one of the large banks threatened to develop its own data network unless Telefonica immediately addressed traffic congestion problems (Infante, [2002](#)). Seeing as how the state still held a controlling stake in the operator, Telefonica could not shift toward a competitive procurement policy nor divest from its industrial arm without state consent. Finally, Telefonica's improvements in procedures and human resources required large labour reductions that contravened the legal terms of pre-existing lifelong, quasi-public contracts, and were expected to be financially expensive.

Ultimately, the situation was resolved through a quid pro quo agreement between the state and Telefonica. Telefonica assumed strategic and financial responsibilities for the universalisation of the telecommunications network but benefited from a non-neutral environment that enabled the operator to divest its industrial arm, develop global partnerships, undertake a profound organisational transformation, and expand rapidly into growing service segments. Such an arrangement took the form of a non-hierarchical or peer-coordination model; the state and the operator shared partly compatible objectives, and the operator contributed to the fulfilment of public policy goals in exchange for state support in areas that enabled its competitive transformation and upgrading.

Telefonica's commitment to universalise service was formalised through Decree 2,248/1984, which established the framework for the expansion of fixed telephony services between 1985 and 1996. Contrary to the expectations of the state-directed argument, the decree did not contain the quantifiable objectives and predetermined guidelines typical of a state-directed strategy. Instead, the decree attributed the articulation of specific plans, decisions over deadlines, the development of technical solutions, and the responsibility for raising 75 percent of the necessary capital to Telefonica. This arrangement provided Telefonica ample freedom, but also forced the operator to assume commitments it would have preferred to undertake at a different pace. In addition to expanding fixed telephony to rural areas, in the early 1990s, the

state was keen to expand mobile coverage to coastal zones with high seasonal populations to satisfy the needs of the millions of tourists who visit Spain annually, a key source of national income. In response to the state's preference, Telefonica committed to expand mobile coverage rapidly through the Spanish territory. However, this posed operational obstacles to the operator, who, unable to deploy mobile phone towers rapidly enough, used provisional reception towers mounted on costly mobile units to fulfil its commitment.

Between 1985 and 1987, the state facilitated Telefonica's tasks to expand the telecommunications network by selling off half of its stake in the operator. Unlike the UK, where the flotation of BT in 1984 intended to set an example for a new institutional structure based on competitive markets, the main purpose of Spain's sale of Telefonica's stock was to enable the operator to raise capital in international capital markets, thereby overcoming the narrowness of the Spanish stock markets (De la Dehesa, [1993](#)). In fact, the 1987 Telecommunications Bill left no doubt that Spain was not moving toward an arm's-length model by stating that telecommunications continued to be "essential services, owned by the state, and managed by the public sector" (Law 31/[1987](#)).

In addition, the state compensated Telefonica for its contribution to public policy by facilitating the operator's transformation and the divestment of its industrial arm. The state facilitated Telefonica's restructuring by funding generous early-retirement schemes. Between 1996 and 2003, Telefonica's employment in Spain decreased from a peak of 75,500 employees to 35,000 (Telefonica, [1996](#)). This was the largest employment decrease among incumbents in any large European country.

The state also facilitated the sale of Telefonica's industrial group and the development of partnership with leading equipment firms by helping Telefonica broker agreements with foreign investors. However, the state's brokerage interventions were not necessarily neutral, nor did they always conform to the preferences of the operator. This relationship exemplifies the difference between the state's and Telefonica's criteria. For example, during negotiations

conducive to the sale of Secoinsa, one of Telefonica's companies, the state strongly favoured a Japanese investor, Fujitsu, over a US contender, IBM, to prevent what some government officials saw as an excessive US presence in Spain. Ultimately, Secoinsa was acquired by Fujitsu.

Compensation to Telefonica also took the form of non-neutral regulation that enabled the operator to capitalise on its fixed network investments and establish a position in the mobile market, which was the fastest growing service in the 1990s. The new contract signed between Telefonica and the state in 1992—which substituted the contract signed in 1946—reiterated Telefonica's monopoly “over mobile and fixed voice communications and other additional services” (Resolution 14 January [1992](#)). In addition, the Telecommunication Bill of 1987 and its successor in 1992 maintained Telefonica's exclusivity for mobile telephony until the end of 1993. The state continued to favour Telefonica throughout the liberalisation of mobile services. Mobile licenses were awarded through a beauty contest (i.e., a government decision) rather than an auction, and competition under the initial arrangement was minimal. The second mobile license was issued to Retevisión, the public entity that ran the public television network, instead of a commercial operator. The third operator— Telefonica's first real competitor—did not obtain a license until 1994 and did not start operating until 1995. This gave Telefonica a one-year head start after the expiration of service exclusivity in 1993.

Although these measures strengthened Telefonica's position relative to the state's, the relative balance of powers between the two actors remained unchanged because the state simultaneously recovered powers that had been historically entrusted to Telefonica. In 1986, the state created the Secretary of State for Telecommunications and Information Society⁴ (SETSI), and the General Directorate for Telecommunications⁵ (DGTel). Royal Decree 1,209/1985 made

⁴ Secretaría de Estado para Telecomunicaciones y Sociedad de la Información.

⁵ Dirección General de Telecomunicaciones.

the SETSI responsible for policy making, network supervision, license management, and interactions with national and international organisations. During its first years, the SETSI's main aim was to develop a legal framework to substitute the contractual relationship that had ruled the relationship between the state and Telefonica since 1924. Simultaneously, the state created a body of telecommunication civil servants composed primarily of technical and legal specialists. These civil servants were recruited through a rigorous examination process, and were offered opportunities for long-term career development. The state's recovery of policy-making functions and the progressive development of a specialised bureaucracy in the late 1980s and early 1990s functioned as a barrier against state capture and framed the non-hierarchical character of dialogue between the state and Telefonica.

Telefonica jumped at the opportunity to benefit from the institutional arrangements described above by proactively engaging in a restructuring process that transformed a slow and bureaucratic organisation into a lean, productive, competitive, and profitable operator. Divestment from the equipment industry enabled the operator to develop partnerships with global equipment producers, which accelerated the deployment of high-capacity networks. Profits from sales of industrial properties helped Telefonica raise funds for international expansion in the 1990s. The rapid growth of mobile communications and Telefonica's privileged position in it enabled the operator to transform its culture from within by developing an independent mobile company where young employees were hired and quickly promoted based on performance criteria. As a consequence, overall productivity increased, passing from 118 lines per employee in 1981 to 228 lines per employee in 1996. Profitability also rose. Despite massive investments to expand international operations, between 1992 and 1996 alone, net benefits from operations in Spain increased by 45 percent, and between 1995 and 1996, market capitalisation increased by 70 percent—half the growth of the Spanish stock market in that period (Telefonica, [1996](#), [1999](#)).

4.3.2 *State-Operator Cooperation after Liberalisation*

The full privatisation of Telefonica in 1996 and the move to a fully competitive environment in 1998 did not unravel the non-hierarchical structure developed in the previous phase because (1) these changes did not eliminate interdependencies between the state and the incumbent, (2) Telefonica's global clout did not translate into a proportional increase in power relative to the Spanish state, and (3) fluid relationships between the public and private sectors and continuity at decision-making levels encouraged institutional inertia.

Although the state lost its traditional power levers over Telefonica—through ownership and control over capital and equipment—liberalisation and privatisation did not eliminate public-private interdependencies in the telecommunications sector. Incumbents gained leverage due to their size and control of telecommunications infrastructure, but the competition paradigm strengthened the state's position through policy-making competences in day-to-day regulation, spectrum licensing and management, and infrastructure.

The visibility of operator-state interdependencies decreased through the 2000s as concerns over infrastructure development and spectrum allocation faded and emphasis shifted toward service exploitation of the fixed and mobile infrastructures developed in the 1980s and 1990s. In the 2010s, however, plans to stimulate the development of Next Generation Access Networks (NGAs) brought back to the fore the tension between public objectives to universalise service to stimulate national economic growth and operators' economic logic to invest in infrastructure where and when it is profitable to do so. In 2010, the European Commission unveiled its Digital Agenda for Europe—a set of recommended policy goals to stimulate the deployment of NGAs. The Digital Agenda was endorsed by Member States, and fulfilment of its goals will require significant investment in telecommunications infrastructure.

Spain's strategy to achieve the Digital Agenda objectives displays the exchange pattern characteristic of Spanish state-operator coordination, in which Telefonica's commitment to develop network infrastructures is compensated with non-neutral regulation. Instead of

developing a national NGA plan, the Spanish government engaged in non-public negotiations with Telefonica, which resulted in the modification of the Telecommunications Bill. The modification enabled “operators with market power”—the only one of which is Telefonica—to charge prices over their leased lines “that take into consideration the investment made in the network so as to enable the operator to receive a reasonable return on its investment” (Royal Decree-Law 13/[2012](#)). In other words, the state’s main strategy to fulfil the Digital Agenda objectives consisted of using its regulatory power to remove Telefonica’s main objection to investment in NGAs. The modification of the bill is directly linked to Telefonica’s 2,300 million euro investment in high-speed networks between 2012 and 2013 (Jiménez and Muñoz, [2012](#)).

Telefonica’s global growth has not altered the balance of power that sustains state-operator coordination in Spain either. The state’s power to issue operating licenses along with telecommunications’ reliance on physical infrastructures mean that telecommunications remains a multi-national rather than a global business. Consequently, even though Telefonica has gained international clout, the incumbent’s position at the negotiation table with the Spanish state has not strengthened in the same proportion because state-operator negotiations are still based primarily on local market conditions. On the other hand, despite growing competition, Telefonica continues to be the state’s main counterpart: in 2008, Telefonica held solid control of the Spanish market, comprising a 62 percent share of the broadband market by revenue, 74 percent of fixed telephony, and 45 percent of the mobile market (CMT [2009](#)).

The fluidity of the relationship between Telefonica and the SETSI, and the continuous presence of many of the same individuals in positions of responsibility in both the public and private sectors has also facilitated continuity of operator-state interactions through institutional inertia. The working relationship between the SETSI and Telefonica has been facilitated by the common educational background, and often personal friendships, of many of the individuals involved. Most telecommunications professionals working in both the public and private sectors

are telecommunications engineers, and until 1986, there was only one school of telecommunications engineering based in Madrid. In addition, affiliation to the professional association of telecommunication engineers is mandatory for those who practice in the engineering profession, enabling the association to serve as an informal hub for telecommunications through regular meetings, publications, and newsletters. Telefonica has also contributed to maintaining a smooth working relationship with the state by creating a dedicated policy department.

Lastly, many of the individuals working in telecommunications had experience with state-operator coordination prior to liberalisation. Telefonica's current CEO, César Alierta, joined the operator in 2000 from his previous appointment as CEO of Tabacalera—a public-private firm whose relationship with the state served as a model for Telefonica's (Torres Villanueva, [2000](#); Calvo, [2010](#)). Furthermore, the characteristic segmentation of the Spanish civil service into specialised bodies and the existence of limited opportunities for transfers across different departments, means that most of the young talent that joined the telecommunications civil service in the early 1990s continued to work in the civil service in 2014, occupying mid- and high-level posts.

5 Conclusions

Operator-state coordination is a structural feature of telecommunications. Consequently, the competitive transformation of incumbents such as Telefonica cannot be understood without exploring the transformation of operator-state interactions in the transition from the national monopoly to the market competition paradigm, and defining the characteristics of the resulting relationship. In Spain, the inability of the state and Telefonica to accomplish their respective objectives autonomously was resolved through a shift from the hierarchical relationship characteristic of PTT models to a non-hierarchical model based on partly compatible objectives and a mutual exchange of benefits. Under this system, Telefonica put at the service of the state its capacity to raise capital and to develop and manage telecommunications infrastructures in

exchange for non-neutral regulation. This exchange enabled the state to universalising service and overhaul infrastructures while Telefonica was able to defend its market share, establish a solid position in growing market segments, and undertake a major organisational restructuring that transformed the incumbent into one of the leanest, most dynamic integrated operators. Telefonica's experience suggests that competitiveness in some capital intensive, high-value added service sectors cannot be solely explained through conventional firm-centric analyses. It becomes necessary to analyse the role of the state in enabling competitive transformation.

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Appendix 3. Interviews

Paula Alcalde Arranz –Comisión Nacional de la Competencia

Angel Amado Calvo –Universitat de Barcelona

Joan Calzada Aymerich - Universitat de Barcelona

José De la Peña - Telefonica

Agustín Díaz-Pines - OECD

Esther García Echevarría - IBM

Pilar Girón - Telefonica

Jorge Infante González - Comisión del Mercado de las Telecomunicaciones

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