

Chapter 2

ACCESS TO COMMUNICATION SERVICES

2. ACCESS TO COMMUNICATION SERVICES

This chapter focuses on one of the foundations for a digital transformation: communication infrastructure and services. High-quality fixed and mobile communication networks are crucial for the further development of the Colombian digital economy, as is ready access to these networks at competitive prices.

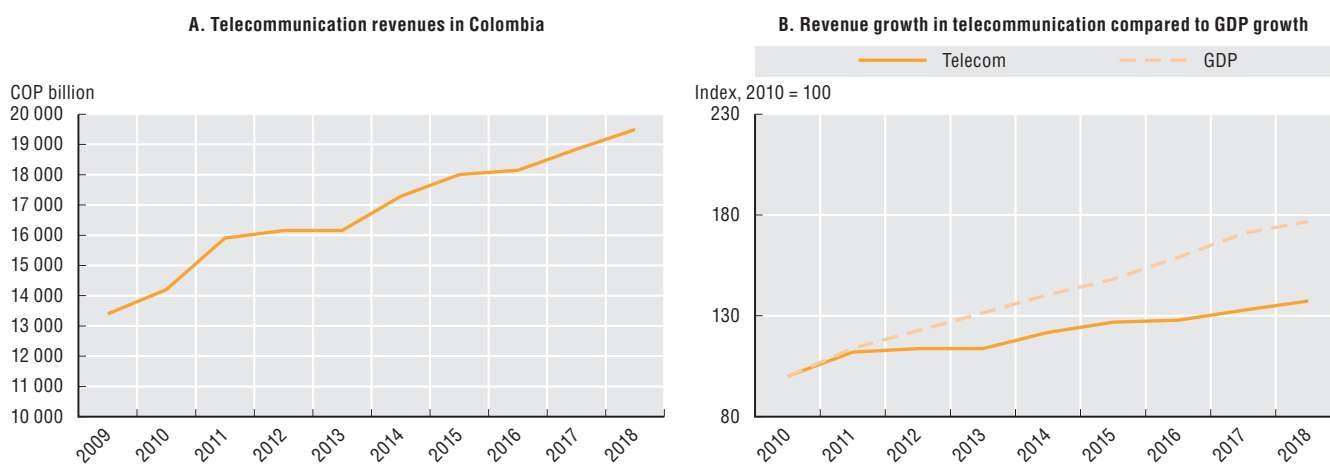
This chapter commences with an examination of the Colombian communication market. This includes a discussion of trends in the industry, including in the areas of revenues and investment, before analysing developments in access to services as well as prices in both fixed and mobile communication markets. It subsequently focuses on selected developments in market structure. The third and closing part of the chapter discusses the main regulatory and policy developments. It does so by examining the institutional framework for sectorial regulation and the activities by authorities to enhance access to and use of communication services. It also includes a discussion of Law 1978 of 2019 for the “modernisation of the ICT sector, the distribution of powers, the creation of a single authority, and other provisions”, hereafter referred to as the “ICT Modernisation Law”.

Developments in the Colombian communication market

Overview of the Colombian communication market

A range of indicators can be examined to assess developments in the Colombian communication market. A key starting point is the size of the communication sector and its development over recent years. In 2018, total communication revenues amounted to COP 19 500 billion, up from COP 13 400 billion in 2009 (Figure 2.1A). Revenues have been increasing constantly since 2009, which is in line with trends for countries that still have a significant level of unmet demand. Nevertheless, when comparing the industry’s performance to overall gross domestic product (GDP) growth, the communication sector has done worse than the overall Colombian economy. From 2010 to 2018, Colombian GDP grew by 77%, while revenues in the communication sector only grew by 37% (Figure 2.1B).

Figure 2.1. Colombian GDP grew stronger than Colombian communication revenues



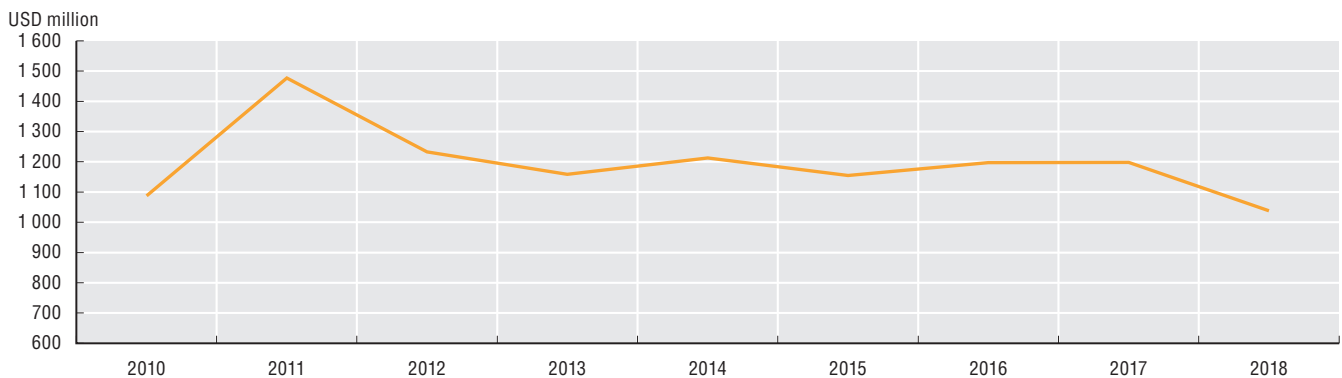
Note: GDP for 2018 is an estimate.

Source: OECD, based on CRC.

Besides revenue, the level of investments in the communication sector is also an important indicator. Investments are needed to expand networks, to upgrade networks and to improve the overall quality of the communication infrastructure in any country. Investments in mobile communication infrastructure rose between 2008 and 2011, but have been fluctuating around USD 1 200 million since and declining to USD 1 038 million in 2018 (Figure 2.2). In light of the need to increase the availability of mobile services, especially when it comes to 4G networks, there is a need to encourage investment. In the future, upgrading these networks to provide 5G services will also require significant investment. There currently are no data available on overall investments in the communication sector.

Figure 2.2. Investments in mobile communication infrastructure rose until 2011, but have been stagnating since

Investments in mobile communication infrastructure in Colombia



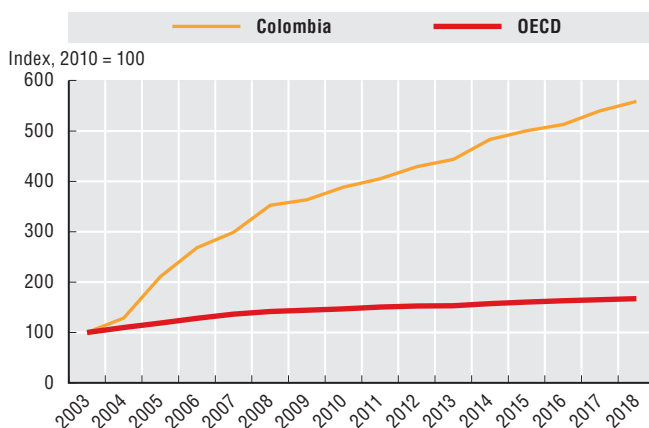
Source: GSMA Intelligence.

The number of total access paths has been growing in Colombia (Figure 2.3A). By 2018, there were 78.18 million access paths, compared to 54.32 million in 2010 (Figure 2.3B). The growth in access paths has been mainly driven by the growth in mobile subscriptions. The number of traditional fixed telephone lines is declining, which is in line with broader developments across the OECD, where users of communication services increasingly substitute fixed voice with other services such as mobile telephony.

The overall faster growth in access paths compared to the average OECD growth can be explained by the fact that Colombia needs to close an important gap with other OECD countries in terms of penetration, in particular with respect to fixed broadband. This is discussed in the following two sections on developments in fixed and mobile communication markets.

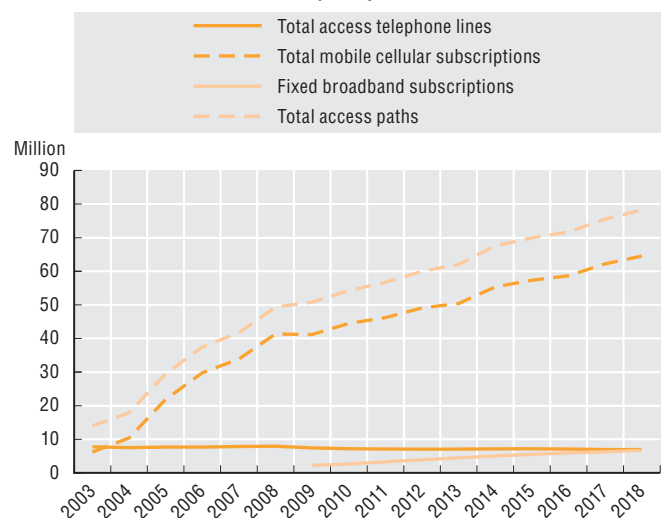
Figure 2.3. The number of total access paths has been growing, mainly driven by growth in mobile subscriptions

A. Trends in access paths in Colombia compared to the OECD



Source: OECD, based on CRC.

B. Trend in access path by communication service



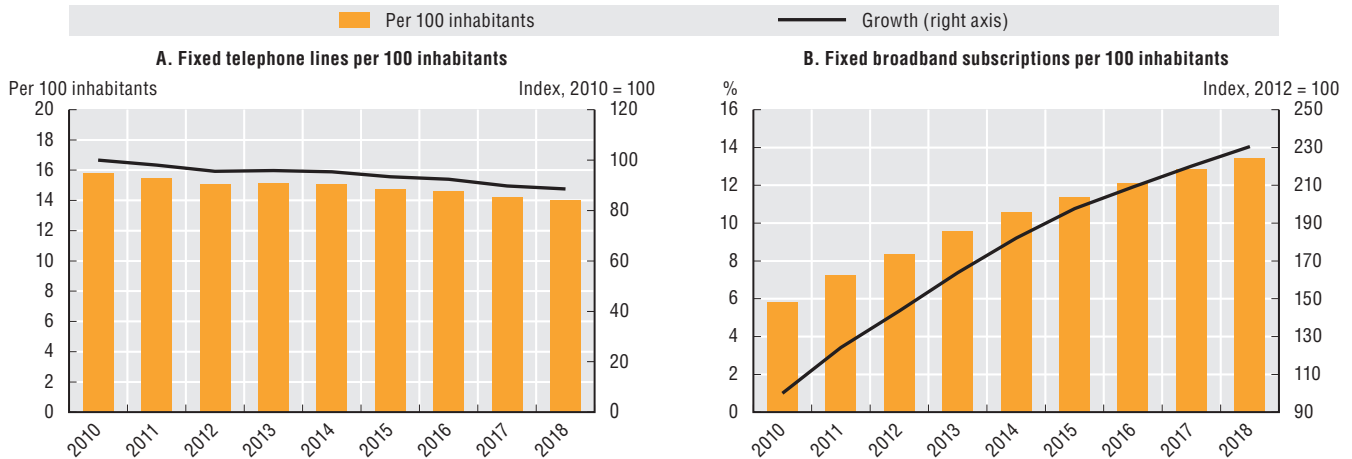
Fixed networks and quality of fixed networks

In recent years, the use of fixed communication infrastructure has evolved in different ways. The number of fixed telephone lines has slightly decreased, from 15.8 lines per 100 inhabitants in 2010 to 14.0 lines in 2018 (Figure 2.4A). Meanwhile, access has increased for fixed broadband (Figure 2.4B). Between 2012 and 2018, the penetration rate for fixed broadband subscriptions rose from 8.4 to 13.4 subscriptions

2. ACCESS TO COMMUNICATION SERVICES

per 100 inhabitants. While Colombia had a higher year-on-year growth rate than the OECD average in 2017-18 (2.2%), its growth rate for fixed broadband subscriptions (4.4%) ranks after its peers Mexico (6.7%) and Chile (4.8%). More progress is needed to close the gap with other OECD countries.

Figure 2.4. Fixed telephone lines slightly decreased while fixed broadband subscriptions rates increased

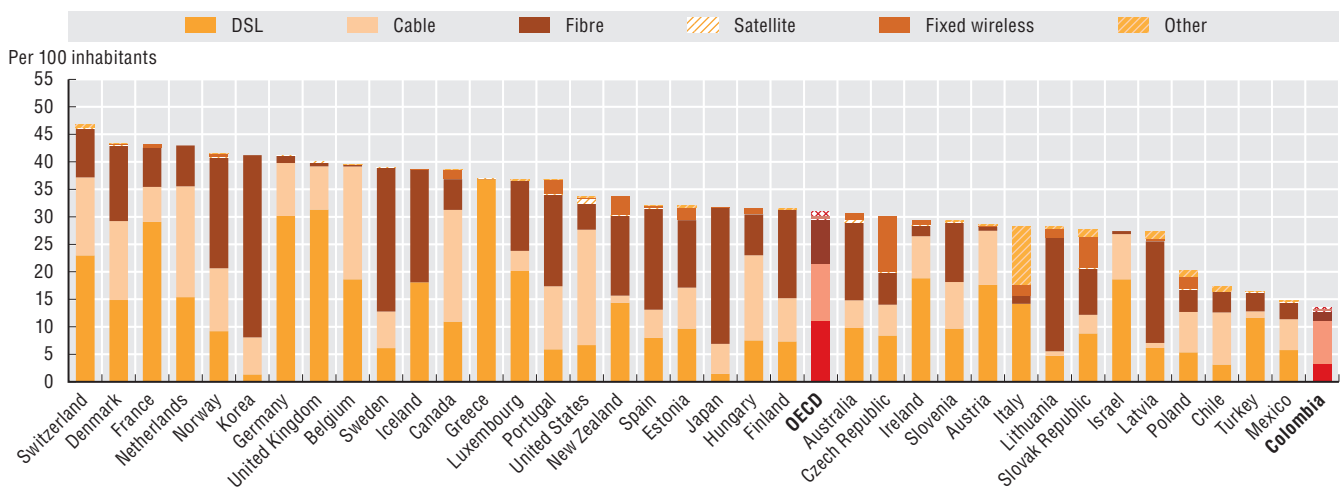


Source: OECD, based on CRC.

Compared to other OECD countries, Colombia has the lowest fixed broadband penetration, after Mexico, Turkey and Chile (Figure 2.5). While broadband growth in many Latin American countries is driven by mobile broadband, fixed broadband plays an important role in further increasing overall connectivity and in contributing to the quality of service (QoS) over all networks. As is the case for all OECD countries, fixed broadband networks can provide greater speeds. This is especially true for fibre connections. In addition, fixed networks play a critical role by offloading traffic from wireless networks. By way of example, according to CISCO, some 60% of mobile data was offloaded to fixed networks through Wi-Fi or femtocells in 2016, equivalent to 10.7 exabytes per month (CISCO, 2017). This issue becomes more important with an increasing volume of mobile Internet traffic.

Figure 2.5. Colombia has one of the lowest fixed broadband penetrations

OECD fixed broadband subscriptions per 100 inhabitants, December 2018, selected countries



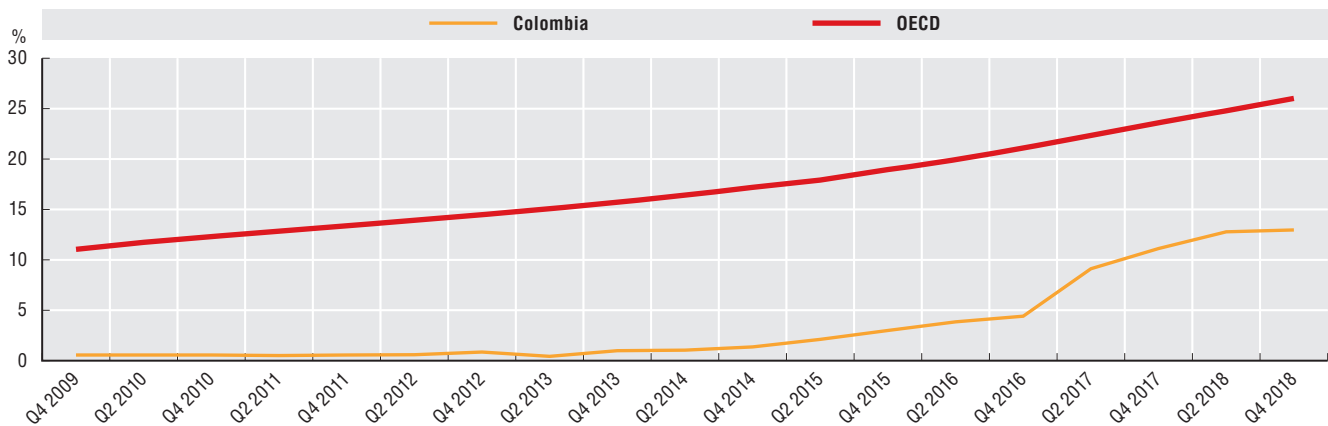
Notes: Australia: Data reported for December 2018 and onwards are being collected by a new entity using a different methodology. Figures reported from December 2018 comprise a series break and are not comparable with previous data for any broadband measures Australia reports to the OECD; Canada: Fixed wireless includes satellite; France: Cable data include VDSL2 and fixed 4G solutions; Italy: Terrestrial fixed wireless data include WiMax lines; Other includes vDSL services. Data for Canada, Switzerland and the United States are preliminary.

Source: OECD (2019), *Broadband Portal*, www.oecd.org/sti/broadband/oecd_broadbandportal.htm.

In terms of its technology mix, most of the fixed broadband subscriptions in Colombia are cable subscriptions (7.8 subscriptions per 100 inhabitants), followed by those using xDSL (3.3 subscriptions per 100 inhabitants). Fibre subscriptions in Colombia amount to 13.0% of total fixed broadband connections, compared to 21.6% in Chile and 20.1% in Mexico. Alongside the OECD average, Colombia has experienced a sharp increase in the use of fibre connections in recent years (Figure 2.6). This is a welcome development as it is one indicator of higher network capabilities stemming from greater fibre deployment. Nonetheless, despite this progress, Colombia still lags well behind the OECD average in terms of the percentage of fibre of total fixed broadband.

Figure 2.6. Colombia has experienced a sharp increase in the use of fibre connections in recent years

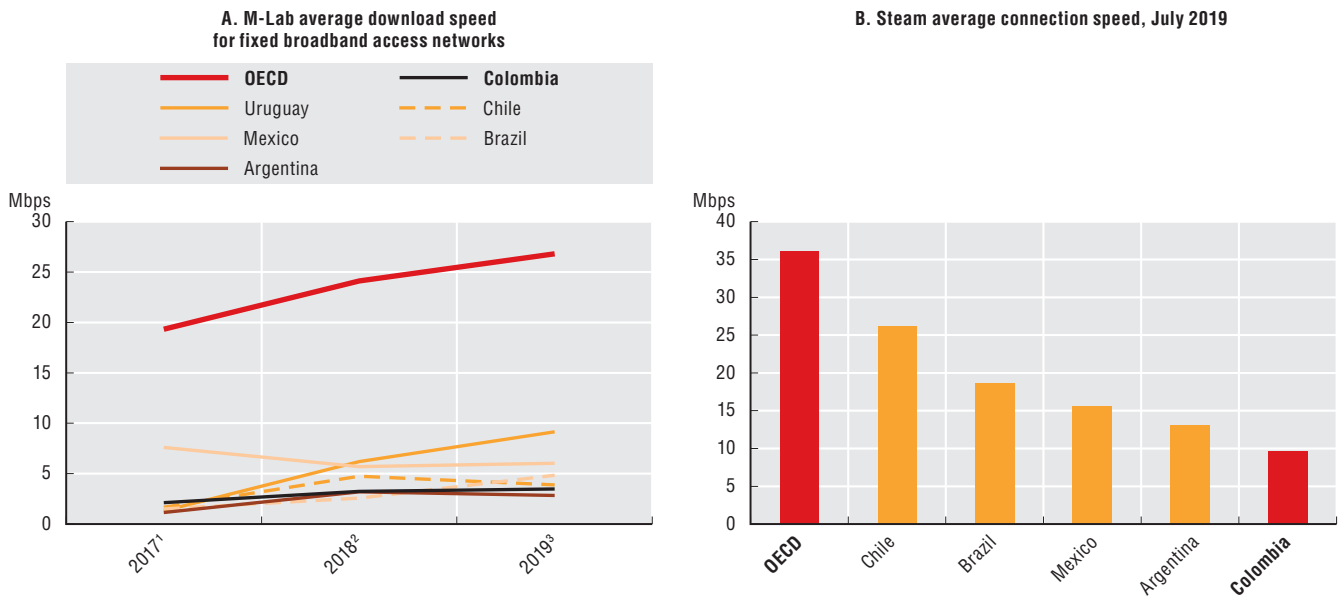
Fibre as a percentage of total fixed broadband



Source: OECD, based on CRC.

Figure 2.7. Colombia lags behind the OECD average and its Latin American peers on broadband speeds

Internet download speed, selected Latin American countries



1. Data for 2017 were measured between June 2016 and May 2017.

2. Data for 2018 were measured between June 2017 and May 2018.

3. Data for 2019 were measured between June 2018 and May 2019.

Sources: M-Lab (2019), "Worldwide broadband speed league 2019", <https://www.cable.co.uk/broadband/speed/worldwide-speed-league>; Steam (2019), Steam download stats, <http://store.steampowered.com/stats/content>.

2. ACCESS TO COMMUNICATION SERVICES

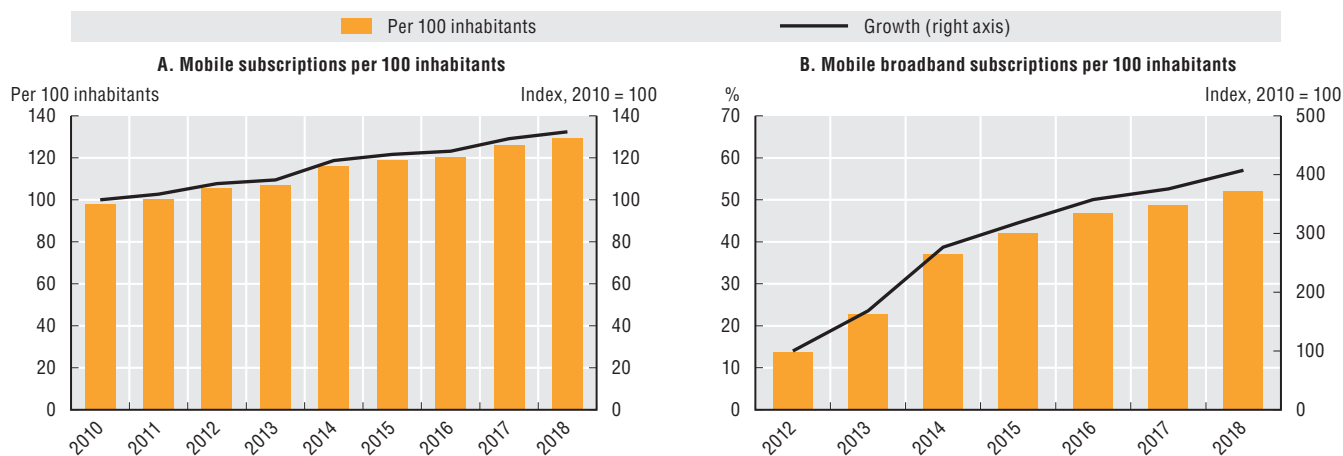
Aside from assessing the penetration of broadband use, it is equally important to evaluate the quality of networks. An important quality parameter is the speed of broadband networks. Higher network speeds are particularly necessary for demanding applications in areas such as health (e.g. medical imaging) or industry automation. Different entities measure the speed of Internet connections from their perspective. This is one reason multiple sources on speeds should be examined to provide a wider view of performance. M-Lab, for example, provides a broad view on broadband speeds due to the large amount of speed tests it compiles. For the average connection speed measured by M-Lab for fixed broadband networks, Colombia lags well behind the OECD average. It also ranks well below its Latin American peers. In 2018, the average download speed was 3.48 megabits per second (Mbps), compared to an OECD average of 26.81 Mbps and to 6.02 Mbps in Mexico and 3.89 Mbps in Chile (Figure 2.7A).

Looking at a community for which higher broadband speeds are very important is a further way to examine network capabilities in terms of the speeds experienced by users. The online gaming platform Steam, for example, collects data on the speeds experienced by gamers over fixed and mobile networks. This community is not only one of the most demanding user groups on the Internet, but also tends to be well informed and has an incentive to seek higher performance levels. As such, average speeds reported on this website are usually higher than the M-Lab data as only gamer subscriptions are being considered. In July 2019, average download speed for Colombia was 9.6 Mbps, compared to 26.2 Mbps in Chile, 15.6 Mbps in Mexico and an average of 36.1 Mbps for the OECD overall. While both sources, as would be expected, produce different benchmarks, the results are consistent for the performance of broadband speeds in Colombia in comparative terms. Overall, average network speeds are much lower than the OECD average and also for regional peers (Figure 2.7B).

Mobile networks and quality of mobile networks

The use of mobile services has been the primary driver for increasing connectivity in Colombia over recent years. From 2012 to 2018, mobile broadband subscriptions rose from 13.7 to 52.1 per 100 inhabitants, which represents a growth of 281% (Figure 2.8B). The large majority of subscriptions are voice and data subscriptions (98.5%) with few data-only plans.¹ Mobile voice subscriptions grew slower than mobile broadband subscriptions, from 97.7 subscriptions per 100 inhabitants in 2010 to 129.5 subscriptions per 100 inhabitants in 2018, which represents a growth rate of 32.5% (Figure 2.8A).

Figure 2.8. The use of mobile services has been the main driver for the increase in connectivity in Colombia

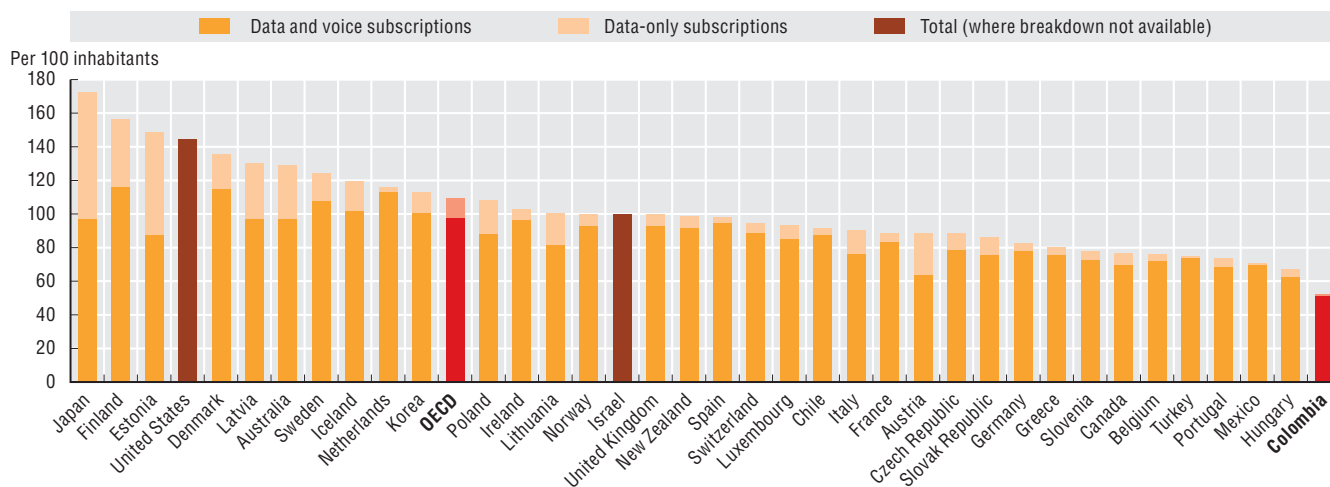


Source: OECD, based on CRC.

While the growth in mobile broadband subscriptions is laudable, it is very much needed to close the existing gap with OECD countries, both in terms of overall subscriptions and in terms of data usage. Currently, Colombia has the lowest penetration of mobile broadband among OECD countries (Figure 2.9) and a lower level of data usage. Colombian mobile broadband subscribers consume on average 1.62 gigabytes (GB) of data per month, which compares to an OECD average of 4.56 GB per month and 19.39 GB and 16.40 GB per month for the leading OECD countries Finland and Austria, respectively. It is also relevant to note that users in other countries have higher access levels to fixed network subscriptions than Colombians. In other words, they have a greater opportunity to substitute usage on these connections (e.g. using smartphones on residential Wi-Fi instead of cellular networks).

Figure 2.9. Colombia has the lowest penetration of mobile broadband among OECD countries

OECD mobile broadband subscriptions per 100 inhabitants, selected countries, December 2018



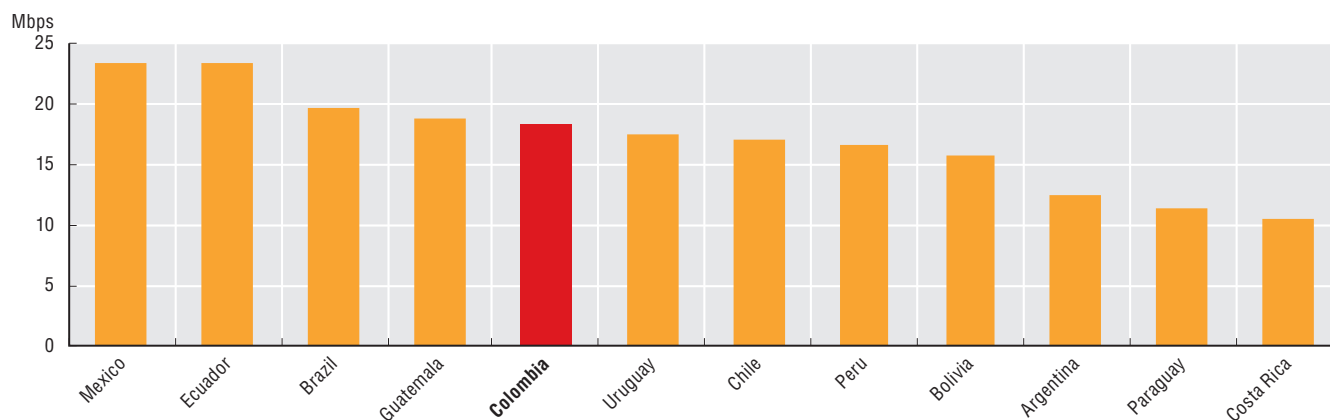
Notes: Australia: Data reported for December 2018 and onwards are being collected by a new entity using a different methodology. Figures reported from December 2018 comprise a series break and are incomparable with previous data for any broadband measures Australia reports to the OECD. Data for Canada, Switzerland and the United States are preliminary.

Source: OECD (2019), Broadband Portal, www.oecd.org/sti/broadband/oecd-broadband-portal.htm.

A perspective on mobile network performance can be provided from the data collected by OpenSignal, including over different network generations. OpenSignal collects real-time data from mobile phone users that have downloaded its application on their smartphone. This is done at different times of the day and from different locations (e.g. indoors, outdoors). The share of subscriptions of 4G (Long-Term Evolution networks) in Colombia reached 52.3% in the second quarter of 2018, up from a share of 12.8% in the second quarter of 2015, reflecting a compound annual growth rate of around 60% (CRC, 2019). For 4G networks, OpenSignal measured average download connection speeds of 18.42 Mbps for Colombia. This was roughly 5 Mbps less than Mexico, the leading country in Latin America at the end of 2017 (OpenSignal, 2018) (Figure 2.10). To further improve the performance experienced by users in terms of speed, operators will need to invest in upgrading their networks and look for other ways to accomplish this, such as enhancing Internet traffic exchange (i.e. transit and peering relationships). These investments can be fostered through competition in the market (see further below). Enhancing Internet traffic exchange is one of the attributes often noted by Internet service providers measured as providing the highest speeds to their users across OECD countries.

Figure 2.10. Colombia ranks in the upper mid-range in average Long-Term Evolution download connection speeds

OpenSignal average download connection speed on Long-Term Evolution networks, October-December 2017



Source: OpenSignal.

2. ACCESS TO COMMUNICATION SERVICES

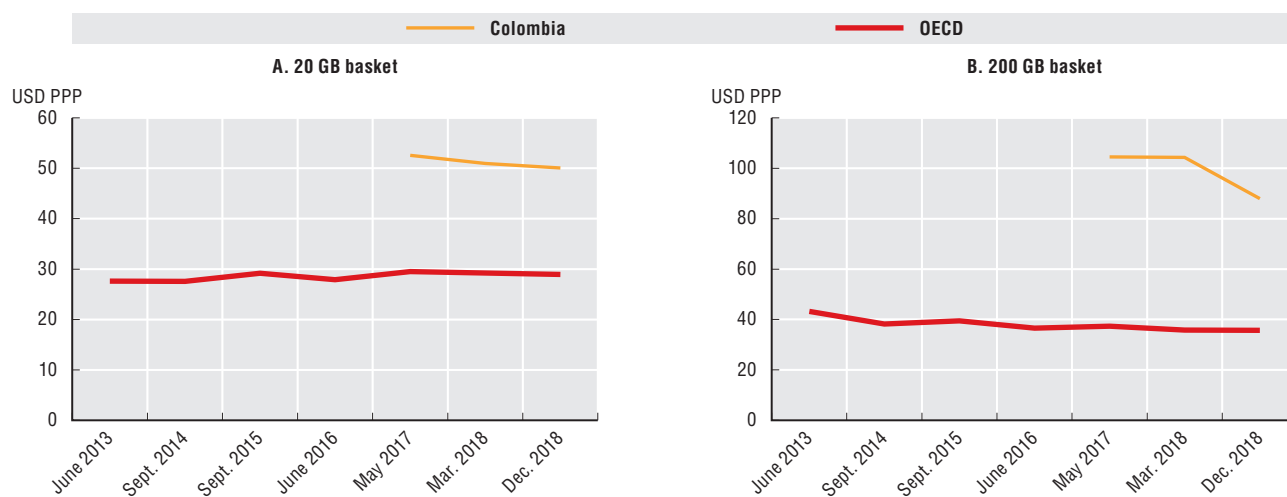
Prices for fixed and mobile broadband services

Communication prices are one indicator of the level of competition in a market and can of course influence the take up of services, especially in countries where there is unmet demand by low-income groups.

The OECD price baskets measure the prices for different patterns of usage across different countries and time. For fixed broadband, two baskets, one low-usage basket of 20 GB and one high-usage basket of 200 GB, are assessed in the context of this Review (Figure 2.11). Between May 2017 and December 2018, the price of Colombia's low-usage basket slightly fell by around 5%, from USD PPP 52.6 to USD PPP 50. This price, however, is nearly double the OECD average of USD PPP 29 in 2018. The difference between Colombia and the OECD average is even more striking for the high-usage basket. Although prices in Colombia fell between May 2017 and December 2018, Colombian users pay nearly 2.5 times as much, or USD PPP 88, as the OECD average of USD PPP 35.7 for the high-usage basket of 200 GB. These prices are also higher than in Mexico, another OECD country in the region. The Colombian price levels are consistent with the low penetration rates of fixed broadband discussed earlier in this chapter. High prices provide an important barrier for users, both consumers and businesses, in low-income groups and prevent them from benefiting from the opportunities created by access to fixed broadband.

Figure 2.11. High prices may prevent low-income groups from benefiting from the opportunities created by access to fixed broadband

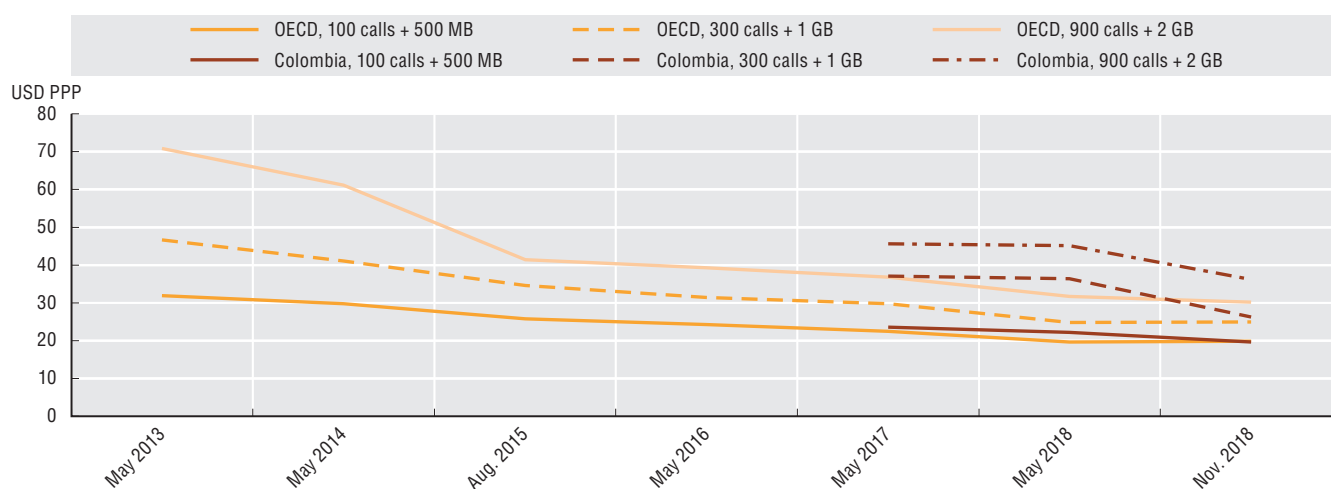
Trends in fixed broadband prices



Source: OECD, based on Strategy Analytics.

Between 2016 and 2018, mobile broadband prices slightly fell in Colombia for the low- and high-usage mobile broadband baskets. The price of the low-usage basket with 100 calls and 500 megabytes, USD PPP 19.6, is slightly below the OECD average of USD PPP 19.9 (Figure 2.12). Prices in the medium- and high-usage baskets also decreased. However, they are still more expensive than the OECD average. In November 2018, the price for the medium-usage basket amounted to USD PPP 26.3, compared to an OECD average of USD PPP 24.9. For the high-usage basket with 900 calls and 2 GB of data, consumers in Colombia paid USD PPP 36.2, which represents roughly 20% more than the OECD average of USD PPP 30.2.

The overall price differences for mobile broadband services are lower than those for fixed broadband services, which is consistent with the increases in mobile broadband subscriptions in recent years. However, the price of the high-usage basket is still significantly higher than the OECD average. Given that mobile broadband is driving growth in access to communication services and that Colombia has a low penetration of overall mobile broadband, high prices are an important barrier to further increasing access to mobile communication services. At the same time, the importance of mobile communication is rising with further developments in the digital economy, from mobile payment to Internet of Things (IoT) applications for both consumers and businesses. Many of these applications could be used to reduce inequality in Colombia and to connect people, especially in lower income groups, to markets they have no access to so far, such as payment and banking services.

Figure 2.12. The price of the high-usage basket remains significantly higher than the OECD average

Note: MB = megabyte; GB = gigabyte; PPP = purchasing power parity.

Source: OECD, based on Strategy Analytics.

High prices in markets typically point to a situation of low levels of competition intensity. The next section will assess the structure of fixed and mobile communication markets as well as Internet traffic exchange.

Developments in market structure

Developments in the fixed and mobile broadband market

Colombia's fixed communication market is characterised by considerable market fragmentation. On the one hand, there are regional companies that arose from former regional monopolies (e.g. ETB, Emcali) with only a few that are able to profit from a larger scale (OECD, 2014a). On the other hand, there are firms operating at the national level with important market shares, which leads to a high level of concentration in several communication markets. These players include, for example, América Móvil and Telefónica. Both companies are large international players with a presence in multiple Latin American countries and can take advantage of benefits that arise from their scale. Currently, the Colombian government has a state participation of 32.5% in Telefónica Colombia. However, the government is trying to sell its stake under the condition that the terms of the sale are favourable.

The fixed line voice market currently has 18 participants providing local services and 10 participants providing long-distance services (Annex 2.A). Notwithstanding the numerous players, market concentration has increased in recent years. Four companies accounted for almost 90% of total market share in 2018, up from 80% in 2012. The company with the largest market share is Telmex, owned by América Móvil, followed by UNE EPM, Coltels and ETB (Figure 2.13). Of these, Telmex has seen the biggest increase in market share over the past five years, more than doubling its market share from 16.6% in 2013 to 33.6% in 2018.

A similar tendency can be observed in the fixed broadband market (Figure 2.14). Telmex witnessed the biggest increase in market share since 2012, reaching 37.4% in 2018, up from 29.8% in 2012. For its part, UNE EPM experienced a decline in its market share of 23.6%. In 2014, however, Edatel became part of Tigo-Una Telecomunicaciones S.A. after the merger of Tigo and UNE. Taking this into account, the joint market share of UNE EPM and Edatel fell from 29.7% in 2012 to 23.7% in 2018, representing a decline of 20.3%. Movistar (Telefónica) equally saw its share declining (-17.2%). The joint market share of the three leading companies, Telmex, UNE EPM and Movistar, has seen little change over the past five years, amounting to 74.9% in 2012 and 73% in 2018.

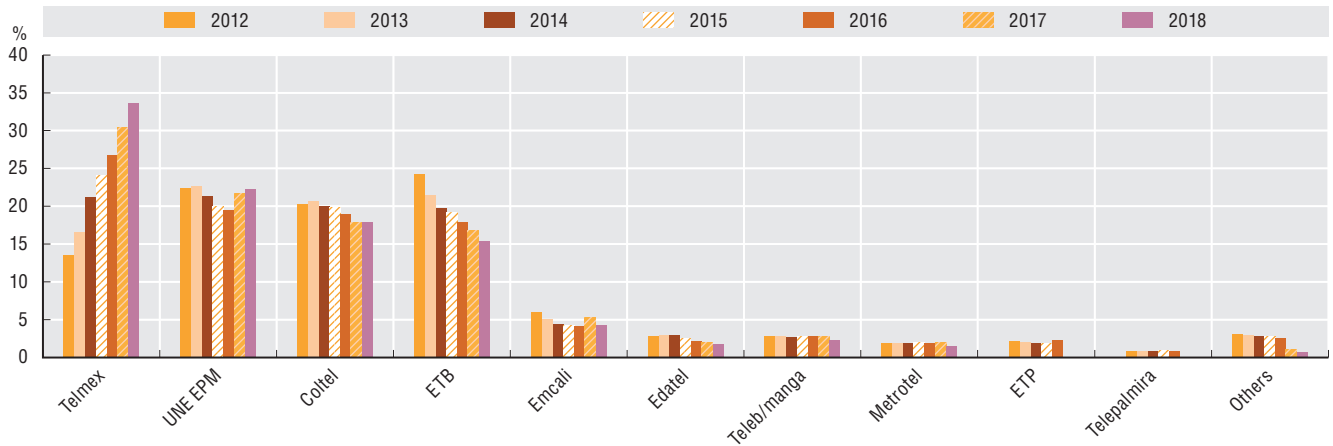
The Colombian mobile market consists of four mobile network operators (MNOs) with their own network (Comcel [América Móvil], Movistar [Telefónica], Tigo-Una and Avantel) and several mobile virtual network operators (MVNOs). Avantel is the most recent MNO entrant to the Colombian market

2. ACCESS TO COMMUNICATION SERVICES

and relies on a 4G-only network, complemented by the provision of voice services over 2G and 3G networks of other operators and using national roaming as an essential facility. It commenced services in 2014 in 22 municipalities in Colombia, in major Colombian cities such as Bogotá, Medellín and Cali. Several MVNOs (e.g. Éxito, Uff Móvil, Virgin) have entered the Colombian market; Uff Móvil was the first in 2010.

Figure 2.13. Market concentration in the fixed line voice market has increased in recent years

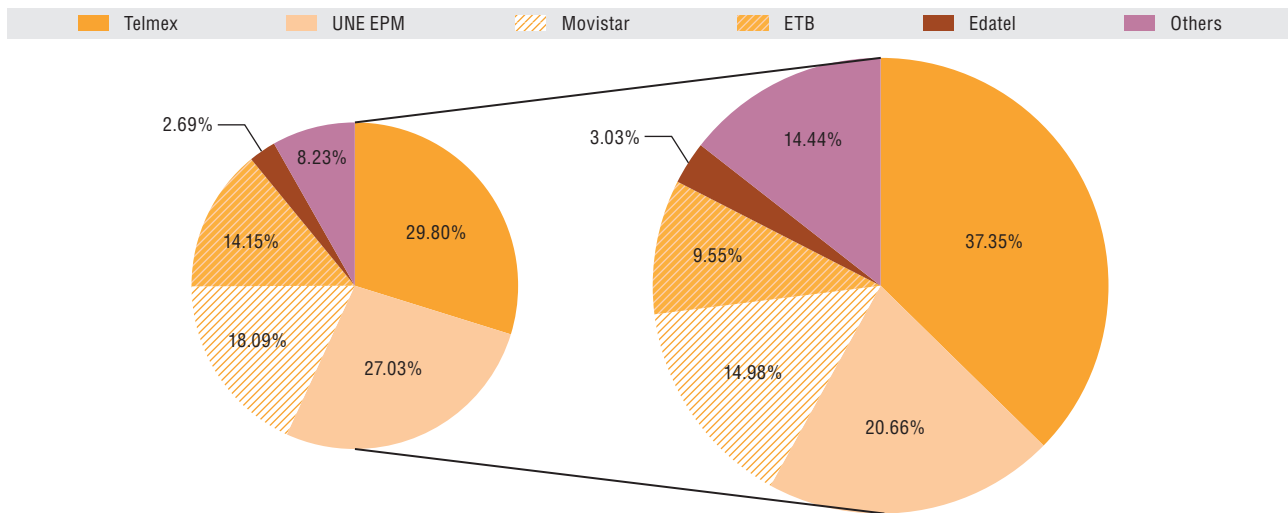
Market shares in the Colombian fixed line voice market, local calls



Source: CRC.

Figure 2.14. The three leading fixed broadband companies account for almost three-quarters of the market share

Fixed broadband market shares in Colombia, 2012 and 2018



Source: CRC.

As might be expected in a market with more operators with their own infrastructure, competition has developed faster for mobile than for fixed services. That being said, there is still a player with a substantial share of the mobile and fixed broadband markets. In August 2014, Tigo merged with the fixed line company UNE EPM, which allows the merged company to offer full bundles of fixed and mobile voice and data services as well as television services.

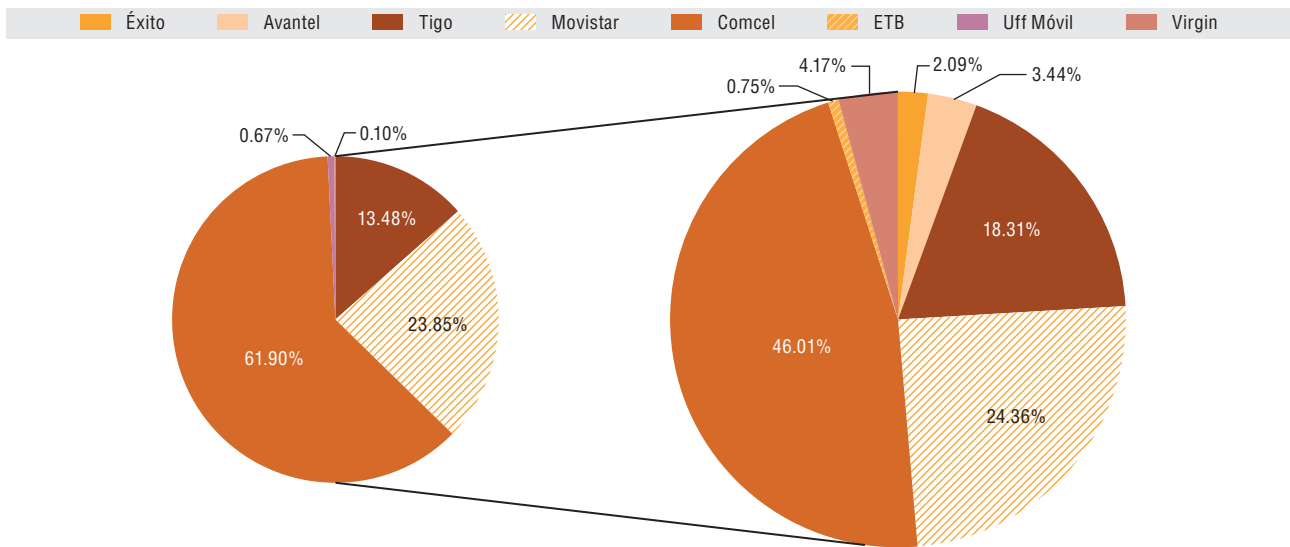
The mobile voice market currently has eight participants, with one provider, Mercanet, which has not started operations yet. In 2012, Comcel was the largest player in the mobile voice market. Comcel operates under the brand name Claro in Colombia, with a market share of 61.9%, followed by Movistar

(Telefónica) and Tigo with market shares of 23.9% and 13.5% at that time, respectively (Figure 2.15). The only MVNO that operated in 2012 was Uff Móvil, with a market share of 0.7%. Five years later, Comcel has lost some market share to attain a share of 46.0% in 2018. Movistar remained at about the same position while Tigo-Una was able to increase its market share to hold 18.3% of the voice market. Meanwhile, the MVNOs in the market have increased their market share and reached 7% of the total mobile voice market, with Virgin being the biggest player with a share of 4.2%.

The mobile broadband post-paid and prepaid markets show similar rankings in market share as the mobile voice market. In the mobile broadband post-paid market, Comcel increased its market share from 43.4% in 2012 to 52.3% in 2018 (Figure 2.16). Meanwhile, Movistar (Telefónica) and Tigo each lost market shares in the six-year period while Avantel increased its market share to 4.52% after its entry in 2014. The three biggest players hold 94% of the mobile post-paid market.

Figure 2.15. Comcel lost market share but remains the player with the highest mobile voice market share

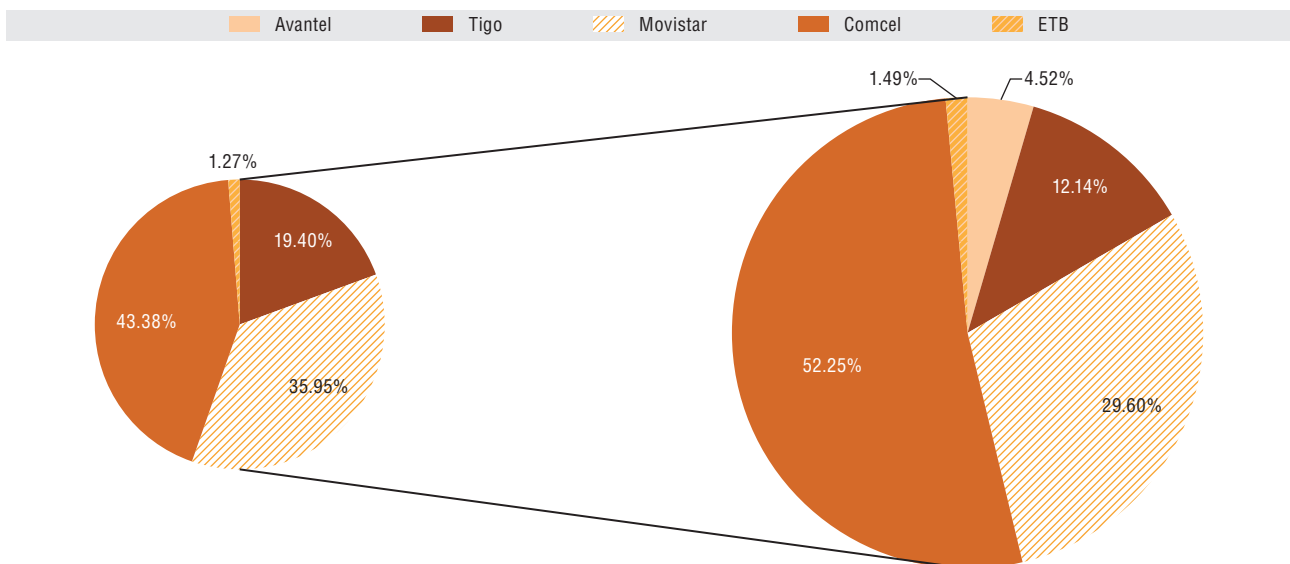
Mobile voice market shares in Colombia, 2012 and 2018



Source: CRC.

Figure 2.16. More than three-quarters of the mobile broadband post-paid market is shared by two players

Mobile broadband post-paid market shares in Colombia, 2012 and 2018



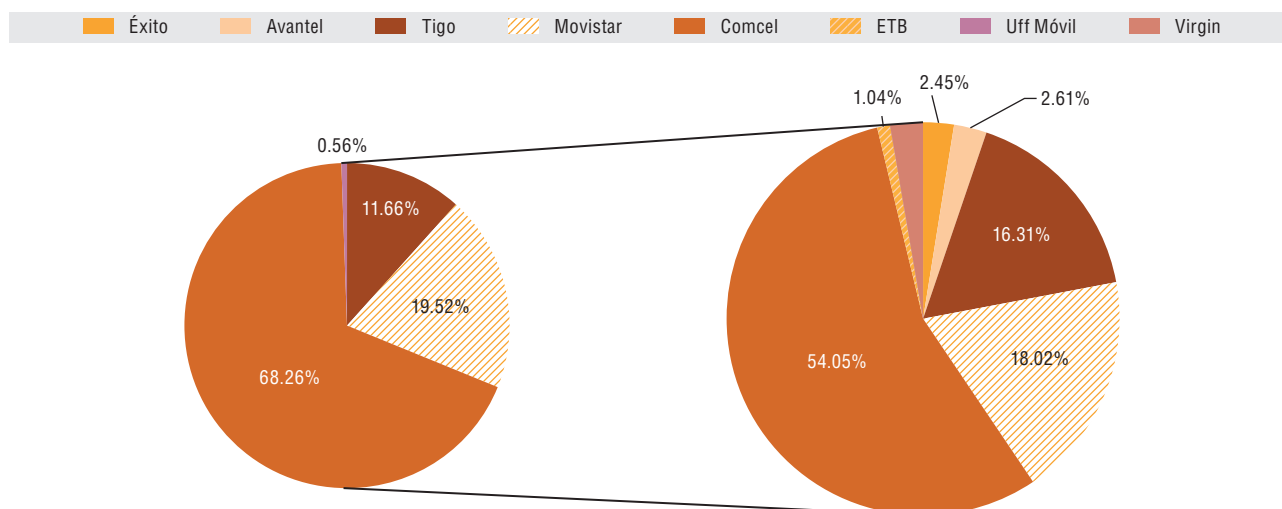
Source: CRC.

2. ACCESS TO COMMUNICATION SERVICES

In the mobile broadband prepaid market, Comcel holds 54.1% of the market, down from 68.3% in 2012 (Figure 2.17). The company is followed by Movistar (Telefónica) and Tigo, which hold 18% and 16.3% of the market respectively. MVNOs could increase their joint market share to 6.11%, with Virgin being the biggest MVNO with a 2.61% market share.

Figure 2.17. More than three-quarters of the broadband prepaid market is shared by two players

Mobile broadband prepaid market shares in Colombia, 2012 and 2018



Source: CRC.

As a result of the Commission for Communications Regulation's (Comisión de Regulación de Comunicaciones [CRC]) review of the Colombian mobile market, the regulator issued Resolution 5108 of 2017, where a new relevant market called "mobile services" was defined, covering the simultaneous purchase of voice and mobile data services. The CRC established that *ex ante* regulation might be applied for this market because some of the existing competition problems may transition from the "mobile voice" market to the "mobile services" market. The regulator opened an investigation to determine whether or not Comcel has a dominant position in the "mobile services" market and whether or not competition problems transition from the "mobile voice" market to the "mobile services" market. Finally, the CRC did not take any decision as the ICT Modernisation Law has suspended this proceeding until the appointment of at least three commissioners of the newly created converged regulator.

To summarise, Colombian communication markets are characterised by a high level of concentration. The increase in the share of MVNOs is welcome as they spur competition in the market. On the other hand, the biggest player in the market managed to increase its market shares in the fixed voice market, the fixed broadband market and the mobile broadband post-paid market. A high market concentration is also in line with the high fixed broadband prices in Colombia.

Developments in Internet traffic exchange

A well-functioning communication infrastructure includes an efficient exchange of Internet traffic. In terms of connecting Colombia to other countries, the country is well served by multiple submarine fibre cables (Box 2.1). Important investments in submarine fibre infrastructure have taken place, which were also promoted by the digital agenda Live Digital (Vive Digital) (OECD, 2014b).

Aside from international interconnection, it is important for Colombia to have efficient Internet traffic exchange domestically and to host content within the country. Routing data via other countries is generally more expensive, as transit costs often increase and this can also increase latency. Routing domestic traffic internationally generally points to a suboptimal development of any country's Internet traffic exchange market.

Internet exchange points (IXPs) are important to keep traffic local (Weller and Woodcock, 2013). Colombia currently only has one significant IXP to exchange traffic at the national level, the NAP Colombia (<http://nap.co>), which is located in Bogotá and run by the Colombian IT and Telecommunication Chamber. When analysing the characteristics of this IXP, several issues are of concern.

Box 2.1. Submarine fibre cable landings: Colombia

Submarine fibre cables form the backbone of the international communication infrastructure. They are deemed less prone to failure than over-land cables and are capable of carrying important amounts of data. With 448 cables in service as of early 2018, around 99% of all intercontinental data exchanges take place via the submarine fibre infrastructure.¹ Being connected to these is vital for a country's exchange of Internet traffic. In the case of Colombia, this access is even more important as most of the content is provided by international hosts (OECD, 2014b). Currently, 11 cables are landing in Colombia, giving the country access to a network of cables amounting to almost 130 000 kilometres. Most of the cables are landing on the Caribbean coast, while one is landing on the Pacific coast (TeleGeography, 2018). Table 2.1 provides an overview of the submarine fibre cables and their respective landings in Colombia.

Table 2.1. Submarine cables and landings in Colombia

	Cable name	Owner	Landing(s)	Length
1	Deep Blue	Deep Blue Cable	Barranquilla	12 000 km
2	San Andreas Isla Tolu Submarine Cable (SAIT)	Energía Integral Andina	(San Andrés), Tolú	826 km
3	South American Crossing (SAC)/ Latin American Nautilus (LAN)	Telecom Italia Sparkle, CenturyLink	Buenaventura, Riohacha	20 000 km
4	ARCOS	Consortium	Cartagena	8 600 km
5	Pacific Caribbean Cable System (PCCS)	Consortium	Cartagena	6 000 km
6	America Movil Submarine Cable System-1 (AMX-1)	América Móvil	Cartagena, Baranquilla	17 800 km
7	Maya-1	Consortium	Tolú	4 400 km
8	GlobeNet	BTG Pactual	Barranquilla	23 500 km
9	Pan American (PAN-AM)	Consortium	Barranquilla	7 225 km
10	South America-1 (SAM-1)	Telxius	Barranquilla	25 000 km
11	Colombia-Florida Subsea Fiber (CFX-1)	C&W Networks	Cartagena	2 400 km

1. <https://www.newsweek.com/undersea-cables-transport-99-percent-international-communications-319072>.

Source: TeleGeography (2018), "Submarine cable map", <https://www.submarinecablemap.com> (accessed on 30 July 2018).

When comparing the Colombian IXP to IXPs that were established the same year, only a very small number of companies are exchanging traffic at the Colombian IXP (Table 2.2). The Milan Internet Exchange in Italy, for example, has nearly ten times more participants than the Colombian IXP. When taking a closer look at the 21 companies that interchange traffic at the NAP Colombia, the large majority are communication operators and transit providers and nearly no content providers are connected to the IXP. In addition, a strikingly low amount of Internet traffic is exchanged at this IXP compared to other IXPs.

Table 2.2. Exemplary comparison of Internet exchange points

Country	City	IXP name	Established	Traffic	Participants
Colombia	Bogotá	NAP Colombia	June 2000	68 G	21
Ukraine	Kiev	Ukrainian Internet Exchange	July 2000	378 G	180
Italy	Milan	Milan Internet Exchange	November 2000	428 G	209

Source: Packet Clearing House (2019), *IXP Directory*, <https://www.pch.net/ixp/dir>.

One reason expressed by industry players for not connecting to the Colombian IXP is the high cost. A fee of USD 25 000 to connect to this IXP is charged together with variable costs. It is thus highly advisable that Colombia assesses the current barriers as well as the reasons why practically no content providers connect to this IXP. In addition, the country could consider additional IXPs in larger

cities to increase the amount of Internet traffic that is exchanged locally in order to reduce costs and improve services. It has to be noted that at the moment of writing, an additional exchange, the “IXP del Caribe”, is under construction in Colombia. Unlike other neutral exchanges operated by a third-party non-profit entity, this exchange will be run by Globenet, a large carrier with operations in Latin America.

Main regulatory and policy developments

This section examines the main regulatory and policy developments which have taken place in Colombia in recent years. One important change in the institutional framework is the creation of a converged regulator, which has been put forward in the ICT Modernisation Law. The section starts with an assessment of the law. It then discusses selected policies and developments since the 2014 OECD *Review of Telecommunication Policy and Regulation in Colombia* (hereafter “the 2014 Review”), which are considered important for the further development of the communication sector in Colombia.

Institutional framework and design: An independent and converged regulator

The ICT Modernisation Law has the potential to represent progress over the current institutional structure. Its emphasis on increasing access to and diffusion of communication services in Colombia is positive for the development of the Colombian digital economy. The ICT Modernisation Law does so by stating new objectives for the access to communication technologies and services, with a focus on information and communication technology (ICT) inclusion; modernising the institutional framework; increasing investment security and legal certainty; and relying on the private sector for project development and infrastructure deployment.

Specifically, there are six positive measures that should be highlighted:

1. the creation of a converged regulator (although with important reservations highlighted later in the section)
2. the reference to equal opportunities for all telecom providers regarding spectrum access in Article 3
3. the guarantee of efficient use of the spectrum to respect investment, maximise social welfare and set the right investment conditions in Article 4 (in the current situation, spectrum auctions must maximise public revenues from the auctions)
4. the extension of the period of the licenses for spectrum use in Article 9
5. the new purpose of the Information Technologies and Communications Fund (Fondo para las Tecnologías de Información y las Comunicaciones [FONTIC]), which is subject to periodic studies to determine its efficiency, effectiveness or impact on the use of the resources allocated in each project in Article 22
6. the establishment of a single fund and equal contribution of all players in the market in Article 23.

These measures will contribute to expanding access to communication services for Colombians and to improving investment conditions in the ICT sector.

Overall, the law aims at promoting investment in the telecom sector while fostering competition and protecting consumers, thus giving all three objectives an equally prominent role.

The law also follows some recommendations from the 2014 OECD Review. The extension of the licence period for spectrum, for example, will help reduce investment uncertainty.

While the above points are very positive, there are still areas with potential for improvement. These improvements could help create a robust legal and regulatory framework with strong and effective institutions based on good international regulatory practices. The different areas for improvement are discussed in more detail below.

The independence of the converged regulator

While the creation of a converged regulator is a very important aspect of the ICT Modernisation Law, there are some weaknesses with respect to its independence. The independence of a regulator is important to guarantee that it can exercise its mandate in an efficient manner, with the aim of promoting widespread

access to services at competitive prices. Indeed, separating policy formulation and regulation is regarded as a good practice in OECD countries. In addition, the regulator should have commensurate powers to carry out its role and remain at an arm's length from the government. The independence of the regulator, however, is not part of the general objectives set by the first article of the law.

Regulators also require governance arrangements that ensure their effective functioning, preserve their regulatory integrity and ensure the effective achievement of their mandate. The glossary of definitions and terms, which impacts the way regulation is undertaken, is a key instrument to achieve these objectives. In the past, the glossary used to be issued by the Ministry of Information and Communication Technologies (Ministerio de Tecnologías de la Información y Comunicaciones [MinTIC]) and the CRC jointly. The law (Article 5) seems to suggest that MinTIC will issue the glossary while the CRC will only serve as technical support. Although a joint issuance of the glossary of MinTIC and the CRC may take more time, it is important that the glossary be issued by the regulator, as this provision could diminish its independence.

The ICT Modernisation Law provides that the FONTIC will be attached to MinTIC, with the purpose to improve the administrative, operational and technical capacity of MinTIC and the National Spectrum Agency (Agencia Nacional del Espectro [ANE]). This provision could cause a conflict between the funding of the CRC and other institutions. Moreover, it raises a risk that the government may indirectly control the regulator's funding and limit its independence. A clear separation between the funding of the CRC and the funding of other entities operating in the sector should be made, especially those that are part of the government.

Article 16 of the ICT Modernisation Law eliminates loans as a component of the CRC's assets, thus making the contributions by the industry the main source of financing for the commission. While this change favours its independence, it also implies that the regulator is partly funded by the state budget, which may have the opposite effect.

The law also confirms some of MinTIC's attributions that could affect the independence of the regulator. These include the power to revoke the permission to use the radio spectrum from those who are not up-to-date with their obligations (Article 11) as well as the power to set the rates and fees associated with the concession. Furthermore, Article 38 confers MinTIC the functions of inspection, surveillance or control that were previously assigned to the National Television Authority (Autoridad Nacional de Televisión – [ANTV]). These functions should be performed by an independent regulator, acting as a non-political institution. Having the ministry undertake the functions of the regulator might weaken the ability of the public sector to ensure that the industry is complying with existing regulation, which is necessary to protect consumers (OECD, 2014c).

With respect to the economic compensation for the use of the radio spectrum, the amendment of Article 10 of the ICT Modernisation Law clarifies the amount of the compensation that can be paid by means of obligations (*obligaciones de hacer*), such as coverage obligations of up to 60% of the total amount. However, the rationale for a maximum threshold is unclear as are the criteria for setting the rate at 60%, as this limits the autonomy and flexibility of the entity responsible for setting spectrum fees.

Spectrum management is one of the most important tools for regulating competition in mobile markets. The ICT Modernisation Law confirms the power for MinTIC to assign permits for radio spectrum use. While the law provides that the assignment should be undertaken through an objective selection process, granting this function to MinTIC limits the set of tools available to the regulator. As already discussed in the 2014 OECD Review (OECD, 2014a), the power to issue radio spectrum permits should be granted to an entity independent from the government. In addition, the regulator should be able to deal with spectrum management, also in light of an increasingly converged communication sector. For this reason, the ANE should be part of the converged regulator, together with the CRC and the ANTV.

The appointment and election of commissioners

The independence of a regulator, both from those it regulates and from the government, is essential to establish confidence about the integrity of its regulatory decisions (OECD, 2014c). Regulators, therefore, should have the instruments necessary to prevent undue influence in their regulatory decision making to maintain trust in their competence. The independence of the Board of Commissioners and the qualification of its members are essential to ensure a high degree of regulatory integrity through

objective, impartial, consistent decision making, and to avoid the risks of conflict, bias or improper influence. The process of selection and appointment of the commissioners is, therefore, crucial for the independence of the regulator.

The ICT Modernisation Law provides that the ICT Minister – or the Vice Minister of Connectivity and Digitalisation if the ICT Minister wishes to delegate that function – should be a member of the CRC Board of Commissioners. As discussed in the 2014 OECD Review, the government should not have a seat on the board as this will undermine its independence (OECD, 2014a).

The mechanisms to appoint the Board of Commissioners are equally important. The appointment should be independent from any political influence from the government or any entities reporting to it. In addition, the process should be transparent and the commissioners appointed based on their merit, according to a clear set of criteria. Direct appointment of the commissioners by the president does not seem to meet these conditions. Other mechanisms can ensure the involvement of the president in the process while preserving an independent and merit-based appointment. For instance, the president could choose the commissioners among a shortlist of candidates selected through an open competition, a mechanism that is, indeed, considered in the law.

The appointment of one commissioner by the regional public TV operators raises concerns about a potential conflict of interest, i.e. a commissioner being appointed by some of the entities that it will have to regulate. While the commissioner must have broadcasting expertise, his appointment should follow the same transparent and merit-based process as for the other commissioners.

The ICT Modernisation Law, as recently approved by the congress, establishes a rather unusual governance system for the converged regulator by creating two parallel boards within the CRC. Article 20 states that the CRC will have an Audio-visual Content Commission (ACC) and a Communication Commission (CC).

The ACC will be composed of three commissioners. One is appointed by the regional public service operators of the television service. A second commissioner is selected by the civil society through a public competition managed by a university. The audiovisual sector commissioner is selected in an open public competition. These two commissioners are publicly elected by third parties, although the law states that they represent civil society and TV channels. The commissioners are in charge of guaranteeing pluralism and impartiality of information in audiovisual services, protecting informational pluralism, competition and the rights of viewers. The ACC is further tasked to monitor and sanction behaviours that may threaten the pluralism of information and promotes citizen participation. It has the power to fine operators, television space concessionaires and national television contractors for violations of constitutional and legal provisions that specifically protect the rights of families and children.

This leads to a potential conflict of powers between the ACC and the CC when regulating the audiovisual content market, as the CC is also in charge of this market,² especially with respect to competition in the “television market”.

Having two boards has no precedent in other OECD countries and will be challenging, at least from an administrative and legal perspective. There is no legal framework in Colombia that specifies how to deal with those conflicts of competences as the General Code of Administrative Proceedings applies to different entities and not to conflicts within the same entity. It is also unclear whether the CRC Chairman should be part of the ACC or whether the ACC may take decisions autonomously; and whether the ACC can request information from private parties or even sanction operators that do not comply with regulation. While a government decree may help solve these issues, the establishment of two boards within the CRC will undermine the holistic approach that is at the very foundation of the converged regulator.

Finally, the article ruling the transition to the converged regulator should have deserved a closer examination. The transitional provision in the law that prescribes the suspension – until the new regulatory authority is established and at least three commissioners are appointed – of all proceedings and analyses currently undertaken by the CRC. This could set back the regulatory work by several years.

Similarly, in order to ensure some institutional memory in the converged regulator, the confirmation of the current commissioners should be based on their knowledge and experience, rather than on the residual length of their mandate.

The ANE

The 2014 OECD Review recommended that the ANE and all of its functions related to spectrum, including title provisions, should be part of the CRC. Its exclusion from the converged regulator increases the administrative costs in the sector. It will probably also hamper the efficiency, productivity and competitiveness of the sector. Furthermore, it may limit the independence of the regulator from the government. Therefore, the ANE should be merged into the CRC and all functions related to spectrum that are currently performed by MinTIC should be granted to the converged regulator.

“Benefits for stopping illegal conduct”

The “benefits for stopping illegal conduct” (Article 28) open the possibility for an operator under investigation by MinTIC to benefit from substantial reductions in fines (25% to 75%) when voluntarily stopping an illegal conduct within a set delay. These benefits undermine the sanction power of the public authority, as they reduce the effectiveness of sanctions. In addition, they are prejudicial to consumers, without any clear benefits for the communication sector, other than for the operators under investigation. No OECD country relies on this type of mechanism to discourage illegal conduct by telecom operators.

.CO

Article 14 of the law grants MinTIC the responsibility for the administration, maintenance and development policies of the Internet country code .co, which corresponds to Colombia. Multi-stakeholder approaches to Internet country code policies seem to have produced better outcomes. In Brazil, for example, the Brazilian Internet Steering Committee (Comitê Gestor da Internet no Brasil, CGI.br) is an autonomous entity co-ordinating all Internet service initiatives in the country and using the resources generated by the assignment of .br webpages to foster the Internet and traffic exchange ecosystem in Brazil.

Community networks

Article 8 of the law provides for the possibility to exempt some spectrum bands from payment with the purpose of extending coverage in rural areas. To the extent this measure facilitates the creation of community networks, similar, for instance, to those operating in Mexico, it would be a significant improvement over the current framework. Besides Mexico, other OECD countries have used municipal networks to “fill gaps or provide substantial areas of service in a region, city or smaller town surrounding locations” (OECD, 2015). These networks are

“one option to meet goals with the use of broadband in the absence of sufficient competition or when policies are pursued for reasons of equity that prevail upon weighing the (high) cost of rolling out infrastructure against assessed demand”.

Government and regulatory activities (to enhance access and use)

The following section discusses important developments since the 2014 OECD Review. It will focus on the upcoming spectrum auction in the 700 megahertz (MHz) band, other measures that aim at increasing the access to and use of communication services, as well as a discussion on the fees and taxes that are applied to the communication sector.

The 700 MHz auction

The spectrum in the 700 MHz band is highly valued by all players as it propagates well over greater distances. It is, for example, very well suited to increase connectivity in rural and remote areas, where progress needs to be made in Colombia. Many OECD countries use frequencies in this spectrum band for 4G services. The allocation of this spectrum would, therefore, provide the foundation for extending connectivity in Colombia and for extending mobile coverage across the country.

The Colombian government has planned to auction spectrum in the 700 MHz band since 2015. Nonetheless, the auction has repeatedly been delayed. In 2017, MinTIC issued a first public consultation on auctioning frequencies in the 700 MHz and the 1 900 MHz bands and started a discussion to increase spectrum caps which was a prerequisite for the auction. At the beginning of 2018, MinTIC, in conjunction with the ANE, initiated another public consultation with respect to the auction in both the 700 MHz and the 1 900 MHz bands. Subsequently, a second draft resolution was issued which

2. ACCESS TO COMMUNICATION SERVICES

established the conditions for the auction. Shortly thereafter, however, one of the control organs of the Colombian state offset the auction until the end of the presidential election. The new government has expressed that the 700 MHz spectrum auction is a priority in 2019. Accordingly, MinTIC published an action plan on the auctioning process and its terms in the second quarter of 2019. Expressions of interest have been received and comments on the auctioning process and its terms are to be published in the third quarter of 2019 along with a draft resolution including the conditions for the auction. The auction is planned to take place in the last quarter of 2019.

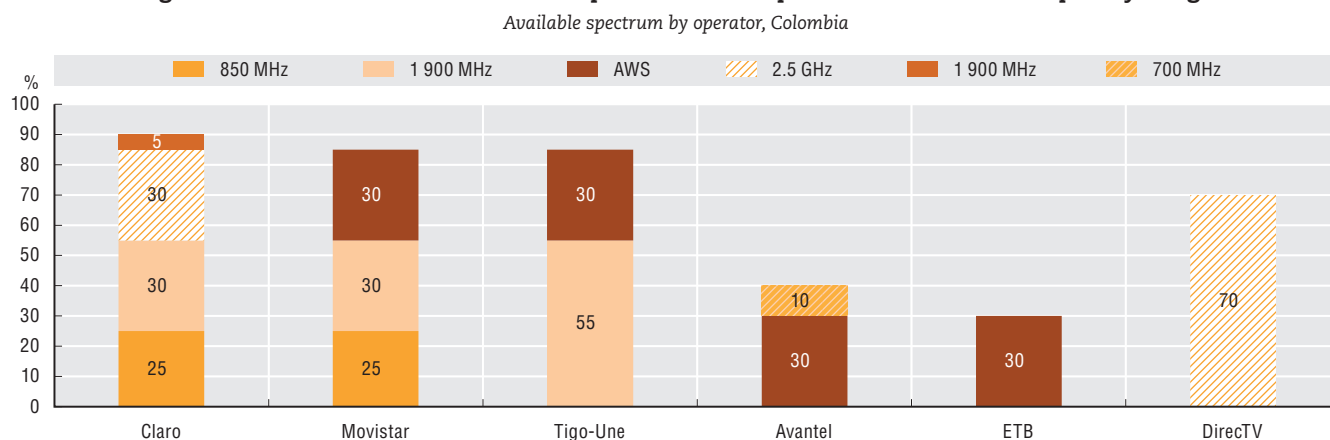
Overall, Colombia is one of the last countries in the region to auction spectrum in the 700 MHz band; auctions have already taken place in Chile (2013-14), Argentina (2014), Brazil (2014), Mexico and Peru (both 2016).

Besides the 700 MHz band, spectrum is also available in other frequencies, as the ANE has undertaken significant work to free up spectrum in multiple bands. In order to make additional spectrum available for communication operators in the market, the Colombian government has proposed a plan to undertake a multiband spectrum auction including other bands besides the 700 MHz band (i.e. the 1.9 gigahertz [GHz] and 2.5 GHz bands) (MinTIC, 2019). In doing so, Colombia is following the path of several OECD countries such as Australia and Italy that recently undertook multiband spectrum auctions.

The ICT Modernisation Law extends the spectrum license period to 20 years. This is desirable, as spectrum licenses should be awarded for periods longer than ten years.

It is highly recommended to auction the spectrum, which was freed several years ago, as soon as possible, especially in light of a growing mobile broadband market and the increase of mobile applications in markets – such as in mobile IoT applications – that will require a broad coverage of mobile networks. A further reason why the auction should be undertaken as a priority is the fact that not all MNOs have spectrum in the low frequency range, which puts them at a disadvantage with respect to the other players (Figure 2.18).

Figure 2.18. Not all mobile network operators have spectrum in the low frequency range



Notes: AWS = Advanced Wireless Services; MHz = megahertz; GHz = gigahertz. The AWS spectrum refers to bands in the 1.7 GHz to 2.1 GHz range. By July 2019, Avantel uses a 10 MHz block under a temporary license in the 700 MHz band, authorised only for Bogotá and other limited municipalities. Claro also uses a temporary nation-wide block of 5 MHz in the 1 900 MHz band. Both licenses include that spectrum blocks must be reversed when the next auction takes place.

Source: OECD, based on CRC.

When planning the auction design, two key policy issues should be taken in mind simultaneously: coverage and competition. In order to extend coverage, it should be ensured that the auction is designed in a way to allow all operators in the market to bid for the spectrum they need. Coverage obligations are common across the OECD and can contribute to a broader coverage of the population in rural and remote areas. When designing the auction, it should be ensured, however, that the extent of the coverage obligation is not an impediment for certain actors to bid in the auction.

In order to allow all operators to be able to compete in the market on equal footing and to spur competition in the market, the auction design should take into account that some operators currently do not have spectrum in the low frequency range, making it more expensive and complex for them to deploy networks efficiently. One mechanism that could be envisaged is to design the auction in two rounds, with the first round being open for operators that currently do not have nation-wide spectrum in the low frequency range and the second round being open for all. This would allow to simultaneously strive for both goals of extending coverage and creating a level-playing field for operators in the country.

Finally, the spectrum auction should not be used to maximise public revenues from that auction. The revision of the objective to maximise public revenues has been put forward by the recently approved ICT Modernisation Law and is therefore a step in the right direction. It is further recommended that the conditions for the renewal of the licence are known well in advance and that the renewal follows a transparent process.

Initiatives directed at increasing connectivity (and its use)

This section discusses selected measures used by the government to increase connectivity. On the fixed communication side, it discusses the national fibre backbone; on the mobile side, it discusses the changes in the regulation of MVNOs since the 2014 Review.

Expanding access to fixed broadband networks

One of the major initiatives that can be commended in recent years is the deployment of a fibre backbone in a public-private partnership to connect most of the Colombian municipalities and the territory. This backbone provides an important foundation for connecting consumers and businesses. In particular, the rollout to remote municipalities can help close the important digital gap between urban and rural areas in Colombia. Through this initiative, the number of connected municipalities grew from about 200 in 2010 to 1 08 in 2018. Some 1 808 public institutions could by then be connected through the fibre backbone.

Increasing connectivity over the “last mile” while ensuring solutions that are financially sustainable in the long run remains a challenge. So far, the backbone reaches the centre of municipalities, but the next step will be to extend the reach of high-speed access to all businesses and households in the municipality. Currently, most of the existing operators do not connect to and use the fibre backbone, some due to QoS requirements. While the CRC has been working on solving this regulatory issue, further analysis should be undertaken on how the backbone could connect more businesses and homes and on how an environment could be created where private companies could leverage the existence of the backbone.

MinTIC has undertaken several measures to increase broadband access for people living in the low-income areas (strata 1 and 2). These measures included the development and implementation of projects aimed at lowering the entry bar for broadband access through subsidies for monthly subscriptions. They also included free delivery of computers to low-income households located in strata 1 and 2 of selected municipalities. To date, in sum 273 589 households in strata 1 and 2 have benefited from the strategies to expand broadband access. This includes 54 251 delivered computers.

During the second half of 2018, MinTIC undertook a study of a sample of 442 households, for which the subsidy period has ended, in order to explore the impact of the implemented measures. This study was carried out in particular with respect to the “Digital Connections Phase 1” project from which 98 340 households have benefited to date. The study found that 80% of the surveyed households decided to keep a broadband Internet access. Reasons for not keeping the broadband access after the subsidy period ended included that the households did not consider broadband access a useful service, that the service was not satisfying or the household was not able to afford broadband Internet access. In some cases, the operator decided to not provide the service anymore.

Future measures envisioned by MinTIC include closing the digital divide through, among others, two projects that are based on a technical segmentation of population centres. With the Sustainable Universal Access Project (Proyecto de Acceso Universal Sostenible), MinTIC furthers the installation of access solutions in areas that represent fewer difficulties in terms of connectivity than rural areas. The second project, the National Universal Access Project for Rural Areas (Proyecto Nacional de Acceso Universal para Zonas Rurales), is dedicated to benefit up to 10 000 rural communities through

2. ACCESS TO COMMUNICATION SERVICES

improving the efficiency of investments via long-term contractual schemes. Last-mile connectivity is to be increased through projects that encompass supply side measures as well as demand side ones. Supply side measures include, for example, a project that seeks to stimulate the increase in fixed Internet penetration for households that do not have sufficient income to access fixed Internet. The project aims at generating at least 80 000 new fixed Internet connections, distributed in 220 municipalities in the country.

The role of MVNOs to increase mobile take up

As the first section of this chapter has shown, MVNOs have witnessed an increase in market share over recent years. This is welcome as MVNOs can enhance competition in the mobile market, thus fostering innovation in the market and contributing to more competitive prices.

The CRC undertook a careful analysis of the MVNO market in 2016. The point of departure was that in order to increase the welfare of users, the CRC needed to define rules for promoting the presence of new MVNOs, and therefore to diversify the supply of services. The CRC reviewed contracts signed between MNOs and MVNOs (sent to the CRC in accordance with Resolution CRC 4508 of 2015) and identified that MVNOs did not have enough means to access networks in a timely and transparent manner (CRC, 2016).

Resolution 5108 of 2017 defines certain obligations to facilitate agreements between MVNOs and MNOs so that MVNOs can access mobile networks more easily and have greater capacity to compete in the market.³ The resolution defined MNO obligations, including: to provide access for the MVNO within a maximum period of four months, without including unwarranted delays; no restrictions for the use of terminals (only type approval); to provide the MVNO with the same services the MNO lends to its users. Some MVNO obligations include: to inform the MNO about the projected growth of users and traffic; to pay the MNO in a timely manner; and to guarantee that the mobile terminals to be marketed by the MVNO are approved in Colombia. Overall feedback from the MVNOs with respect to this regulation has been very positive and MVNOs have reported that the regulation has not only facilitated access to the market, but has also allowed them to become profitable. Nevertheless, MVNOs have highlighted that the burdens on them have drastically increased with the new rules on the registration of the mobile handsets of their users for theft prevention. However, in its 2019-20 Agenda, the CRC included measures to simplify the device registration and the approval process for the entire sector.

Taxes and fees applied to communication services and the communication sector

Currently, multiple taxes and fees are imposed on the consumption of communication services and on the communication sector. Taxes for consumers can be split into taxes on the usage of communication services and taxes on handsets (Table 2.3). Besides the standard value-added tax (VAT) of 19%, mobile voice and data services are subject to an additional tax of 4%. This “luxury” tax is hard to justify for communication services, which are the necessary foundation of the digital economy and for a sector with positive externalities for the entire economy. The additional tax on mobile services has a direct effect on the total cost consumers have to pay for their communication services and, as a consequence, risks hampering the adoption of communication services, and in turn innovation and investment in the sector. It is highly suggested to eliminate this tax.

Table 2.3. Overview of main consumer taxes on communication services in Colombia

	Description of the fee or tax	Amount
Taxes on the usage of communication services	Standard value-added tax (VAT)	19%
	Additional tax on mobile voice and data services (consumption tax)	4%
	Consumption tax exemption on mobile data services that cost less than COP 48 000 (around USD 15)	
Taxes on handsets	Standard VAT	19%
	Imported handsets: Custom duty	5%
	VAT exemption for handsets that cost less than COP 753 720 (around USD 238) ¹	

1. Exchange rate of January 2019.

For handsets, an import duty of 5% adds to the normal VAT, which renders handsets on average more expensive than in countries that do not impose such duties. However, the Colombian government introduced a VAT exemption for entry-level handsets in order to increase adoption of ICT services.

Currently this exemption holds for handsets that cost up to COP 753 720 (ca. USD 238⁴). While this measure seems to have increased demand for smartphones in Colombia and seems to have had positive effects, it would be beneficial to review whether import duties of 5% on all devices are necessary to avoid potential distortions in the market arising from duties on the one hand and specific tax exemptions on the other.

Communication companies in Colombia face a multitude of fees and taxes (Table 2.4). Some of the taxes apply to all sectors, while others are specific to the communication sector. The largest block of sector-specific fees are the contributions to the FONTIC, and the Fund for the Development of Television and Content (FONTV). The FONTIC finances most of MinTIC's policy programmes to spur the adoption and use of communication services and is the most important source of income for this ministry. The fund was created in 1976 and depends on MinTIC but has a separate legal status (Article 35 of the 2009 ICT Law) (OECD, 2014b). This contribution scheme will be modified by the ICT Modernisation Law with the establishment of the FONTIC. The amount will be set by resolution of the Minister of Information and Communication Technologies. The value of the fee may not be higher than the periodic contribution to the FONTIC (2.2%).

Table 2.4. Taxes and fees applying to the communication sector in Colombia

	Description of the fee or tax	Amount	Base
Regulatory/ policy fees	Information Technologies and Communications Fund (Fondo para las Tecnologías de Información y las Comunicaciones [FONTIC])	The amount of the fee is set via resolution of the Minister of Information and Communication Technologies. The amount of the fee may not be higher than the periodic contribution to the FONTIC (2.2%).	Under the ICT Modernisation Law, there will be a unique periodic fee for the FONTIC. It is paid by the respective provider of communication networks or services. Public television service operators keep the exemptions and exceptions applicable to them. In the case of free-to-air television services provided by operators that remain under the transitional regime with regard to licencing and audio broadcasting, the amount of the fee will be set by special rules. The operators of the community television service that are under the general authorisation regime and comply with the conditions that are defined in the regulations issued by the government, will be exempt from the payment of the periodic fee for the FONTIC for five years.
	Regulatory fee (CRC contribution)	0.15%	Of operator revenue (gross income) of the previous year.
	Contribution to the superintendencies	No ICT fees apply	While companies in Colombia are overseen by the Superintendence of Companies (and/or by other superintendencies), and some of them are subject to paying contributions, the latter are not ICT-related. On the contrary, while the Superintendence of Industry and Commerce (Superintendencia de Industria y Comercio [SIC]) carries out a special consumer protection on telecoms issues, the companies do not pay a direct fee for this purpose. The funds are transferred by the FONTIC to the SIC.
	Annual spectrum fee	Spectrum payments are derived from the permit to use licensed spectrum; hence they are not regulatory/policy fees as such	Bearing in mind the clarification presented to the left, please note that spectrum payments for licensed spectrum vary depending on several issues, such as the results of the auction (when applicable), the service to be offered (e.g. radio, communication specifications, social communication), the spectrum bands involved, and the like. The regulation provides formulas and figures (instead of percentage/income) which are the basis for calculating the annual spectrum compensation of the spectrum usage described therein.
Taxes: national level	Corporate tax (2018)	33% + 4% (surtax)	Of profit.
	Tax on financial transactions	0.004%	On financial transactions.
Taxes: municipal level	Industry and commerce tax	0.2% to 0.7% and 0.2% to 1%	For industry activities for commercial and services activities of total income.
	Property tax	Between 0.4% and 3.3%	Depending of the use of the property. It can be deductible from the corporate income tax.
	Specific municipal taxes	Depending on the municipality	e.g. taxes on mobile services in Barranquilla may range from VAT + USD 0.16 to VAT + USD 4.
	Fees for control organs of the state (Contraloría)	Depending on the company	Entities that dispose of public capital need to pay supervision fees to one of the control organs of the state (Contraloría).

Source: OECD, based on MinTIC.

Currently, communication operators need to contribute 2.2% of their revenues from mobile voice and data services, fixed voice and broadband services, interconnection and long-distance services as well as other value-added services to the fund, which represents a substantial amount for operators. The second fund, the FONTV, is used by the ANTV to finance programmes in the broadcasting area.

Operators' contributions to this fund vary between 1.5% and 8.18% (DNP, 2017) on television services offered by operators, which means they can even be higher than the contributions to the FONTIC. As operators increasingly offer bundled communication services with communication and broadcasting services, they contribute to both funds. This currently results in an artificial price setting for the different components of the bundles given the asymmetric fees.

Box 2.2. Key recommendations to improve Colombia's communication infrastructure and foster its digital potential

The establishment of a converged regulator (as put forward in the ICT Modernisation Law)

- While the law represents progress over the current institutional structure, it is essential that the independence of the new, converged regulator be preserved and even strengthened.
- In order to prevent any undue pressure from the government on the regulator, a clear distinction between the funding of the regulator and the funding of MinTIC should be provided.
- The prerogative to revoke permissions of spectrum use or to inspect, carry out surveillance or control any communication service should be granted to an independent and non-political institution, such as the CRC, which should also issue the glossary of terms and definitions of the telecom sector.
- The government should not have a seat on the Board of Commissioners, as this may undermine its independence. The appointment of the commissioner should be independent, transparent and based on merit. Direct appointment of the commissioners by the president does not seem to meet these conditions and alternative mechanisms should be considered.
- There should be one Board of Commissioners only. Establishing two parallel boards within the CRC has no precedent in OECD countries and may lead to conflicts of competences, particularly in relation to the regulation of the audiovisual content market.
- The article ruling the transition to the converged regulator should have deserved closer examination. The proposed suspension of proceedings and analyses currently undertaken by the CRC until the establishment of the new regulatory authority and the appointment of at least three commissioners could set back the regulatory work by several years and undermine the regulation of the communication sector.
- To ensure effective regulation, the ANE should be an integral part of the converged regulator.
- The proposal to create "benefits for stopping illegal conduct" in Article 28 should have been reconsidered as it may undermine the sanction power of the public authority and is prejudicial to the consumers. No OECD country relies on this type of mechanism to discourage illegal conduct by telecom operators.
- Finally, enhancing competition should have figured more prominently in the law and its importance should have been weighed against the goal to promote investment.

Enhancing access and usage of communication services

- Continue to spur competition in the Colombian fixed and mobile communication markets.
- Auction the 700 MHz spectrum as soon as possible. When designing the auction, pursue the two key policy objectives of coverage and competition simultaneously.
- Increase Internet traffic exchange in Colombia. Consider promoting additional IXPs in the country.
- Undertake further analysis of how to extend last-mile connectivity. One way is to build on the national fibre backbone to extend connectivity to more businesses and households.
- Review import duties on handsets and lower the tax burden and fees on communication operators.

Article 23 of the ICT Modernisation Law puts forward the establishment of a single fund and equal contribution of all players in the market. This is desirable for the administrative efficiencies that are created. The overall contributions to the current funds are very high and means should be identified to reduce them as the contributions could be in excess of MinTIC's needs. As mentioned above, MinTIC has set up important programmes to spur connectivity and increase adoption of ICT

services. While these can be maintained where they support policy priorities, the FONTIC currently funds numerous other programmes at the same time, which may lead to a dispersion of resources and efforts. In the ICT Modernisation Law, the FONTIC is a step in the right direction, as the fund will be subject to periodic studies to determine its efficiency, effectiveness or impact on the use of the resources allocated in each project (Article 22). The careful monitoring of MinTIC's programmes and the performance of clear cost-benefit analyses to determine the efficiency of the different programmes are highly recommended. Ideally, some streamlining of all the programmes that are financed by the fund should be undertaken.

In addition, 33% of the funds' resources were transferred to the Colombian Ministry of Finance from 2010 to 2015 (DNP, 2017) and it has been reported that similar transfers were undertaken for the subsequent years. The FONTIC contributions are paid by the communication industry and intended to finance policy programmes, including universal access programmes to extend connectivity and increase uptake of ICT services. Resources of the fund should not be used to close some general government budget gaps, as this would result in a clear double taxation of an industry which is vital for the development of the Colombian digital economy. Following the approval of the ICT Modernisation Law, it can be positively noted that a transfer of the funds to the general budget will not be possible any longer.

Aside from the current contribution to the FONTIC and the FONTV, which will be soon unified in the FONTIC, sector-specific fees include a regulatory fee of 0.15% of revenues to fund the CRC, as well as contributions to the superintendencies (*superintendencias*) and annual spectrum fees.

General taxes, both on national and municipal levels, add to the sector-specific fees. As summarised in Table 2.4, the tax code is complex and overall taxes of a non-industry specific nature imposed on companies are high compared to other OECD countries (OECD, 2017). At the national level, the corporate tax amounts to a total of 37%. In addition, any financial transaction is taxed with 0.004% of its amount. At the municipal level, an industry and commerce tax is levied and amounts to 0.2% to 0.7% for industry activities and 0.2% to 1% for commercial and service activities. Several other municipal taxes add to this, such as a property tax or specific taxes depending on each municipality. It was reported, for example, that Barranquilla charges additional taxes on mobile services, which represents an additional "luxury tax" besides the national additional tax on mobile services. Table 2.4 lists all of the taxes and fees applying to the communication sector in Colombia.

Overall, the taxation burden on the communication industry can be considered as very high and it is recommended to find ways to reduce the overall fees and taxes on the sector.

References

- CISCO (2017), *Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update 2016-2021*, www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/complete-white-paper-c11-481360.html.
- CRC (2019), *4G Subscriptions in Colombia in 2018*, Commission for Communications Regulation, Bogotá.
- CRC (2016), “Revisión de los mercados de servicios móviles”, Commission for Communications Regulation, Bogotá, https://www.crc.com.gov.co/recursos_user/2016/Actividades_regulatorias/merc_moviles/160603%20_Documento_Mercados_Moviles.pdf.
- DNP (2017), “Esquema de financiación para el sector TIC y audiovisual en el marco de la convergencia tecnológica y de mercados”, National Planning Department, Bogotá, <https://colaboracion.dnp.gov.co/CDT/Prensa/Publicaciones/20171006%20-%20Esquema%20de%20financiacion%20TIC%20y%20audiovisual%20en%20el%20marco%20de%20la%20convergencia%20tecnologica%20y%20de%20mercados.pdf> (accessed on 3 August 2018).
- M-Lab (2019), “Worldwide broadband speed league 2018”, Cable, <https://www.cable.co.uk/broadband/speed/worldwide-speed-league>.
- MinTIC (2019), “Asignación de espectro para IMT”.
- OECD (2019), *Broadband Portal*, www.oecd.org/sti/broadband/oecdbroadbandportal.htm.
- OECD (2017), *OECD Economic Surveys: Colombia 2017*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eco_surveys-col-2017-en.
- OECD (2015), “Development of high-speed networks and the role of municipal networks”, *OECD Science, Technology and Industry Policy Papers*, No. 26, OECD Publishing, Paris, <https://doi.org/10.1787/5jrql7rvns3-en>.
- OECD (2014a), *OECD Review of Telecommunication Policy and Regulation in Colombia*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264208131-en>.
- OECD (2014b), *OECD Reviews of Innovation Policy: Colombia 2014*, OECD Reviews of Innovation Policy, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264204638-en>.
- OECD (2014c), *The Governance of Regulators*, OECD Best Practice Principles for Regulatory Policy, OECD Publishing, Paris, <https://doi.org/10.1787/9789264209015-en>.
- OpenSignal (2018), “The state of LTE”, Opensignal, London, <https://opensignal.com/reports/2018/02/state-of-lte> (accessed on 23 July 2018).
- Packet Clearing House (2019), *IXP Directory*, <https://www.pch.net/ixp/dir>.
- Steam (2019), *Steam download stats*, <http://store.steampowered.com/stats/content>.
- TeleGeography (2018), “Submarine cable map”, <https://www.submarinecablemap.com> (accessed on 30 July 2018).
- Weller, D. and B. Woodcock (2013), “Internet traffic exchange: Market developments and policy challenges”, *OECD Digital Economy Papers*, No. 207, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5k918gpt130q-en>.

Notes

1. Data-only plans are usually provided exclusively to people with auditory impairments.
2. According to functions 1, 2, 3, 4, 5 of Article 22.
3. The resolution is currently under revision: [https://www.crc.com.gov.co/uploads/images/files/Documento%20soporte%20-%20OMV-RAN%20publicacion%20n\(1\).pdf](https://www.crc.com.gov.co/uploads/images/files/Documento%20soporte%20-%20OMV-RAN%20publicacion%20n(1).pdf).
4. Exchange rate of January 2019.

ANNEX 2.A

*Overview of market players in the Colombian communication market***Table 2.A.1. Key market participants in the fixed line voice market: Local calls**

	Company name
1	Avantel S.A.S.
2	Colombia Telecomunicaciones S.A. E.S.P.
3	EDATEL S.A. E.S.P.
4	Empresa de Recursos Tecnológicos S.A. E.S.P.
5	Empresa de Telecomunicaciones de Bogotá S.A. E.S.P. (ETB)
6	Empresa de Telecomunicaciones de Bucaramanga S.A. E.S.P. Telebucaramanga
7	Empresa de Telecomunicaciones de la Costa Costatel S.A. E.S.P.
8	Empresa de Telecomunicaciones de la Orinoquía S.A. E.S.P.
9	Empresa de Telecomunicaciones de Popayán S.A. Emtel E.S.P.
10	Empresas Municipales de Cali E.I.C.E. E.S.P.
11	Gilat Colombia S.A. E.S.P.
12	Kiero Telecomunicaciones S.A.S.
13	Metrotel Redes S.A.
14	Sistemas Satelitales de Colombia S.A. E.S.P.
15	Teléfonos de Cartago S.A. E.S.P.
16	Telmex Colombia S.A.
17	UNE EPM Telecomunicaciones S.A. E.S.P. – UNE EPM TELCO S.A.
18	Unimos Empresa Municipal de Telecomunicaciones de Ipiales S.A. E.S.P.

Source: CRC.

Table 2.A.2. Key market participants in the fixed line voice market: Long distance

	Company name
1	Cellvoz Colombia Servicios Integrales S.A. E.S.P.
2	Colombia Telecomunicaciones S.A. E.S.P.
3	EdateL S.A. E.S.P.
4	Empresa de Telecomunicaciones de Bogotá S.A. E.S.P. (ETB)
5	Empresas Municipales de Cali E.I.C.E. E.S.P.
6	Ipsofactum S.A. E.S.P.
7	Kiero IP Telecomunicaciones S.A.S.
8	Telmex Colombia S.A.
9	UNE EPM Telecomunicaciones S.A. E.S.P. – UNE EPM TELCO S.A.
10	UNIMOS Empresa Municipal de Telecomunicaciones de Ipiales S.A. E.S.P.

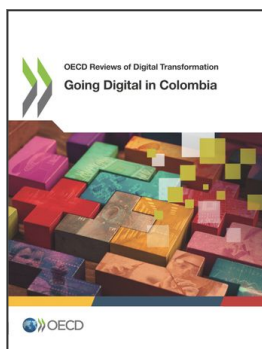
Source: CRC.

Table 2.A.3. Key market participants in the mobile market

	Company name	Brand name
1	Almacenes Éxito Inversiones S.A.S.	Éxito
2	Avantel S.A.S.	Avantel
3	Colombia Móvil S.A. E.S.P.	Tigo
4	Colombia Telecomunicaciones S.A. E.S.P.	Movistar
5	Comunicación Celular S.A. Comcel S.A.	Claro
6	Empresa de Telecomunicaciones de Bogotá S.A. E.S.P.	ETB
7	Mercanet	
8	Uff Móvil S.A.S.	Uff Móvil
9	UNE EPM Telecomunicaciones S.A. E.S.P. – UNE EPM TELCO S.A.	UNE
10	Virgin Mobile Colombia S.A.S.	Virgin

Note: Mercanet has not started operations.

Source: CRC.



From:
OECD Reviews of Digital Transformation: Going Digital in Colombia

Access the complete publication at:

<https://doi.org/10.1787/781185b1-en>

Please cite this chapter as:

OECD (2019), "Access to communication services", in *OECD Reviews of Digital Transformation: Going Digital in Colombia*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/e54d709f-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.