

THE TELECOMMUNICATIONS SERVICES INDUSTRY AND REGULATORY REFORM IN MEXICO

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Abstract

The Telecommunications Reform entails an analytical and regulatory framework that will strengthen the regulatory body and structure, as well as foster competition. Its most advanced aspect—the shared network of wholesale broadband services—is also its principal limitation in terms of moving towards knowledge capitalism and the role of the telecommunications services industry in the growth of Mexico, the convergence process, and the mode of industrial development within the neoliberal development path. As such, the State not only needs to build up strong regulatory capacity, but also strategic management capacity to steer development in such a way that produces an authentic change in the industrial development mode, shifting towards innovation and bottom-up spatial and productive innovation in the services provided.

Keywords: Telecommunications, service industry, regulatory reform, technology revolution, infrastructure, public policy.

INTRODUCTION²

On January 30, 2012, the Organization for Economic Cooperation and Development (OECD) published the report "OECD Review of Telecommunication Policy and Regulation in Mexico," which came to two main conclusions about the status of the telecommunications services industry (TCSI) in the country: the existence of a dominant company that hinders competition, and an inefficient judicial system, with a weak official regulatory body, which continue to be the main barriers to attaining a competitive industry that would provide better services to its users.

The situation described above set off a fierce controversy between Slim and the OECD in 2012. Just when the furor was dying down, the new administration formulated a telecommunications reform initiative, which, generally speaking, was based off of the OECD recommendations proposed in the aforementioned report and even went further, despite the fact that Mexico had not yet take the next step in the technological and economic transition of the development of the industry, consisting of technological, industrial, and market convergence, not only for the broadcasting industry, but also in the content industry, which is growing in importance.

In this framework, this paper argues that not only does the State need increased regulatory capacity to promote competition and overcome the profiteering-monopolistic model of development with regionally concentrated production and top-down spatial differentiation of the services provided by the TCSI, but also that this mode of development is intimately tied to the neoliberal development path, which the country has followed in its process of developing knowledge capitalism and joining globalization.

In consequence, it is necessary now to go beyond the analytical and regulatory trajectory set in motion by the reform and move towards developing knowledge capitalism, in order to be positioned to bring about an authentic change in the industrial development model, orienting it towards innovation and bottom-up productive and spatial differentiation between the services provided.

1. THE NEW INDUSTRIAL CYCLE AND THE TELECOMMUNICATIONS SERVICES INDUSTRY (TCSI)³

In the new phase of the development of knowledge capitalism that began to emerge starting in the 1980s, in the wake of the Fordism-Keynesianism crisis, knowledge has become the principal productive force behind economic growth. This has translated into a notable increase in the knowledge content of social production beginning in the 1980s, manifest in, for example, the substantial increase in the number of patents granted (and consequently enforced) in the economies of the most advanced nations, especially in the United States, Europe, and Japan (Idris, 2003: 5).

The new phase of development arose from a new articulation between the science–education (SC–E) sector and social production, expressed in, for example, the upward trend in the number of scientific articles cited in patents granted (in the United States, where they are granted by the U.S. Patent Trade Office [USPTO], the average rose from 0.5 to 3 from 1987 to 1998, a process that has also been observed for patents granted in other important countries) (OCDE, 2001: 58). As such, the knowledge cycle, referring to the production, circulation, and accumulation of the same, tends to impact or involve all realms of economic and social production, transcending science–education institutions and companies and even reaching civil society with the new *de facto* formal and informal economic–social institutions (so-called knowledge communities).

This information and communication technology revolution has made possible a quality leap forward from the secular trend of capitalism to the application of science and knowledge for social production (Foray, 2000: 22), making feasible immediate and interactive connections between SC–E and social production.

As such, the new technology revolution has made possible the rise of a new productive force, by tightening the link between science and knowledge and social production, through two basic processes: 1) an increase in the capacity of information processing and scientific and knowledge production that is directly accessible and its application to production, resulting, respectively, from the development of the microprocessor and software, and coded knowledge, and 2) the dramatic increase in the speed and scale of access and spread of knowledge and information, the result of the confluence of information technology and telecommunications, and their development (Ordóñez, 2009: 58).

Specifically, the telecommunications services industry (TCSI), together with the telecommunications equipment industry, plays a crucial part in constituting part of the infrastructure that makes possible the new articulation between SC-E and social production. That is why the TCSI is taking on an increasingly important role in the constitution of an internal knowledge cycle, entailing transmission, exchange, and dissemination of science and knowledge, both at the heart of and among the SC-E, the electronics-information technology sector, and telecommunications (see Table 1), and the social production of countries and, therefore constituting, complementarily, an infrastructure that is increasingly a driver behind the international insertion of countries into the global knowledge cycle (Ordóñez and Bouchaín, 2011: 115).

At the macroeconomic level, the information and communication technology revolution has brought with it a new technology-production complex, composed of a set of industrial activities and services linked by the basic technologies of the integrated circuit, software, and digitalization, of which the TCSI is a part, which in this paper shall be called the electronics-information technology and telecommunication sector (EI-TS) (see Table 1).

The EI-TS has become the nucleus that is giving momentum to a new industrial cycle, supplanting the automotive-metal mechanics-petrochemical complex that was part of the Fordist-Keynesian development phase. This is ushering in new dynamics for production, growth, and world trade, with longer phases of expansion displaying higher growth and shorter and less profound phases of recession.

The EI-TS invigorated the growth phase of the 1990s and was a key sector in the 2001 and 2002 global crisis. It spearheaded the subsequent recovery, by way of technology-production restructuring with consequences for the global stage and the international and inter-industrial division of labor (Ordóñez, 2004: 12; 2006: 26; Dabat and Ordóñez, 2009: 50).

This will give rise to new development trends, whereby the sector will continue to give momentum to and articulate growth in the current uncertain recovery. The TCSI will play a starring role, as will be detailed below.

Table 1. Composition of the Electronics–Information Technology and Telecommunications Sector

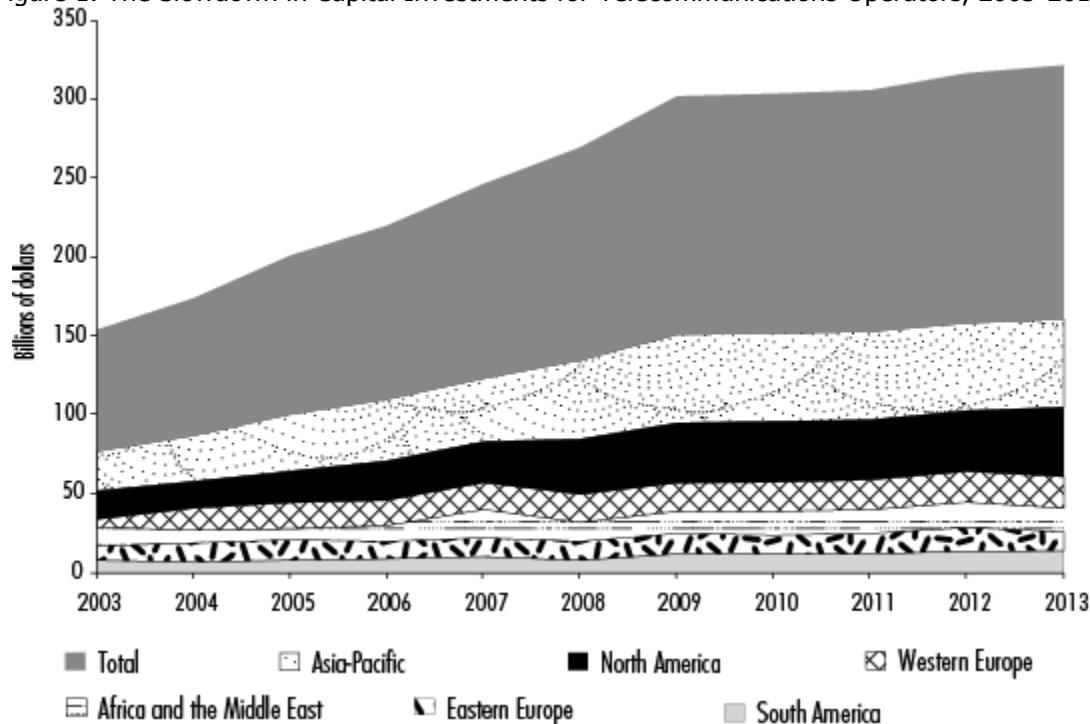
Groups	Branches	Activities	NAICS_02	ISIC
Productive activities	Electronics industry	Computers and office equipment	334110	3000
		Telecommunications equipment	334210,334220 and 334290	3220 and 3190
		Consumer electronics	334310 and 334610	2230
		Components and semiconductors	334410	3210
		Precision instruments	334511 and 334519	3330, 3311 and 3312
		Maintenance and repair of electronic equipment	811211 and 811219	5260 and 3312
Software and computing services		Software editing, creation and dissemination of content online and consulting	511210, 516110 and 541510	7220 and 7210
Telecommunications services		Internet	518110,518210 and 519190	7230 and 7240
		Telephone	517110, 517211, 517219, 517310 and 561421	6420
		Telegraph	517119	6420
		Cable telecommunications	517510	5420
		Satellite networks	517410	6420
		Specialized services	517910	6420
Production and distribution of content to mass media		Production and distribution of content to print media	511111, 511112, 511121, 511122, 511131, 511132, 511141, 511142, 511191 and 511192	2211, 2212, 7240 and 2219
			512111, 512112, 515210, 515120 and 512190	9213, 6420 and 9211
		Production and distribution of audio and broadcasting	512210, 512220, 512230, 512240, 512290 and 515110	2213, 9249 and 6420
		Production and distribution of video and audio	519110	7499
Activities related to commercialization, distribution, and lenses	Commerce, distribution, exhibition, and leases		5150, 5233,	5150, 5233,
			5239, 9211,	5239, 9211,
			9212 and 7123	9212 and 7123

2. DEVELOPMENT TRENDS OF THE TCSI FOLLOWING THE 2007-2009 GLOBAL FINANCIAL-PRODUCTION CRISIS

The TCSI, together with the EI-TS as a whole, once again played a major role in lending momentum to the beginning of the recovery, because EI-TS development constituted a fundamental component of the economic stimulus packages that governments implemented to drive recovery. In the majority of these packages, investment in the TCSI would play a pivotal role in recovering overall investment, under the idea that new investment in infrastructure to promote recovery should include, besides the traditional physical component, a new digital component, made up of wired and wireless broadband networks to achieve the objective of universal Internet access in the most developed countries.

Based on these conditions, the following trends can be observed in the development of the TCSI after the crisis, which entail a social rationalization of the use of computational resources in conjunction with interconnection networks: *a*) cooperation among computers and the development of connectivity networks and Internet in integrating the interactions and operations of devices, as well as support for new services with a digital technology foundation, based on the development of Web 2.0, such as telemedicine, digital libraries, virtual laboratories, remote handling and monitoring of equipment, etc. Among these trends are some recent standout developments such as cloud computing, the virtualization of servers, social computing, remote and real-time process monitoring and control, etc.; *b*) on that basis, the full transition to Internet-protocol-based networks and a TCSI based on content transmission, within the process of digital conversion; *c*) the sharing of the costs of investing in active and passive infrastructure (electronic and physical-energy components, respectively), a process in which governments are expected to be the active agents of financing and deploy new telecommunications networks (ITU, 2009: 65), in the same way that telecommunications operators share networks (such as Vodafone and Telefónica in Europe) to reduce the costs of operation and maintenance; *d*) the shift of the dynamic axis of TCSI growth to emerging regions, which is expressed in the fact that foreign investment in the TCSI in emerging countries has surpassed that coming from developed countries, and has principally been in new mobile services (ITU, 2009: 67) (see Figure 1); and *e*) the renewed intensification of the international relocation and subcontracting of TCSI-based service activities, principally brought about by cloud computing, as it provides additional incentives related to a substantial reduction in the fixed costs of network investments for companies, as well as the outsourcing of services and remote service provision from locations with more competitive TCSIs (see Figure 1).

Figure 1. The Slowdown in Capital Investments for Telecommunications Operators, 2003-2013



Source: ABI RESEARCH.

3. THE TCSI DEVELOPMENT MODEL AND REGULATORY REFORM IN MEXICO

In the framework of the changes that the global TCSI has undergone, described above, as part of the neoliberal development path in Mexico, there has emerged a TCSI characterized by the monopolistic control of networks, profiteering management, the spatial concentration of production, and the top-down⁴ regional differentiation of services provided (Ordóñez and Bouchaín, 2011: 155).

This development mode of the industry is characterized by the following: 1) it is a typical service industry, driven by the dynamics of telephone services (89% of the Total Gross Production [TGP] of the industry), marked by high sensitivity to the growth of other economic activities, but even more so for individual or private consumption, whose coefficient with respect to TGP is 63%, meaning that in the growth of the industry, the carryover effect from the dynamics of the rest of economic activities, and especially individual consumption, predominates (INEGI-Censos Económicos from 1998, 2003, and 2008); 2) there is a premium on landline telephone services, at the very least, as well as on

Internet services (for residential landline services, the average price across all intensities of use in 2011 was 69.77 dollars in purchasing power parity in Mexico as compared to 43.69 on average across 64 countries;⁵ and for commercial landline services, it was 56.72 as compared to 39.11; and 13.82 against 12.12 in millibits per second of Internet access), the latter due to the vast dominance of Internet access through telephone services (69%), which is a sign of the monopolistic control over networks, especially for mobile and landline telephone services (Ordóñez and Bouchaín, 2015: 39); 3) the premium on telephone services constitutes the basis for the extraordinary profit of 20% in landline telephone services and 12% for mobile telephone services in 2008 (16% overall), which, added to the overvaluation of the exchange rate of 1.79% on average between 1997 and 2014, has financed the dizzying international expansion of the monopolistic landline and mobile telephone operator into all of Latin America, and has allowed this firm to obtain a market share of around 50% for mobile and 33% for landline services, and to dispute control over the Latin American market with the Spanish company Telefónica; 4) as a result of the premium on these services, the penetration rate of both landline and mobile is low, as is the case for Internet services (17.14% for landlines in 2011 as compared to the average of 33.75% across 64 countries; for mobile, the figures are 82.38% against 120.38%, and for Internet in general and broadband, 10.25% against 20.16% and 10.51% against 19.55%, respectively), which is complemented by low coverage both per inhabitant for international broadband (coverage per inhabitant of 0.03% in Mexico as compared to 0.06% in the average of the 64 countries in 2011), which translates into, generally speaking, erratic growth for the Internet sector of -5% (1993-2008, TCPA), and the loss of its specific weight in the industry, going from 4.6% to 2.4% (1993-2003); 5) all of this is expressed in high levels of capital centralization, production, and employment, which translates into a high concentration of the markets for the industry overall, which in the extreme case of telephone services displays the highest levels of centralization (large companies accounted for 96% of the TGP for landline and 79% for mobile in 2008); 6) the centralization of industry production has been accompanied by concentration in the spatial-territorial deployment in the central region of the country, specifically in Mexico City and its urban surroundings, but with relative importance for the location of companies in the northern region and the center-west region, where technology services are more advanced (predominance or relative importance for telephone services, relatively important share of Internet, and low presence for cable networks), and are concentrated, similarly, in the center and northeast of the country, while the most lagging areas (high predominance of telegraph services, relative importance of cable networks, and low Internet presence) are in the south and center-north, with hybrid regions (predominance of telegraph and relative importance of Internet) in the northwest, center-west, and eastern zones of the country (Ordóñez and Bouchaín, 2011: 269).

In this framework and in line with OECD recommendations, the recent Constitutional Telecommunications Reform makes progress in some of these aspects, but the

Telecommunications and Broadcasting Act (LFTR, regulations and bylaws for the reform) in fact represents a reversal for some more socially advanced aspects, as will be seen below:

1. It lends autonomy and eliminates the practice of the “dual window” of the regulatory body, by elevating the new Federal Telecommunications Institute (IFT) and the Federal Economic Competition Commission (CFCE) to the ranking of autonomous constitutional bodies (they are no longer hierarchically subordinate to any Ministry), and assigns to the former all regulatory duties, including competition, related to telecommunications and broadcasting (which were separate before, under the auspices of COFETEL and SCT, respectively). The IFT is entitled to issue asymmetric regulations corresponding to the rating of a given carrier's market share (undertakings with a national share of more than 50% in the provision of services, measured by number of users, network traffic, or network capacity utilized); imposing limits on the economic concentration in a single market or geographic zones; and ordering the division of assets and rights. However, at the moment, the IFT has been unable to enforce what the regulations stipulate, as can be seen in the timeline provided by the Reform.

(See Image 1)

2. Resolutions from the regulatory body can only be indirectly refuted and cannot be subject to suspension, which eliminates the safeguards that the carriers, especially the monopolistic ones, have used to suspend other resolutions for up to more than 15 years.
3. It establishes that opening a local loop (the last mile) is mandatory for the predominant operator, whether that be for telephone, cable, or fixed Internet networks, so that any operator can access the physical, technical, and logical means from any terminal point of the public networks, and the access point to the network or local loop, whose access was previously restricted by the predominant operators to ensure monopolistic control over the networks.
4. It opens up foreign direct investment for telecommunications (including satellite networks) to up to 100% and up to 49% for broadcasting. The immediate effect was that AT&T entered Mexico with the purchase of Nextel and Iusacell, making the company the second largest in the country in terms of revenue and the third largest in terms of number of subscribers. In Mexico, there are 102,187,895 mobile telephone subscribers, distributed as follows: Telcel 69%, Telefónica 20.8%, Nextel 1.8%, Iusacell 3.6%, and Uefon 4.9%, giving AT&T a 10.3% share (IFT, 2015).
5. Must carry, must offer was made mandatory, obliging cable networks to indiscriminately include in their programming the open television channels (must carry) and requiring open

TV carriers to provide their signals to cable operators for free (must offer), with the exception of those telecommunications or broadcasting network operators declared as predominant, which will not benefit from free signals.⁶

6. Bidding will open for two open television channels.⁷

The initiative goes even further by establishing the need for a national backbone network, both fixed and mobile, in the hands of the State, but which will be developed through public-private partnerships, consisting of the dark fiber network of the CFE and 90 Mhz of spectrum freed up by the transition to digital terrestrial TV.⁸ The backbone network will be granted through a concession under a shared network-wholesaler model and the disaggregated sale of all of its services and wholesale capacities, which will entail an obligation for the concession operators to offer services and capacities to other retail operators, who will have the chance to provide intermediate services to companies or final services to consumers.

The backbone network and its concession model constitute a potentially very important step that could break the conflict of interests at the base of the current industry development model, which consists of the fact that companies are both owners of the networks and the entities providing the services and, additionally, they have to open their networks to other companies that are mere service providers and competitors at the same time, which means that competition revolves around ownership and network access, rather than innovation and differentiation among the services provided.⁹

The other novel aspect of the reform initiative resides not so much in the regulatory guidelines it lays out—in the sense that left out of its scope was a fundamental convergent activity, content production, and left inside its scope the risk of the cartelization of the big monopolies in the convergent industries, as will be seen—but rather in the underlying strategic framework to put the guidelines into practice and, most essentially, take on the monopolies. It is a matter of a (new) implicit alliance between the State and civil society in a horizontal relationship embedded into the new institutionality of the IFT, and the fact that the spectrum will work under a concession model for public and social ends is extremely important.

This was the aspect of the reform that sparked the most controversy by propagating the image of the IFT as a new “regulator Leviathan,” a characterization that the two most visible and largest monopolies subject to being declared preponderant agents as a result of the reform—Telcel and Televisa—agree upon. This was also the principal area in which the bylaws of the reform backtracked, in so doing reversing the attempt to confront all monopolies and in fact allying with one of them, Televisa, by considerably limiting the faculties of the IFT pursuant to the terms specified below:

1. To the benefit of the Ministry of the Interior (Segob), with regard to regulating the conditions and forms of content distribution, paragraph fourteen of Article 28 of the Constitution stipulates that the purpose of the IFT shall be the “efficient development of broadcasting and telecommunications and that it shall be in charge of the regulation, promotion, and oversight of the usage and exploitation of the radio spectrum, the networks, and the provision of broadcasting and telecommunication services.” It also indicates that the IFT shall be empowered to regulate, promote, and supervise “access to active and passive infrastructure, as well as other essential inputs.” By contrast, in the bylaws to the regulation, Article 218, Section VII indicates that the Segob shall be charged with “ensuring that all radio and television broadcasts stay within the limits stipulated by the law, respect the private life, personal dignity, and morality, and do not attack the rights of third parties nor provoke the commission of any crime or disturb the public order.” Complementarily, Article 29 establishes that “Segob shall oversee and supervise compliance with the stipulations of this Law in matters of content and shall penalize non-compliance.” Consequently, autonomy is taken away from the IFT, which is an enormous step backward, because Segob is now in charge of managing and monitoring advertising times and broadcasting, as well as ensuring that broadcasts comply with legal stipulations, despite the fact that content consists essentially of radio broadcasting services, which are now tied up in internal politics and public safety, under the powers of Segob.¹⁰
2. To the benefit of the SCT, with regard to rating the performance of the institute, its priorities for action, and its powers in the allocation of the radio spectrum and other orbital resources, because the bylaws establish that the following powers belong to the SCT: “formulate the recommendations it considers relevant, non-binding, for the annual IFT agenda and the quarterly reports stipulated in Section VIII of Article 28 of the Constitution,” as well as “establish in conjunction with the Institute a committee to promote access to information and communication technologies and broadcasting and telecommunications services, including broadband and Internet, in conditions of effective competition [...]. Likewise, “draft and publish in the framework of the National Democratic Planning System, the national program for the radio spectrum [...], as well as any updates to the same that may be necessary, taking into account the proposal sent by the Institute.” All of this contravenes the provisions of Article 28 of the Constitution, in the sense that “the IFT shall be charged with the regulation, promotion, and oversight of the usage and exploitation of the radio spectrum.”¹¹
3. The reform tends to favor the requirements and times for spectrum concessions and orbital resources with private purposes (profit-generating), to the detriment of the requirements and times of public and social concessions, and levelling with these. Although the bylaws include the formation of a secondary radio spectrum market that would make it more

flexible for stakeholders to determine the quantity or mode of radio spectrum they require, whether for a new concessionaire to enter the market or for those already existing to meet their spectrum needs and strengthen their services (in the figure of the radio spectrum lease, either total or partial, whether for channels, frequencies, or frequency bands), while also stipulating a quantity of requirements that would be very difficult for those interested in a socially oriented concession to meet,¹² clearly favoring the proliferation of private operators under various forms to the detriment of socially-minded concessions. In terms of times, there is once again an ambiguity that seems to favor private concessions, because pursuant to Article 28 of the Magna Carta, Article 75 of the bylaws stipulate that “concessions to use or exploit frequency bands of the radio spectrum for a certain use and for the occupation and exploitation of orbital resources shall be granted by the Institute for a period of up to twenty years and may be extended for equal terms [...]”; while Article 83 of the initiative mentions that “radio spectrum concessions for public or social use shall be granted via direct allocation for fifteen years and shall be extended for equal terms [...]”.

4. The Regulatory Laws finally establish the criteria that the IFT shall use to declare an operator as “preponderant,” indicating that it shall be by “sector” (telecommunications or broadcasting) and not “service” (radio, open TV, landline telephone, mobile telephone, Internet, paid TV), as the Constitutional Reform indicated, has led to a situation in which only one “preponderant” operator is declared per sector, that is Telmex-Telcel and Televisa, preventing Televisa from being declared “preponderant” also in paid TV (satellite and cable), where it has more than 56% of subscribers (IFT, 2014: 25).¹³

As a result, in the efforts to revive the regulatory capacity of the State in the industry by taking on the monopolies, the partnership and the horizontal relationship between the State and civil society is weakened, favoring the redistribution and concentration of this capacity in the State, with the consequent weakening of its power to take on the monopolies, in an (old) vertical relationship with civil society.

In this framework, and pursuant to the regulatory trajectory recommended by the OECD, the Regulatory Reform overall (Constitutional Reform and Regulatory Bylaws), still does not resolve the following problems:

1. Regulation of interconnection fees. Although the “preponderant agents” (read, monopolies), that is, Telmex-Telcel, cannot charge interconnection fees due to the control they have of 80% and 70%, approximately, of the termination of landline and mobile calls, respectively. In the case of interconnection fees, given the asymmetric power to negotiate them directly, this eliminates practically all other operators from the competition. The IFT lacks the regulatory capacity over interconnection fees that exist among the non-preponderant

operators, which contravenes the OECD regulations and limits the regulatory capacity of the IFT, in terms of ensuring that these rates adjust and evolve pursuant to the effective costs of interconnection between operators.

2. The aforementioned “technical” criteria to declare the “preponderance” of an operator, based on the division of the industry by “sector” and not by “service,” goes against the trend of economic and digital convergence, because it makes it possible to bundle certain various services – previously provided separately – in a single distribution network, which not only entails the possibility to jointly provide the services belonging to each “sector,” but also the services previously separated into the telecommunications and broadcasting “sectors,” as well.¹⁴ That is why the debate about declaring preponderance by “sector” or “service” was in reality a false debate, considering the process of economic and digital convergence in which the industry is immersed, because from that perspective, what truly defines market power is no longer the presence of a company in a certain “sector” or “service,” but rather its presence in the provision of a service or a set of services through a certain distribution network.

The majority of the numerous authors and institutions that have weighed in on the reform agree on the following aspects about its nature and scope: 1) in general, it is in line with OECD recommendations (although few are explicit about this); 2) in that sense, its principal virtues are to give autonomy and greater power to the regulatory body (eliminating the “dual window”) and reinforcing and updating the regulatory structure; 3) this will lead to the capacity to take on monopolistic operators and foster competition, translating into improved and higher penetration rates of the services, as well as price decreases; 4) the LFTR backtracks with respect to the RCT in terms of removing autonomy from the IFT and giving it to the SCT in the regulation of the broadcasting and telecommunications “sectors,” and the Segob in content distribution; and 5) the IFT has failed to enforce some aspects of the reform in the stipulated timeframes, including the sharing of passive infrastructure by América Móvil and Televisa, timely compliance with the analog shutdown at the end of 2015, the tender for radio frequencies in Mexico, the fourth open television channel, and granting the spectrum concession for the 1.7 and 2.1 GHZ¹⁵ bands (Gil Díaz, 2014: 119; Mariscal, 2014: 131; Álvarez, 2014: 145; Piedras, 2015: 22; Tovar, 2014: www.mediatelecom.com.mx/; Negrete, 2015: <http://www.mediatelecom.com.mx/>).¹⁶

Therefore, this analytical and regulatory framework does not consider the following conditions of the current state of the TCSI in Mexico: the shift to knowledge capitalism and the potentially pivotal role of the TCSI in growth. It only partially addresses the ongoing economic and digital convergence process, as well as the features of the development mode of the industry in the framework of Mexico’s neoliberal development path.

It is this analytical and regulatory horizon that will be proposed below to determine the long-term scope of the reform.

4. BEYOND REGULATORY REFORM: WHAT CAN BE DONE TO TRANSCEND THE CURRENT INDUSTRIAL DEVELOPMENT MODEL?

In order for the TCSI to become a source of infrastructure that truly contributes to Mexico's development, it must be firmly grounded in the development of knowledge capitalism. The TCSI must play a strategic role in this process, in terms of the infrastructure for the formation of an internal knowledge cycle and international insertion in global knowledge processes, and specifically, the exportation of knowledge-intensive services, as was previously described in Section 1.

In this sense, the most progressive aspect of the reform consists of the aforementioned national broadband backbone network that will be in the hands of the State and granted under concession through the shared-wholesale scheme, because it has the potential to break the conflicts of interest that are currently the foundation of the development of this industry, and move the industry towards competition based on innovation and the differentiation of services offered.

But it is in this most progressive aspect that its greatest limitation also resides, in this analytical and regulatory horizon, because the deployment of the network through a public-private partnership ¹⁷ impedes the strategic positioning of the State, which would allow it to develop the capacity to discipline private agents, by becoming an active player in the financing and deployment of the broadband network, while the fundamental infrastructure of the TCSI for the development of the country exists in the framework of knowledge capitalism.

Only a well-positioned state will make it possible to undertake the necessary investment in infrastructure (because Mexico lags so far behind) of fiber optic networks and 3rd and 4th generation wireless networks, which will entail considerable and growing investment costs that can only be covered by state efforts and participation and the contribution of large users that may be potential beneficiaries, such as the health system, the science and education sector, and banking, together with industry operators, through an open-access model (which the Reform promotes), constituting a strategy that will accelerate the deployment of national broadband infrastructure, rather than simply leaving it to the whims of the free market, especially in developing countries (ITU, 2009: 66).

It is also under this formula that the ghost of the lack of investment incentives can be banished. It is important to note that if the prices of the services resulting from the exploitation of the national

broadband backbone network are “too high, there would not be enough demand, and if they are too low, the model would not be profitable” (Mariscal, 2014: 137), or the application of asymmetrical interconnectivity rates with respect to the “[lower] incentives generated due to low but symmetrical rates” (Ten Kate, 2014: 177).

Additionally, the Reform potentially contributes to making progress in sharing the cost of investment in active and passive infrastructure among operators (even though this measure has not become reality, as mentioned earlier).

But it is in the realm of the most important development trend of the industry that the reform is lagging behind because, despite its supposedly convergent nature, it only seeks to regulate the process of convergence in the broadcasting and telecommunications “sectors,” while leaving out, fundamentally, if not to reaffirm the authority and control of the state, the process of shifting to networks based on Internet protocols and the growing foundation of the industry in content transmission, which puts the TCSI in an unprecedented proximity to content production (as seen in Section 1), and therefore the creation of ideology and culture, aspects about which the reform has nothing to say.

Moreover, in the transmission of content by the telecommunications and broadcasting “sectors,” there is very weak, ambiguous, and diluted defense of the percentage of national content broadcast as compared to the international experience. For example, the percentages set for national content out of total programming are extremely low (in Mexico, it can be as low as 20%, while in countries such as Colombia, it is as high as 50%) (Álvarez, 2014: 151-152). Nor is it mandatory for these programs to be broadcast during primetime. The definition of national content is also far too lax, and a higher percentage of national content out of total programming would mean more advertising time (Álvarez, 2014: 151).¹⁸

Not taking into account the content industry in the new convergent regulatory framework brings with it many much more profound implications, derived from the nature of the industry in the formation of ideology and culture in a hegemonic sense throughout all of society, a process in which the prevailing cultural-ideological corporatism, consisting of a conformist,¹⁹ clientelist-patrimonialist, profit-seeking and universal consumerist (social) ideology and culture, runs contrary to the development of the initiative, creativity, learning, and social innovation necessary to develop knowledge processes in Mexico.

It is in this convergent horizon that includes the content industry as a creator of ideology and culture in a hegemonic sense where the problem is not, therefore, just about regulation and promoting competition, but rather, in a much broader perspective, the need to build an alternative path to the current neoliberal path that has been followed in Mexico up until now, translated into a development

mode for the convergent industries that are extremely monopolized, as the State has withdrawn from the arena.

This is the major challenge facing the TCSI in present-day Mexico.

BY WAY OF CONCLUSION

In the analytical and regulatory horizon of the development of knowledge capitalism in Mexico, pursuant to an alternative path to neoliberalism that would make possible a development model for the convergent industries based on innovation and the differentiation of services provided, the State not only must be endowed with strong regulatory capacity, but also strategic management capacity to drive development around a new national project grounded in learning, innovation, and social inclusion.

In the case of the TCSI, in its process of convergence with other broadcasting and content industries, the situation described above points to a clear need for a national backbone network, that must also serve as the material force in hands of the State to convert the profiteering-monopolistic development model with the spatial concentration of production and top-down regional differentiation of the services the TCSI provides into a new model based on innovation and service differentiation, the spatial diversification of production, and service provision pursuant to the specific needs of the geographic scales of coverage (national, regional, local).

Under the competitive pressure of this new mode of development for the network-based industry segment, and with a new and solid institutional framework that incorporates civil society as an active agent in the production and regulation of content, the State could promote the shift from the private network infrastructure-based industry to a mode of development with the aforementioned characteristics, and therefore promote the shift of the entire industry towards a new development model.

This would have to be supplemented with actions to foster a shift in the industry from its current articulation revolving around telephone services to a new articulation revolving around the Internet and content, which would translate into strengthening the carryover effects of the industry for the rest of the economy, particularly for services tied to knowledge generation, where the TCSI would play an active role in the creation of an internal knowledge cycle.

Boosting the carryover effects of the industry would have to be accompanied by actions to promote the formation of productive chains with the EI-TS and particularly the electronics industry, to “internalize” the links of the chain with importing these activities and their high degree of recursion,

as well as contributing to having the national EI-TS effectively development its capacity to articulate and invigorate growth for the overall economy (Ordóñez and Bouchaín, 2015: 114).

In summary, Mexico requires a State with the capacity to manage the development of the industry and set it on a new path towards a new development model based on innovation and service differentiation, beginning with a new alliance with the civil society, and particularly with subordinated classes and groups, where the latter will play an active role in content and knowledge production to break with the lagging, conformist, clientelist-patrimonialist, and profiteering culture that prevails in the country, in favor of a culture that develops the initiative, creativity, and social innovation and learning to weed out corporatism and neoliberalism by the root.

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³ This section and the next are based on Ordóñez and Bouchain (2011: 25 and 71), with some updates considering the most recent developments.

⁴ In other words, regional differentiation resulting from the unequal spatial development of the services provided by the industry at the national scale, and not pursuant to the specific regional differentiation of the industry in accordance with the combined services required in each region, or bottom-up spatial development.

⁵ This is a sample of developed and developing countries both above, similar to, and below Mexico. See Ordóñez and Bouchaín (2015: 39).

⁶ TV Azteca turned to the courts, charging the regulation with violating copyright law. The television company lost and the regulations are legally in effect (Telconomia.com, viewed on October 10, 2015).

⁷ The IFT sent the tender for 123 TV channels (which may cover 92% of the country) seized from Radio Centro (which failed to pay the \$3.058 billion) to public consultation. The other television channel was given under concession to Cadena Tres, from Grupo Ángeles (Telconomia.com, viewed on October 10, 2015).

⁸ The network will begin to operate in 2018 and will represent an approximate investment of USD 10 billion over the next 10 years (Forbes-Mexico, <http://www.forbes.com.mx>, viewed on 10/06/2015).

⁹ Mariscal (2014: 137) posits the existence of a problem: "in order for there to be enough demand to provide capacity to this wholesale network, the current operators in the sector will have to become resellers (virtual mobile operators) when they have already invested in their own capacity to deploy services to the end users." In our perspective, the big potential of the backbone network to spur competition and raise the broadband penetration rate is the chance for new operators without networks (whose investment costs would be relatively reduced) to get a piece of the pie, and not operators with networks that resell network capacity, for which the transaction, for all intents and purposes, would be redundant.

¹⁰ In the same sense, Álvarez (2014: 157) posited that geolocation permitted was permitted in the RCT whenever dealing with specific and severe crimes, as long as the request came from the Attorney General of the Republic representatives. By contrast, under the LFTR, the Center for Research and National Security, the Federal Police, the Secretaries of Defense, and the Navy are recognized as entities authorized to request this, and can also request user data to produce "intelligence."

¹¹ In the same sense, Mariscal (2014: 134) posits that the significant reversal in the autonomy of the IFT in the LFTR translates into a situation in which the SCT "will have the ultimate decision-making power over any dispute."

¹² Álvarez (2014:155) emphasizes the specific case of the indigenous communities and peoples who, in order to obtain a concession for social purposes, would have to commit to the "promotion, development, and preservation of their languages, culture, knowledge, promoting traditions..."; this means that it is the State once again that is dictating the conditions of use ("And what about the autonomy of the indigenous peoples?") excluding other types of use, such as political ends.

¹³ In Chile, for example, the company with the highest market share has 36.2%; in Brazil, the number is 53%, in Argentina, 43%, and in Colombia, nearly 44%. After the Regulatory Laws were enacted, in August 2014, Televisa announced the acquisition of Cablecom, increasing its market share and proving that "preponderance" is not defined by service.

¹⁴ The New York-based company Aereo designed a new business department that promised a new age of digital convergence, by capturing open TV digital signals through a small antenna and distributing them online, which would

be available through streaming to its subscribers on a smartphone or tablet. Recently, a New York District Court ordered the company to cease operations, after a suit from open TV companies for copyright violations, after another court had ruled two years earlier about the "authenticity" of the business.

¹⁵ Some of the pending topics include the use of the radio spectrum that has not yet been released, either because the tender was launched late into the market, for the 700 MHz band, or because the spectrum continues to be unused.

¹⁶ However, the Telmex-Telcel vision formulated and disseminated by Ten Kate (2014: 163) considers that the reform is grounded in a "populist diagnosis" of the industry – in line with the OECD report.

¹⁷ The public-private partnership funding scheme impedes the development of the State's capacity to discipline private agents, eliminating the possibility for it to become positioned in managing development.

¹⁸ Intimately related to this is the existence of very lax defense of the viewers with respect to advertising times, which add up to 18% of the total broadcasting time per day/cannel on open TV, and up to 40% on open commercial radio per day/cannel, which makes it possible, unlike in other countries, that at peak viewing times, advertising can reach up to 45% of the time (Álvarez, 2014: 150).

¹⁹ Conformist in the sense that the subject maintains an adaptive and passive attitude without seeking to transcend; clientelist-patrimonialist because it promotes the exchange of favors, where subjects in a position of power regulate the granting of benefits and privileges in exchange for electoral or some other type of support, based on public patrimony that is appropriated and managed as something personal; profit-seeking in the sense that the idea is to achieve a social status that ensures a certain level of personal income; and universal consumerist in the sense that the status is oriented towards increasing the consumer capacity as a form of social recognition.