As other sections of this report highlight, Internet use in Turkey and the role of the Internet in the country’s economy have grown significantly in recent years. Yet the development of Turkey’s Internet infrastructure—especially next-generation networks requiring broadband that are necessary for the new phase of Internet development—has not kept pace. This section explains why the regulatory apparatus in Turkey has failed to stimulate infrastructure development despite meaningful reforms.

INFRASTRUCTURE

The last two decades have seen significant changes for Turkey’s telecommunications sector, which falls under the jurisdiction of the Ministry of Transportation. In 1994, Law No. 4000 created a state-owned, fixed-line operator company, Türk Telekom (to be privatized in 2005), and granted it exclusive rights for all telecommunications infrastructure, with the exception of mobile service.

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Also in 1994, two private companies, Turkcell and Telsim, launched mobile telephony services and were granted licenses in 1998. Later, Avea, a subsidiary of Türk Telekom, became the third mobile operator.

TTNet, a subsidiary of Türk Telekom, launched broadband in the early 2000s, providing ADSL services over their public switched telephone network (PSTN). Mobile broadband over 3G started towards the end of the decade, with three GSM operators: Turkcell, Vodafone (which had bought Telsim), and Avea. Likewise, broadband services started over fiber and cable-TV networks, as well as through satellites, at the end of the 2000s.

The penetration rate of fixed-line telephony has been decreasing steadily over the last decade as consumers switch to mobile service. With more than 13 million subscribers, the current penetration rate of fixed-line telephony is 17.34 percent. Considering that the average household size in Turkey is 3.69 persons, it can be assumed that the fixed-line market is saturated. Around 86 percent of fixed-line users subscribe to the incumbent Türk Telekom, and the remaining 14 percent to alternative operators.

After significant growth in mobile telephony over the last decade, there are more than 70 million subscribers (around 70 percent of which have 3G), for a penetration rate of 91.5 percent. If the 0-to-9 age group is excluded, the penetration rate of mobile telephony exceeds 100 percent. According to subscriber numbers, Turkcell, Vodafone, and Avea’s market shares are 49.62 percent, 28.57 percent, and 21.87 percent, respectively. According to revenues, these market shares are, respectively, 46.45 percent, 33.38 percent, and 20.17 percent.

With 8.5 million fixed and 26.4 million mobile subscribers, total broadband subscription in Turkey has reached 35 million (broadband subscription through satellite is negligible). Fixed broadband subscription is as follows: 79 percent xDSL (67 percent of which is owned by Türk Telekom subsidiary TTNet and 12 percent by other ISPs), 15 percent fiber, and 6 percent cable. Currently, Türk Telekom owns 182,450 km of fiber infrastructure, around 123,000 km as backbone.
network and around 60,000 km that reaches subscribers. Alternative operators own a total of 51,244 km fiber infrastructure reaching subscribers. In other words, nine years after its privatization and the opening of the sector to competition, Türk Telekom remains the overwhelmingly dominant provider in fixed-line and broadband services.

**Scoreboard**

Turkey lags behind all other OECD countries in fixed broadband penetration with 11 percent, less than half of the OECD average of 26.7 percent. In mobile broadband, Turkey is near the bottom but ahead of three member countries (Chile, Hungary, and Mexico), with 26.44 million subscribers corresponding to 34.5 percent penetration, which is still only about half the OECD average.

Two annual reports provide global comparisons. The Global Information Technology Report of the World Economic Forum ranks countries according to the Network Readiness Index (NRI). In the report published in 2014, Turkey ranks 51st out of 148 countries on the NRI. One sub-index in the rating is “Readiness,” where Turkey ranks 48th. Under this sub-index, Turkey ranks 42nd on the pillar of “Infrastructure and Content.” Turkey ranks 44th on the “Environment” sub-index, but 55th on the “Political and Regulatory Environment” pillar within it.

The International Telecommunication Union’s Measuring the Information Society ranks countries according to the ICT Development Index (IDI). In the latest report published in 2013, Turkey ranks 69th out of 157 countries according to the IDI. On the sub-index “Access” that captures ICT readiness and includes five infrastructure and access indicators (fixed-telephone subscriptions, mobile-cellular telephone subscriptions, international Internet bandwidth per Internet user, percentage of households with a computer, and percentage of households with Internet access), Turkey ranks 72nd.

**REGULATORY MECHANISMS**

Why have infrastructure development and broadband penetration lagged behind expectations? Since 1998, Turkey has increasingly adopted market-based mechanisms for telecommunications and Internet infrastructure development. As such, the two most important functions of the regulatory agency are to achieve liberalization of the sector and to ensure fair competition while protecting consumers. Yet effective liberalization, particularly in the broadband sector, has not been achieved. A review of the legislative changes shows an improvement in the regulatory framework that is not matched by an improvement in implementation of liberalization.

**Background (1998–2008)**

The first legislative step towards the liberalization of Turkey’s telecommunications sector was the enactment of Law No. 4502 in 2000. With this law, the Ministry of Transportation established its regulatory oversight of the communications sector through the Telecommunications Authority (Telekomünikasyon Kurumu, TK), with powers to regulate prices, interconnection, and access.

Even before this law, however, liberalization in telecommunications had started when two mobile operators, Turkcell and Telsim, were granted licenses in 1998, rendering them independent of Türk Telekom’s monopoly. This launched genuine competition in the mobile telephony segment of the sector. In 2003, Avea, a subsidiary of Türk Telekom, entered the mobile market, and in 2005 Vodafone bought Telsim. Although the mobile segment had liberalized, Turkcell dominated the market due to the first-mover advantage until the TK took two measures in 2007: instituting retail and wholesale tariff controls and mobile number portability. Fair competition in the mobile market was also reinforced by later reducing mobile call termination rates.

Liberalization in fixed-line telephony started only with the adoption of Law No. 4502. According to the law, the monopoly rights of Türk Telekom would be terminated at the end of 2003. However, by 2008, the share of Türk Telekom in overall telephony services was still 91 percent by traffic and 81 percent by revenue. The degree of competition in fixed broadband services was even worse. By 2008, there were more than 70 ISPs in the market, yet the share of Türk Telekom in...
fixed retail broadband connections was about 95 percent (4.3 million out of a total of 4.5 million).

Despite some shortcomings in Law No. 4502, it was a good start. However, implementation of the regulatory framework and the resulting market outcomes were less than satisfactory. The implementation was uneven and conspicuously favored Türk Telekom. Although the Ministry and the TK vigorously enforced competition in the mobile telephony segment, they were ineffective in the fixed telephony and broadband segments, where Türk Telekom continued to dominate.

As the European Commission noted in 2008 in its progress report on Turkey’s accession, “Liberalisation of local telephony is still pending and undermines competition in the fixed and broadband markets. The regulatory body is well staffed and is self-financed. However, it lacks independence—notably in the authorisation process—and the decision making process of the Telecommunications Authority is not transparent.”\(^{18}\)

The European Competitive Telecommunications Association (ECTA) also noted the Telecommunications Authority’s uneven and ineffective implementation. The ECTA’s Regulatory Scorecard report contains an overall score, based on qualitative and quantitative analyses, for the effectiveness of the regulatory environment in each of the EU member and some candidate countries. In ECTA’s 2008 report, Turkey scored the worst of all countries surveyed.\(^{19}\) Turkey scored particularly poorly in the “Entry Enabler” and “Economic Market Conditions” dimensions. Even though Turkey’s score was best in the “Institutional Framework” dimension, within that dimension it performed worst in the “National Regulatory Agency (NRA) Independence” and “NRA Enforcement Powers” sub-dimensions.

It is also revealing to note that, when the Telecommunications Authority persistently remained ineffective in countering the dominance of Türk Telekom in fixed-line telephony and broadband segments, the Competition Authority—which had had an impeccable record of acting independently at that point in time—had to interfere. In a landmark decision in November 2008, the Competition Authority imposed a fine of 12.4 million TL (about $9 million) on Türk Telekom for abusing its dominance in the wholesale broadband Internet market.\(^{20}\) That it required another authority’s interference to enforce competition speaks to concerns that the Telecommunications Authority was insufficiently independent in encouraging competition.

**Electronic Communications Law (2008)**

The Electronic Communications Law (Law No. 5809) of November 2008 was a landmark piece of legislation. Although not perfect, the ECL constituted a significant improvement over Law No. 4502. Article 5 of the ECL redefined the Ministry of Transportation’s role and duties in the communications sector;\(^{21}\) determining strategy and policy for electronic communications services that use scarce resources (such as numbering, satellite positions, and frequencies). It also authorized the Ministry to determine the principles and policies for the promotion of competition in the electronic communications industry, and to take supportive measures. This is in line with the general approach adopted in the liberalization of network industries, whereby the Ministry takes on responsibility for general formulation of policy and strategy for the industry, and an independent regulatory authority is given responsibility for the formulation and implementation of necessary regulations. As we shall see, however, the question of independence of the regulatory authority has been a constant issue for effective implementation.

The ECL empowered the regulatory agency and changed its name to the Information and Communications Technologies Authority (Bilgi Teknolojileri ve İletişim Kurumu, or BTK).

More specifically, Article 6 authorizes the BTK to do the following: \(^{22}\)

- To undertake regulations so as to install and protect competition and to prevent activities that hamper or distort competition, and to impose remedies on operators with significant market power (SMP) and on other operators if necessary;
- To undertake market analysis and determine operators with SMP;
- To maintain Board decisions, along with justifications and procedures, on matters of interest to operators and consumers open to public;
- To approve, as necessary, tariffs and reference access offers.

Two virtues of the law deserve to be emphasized. First, there is an explicit reference to market analysis to determine operators with SMP (even if the market...
analysis procedures lack a firm basis in the law).23 Second, the requirement that the BTK has to publish its decisions with justifications is of particular importance for transparency and accountability.24

Following the adoption of the ECL, the BTK released or renewed the necessary secondary legislation, including ordinances on the following: Authorizations, Rights of Way, Access and Interconnection, Determination of Operators with SMP and Obligations that can be Imposed on Them, Tariffs, and Number Portability.

The European Commission’s views on the legislation were mildly positive:25 “[ECL] is a significant step towards aligning Turkey’s regulatory framework with the EU acquis, notably as regards the authorisation rules and the tasks of the regulator… The amendments to the law have the potential to create the conditions for competition on the fixed telephony market.” The EC also expressed some reservations:26 “However, the Electronic Communications Law is not in line with the acquis, in particular the provisions on universal service obligations, and as regards the scope of authorisation rules, which does not apply to existing concession agreements.”

The lack of progress in the development of competition is due to weak implementation and enforcement rather than the lack of legal instruments.

Although the legal gaps between the EU and the Turkish regulatory frameworks were not eliminated, they were narrowed down. The foremost implication of this is that the lack of progress in the development of competition was then due to weak implementation and enforcement rather than the lack of legal instruments.

Implementation (2008–Present)

As shown in the “Infrastructure” section above, despite regulatory liberalization, the incumbent Türk Telekom’s domination in the fixed-line telephony and broadband segments has continued, and the progress in competition as well as infrastructure development remains slow.

Some limited but favorable developments have occurred in the last six years. The following is compiled from the European Commission’s annual Turkey Progress Report from 2010–13:

- The BTK is publishing three-year strategic plans (so far, 2010–12 and 2013–16) and quarterly market reports. It also publishes justifications of decisions taken, which is a positive development for the transparency and accountability of its activities.
- A communiqué was published in February 2012 to improve the service quality of Internet service providers. However, the quality of ISPs has not improved significantly.
- Fixed number portability and wholesale line rental became operational in early 2012.
- Mobile termination rates (MTR) were further reduced. Fixed termination rates, however, remain higher than the EU average, and calls of international origin are exempted from the MTR regulation, resulting in distortion of the market.

In addition to the foregoing, in 2010 Türk Telekom was finally required to provide naked DSL services. Provision of naked DSL means that Türk Telekom can no longer bundle voice and data services together and that subscribers can subscribe to DSL services alone, without having to pay for voice services as well. Despite pressure from public and alternative operators, for years the BTK had not asked Türk Telekom to provide naked DSL, which would mean revenue loss for the incumbent and would increase the competitiveness of alternative ISPs. The unavailability of naked DSL was slowing down consumer switching from fixed to mobile telephony and retarding demand for VoIP services.

Yet again it was only through a Competition Authority ruling that Türk Telekom was forced to provide naked DSL services.27 What should have been the BTK’s role as the independent agency regulating telecommunications infrastructure development was again fulfilled by the Competition Authority.

Around the same time that the ECL was enacted in Turkey, a new technological concept had emerged in telecommunications at the global level: New (or Next) Generation Networks (NGN).28 Being packet-based, NGN uses Internet Protocol (IP) and enables the deployment of access-independent services over converged fixed and mobile networks. As such, broadband plays the core role in NGNs and has become the most crucial technology in telecommunications.
Faced with this new challenge, in an October 2011 decision the BTK excluded fiber from market analysis for the next five years or until the percentage of fiber-based subscriptions reaches 25 percent of all fixed broadband subscriptions. Türk Telekom’s reference offer, as approved by the BTK, includes the terms and conditions of facility-sharing, and Türk Telekom committed to provide wholesale and bitstream services over its fiber network on a nondiscriminatory basis. The objective of exclusion was to incentivize Türk Telekom to invest in fiber development that ISPs could then use through facility-sharing agreements.

Excluding fiber from market analysis has not served its purposes, however. Türk Telekom’s investments in broadband in general and in fiber in particular have not increased in recent years. In fact, according to an analysis by the Competitive Telco Operators Association (TELKODER)—members of which are all the telecommunications and Internet firms in Turkey, except for Türk Telekom—the investment/revenue share of Türk Telekom between 2010 and 2013 is 17.2 percent, while the combined alternative operator revenue is 38.8 percent.

There are a number of other implementation problems regarding the growth of broadband in general and fiber infrastructure in particular. The most important is that alternative operators face difficulties in acquiring rights-of-way to deploy mobile/wireless and fiber networks. Under an executive order from 2011, the Ministry is supposed to encourage Türk Telekom to reach an agreement with alternative providers for right-of-way concessions. Yet, due to lack of responsiveness on the part of Türk Telekom, in the last eight months alternative operators have been unable to install a single yard of fiber.

CONCLUSION

Turkey has great potential for growth in telecommunications and the Internet sector given its young population and high technology adoption rates. The BTK has the legal instruments, financial resources, and institutional capabilities to encourage this growth. However, this potential has not sufficiently translated into the expansion of the sector. In fact, according to the BTK’s own annual figures, in dollar terms there has been no significant growth in the telecommunications and Internet sector from 2008 to 2013.

With the exception of the incumbent Türk Telekom, there is consensus in the sector that the root cause of this insufficient growth is the lack of progress in fostering competition. The underlying reasons for this lack of competition are the BTK’s scant degree of independence from the Ministry and the continued close ties of Türk Telekom with the current administration.

In regard to the BTK, the Ministry of Transportation remains responsible for overall government telecommunications policy, proposes names for BTK board members to the cabinet, and exercises approval power over changes in license fees proposed by the BTK. It also oversees Türksat, the government operator of Turkey’s three communications satellites and the holder of Türk Telekom’s former cable company assets. The Cabinet of Ministers appoints BTK board members without any consultation with the sector.

The prime minister’s attitude towards independent regulatory agencies was shown early in his premiership in 2004, when he expressed frustration that “We give instructions to the boards of regulatory agencies, they say ‘yes, sir’ but then they don’t do what we say.” After 10 years of one party in power, fewer and fewer people are not doing what they’re told. The last 10 years have demonstrated the consequences of this approach, with decreasing independence evident among regulatory agencies not only in telecommunications but in other areas as well, such as media regulation and public procurement.

As for Türk Telekom, despite privatization in 2005, the company remains very close to the government. The Turkish Treasury owns 30 percent of the company, and the Undersecretary of the Ministry of Transportation is the vice-chair of the board. In March 2014, the chief advisor to Prime Minister Erdoğan (a former newspaper columnist with no background in telecommunications) was appointed to the board as an independent member. These close relationships ensure that Türk Telekom continues to receive preferential treatment regardless of the legal obligations that should prevent favoritism.

In order for Turkey to fulfill its potential for growth Internet infrastructure and telecommunications services, the first and foremost step must be to eliminate political intrusion into the sector.