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SUPERINTENDENCIA DE TELECOMUNICACIONES

TELECOMMUNICATIONS
Sector Statistics

COSTA RICA

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PRESENTATION

2020 was an unexpected year for the whole world and particularly for all sectors of the national economy, not only due to the economic adjustments experienced, but also due to the arrival of the pandemic caused by COVID-19. In this context, unemployment, reduction of working hours, negative impact on tourism, and even the implementation of telework and tele-education modalities, among other aspects, occurred in the country.

Exceptionally, the telecommunications sector, due to its dynamic and constant evolution, was one of the leading sectors in the transformation process and national resilience, thus showing its ability to reinvent itself and to be an immediate alternative for the country's development. Today, data allow us to determine the impact on the Telecommunications industry; and thus, we carry out a descriptive analysis of data transfer services, mobile telephony, fixed telephony, and subscription television for the 2018-2020 period, to understand its behavior facing the dynamics experienced by the country and the rest of the world.

Precisely, this ninth edition of the Statistical Report on Telecommunications shows us that the number of authorized operators increased in relation to 2019. In other words, there were more companies that sought to commercialize their services in the Costa Rican market, despite the prevailing situation.

Likewise, Internet access was the resource that allowed users to mitigate the health crisis, with an increase in the number of subscriptions, and even data transfer revenue doubled that of mobile telephony, as a result of this change in consumption habits of users and attention to new needs.

An example of the above is that during peak hours, for fixed Internet service, the performance of the download speed exceeded the regulatory 80 % and the upload speed, 85 %.

Within this process, the innovation of offers caused that the bundling of services was also one of the most sought-after options by users, particularly with the fixed Internet and Subscription Television options.

Fiber optics grew during 2020, which shows the important technological change that the country is experiencing and the significant preference of users in the quality of services.

A relevant aspect is the increase in the number of human resources required by the telecommunications sector in this period. The registered increase is 230 new jobs, which denotes a slight increase in this indicator in relation to the country's labor force and that this is a stable sector in this area.

The relationship between the total revenue of the sector and the Gross Domestic Product (GDP) practically remained the same as in 2019, with 2.09 %, and investment decreased slightly. Revenue from the sector, meanwhile, showed a reduction of 4.2 % in 2020, as a result of the country's economic adjustments and the possible effects of COVID-19.

Fixed telephony services (traditional basic and VoIP) continued to decline, maintaining the trend for the fourth consecutive year. Likewise, total mobile phone subscriptions decreased, particularly in prepaid services.

In access and universal service, we reached more than 1 300 000 inhabitants benefited with access to voice and data services in 99 % of the country's districts with programs developed with resources from the National Telecommunications Fund (Fonatel).

We also managed to update the goals in favor of students (goals 5 and 9 of the Connected Households and Equipped Public Centers Programs), respectively, established in the National Telecommunications Development Plan (NTDP) 2015-2021, which will allow the provision of telecommunications services to approximately 287 642 households and 445 000 minors (not necessarily students), that is, to the vulnerable populations of the country.

In terms of competition, during 2020, we achieved effective compliance with the three pillars of the roadmap established for the implementation of the Law for the Strengthening of the Competition Authorities, n.° 9736.

Precisely, among the most relevant results, the development of the Executive Regulation to Law n.° 9736 and its public consultation process, jointly with Comex, MEIC, and Coprocom, and a significant advance in the development of competence guides and manuals, stand out. Likewise, as part of the competition actions, the organizational restructuring of Sutel was achieved, with the creation of the Directorate General for Competition and particularly with the provision of greater human resources for the institution in this area and the strengthening of inter-institutional relations with its international peers, in addition to conducting market studies to eliminate barriers to competition.

In addition, as part of the competition actions, the organizational restructuring of Sutel was achieved, with the creation of the Directorate General of Competition and particularly with the provision of greater human resources for the institution in this area and the strengthening of inter-institutional relations with its peers internationally. In addition, market studies were developed to eliminate barriers to competition.

These are just some findings of the Statistical Report of the Telecommunications Sector for 2020. The monitoring of these was carried out thanks to the valuable collaboration of the suppliers and operators of the sector, who provided the required information, as well as to the hard work carried out by the Directorates General of Quality, Competition, and Fonatel, led in this process by the Directorate General of Markets.

I would like to thank all the companies and institutions that participated in this effort for their contribution, as well as the Council and all Sutel officials for their commitment and perseverance, so that this report could be issued as an information tool for the sector and especially for all telecommunications users.

Federico Chacón Loaiza
Chairman of the Council

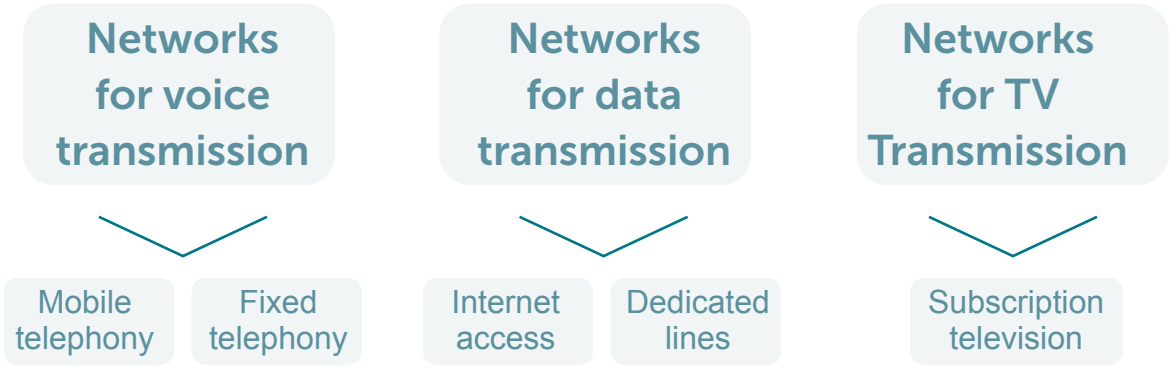
METHODOLOGY AND REPORT SCOPE

DESCRIPTION OF THE TELECOMMUNICATIONS SERVICES INCLUDED IN THE REPORT

In order to standardize and simplify the way in which market information provided by service providers and network operators is collected, a division of telecommunications services has been made available to the public, based on the characteristics of the deployed network and on the type of signal they carry. Additionally, said classification is in accordance with the existing nomenclature for the assignment of Qualifying Title[1].

Considering the foregoing, the services contemplated in this publication are classified into three broad categories: voice services, data transfer services, and subscription television services. This classification and the subgroups included in each case are illustrated in Figure n.° 1.

Figure n.° 1. Costa Rica: General classification of services



Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Among the services provided through voice transmission networks, the following are included:

- **MOBILE TELEPHONY SERVICES:** offers users two subscription modalities: prepaid and postpaid.

- **FIXED TELEPHONY SERVICES:** This service is defined in Article 3 of the Regulation on the End User Protection Regime of Telecommunications Services. For the purposes of this report, it is subdivided into three different types of service provision: Traditional basic telephony, IP or VoIP telephony, and public telephony. As indicated in article 3 of the aforementioned regulation, for the provision of fixed telephony, any means of access is included as long as the associated terminals do not allow mobility.

Regarding the data transfer service, this is defined in article 8, paragraph 75, of the Regulation of Provision and Quality of Services, and for this publication, an analysis is carried out that subdivides this service into two markets:

- **INTERNET ACCESS SERVICE:** It consists of the service offered by a provider through which it offers the necessary means of access so that its subscribers can connect their computer equipment to the Internet.

[1] Resolution 9869 Sutel-SCS-2028, RCS-374-2018: "Requirements for the processing of applications for authorization and extension of the enabling title to operate networks and provide telecommunications services available to the public, and notifications of expansion of services and coverage areas." https://www.sutel.go.cr/sites/default/files/rcs-374-2018_requisitos_para_autorizaciones_prorrogas_ampliaciones_de_th_1.pdf

- **DEDICATED LINES SERVICE:** This modality involves the transfer of data between two or more geographically separated access points. The transport network is wired.

Finally, although television content is not considered a telecommunications service (content), networks for television transmission are included as they are means for offering telecommunications services that operate over the Internet. This section includes:

- **SUBSCRIPTION TELEVISION:** Satellite television, cable television, IP television, and MMDS television.

Table n.° 1 details the marketing modalities and characteristics of the networks that support each of the services comprised in these three groups:

Table n.° 1. Costa Rica: Telecommunications services considered in the study

Telecommunications service category	Modalities in which it is marketed	Characteristics of the networks that support it
Mobile telephony	Instant messaging (SMS), multimedia messaging (MMS), postpaid voice, prepaid voice.	It facilitates voice communications over wireless media. Its evolution is directed towards an all-IP architecture.
Fixed telephony	Traditional basic telephony, voice over IP (VoIP), ISDN.	Known as PSTN, it uses a set of exchanges and trunks to establish temporary connections between two ends, which is known as circuit switching. Furthermore, with the implementation of a soft switch and other active elements, the PSTN network can interconnect with any data network and provide voice over IP.
Subscription television	Satellite television, cable television, IP television, and MMDS television.	The service is provided through different technologies, it can be a satellite system, or a cable system based on DOCSIS 2.0 and higher. It is characterized by the transmission, or retransmission, of television and audio signals to a group of users, who subscribe the service through a contract, compensating the provider monetarily, thus requiring a network made up of a head end for wired distribution or a satellite station for wireless distribution to access users. This network, established primarily for the provision of television services or subscription content, also allows data transmission. Hence, although it is not a telecommunications service, it is of interest to analyze its evolution.
Data transfer	Wholesale data transport	This name is used to describe the service offered by the operator of a telecommunications network that has the capacity of carrying traffic to other operators or providers. In other words, final services are provided by other providers, since this carrier leases a logical or physical connection of the network it manages, so that other providers offer telecommunications services to its end users.
	Internet access	It consists of the service offered by a provider through which it offers the necessary means of access so that its subscribers can connect their computer equipment to the Internet.
	Point-to-point wireless links	This modality implies the transfer of data between two or more points of access geographically separated. The transport network is wireless.
	Leased lines	This modality implies the transfer of data between two or more points of access geographically separated. The transport network is wireless.
	Virtual private networks	This corresponds to the service where a data network is provided, using a public telecommunications infrastructure, keeping data private, through different security and routing technologies.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

* Head End: the head of the telecommunications network is understood to be the place where the programming originates, and the distribution-network begins. Typically, signals are received from satellites, broadcast stations, even the Internet, and are made available to distribution.
** Users or subscribers, can be residential or commercial.

Authorized services that are not contemplated in this report: geolocation, videoconferencing, and trunking, as these require a concession of frequencies of the radioelectric spectrum for private commercial use; so, the telecommunications network used to provide these services is private in nature, and it is not interconnected with public telecommunications networks. For this reason, they are not considered services available to the public.

METHODOLOGY

For the generation of the 2020 indicators on the performance of the Costa Rican telecommunications sector, the tasks carried out by the Directorate General of Markets, the Directorate General of Competition, the Directorate General of Quality, and the Directorate General of Fonatel are consolidated from the application of the methodologies in each of the aforementioned areas, in order to obtain general performance indicators of the sector (market behavior), quality of services, and operations of the projects financed with Fonatel resources, respectively.

It should be noted that the general results of the Telecommunications Sector contemplated in this report implicitly include the values reported for the indicators detailed in the Fonatel section, in that matter, the Fonatel results do not need to be added to the results registered in the sections of the Telecommunications Sector.

METHODOLOGY APPLIED FOR THE MARKET BEHAVIOR INDICATORS

In the case of the telecommunications market performance indicators, the Directorate General of Markets carries out the information gathering process in three different phases: the compilation of the information, its review and analysis, and the generation of results.

Figure n.° 2. Costa Rica: Process of compilation, review, and analysis, and generation of the indicators of the Telecommunications Sector

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

The following diagrams summarize the main tasks carried out in each of these stages.

Information compilation

This stage is executed through the Indicator System of the Telecommunications Sector, Sitel[2], which is fed with information entered by the operators through downloadable templates, which facilitates the data reporting process for the operators and the processing for the reports.

Once the information is received in the Sitel system, it is reviewed and analyzed by the professionals of the indicators team of the Directorate General of Markets (GDM). The actions that are undertaken as a result of this general verification include the determination of the consistency over time of the information and the reporting of complete data. If the above is not met, clarifications or corrections are requested from those involved in the process. It should be noted that the information provided by each operator or service provider is considered an affidavit in relation to each reported service.

Figure n.° 3. Costa Rica: Information compilation process for the construction of the Telecommunications Sector indicators

Preparatory actions

Publication of the calendar for the collection of information: deadlines for companies to provide the required information. In addition, the dates of the annual workshops for updating and training of operators and suppliers and the receipt of feedback for the improvement of data capture instruments are indicated.

For the compilation of the 2020 indicators, the calendar was published in the Official Gazette n.° 227 of 28 November 2019.

Quarterly Reminders: Several reminders are issued throughout the year, through e-mails and by telephone contact with the representatives of the information compilation process of each of the telecommunications service providers and operators, who must present the information.

Updating and training workshops for operators and suppliers: In 2020, Sitel held the fourth "Workshop on Market Indicators of the Telecommunications Sector", from February 25 to 27, 2020, where the information compilation process that the Directorate General of Markets would follow was explained in detail, to obtain results on the performance of the sector, the templates or processes to be used on Sitel, and the importance for the regulatory body of having a solid and reliable indicator base.

Information submission

Formats used: For 2020, the information was only collected through the Sitel web application; however, information was sent in Excel templates given some technical aspects of Sitel that had to be resolved.

Remittance dates and frequencies: The frequency of delivery of performance information for the different services is as follows: fixed telephony, mobile telephony, and data transfer deliver quarterly information with a monthly breakdown; delivery of quarterly information with a monthly breakdown, delivery of quarterly information with a monthly breakdown [sic]. In the case of subscription television, delivery is monthly.

For all services, delivery of general information on employment, investments, and others is biannual.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

[2] It is a platform made up of a web application and a Business Intelligence solution; Sitel is made up of two interfaces, one for Sutel officials and the other for the person(s) authorized by the operator or telecommunications service provider, where information required is entered to build the indicators in downloadable templates.

In order to guarantee the quality of the information received by companies in the sector, updating and training workshops are held every year for telecommunications services operators and providers. In 2020, 82 representatives of telecommunications service providers and operators were present, corresponding to 46 operators with an active commercial offer. These were carried out at the Aresep facilities. For this edition, the methodology applied was different from that of previous years, as they focused on the analysis of the experiences in the first year of use of the Sitel tool, the design of new indicators, and the results of the Mobile Telecommunications Price Index. In addition, Economic Regulation and Market Access Areas of the Directorate General of Markets and the Directorate General of Quality participated.

Table n.° 2. Costa Rica: Telecommunications Superintendency: Attendance at the Market Indicators for Telecommunications Conference, 2020

Date/Operator	Representative
25/2/2020	
AMERICAN DATA NETWORKS	2
BLUE SAT SERVICIOS ADMINISTRADOS DE TELECOMUNICACIONES S. A.	2
CABLE CARIBE, S. A.	1
CABLE TICA (LIBERTY)	2
CABLE VISIÓN DE COSTA RICA CVCR, S. A. DE OCCIDENTE S. A.	1
CALL MY WAY S. A.	1
CLARO CR TELECOMUNICACIONES, S. A.	6
COOPERATIVA ELECTRIFICACIÓN RURAL DE GUANACASTE (COOPEGUANACASTE)	2
COOPERATIVA DE ELECTRIFICACIÓN RURAL DE SAN CARLOS, R.L. (COPELESCA)	3
COSTA RICA INTERNET SERVICE PROVIDER S.A., CRISP	3
EMPRESA DE SERVICIOS PÚBLICOS DE HEREDIA	2
INSTITUTO COSTARRICENSE DE ELECTRICIDAD	7
MILLICOM CABLE COSTA RICA	3
SERVICIOS TECNOLOGICOS ANTARES DE COSTA RICA	1
TELECABLE S.A. (TELECABLE ECONÓMICO T.V.E., S. A.)	2
TELEFÓNICA DE COSTA RICA TC, S. A.	1
COMUNICACIONES TELEFÓNICAS TICOLÍNEA S. A.	1
Total	**40**
26/2/2020	
BOOMERANG WIRELESS S. A.	2
CABLE CENTRO	2
CABLE TALAMANCA	1
CABLE ZARCERO	1
CODISA SOFTWARE CORPORATION, S. A.	1
COMERCIALIZADORA DENNISALOM DEL SUR (SERVCOMSA)	1
COOPERATIVA DE ELECTRIFICACIÓN RURAL DE ALFARO RUIZ RL (COOPEALFARO RUIZ)	2
COOPERATIVA DE ELECTRIFICACIÓN RURAL LOS SANTOS R.L (COOPESANTOS)	2
IDEAS GLORIS S.A.	1
INALAMBRIKA NETWORKS	2
JUNTA ADMINISTRATIVA DEL SERVICIO ELÉCTRICO MUNICIPAL DE CARTAGO	3
P.R.D. INTERNACIONAL, S. A.	1
RADIOGRÁFICA COSTARRICENSE S. A.	1
REDES INALÁMBRICAS DE COSTA RICA	2
RSL TELECOM (PANAMÁ), S. A.	1
TRANSDATELECOM, S. A	1
UFINET COSTA RICA, S. A.	2
Total	**26**

27/2/2020	
RED PUNTO COM TECHNOLOGIES S. A.	1
GOLD DATA COSTA RICA	2
GRUPO KONECTIVA LATAM S. A.	1
IBW COMUNICACIONES SOCIEDAD ANÓNIMA	1
INTERPHONE, S. A.	1
MDBA NETWORKS SRL.	1
MUNDOREDES S Y H COSTA RICA	2
NYXCOMM S. A.	1
RED Y COMUNICACIONES REYCOM DEL SUR	2
RED CENTROAMERICANA DE TELECOMUNICACIONES	1
SKMTI CINCO M M GAMA S. A.	2
TICARIBE SOCIEDAD ANÓNIMA	1
Total	**26**
Grand Total	**82**

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Information review and analysis

Once the information is received in the Sitel system, it is reviewed and analyzed by the professionals of the indicators team of the Directorate General of Markets (GDM). The actions that are undertaken as a result of this general verification include the determination of the consistency over time of the information and the reporting of complete data. If the above is not met, clarifications or corrections are requested from those involved.

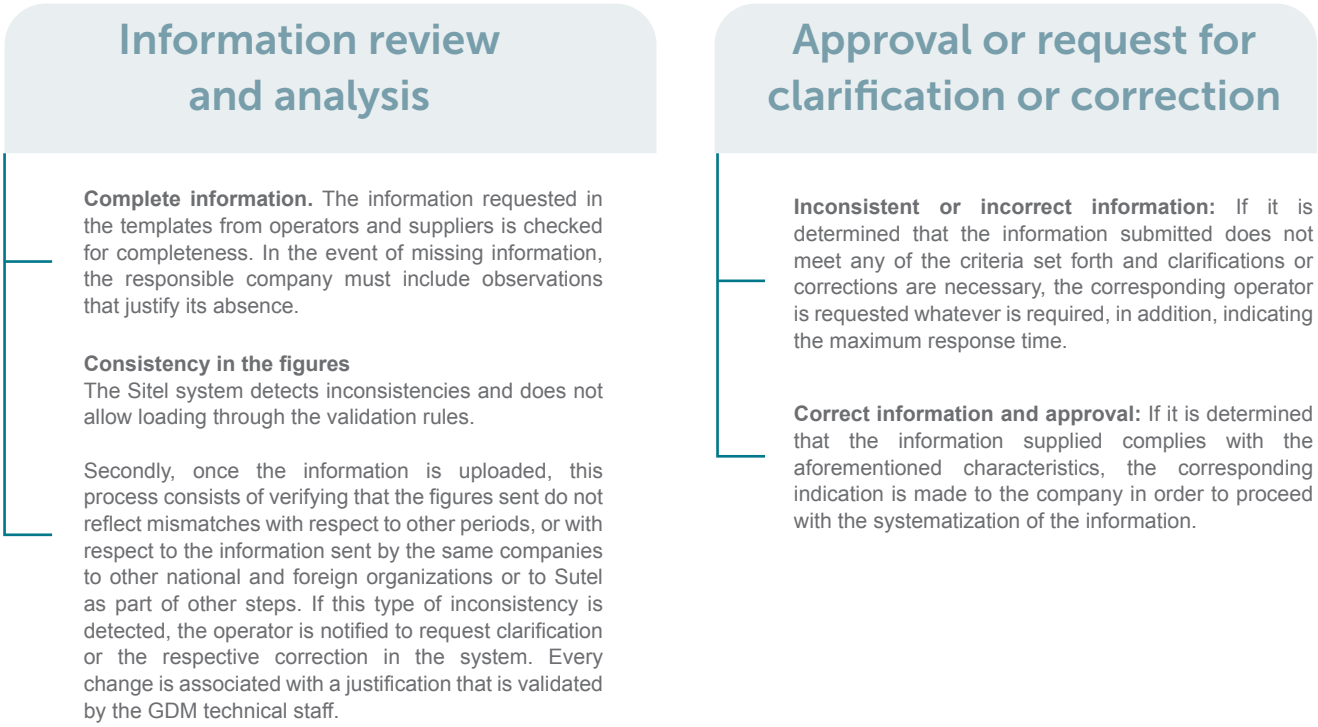
For the different services, inconsistencies are communicated to the operator in the first instance through email, then through telephone calls, and finally, from the submission of formal notices by the Directorate General of Markets. Additionally, the Sitel platform has validation rules in order to prevent the recording of data outside the historical trend of each operator or that does not meet certain criteria, for example, entering values with decimals when the cell only accepts integer values. In the event that any operator requests changes to the historical data, it is indicated that said request must be presented to the Sutel Council and with its respective justification.

It is important to note that Sutel ensures compliance with Law n.° 9694, National Statistical System, where the obligation to provide information for statistical purposes is indicated, and specifically article 19 states “The information that is provided or supplied within the Framework of the PEN (National Statistics Program) will always be timely and truthful, under penalty of the sanctions established in this Law”.

It should be noted that, in 2020, as the Sitel system was used as a means of reporting and loading information, an additional filter was added to the review process, considering that the system includes intrinsic validation rules that limit operators and providers of telecommunications services from the inclusion of information that is not congruent with that which they have historically reported, as indicated. For example, these rules prevent the loading of the information system in units other than those previously reported (thousands or millions of colones, Kbps or MB, among others).

The inclusion in this report of the operators with the largest market share for the contribution of information is ensured, thus guaranteeing the comparability of the statistics.

Figure n.° 4. Costa Rica: Information review and analysis process for the construction of the Telecommunications Sector indicators



Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

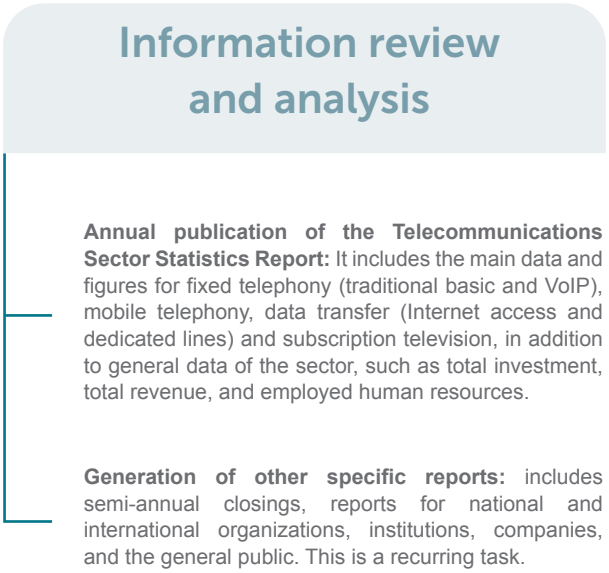
It is important to mention that in addition to the revision work, meetings are held throughout the year with different operators in order to clarify the indicators required in the templates and share the observations made by this Superintendency regarding the data provided by them.

Results generation

This activity corresponds to the stage of generation of reports, with the information provided by network operators and telecommunications service providers, as well as that compiled from secondary national and international sources (Inec, ITU, World Economic Forum, etc.). A semi-annual report is generated and published on Sutel's website, as well as an annual report, which precisely corresponds to this document. In addition, in compliance with the commitments with international organizations, the following reports are generated:

- ITU World Telecommunication/ICT Regulatory Survey, March 8, 2020
- ITU World Telecommunication/ICT Indicators Short Questionnaire, March 30, 2020
- OECD-BB-Dec2019_quest_CRI, June 12, 2020
- ITU ICT Price Basket Questionnaire, June 15, 2020
- ITU Survey on Tariff Policies, June 17, 2020
- Fixed Internet Comparative Data OECD 2018, June 17, 2020
- ITU World Telecommunication/ICT Indicators Long Questionnaire, September 29, 2020

Figure n.° 5. Costa Rica: Results generation process and final development of indicators for the Telecommunications Sector



Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

The information collected that is presented in this report includes annual and quarterly figures to study the behavior of services for revenue, traffic, and subscriptions. Likewise, for the analysis of the 2016-2020 period, geometric growth rates were calculated to analyze the inter-annual growth of the indicators. It should be noted that the geometric rate assumes a constant percentage growth over time, unlike the simple model for which the rate of change increases by the same amount each unit of time considered. In the simple model, the basic assumption is that the analysis variable grows by the same amount (quantity) for each time unit, while the geometric rate keeps constant the percentage of growth per unit of time, and not the amount (quantity) per unit of time; therefore, it can be used for long periods. Thus, it should be understood that sections referring to the average annual growth rate refer to a geometric rate.

Additionally, the Herfindahl and Hirschman Index (HHI) was analyzed. This index measures the concentration in a market and is an indicator that is used, together with other measurements and behavior analysis, to determine the level of competition in the market. For the specific calculation of the HHI, the share of each company in a given market is quantified (in this case the share in the total number of subscribers is used), and the square of the share percentages of each of the companies that make up the market is added.

The index is considered one of the most widely used measurements of market concentration, that is, of the level of economic concentration within a market. Scores range from 0 (perfect competition) to 10 000 (monopoly). A higher level of concentration is associated with less competitive market structures.

Summary of market performance indicators presented in the report

The general definitions of each market behavior indicator are presented with the purpose of offering clarity to the reader about the processed information. It should be noted that these definitions are consistent with those used by the International Telecommunications Union (ITU).

Table n.° 3. Costa Rica: Fixed telephone service indicators, 2020

Indicator	Definition
Total active landlines	Total number of lines put into service and duly assigned to a customer, which is not in permanent suspension of service (articles 12 and 34 of the RPUF), and which registers at least one taxable event during the last month of appraisal or, that maintains a service provision contract with the operator in force.
Subscriptions/active VoIP lines	Number of active landline subscriptions using Voice over Internet Protocol (VoIP). Only the total of subscriptions to the VoIP service that have generated inbound or outbound traffic during the last three months should be included. It excludes: VoIP software applications (for example, Skype VoIP between computers or computer to phone).
ISDN, BRI and PRI service subscriptions	Total number of subscriptions to the Integrated Services Digital Network (ISDN), which can be separated into basic rate interface (BRI) and primary rate interface (PRI) service.
Total traditional basic telephony traffic	Traffic corresponding to calls, made through fixed telephone lines that are analog, digital, or both.
Total VoIP traffic	Traffic corresponding to calls, made through fixed managed VoIP telephony (voice transmission protocol over the Internet).
Inbound international phone traffic	Total traffic with international origin and fixed on-net destination.
Outbound international telephone traffic	Total traffic with on-net fixed origin and international destination.
Total VoIP revenue (retail)	This indicator is equivalent to the revenue associated with the basic rate + surplus + other items associated with the provision of the VoIP service.*
Total revenue for traditional basic telephony (retail)	Total gross revenue billed for the sale of the traditional basic telephone service, obtained in the country by the provider. It excludes concepts such as: taxes, devaluations, rebates, bonuses, discounts, canceled sales, financial expenses, among others.*
Number of commercialized subscriptions of the fixed telephony service in individual or bundled modalities	Fixed telephony service subscriptions that are marketed individually (not sold with another service) and fixed telephony subscriptions that are marketed together with other telecommunications services.

Note: *Total gross revenue billed for the sale of the service, obtained in the country by the provider. It excludes concepts such as: taxes, devaluation, rebates, bonuses, discounts, canceled sales, financial expenses, among others.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 4. Costa Rica: Data transfer service indicators, 2020

Indicator	Definition
Active subscriptions to fixed wired Internet	Sum of active subscriptions to the fixed wired Internet access service (cable modem, xDSL, fiber to the home or building and other fixed wired technologies).
Active Fixed Wireless Internet Subscriptions	Sum of active subscriptions to the fixed wireless Internet access service (satellite, fixed WiMax, and other fixed wireless technologies).
Active mobile internet subscriptions	Sum of active subscriptions to the mobile Internet access service (prepaid and postpaid mobile, Data Card, mobile WiMax, and other mobile technologies).
Active Internet subscriptions by dial-up	Number of active Internet subscriptions by telephone dialing. This service consists of an Internet connection through a modem and a fixed telephone line, for which the modem dials a telephone number when access to the Internet is required.
Number of dedicated lines (dedicated links)	Number of dedicated private connections. A dedicated line connects two sites of private voice or data telecommunications service. These lines do not have a special cable, but a reserved circuit between two points. Usually, companies rent these types of lines to connect their offices since they guarantee the necessary bandwidth for network traffic.
Internet traffic	It refers to the amount of data transmitted and downloaded (in gigabytes) by all users of the Internet access service.
Total revenue from the supply of dedicated lines	Total sum of revenue billed with the provision of the dedicated lines service.*
Maximum download speed offered	Maximum Internet speed offered for downloading data in the Internet access service.
Minimum download speed offered	Minimum Internet speed offered for downloading data in the Internet access service.
Total revenue billed for fixed, wired Internet access	It corresponds to the total sum of billed revenue associated with the provision of access to fixed wired Internet service.*
Total revenue billed for fixed, wireless Internet access	It corresponds to the total sum of billed revenue associated with the provision of access to fixed, wireless Internet service.*
Total revenue billed for mobile Internet access	It corresponds to the total sum of billed revenue related to the provision of access to mobile Internet service.*
Number of commercialized subscriptions of the fixed Internet service in individual or bundled modalities	Fixed Internet service subscriptions that are marketed individually (not sold with another service) and fixed Internet subscriptions that are marketed together with other telecommunications services

Note: *Total gross revenue billed for the sale of the service, obtained in the country by the provider. It excludes concepts such as: taxes, devaluations, rebates, bonuses, discounts, canceled sales, financial expenses, among others.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 5. Costa Rica: Mobile phone service indicators, 2020

Indicator	Definition
Active postpaid mobile subscriptions	Total number of postpaid mobile cell phone subscriptions that pay a monthly subscription fee and Total Number of postpaid mobile cell phone subscriptions that pay a monthly subscription fee and record at least one taxable event during the appraisal month and that are not in definitive suspension of the service, cording to articles 12 and 34 of the RPEU.
Active prepaid mobile subscriptions	Total number of subscriptions to prepaid mobile phones that have at least one event chargeable to the balance of the service, within the ninety calendar days prior to the last assessment and that belong to the prepaid platform.
Total capacity of mobile lines installed	It corresponds to the maximum number of mobile lines that can be connected. This number includes mobile lines already connected and mobile lines available for subsequent connections, including those used for the technical operation of the switchboard (test numbers)
Mobile traffic (voice, SMS, and MMS)	It refers to the total traffic of the mobile phone service.
Mobile traffic - own fixed	Traffic originating from the own mobile network (on-net mobile) bound to its own fixed network (fixed network of the same operator).
On-net mobile traffic	Traffic originating from the mobile network bound to the same mobile network (on-net traffic).
Mobile traffic - other mobile networks	Traffic originating from the own mobile network (on-net mobile) to other mobile networks (mobile networks of other operators).
Other mobile network traffic - own mobile	Traffic originating from the mobile networks of other operators (off-net mobile) bound to own mobile network (on-net mobile).
Own fixed traffic - own mobile	Traffic originating from the own fixed network bound to own mobile network (on-net mobile).
Mobile traffic - other fixed networks	Traffic originating from the own mobile network (on-net mobile) to other fixed networks.(off-net fixed)
Other fixed network traffic - own mobile	Traffic originating in fixed networks of other operators (off-net fixed) bound to own mobile network (on-net mobile).
Mobile traffic - international	Traffic originating from the own mobile network (on-net mobile) to international networks (off-net international).
International network traffic - own mobile	Traffic originating from international networks (off-net international) bound for its own mobile network (on-net mobile)
Mobile transit traffic	Traffic with off-net origin (other fixed, mobile, and international long-distance networks) with off-net destination (other fixed, mobile, and international long-distance networks), through its own mobile network.
Total mobile voice traffic by payment method	It corresponds to the sum of mobile voice traffic according to payment method (prepaid and postpaid). To build this indicator, on-net traffic must be added to outbound off-net traffic. Total mobile voice traffic: On-net mobile voice traffic + total off-net mobile voice traffic (outbound mobile voice traffic to other mobile networks, own fixed network, other fixed networks, and to international networks).
Postpaid on-net SMS traffic	Short message (SMS) traffic exchanged between postpaid subscriptions of the same mobile network.
Prepaid on-net SMS traffic	Short message (SMS) traffic exchanged between prepaid subscriptions of the same mobile network.
Postpaid off-net SMS traffic	Short message (SMS) traffic sent and received by postpaid subscriptions of the mobile telephony service

Prepaid off-net SMS traffic	Short message (SMS) traffic sent and received by subscriptions to prepaid mobile telephony service.
National postpaid or prepaid SMS traffic	Short message (SMS) traffic sent to national destinations from postpaid or prepaid mobile phones.
Postpaid or prepaid international SMS traffic	Short message (SMS) traffic sent to international destinations from postpaid or prepaid mobile phones.
Postpaid on-net MMS traffic	Multimedia message (MMS) traffic exchanged between subscriptions of the same postpaid mobile network.
Prepaid on-net MMS traffic	Multimedia message traffic (MMS) exchanged between subscriptions of the same prepaid mobile network.
Postpaid off-net MMS traffic	Short message (SMS) traffic sent and received by postpaid mobile phone service subscriptions.
Prepaid off-net MMS traffic	Multimedia message (SMS) traffic sent and received by postpaid mobile phone service subscriptions.
	It excludes: On-net MMS traffic.
National postpaid or prepaid MMS traffic	Multimedia message (SMS) traffic sent to national destinations from postpaid or prepaid mobile phones.
International postpaid or prepaid MMS traffic	Multimedia message (SMS) traffic sent to international destinations from postpaid or prepaid mobile phones.
Outbound roaming telephone traffic	Total number of minutes of communications traffic carried out by own customers through local networks in roaming with foreign networks, when outside the local network service area (outbound roaming).
Inbound roaming telephone traffic	Total number of minutes of communications traffic received by own customers through local networks in roaming with foreign networks, when outside the service area of the local network (outbound roaming).
SMS and MMS roaming outbound international traffic	Traffic generated by resident mobile subscribers when sending SMS and MMS when outside the service area of their local network.
SMS and MMS roaming inbound international	Traffic generated by resident mobile subscribers when receiving SMS and MMS when outside the service area of the local network (inbound roaming).
Inbound roaming data traffic (TB)	Traffic transmitted (in TB) by resident subscribers when accessing the Internet service when outside the service area of the local network (inbound roaming).
Outbound roaming data traffic (TB)	Traffic received (in TB) by resident subscribers when accessing the Internet when outside the service area of the local network (outbound roaming).
Average prices	These are the average prices of a call from a mobile phone (prepaid or postpaid).
Average price of a 1-minute local call (peak hours, on-net) for mobile telephony	Price of a one-minute local call made during peak hours from a mobile phone line. The calculation of this indicator can be made from the distribution of revenue generated by on-net mobile calls (prepaid or postpaid) made during the time slot considered "peak" or high consumption, divided by the number of minutes consumed (traffic) in these calls.
	It includes taxes.
Average price of a local call, per minute (off-peak, on-net) for mobile telephony	Price of a local call for one minute, made during off-peak hours from a mobile cell phone (prepaid or postpaid) to another mobile cell phone on the same network. The calculation of this indicator can be made from the distribution of revenue generated by on-net prepaid mobile calls, made during the time slot considered "off-peak" or low consumption, divided by the number of minutes consumed (traffic) in these calls.
	It includes taxes.

Average price of a local call, per minute (off-peak, off-net) for mobile telephony	Price of a local call, per minute made during off-peak hours from a mobile cell phone (prepaid or postpaid) to a mobile cell phone on another network. The calculation of this indicator can be made from the distribution of revenue generated by on-net prepaid mobile calls, made during the time slot considered "off-peak" or low consumption, divided by the number of minutes consumed (traffic) in these calls.
	It includes taxes.
Average price of a local call, per minute (peak hours to a fixed network) for mobile telephony	Price of a local call, per minute, made during peak hours from a mobile cell phone (prepaid or postpaid) to the fixed telephony network. The calculation of this indicator can be made from the distribution of revenue generated by prepaid mobile calls to a fixed network made during the time slot considered "peak" or high consumption, divided by the number of minutes consumed (traffic) in these calls.
	It includes taxes.
Average price of a local call, per minute (off-peak, to a fixed network) for mobile telephony	Price of a local call, per minute, made during peak hours from a mobile cell phone (prepaid or postpaid) to the fixed telephony network. The calculation of this indicator can be made from the distribution of revenue generated by prepaid mobile calls, made to the fixed telephony network during the time slot considered "off-peak" or low consumption, divided by the number of minutes consumed (traffic) in these calls.
	It includes taxes.
Average price of a local call, per minute (peak hours, off-net) for mobile telephony	Price of a local call, per minute, made during off-peak hours from a mobile cell phone (prepaid or postpaid) to another mobile cell phone of another network. The calculation of this indicator can be made from the distribution of revenue generated by off-net prepaid mobile calls divided by the number of minutes consumed (traffic) in these calls.
	It includes taxes.
Average price of a local call, per minute (weekends/nighttime, on-net) for mobile telephony	Price of a local call, per minute, made on weekends, nighttime, from a mobile cell phone (prepaid or postpaid) to another mobile cell phone of the same network. Taxes should be included. Otherwise, it must be indicated in a note, stating the applicable tax rate.
	The calculation of this indicator can be made from the distribution of revenue generated by on-net prepaid mobile calls, made during weekends, nighttime, divided by the number of minutes consumed (traffic).
	It includes taxes.
Average price of a local call, per minute (weekends, nighttime, off-net) for mobile telephony	Price of a local call, per minute, made on weekends, nighttime, from a mobile cell phone (prepaid or postpaid) to another mobile cell phone of another network. The calculation of this indicator can be made from the distribution of revenue generated by off-net prepaid mobile calls, made during weekends, nighttime, divided by the number of minutes (traffic).
	It includes taxes.
Average price of a local call, per minute (weekends, nighttime, to a fixed network) for mobile telephony	Price of a local call, per minute, made on weekends, nighttime, from a mobile cell phone (prepaid or postpaid) to the fixed telephony network. The calculation of this indicator can be made from the distribution of revenue generated by prepaid mobile calls, made during weekends, nighttime, to a fixed network, divided by the number of minutes consumed (traffic).
	It includes taxes.

Average SMS price (on-net) for prepaid and postpaid mobile telephony	Average price of sending a short message (SMS) from a mobile cell phone (prepaid or postpaid) to a mobile cell phone on the same network. The calculation of this indicator can be made from the distribution of revenue generated, divided by the number of on-net SMS.
	It includes taxes.
Average SMS price (off-net) for prepaid and postpaid mobile telephony	Average price of sending a short message (SMS) from a mobile cell phone (prepaid or postpaid) to a mobile cell phone on another network. The calculation of this indicator can be made from the distribution of revenue generated divided by the number of off-net SMS.
	It includes taxes.
Revenue for prepaid or postpaid mobile telephony service	Revenue associated with the prepaid or postpaid mobile telephony service. It is constructed by revenue aggregation for the monthly rate, revenue for excess minutes, and revenue corresponding to other charges that are generated as part of the provision of the mobile telephony service, which are not part of the monthly rate or of that inherent to excess minutes, such as fines for suspension and reconnection.*
Prepaid or postpaid on-net mobile voice traffic revenue	Revenue associated with mobile voice traffic originating from the own mobile network (on-net mobile) bound for the same mobile network (on-net mobile).*
Prepaid or postpaid outbound mobile voice traffic revenue	Revenue associated with mobile voice traffic originating from the own mobile network (on-net mobile) off-net bound (own fixed network, other fixed networks, other mobile networks, international networks).*
Prepaid or postpaid monthly subscription or minimum rate revenue	Revenue obtained from the collection of recurring charges attributable to the subscription to the prepaid or postpaid mobile telephony service.*
Prepaid or postpaid fixed mobile telephony service surplus revenue	Revenue associated with excess minutes or minutes that are not contemplated in the minimum rate of the prepaid or postpaid service. It includes excess minutes for local and international calls.*
Prepaid or postpaid inbound mobile voice traffic revenue	Revenue associated with off-net originated traffic (own mobile network, other fixed networks, other mobile networks, international networks) and on-net bound (own fixed network).*
Prepaid or postpaid international outbound mobile voice traffic revenue	Revenue associated with mobile voice traffic originating from own mobile network (on-net mobile) international off-net bound.*
Prepaid or postpaid international inbound mobile voice traffic revenue	Revenue associated with international off-net originating traffic and on-net bound (own mobile network).*
Prepaid or postpaid on-net revenue by number of SMS	Revenue associated with short message (SMS) traffic exchanged between users of the same mobile network, postpaid or prepaid.*
Prepaid or postpaid off-net revenue by number of SMS	Revenue associated with short message (SMS) traffic sent to national and international destinations from postpaid or prepaid mobile phones.
Revenue by number of on-net MMS, postpaid or prepaid	Revenue associated with multimedia messaging service (MMS) traffic exchanged between users of the same mobile network, postpaid or prepaid.*
Revenue by number of off-net MMS, postpaid or prepaid	Revenue associated with multimedia message service (MMS) traffic sent to national and international destinations from postpaid or prepaid mobile phones.*
Revenue for MMS sent to national destinations, postpaid or prepaid	Revenue associated with the total traffic of multimedia messages (MMS) sent to national destinations. Messages sent by computer to other computers or mobile telephones are not included.*

Revenue for MMS sent to international destinations, postpaid or prepaid	Revenue associated with the total traffic of multimedia messages (MMS) sent to international destinations. Messages sent by computer to other computers or mobile telephones are not included.*
Revenue by number of SMS sent to postpaid or prepaid national destinations	Revenue associated with short message (SMS) traffic sent to national and international destinations from mobile phones.*
Revenue by number of SMS sent to international postpaid or prepaid destinations	Revenue associated with short message (SMS) traffic sent to international destinations from mobile phones.*
Revenue by total MMS	Revenue associated with the total traffic of multimedia messages (MMS) sent to national and international destinations. Messages sent by computer to other computers or mobile telephones are not included.*
Revenue from outbound roaming telephone traffic *(minutes)*	Revenue generated by mobile telephone subscribers when making and receiving calls when outside the service area of their country's network, for example, when traveling abroad.*
Revenue from outbound roaming telephone traffic *(minutes)*	Revenue generated by visiting (foreign) subscribers when making and receiving calls in a country. This revenue is obtained by network operators in the country of the visiting subscribers.*
Outbound roaming SMS and MMS revenue	Revenue generated by own mobile subscribers by sending SMS and MMS when outside the service area of their country network.*
Outbound roaming SMS and MMS revenue	Revenue from traffic generated by visiting (foreign) subscribers when receiving SMS and MMS. This revenue is obtained by network operators in the country of the visiting subscribers.*
Inbound roaming data traffic (TB)	Revenue from traffic generated by visiting (foreign) subscribers when accessing Internet. This revenue is obtained by network operators in the country of the visiting subscribers.
Outbound roaming data traffic (TB)	Revenue generated by own mobile subscribers by accessing Internet when outside the service area of their country network.
Wholesale revenue from mobile telephone service	Wholesale revenue associated with the provision of the mobile telephone service. Specifically, it refers to revenue obtained from call termination charges in own mobile network. This indicator is estimated from the sum of revenue received from the inbound traffic to the own mobile network.*
Number of commercialized subscriptions of the mobile telephone service, individual or bundled	Mobile telephone service subscriptions that are marketed individually (not sold with another service) and mobile telephone subscriptions that are marketed together with other telecommunications services

Note: Mobile telephone revenue excludes taxes.

*Total gross revenue billed for the sale of the service, obtained in the country by the provider. It excludes concepts such as: taxes, devaluations, rebates, bonuses, discounts, canceled sales, financial expenses, among others.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 6. Costa Rica: Subscription television service indicators, 2020

Indicator	Definition
Total number of subscriptions to multichannel television by cable TV service	Number of subscriptions to multichannel television, transmitted by terrestrial means through hybrid fiber optic and coaxial cable (HFC) networks. These networks make it possible to provide other telecommunications services.
Total number of multichannel television subscriptions using direct-to-home (DTH) antennas	Number of multichannel television subscriptions, corresponding to television signal received from a communications satellite and transmitted from the operator to the end user's receiving equipment.
Total number of subscriptions to multichannel television using IPTV	Number of subscriptions to multichannel television using broadband connections over IP protocol.
Total number of subscriptions to multichannel television using multipoint distribution (MMDS)	Number of multichannel television subscriptions, using the Microwave Multipoint Distribution Service (MMDS), which transmits the signals wirelessly to the end user. This service allows the provision of other telecommunications services.
Revenue from the subscription television service (revenue by subscriptions, connection, basic plan, and added value)	Total gross revenue invoiced from the sale of subscription television service, obtained in the country by the provider. It excludes concepts such as: taxes, devaluations, rebates, bonuses, discounts, canceled sales, financial expenses, among others.*
Number of commercialized subscriptions of subscription television service, individual or bundled	TV service subscriptions by subscription marketed individually (not sold with another service) and subscription television subscriptions that are marketed together with other telecommunications services.

Note: *Total gross revenue billed for the sale of the service, obtained in the country by the provider. It excludes concepts such as: taxes, devaluations, rebates, bonuses, discounts, canceled sales, financial expenses, among others.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 7. Costa Rica: General Service Indicators, 2020

Indicator	Definition
Staff employed in the provision of public telecommunications services	Total staff employed (headcount and contractors*) by network operators and telecommunications service providers in the country for the provision of telecommunications services. Staff employed in national broadcasting networks will not be included if they only provide traditional broadcasting services. *Outsourcing staff is included if and only if these individuals are specialized in the provision of telecommunication services (ITU).
Contractor staff employed in the provision of public telecommunications services	Total number of staff employed under the outsourcing model, by network operators and telecommunications service providers in the country for the provision of telecommunications services. It is important to indicate that this contractor staff must be specialized in the telecommunications service. Otherwise, they would not enter the indicator (cleaning, marketing, security personnel, among others) Staff employed in national broadcasting networks will not be included if they only provide traditional broadcasting services. In the event that the number of individuals working in the execution of outsourced activities is not known, it is suggested to indicate an approximate number according to said activities.
Women employed in telecommunications services	Total number of female employees (plant and subcontractors*) who work in telecommunications services. *Outsourced staff are included only if they provide a specialized telecommunications service.

Half-yearly investment in telecommunications services	It refers to the gross capital expenditure incurred in the last 6 months of tangible and intangible assets, to be used by the company that provides telecommunications services in the country for purchase and improvement of property, facilities, and networks. **IT INCLUDES:** *The acquisition of non-tangible assets such as intellectual property, software, licenses, and patents (see details in ID G8). *Expenses in initial facilities, expansion of existing ones, which are expected to be used for a long period of time. **IT EXCLUDES:** *Day-to-day expenses. *Research and development expenses. *The rates of exploitation of licenses or of use of the radioelectric frequency spectrum (see detail in ID G8). *Expenses in software or telecommunications equipment for internal use. (ITU). **NOTE:** In the case of figures expressed in a currency other than the colón, convert to colones using the reference purchase exchange rate of the Central Bank of Costa Rica at the end of each month. In the event that the expense is shared to provide a service other than telecommunications, estimate the amount corresponding to telecommunications. In the case that the expenses are given on credit, record the real value of the purchase.
Kilometers of fiber optics	It refers to the number of kilometers of fiber optics installed to date. **Note:** All infrastructure for own use only is excluded.
Number of subscriptions sold in its different modalities, individual, double, triple, and quadruple	Different telecommunications service subscriptions that are marketed individually (not sold with another service) and subscriptions that are marketed together with other telecommunications services.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Situation analysis

To analyze the possible effects of the pandemic on the behavior of the supply of telecommunications services, a descriptive analysis is carried out on the variables of subscriptions, revenue, and traffic for data transfer services, mobile telephony, fixed telephony, and subscription television, for the 2018-2020 period. The situation analysis arises as a result of the particular dynamics in 2020 in the country and the rest of the world.

DIRECTORATE GENERAL OF COMPETITION

The Law for the Strengthening of Competition Authorities of Costa Rica, n.° 9736, establishes that Sutel is the sectorial authority in charge of the defense and promotion of competition and free participation in the telecommunications and networks sector that support sound broadcasting and free access television services.

On the other hand, the General Law on Telecommunications (GLT), n.° 8642, establishes in Chapter II of Title III, a Sectorial Competition Regime, which assigns the Superintendency of Telecommunications a series of functions as a sectorial competition authority in telecommunications, specifically:

a) Promote the principles of competition in the national telecommunications market.

b) Analyze the degree of effective competition in the markets.

c) Determine when operations or acts that are executed or celebrated outside the country, by operators or suppliers, may affect effective competition in the national market.

d) Guarantee access of operators and providers to the telecommunications market under reasonable and non-discriminatory conditions.

e) Guarantee access to essential facilities under equitable and non-discriminatory conditions.

f) Avoid abuses and monopolistic practices by operators or suppliers in the market, the latter may not assign their systems and technologies to a single operator for monopolistic purposes. If it is determined that a provider has created or used other legal entities for these monopolistic purposes, Sutel must guarantee that said practice ceases immediately, without detriment to the responsibilities that this conduct derives.

g) Prevent and detect hard core cartels, monopolistic practices, illegal mergers, and other restrictions on the efficient functioning of the telecommunications market, and impose measures and sanctions provided in the legal system.

h) Authorize or deny merger in the telecommunications and networks sector that support sound and television broadcasting services and impose the conditions it deems necessary to counteract the possible anti-competitive effects derived from the merger.

i) Request from any natural or legal person, de facto or legal entity, public or private, national or foreign, the information and documentation required to fulfill its functions.

j) Inspect and obtain copies of documents and physical or electronic records, with prior authorization from a Contentious Administrative and Civil Treasury Court, of industrial and commercial establishments and other movable and immovable property of operators and providers, when this is necessary to collect and avoid the loss or destruction of useful evidence for the investigation of absolute or relative monopolistic practices contemplated in this law and its regulations, pursuant to the provisions of Chapter IV of Title III of the Law for Strengthening the Competition Authorities of Costa Rica.

k) Carry out activities to promote and advocate for competition in the telecommunications and networks sector, which support sound and television broadcasting services.

l) Issue opinions, in terms of competition and free participation, regarding the laws, regulations, agreements, circulars, and other administrative acts related to the telecommunications and networks sector that serve as support for sound and television broadcasting services, without such criteria having binding effect.

m) The others conferred by the Law for the Strengthening of Competition Authorities of Costa Rica and its regulations.

Sutel, therefore, has the power to analyze and sanction, when appropriate, monopolistic practices committed by telecommunications operators; to approve or reject the applications for authorization of mergers between telecommunications operators and to carry out tasks of promotion and advocacy of competition, among which are issuance of opinions, conducting market studies, publication of guides, and realization of dissemination and training activities to promote the culture of competition.

This year, in the general market performance section, the information on the activities carried out by Sutel as a sectorial competition authority in 2020 is again included, specifically in relation to:

- Analysis of merger requests.
- Investigations related to the possible commission of monopolistic practices: there are two types of monopolistic practices: absolute and relative.
- Development of methodological guidelines for analysis. It refers to guides to promote transparency, predictability, and legal certainty in relation to the application, processes, and procedures carried out before Sutel.
- Development of activities to promote the culture of competition.
- Development of market studies.
- Issuance of opinions on regulations that may affect competition in the telecommunications markets.

METHODOLOGY APPLIED IN THE MONITORING AND EVALUATION SYSTEM OF PROGRAMS AND PROJECTS FINANCED WITH FONATEL RESOURCES AND ACHIEVEMENT OF THE GOALS OF THE NATIONAL PLAN FOR THE DEVELOPMENT OF TELECOMMUNICATIONS

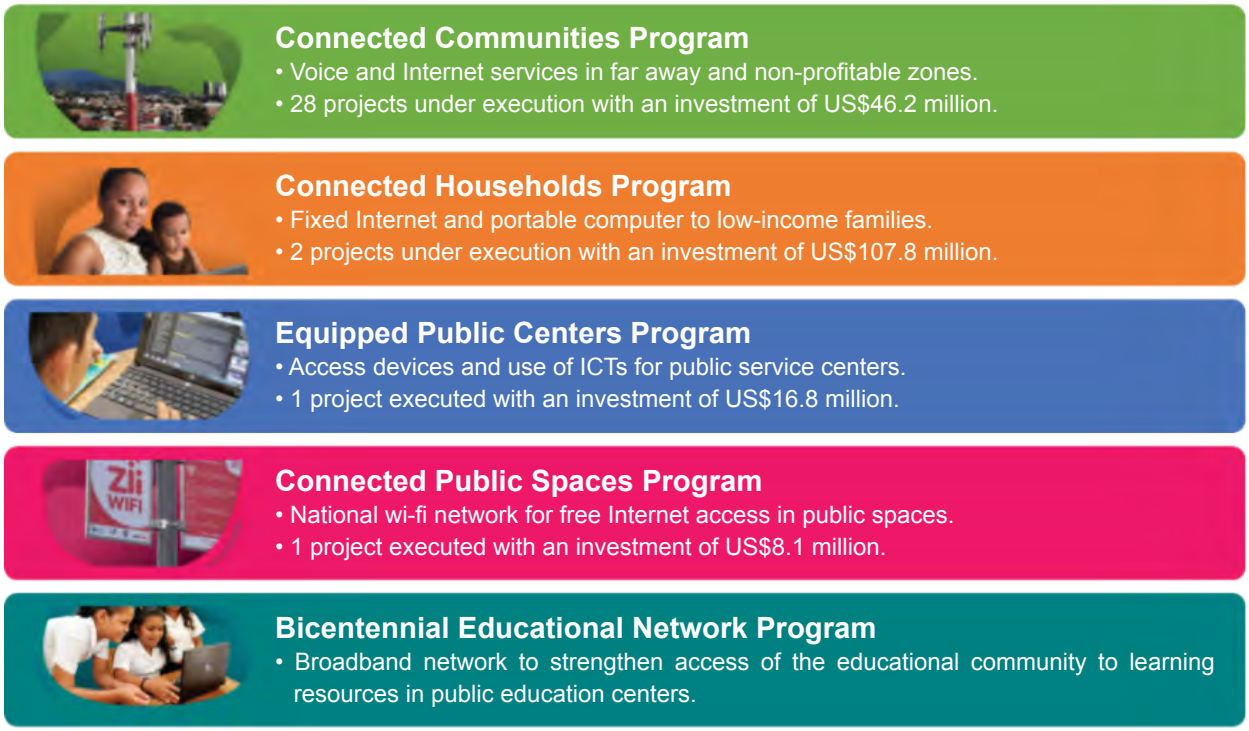
The General Law on Telecommunications, n.° 8642, (articles 31 to 40 and Transitory Provision VI) empowers Sutel to develop projects that guarantee access and use of telecommunications services by the population in vulnerable conditions or who live in geographic areas of low economic profitability. This is done with resources from the National Telecommunications Fund (Fonatel), according to the objectives contemplated in this law, as well as the goals and priorities defined in the National Telecommunications Development Plan (NTDP) 2015-2021.

To determine the scope of programs and projects for universal access, universal service and solidarity managed with Fonatel resources, Sutel prepares, based on the goals defined in the NTDP, the Annual Plan of Projects and Programs (PAPyP), an instrument that allows planning, organizing, monitoring, and evaluating these programs and projects while they are in force.

The portfolio of programs financed with Fonatel resources closed 2020 with five programs: three in the execution phase, one in the planning phase, and the fifth one awaiting the definition of a public policy goal that enables its execution, by the Ministry of Science, Technology, and Telecommunications (Micitt)[3]. Together, these five programs are associated with 11 goals included within the Digital Inclusion pillar of the NTDP 2015-2021. Figure n.° 6 shows the programs in development executed with Fonatel resources.

[3] The three programs that in 2020 had projects in the execution phase (active) are: Connected Communities Program, Connected Households Program, and Connected Public Spaces Program. The Equipped Public Centers Program is in the planning phase, specifically, in the bidding process, after MICITT expanded goal 9, associated with this program, on September 25, 2020, thus enabling the development of another project. The fifth program, initially called Solidary Broadband Network, was pending execution at the end of 2020, because it was in the process of incorporating a specific public policy goal for Fonatel, for its execution. It is clarified that, although it exceeds the time horizon considered in this report, the goal corresponding to Fonatel was defined by Micitt in the first quarter of 2021, within the framework of the Bicentennial Education Network Project, modifying the name of program 5, Solidary Broadband Network, to Bicentennial Education Network.

Figure n.° 6. Costa Rica: Portfolio of programs under development[4] with Fonatel 2020 resources



Source: Sutel, Directorate General of Fonatel, Costa Rica, 2020.

It is important to indicate that the development life cycle of the projects associated with each of the programs consists of four phases, which are detailed below:

a) Initiation: it refers to the process carried out for the definition of a new project, where its value and viability are measured. It includes the reception and evaluation of initiatives, the pre-feasibility study, the establishment of a draft project scheme, and the generation of the development order (SDG) or charter for the start-up of the new project.

b) Planning: it corresponds to the processes required to establish the scope of the project and to define the course of action necessary to achieve the proposed objectives. It includes the formulation for the award of the provider, who will be in charge of the execution of the project, the performance of the socioeconomic study, the development of the financial scheme, the project and program plan, and the award to an operator or service provider. This phase is comprised by the formulation and tender/award status.

- **Formulation:** It includes the projects that are in the planning phase, specifically from the generation of the development order to the preparation of the bid.
- **Tender/award:** It comprises the projects that are in the planning phase, specifically from the beginning of the tender process to the award to a bidder.

[4] It includes all the programs that are in any of the phases of the life cycle of a project: initiation, planning, execution, and closure that are executed with Fonatel resources.

c) **Execution:** It comprises the project execution or development processes according to the work defined in the project and program plan (project management begins), and the control and monitoring process, used to analyze the project's progress and performance (it includes project management payments, quality control, risk and change management, and progress monitoring in the delivery of products). This phase begins once the project is awarded to a network operator or telecommunications service provider until its closing. This phase is made up of the phases: execution/reception and production.

- **Execution/Reception:** It covers projects in the execution phase, specifically from the beginning of the development of the project, once it has been awarded to a bidder, until it is received. It includes the activity of reception and acceptance of infrastructure and equipment.
- **Production:** It covers projects in the execution phase, specifically projects that are in operation (providing services), from the start of operation of the infrastructure until the end of the contract.

d) **Closing:** project completion and delivery process. It includes the completion and closing of contracts and the generation of all project closure documentation.

Within the framework of the phases defined above and as part of the functions of control, monitoring, and evaluation of the programs financed with Fonatel resources, two types of indicators are defined, constructed, compiled, and analyzed: operational indicators (which make it possible to measure progress of the projects) and evaluation indicators (which allow estimating the effects and impacts of the projects on the target populations, as well as the perception that the beneficiaries of the programs have of the benefits received). This report only includes the operational indicators associated with the programs with projects in the execution phase.

It should be noted that the general results of the Telecommunications Sector that are reported and analyzed in the sections corresponding to each service covered in this report include, implicitly, the results of the indicators concerning the programs and projects financed with Fonatel resources executed up to the cut-off date.

Operational indicators associated with programs financed with Fonatel resources

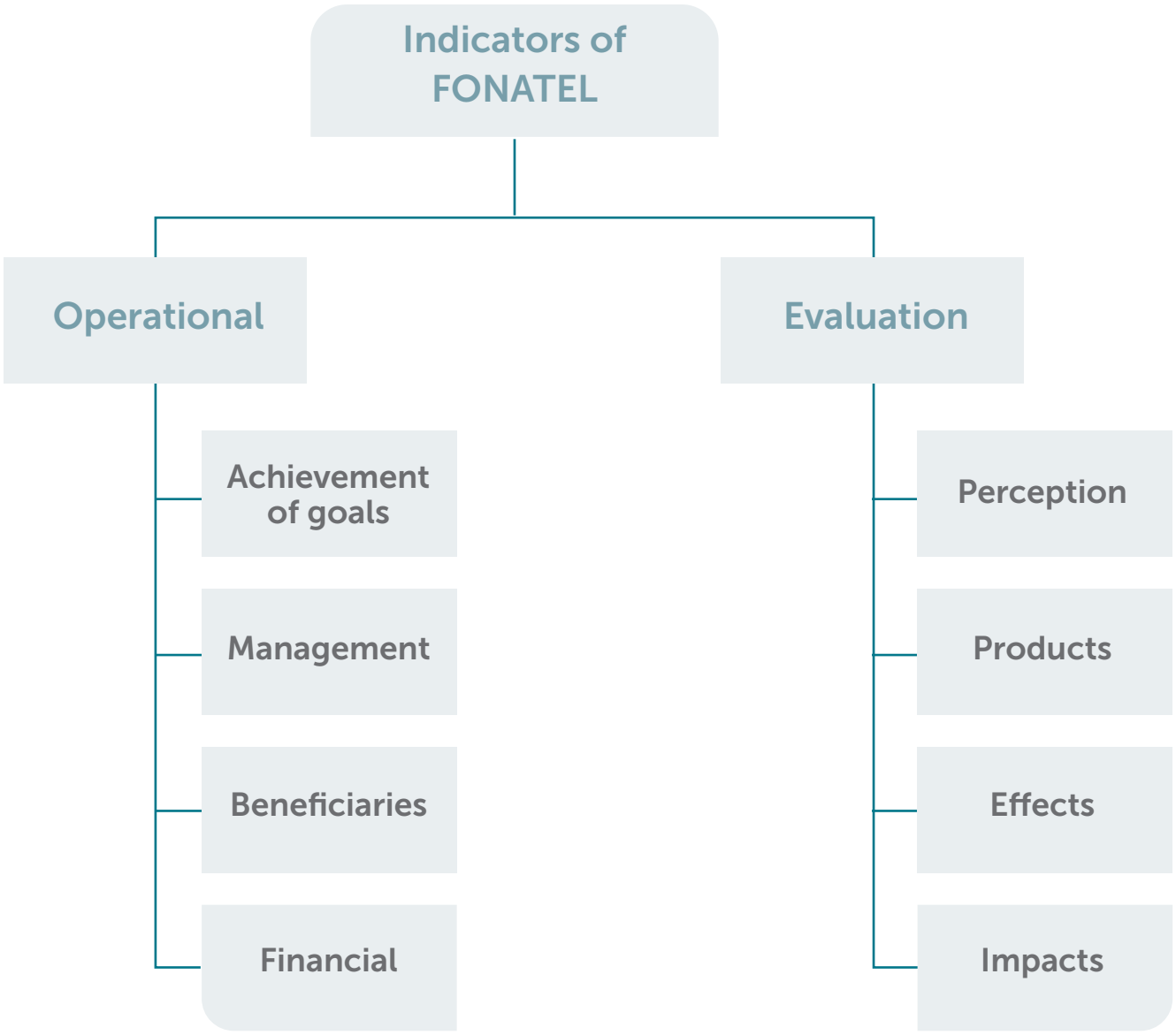
The objective of operational indicators is to measure progress in meeting the goals contemplated in the current NTDP for each program and the general progress of each project. In other words, they provide information on the performance of actions related to services provision, infrastructure development, and provisioning of devices and support products[5], from each intervention or program developed within the framework of the National Telecommunications Fund (Fonatel), managed by Sutel. The compilation and analysis of these indicators is carried out on a monthly basis, through execution reports prepared by the Trustee of the Trust (Banco Nacional de Costa Rica), together with the management units[6] of the respective programs and projects pursuant to clause 14 section d.4 of the Trust contract.

The operational indicators are subdivided into four types or categories: indicators of achievement of goals, to monitor progress with respect to the goals of the current NTDP; management indicators, to monitor the operational progress of the projects; beneficiary indicators, which make it possible to quantify the populations that have benefited from the products of the projects and programs; and finally, financial indicators, aimed at measuring the implementation of the Fund's resources in the development of projects and programs for the reduction of the digital divide.

[5] Support products are defined as: devices, equipment, instruments that allow access and use of ICTs and products, designed to promote the autonomy of people with disabilities.

[6] Management Unit: auxiliary body of the trust, made up of a team of professionals or specialists hired by the trustee to provide support in the required technical areas, related to the projects and programs to be carried out, to be charged to the trust resources. For the programs in progress, the management units are under the responsibility of Ernst & Young, Price Waterhouse Coopers, and the SPC-NAE consortium.

Figure n.° 7. Costa Rica: Fonatel 2020 Indicators



Source: Sutel, Directorate General of Fonatel, Costa Rica, 2020.

For the compilation of operational indicators, a methodology based on the Logical Framework Method[7] and the Results Chain[8] is applied in order to guarantee that the programs, projects, and actions associated with them are aligned with public policy objectives and goals, established in the current NTDP.

[7] The logical framework matrix is a four-row by four-column instrument that summarizes the most important aspects of the project. Columns: narrative summary of the objectives and activities, indicators (specific results to be achieved, means of verification and assumptions (external factors that imply risks). Rows: components of the EAP: end, purpose, components/results, and activities required to produce the components/results.

[8] The chain of results provides a clear and logical definition of how the sequence of inputs, activities, and outputs, directly related to the intervention, interacts and allows the achievement of effects and impacts.

This methodology includes templates for recording information and a catalog of indicators that has been built jointly with the corresponding management units. The indicator templates are completed by the management units and sent to the Directorate General of Fonatel by the trustee of the trust on a monthly basis. The technical team of the Directorate reviews the historical series of the data, considering the detail provided by the trustee of the trust in the monthly management reports of the programs and projects approved by the Sutel Council, and in the monthly monitoring meetings with this and the management units. It also carries out additional controls, based on visits to the covered sites and requests for information from the institutions involved in the execution.

Additionally, a verification of the indicators is carried out by the Directorate General of Markets, complying with what was assigned by the Sutel Board.

To facilitate its presentation and understanding, in addition, the results of the Fonatel indicators are analyzed in two groups:

- **Aggregated results:** It corresponds to the results obtained through the indicators that measure in a general and aggregate way the joint execution of the programs and projects financed and developed within the framework of Fonatel.

- **Results by program:** This refers to the results obtained on performance in the execution of each of the programs and projects managed through Fonatel, which specifically measure the status and progress of each of the projects under development.

Below is an excerpt from Fonatel's catalog of operational indicators.[9]

Table n.° 8. Costa Rica: Catalog of indicators for monitoring and evaluation of programs and projects in the execution phase of Fonatel, 2020

Group	Indicator Type	Indicator Name	Indicator Description
Aggregates	Management	Total projects developed through Fonatel	Cumulative total of projects developed through Fonatel programs, by status within the life cycle phases in which they are.
Aggregates	Management	Districts with presence of at least one program developed by Fonatel	Cumulative total of districts with presence of at least one program developed by Fonatel, with connectivity (total or partial) with access to voice and data services or Internet services or with at least one household benefitted with subsidy and a device for its use or PSPC with devices for access and use of ICTs or a digital zone with free Internet access.
Aggregates	Management	Devices delivered through Fonatel programs for access and use of ICTs	Cumulative total of devices delivered to homes and Public Service Provision Centers (PSPC) through Fonatel programs for access and use of information and communication technologies.
Aggregates	Management	Public Service Provision Centers that have received the benefits of Fonatel programs	Cumulative total of Public Service Provision Centers (PSPC) that have received the benefits (voice services and fixed data or devices for access and ICTs) provided through Fonatel's ongoing programs.

[9] The catalog of operating indicators and their subdivision was validated in a joint process between the Directorate General of Fonatel and the Directorate General of Markets in order to guarantee the homogeneity of the definitions and the validity of the comparisons. These indicators were approved by the Sutel Council through agreements 002-031-2020 and 003-031-2020 (notified through official letters 03396-Sutel-SCS-2020 and 03397-Sutel-SCS-2020 of 20 April 2020, respectively) and agreements 011-057-2020 and 013-057-2020 (notified through official letters 07324-Sutel-SCS-2020 and 07326-Sutel-SCS-2020 of 18 August 2020, respectively).

Group	Indicator Type	Indicator Name	Indicator Description
Aggregates	Management	Households with access to voice and data services in districts with presence of the programs developed by Fonatel	Estimated total of households located in the districts with presence of the programs developed by Fonatel with access to voice and data services.
Aggregates	Management	Housing units with access to voice and data services in districts with the presence of the programs developed by Fonatel	Estimated total of housing units located in the districts with presence of the programs developed by Fonatel with access to voice and data services.
Aggregates	Beneficiary	Population with access to voice and data services in districts with presence of the programs developed by Fonatel	Estimated total of the population of the districts with presence of the programs developed by Fonatel with access to voice and data services.
Aggregates	Beneficiary	Subscriptions to Internet access service provided through Fonatel programs	Total subscriptions to the fixed residential Internet access service provided through Fonatel programs.
Aggregates	Financial	Fonatel equity	Total of Fonatel resources received by the different financing sources established in Article 38 of the General Law on Telecommunications. It is obtained from the sum of the assets and liabilities owned by the Fund.
Aggregates	Financial	Collection of the special parafiscal contribution	Total amount received by the Fund due to the contribution made by operators and providers of telecommunications services, corresponding to 1.5 % of the gross revenue obtained directly from the operation of networks and provision of telecommunications services.
Aggregates	Financial	Investment executed through Fonatel	Total sum of the executed amounts of the Fund for the development of each of the programs and projects funded by Fonatel
Program 1	Goal achievement	Districts with connectivity (total or partial) with access to voice and data services provided through the Connected Communities Program	Cumulative total of districts with connectivity (total or partial) with access to voice and data services provided by the projects in production status of the Fonatel Connected Communities Program.
Program 1	Goal achievement	Achievement of the NTDP goal of districts with connectivity from the Connected Communities Program	Percentage of achievement of the goal established in the current National Telecommunications Development Plan (NTDP), within the framework of the Connected Communities Program, over the total number of districts with connectivity (total or partial) with access to voice and data services.
Program 1	Goal achievement	Indigenous territories with connectivity (total or partial) with access to voice and data services provided through the Connected Communities Program	Cumulative total of indigenous territories with connectivity (total or partial) with access to voice and data services provided by the projects in production status of the Fonatel Connected Communities Program.
Program 1	Goal achievement	Achievement of the NTDP goal of indigenous territories with connectivity from the Connected Communities Program	Percentage of achievement of the goal established in the current National Telecommunications Development Plan (NTDP), within the framework of the Connected Communities Program, over the total number of indigenous territories with connectivity (total or partial) with access to voice and data services.
Program 1	Management	Total projects of the Connected Communities Program according to the status of each project	Cumulative total of projects developed through the Fonatel Connected Communities Program, by status within the life cycle phases in which they are.
Program 1	Management	Towers with telecommunications infrastructure by construction-operational status of the Connected Communities Program	Cumulative total of towers with telecommunications infrastructure by construction and operational status of the Fonatel Connected Communities Program.
Program 1	Management	Public Service Provision Centers by state of availability of the Internet service of the Connected Communities Program	Cumulative total of Public Service Provision Centers (PSPC) by availability status of the Internet service of the Fonatel Connected Communities Program.
Program 1	Beneficiary	Population with potential access to voice and data services in districts with connectivity (total or partial) provided through the Connected Communities Program	Cumulative total of the population with connectivity (total or partial) with access to voice and data services provided by the projects in production status of the Fonatel Connected Communities Program.
Program 1	Beneficiary	Active subscriptions to the fixed Internet access service provided through the Connected Communities Program	Total active subscriptions to residential fixed Internet access service provided through the Fonatel Connected Communities Program.

Group	Indicator Type	Indicator Name	Indicator Description
Program 1	Beneficiary	Active subscriptions to fixed telephony service provided through the Connected Communities Program	Total active subscriptions to fixed residential telephony service (registers at least one taxable event during the last month or maintains a service provision contract with the operator) provided through the Fonatel Connected Communities Program.
Program 1	Beneficiary	Active subscriptions to the mobile phone service provided through the infrastructure provided by the Connected Communities Program	Total active subscriptions to the mobile phone service provided through the infrastructure facilitated by Fonatel's Connected Communities Program.
Program 1	Beneficiary	Beneficiary population of the Connected Communities Program	Population of the districts and/or indigenous territories with connectivity (total or partial) with access to voice and data services provided by the projects in production status of the Fonatel Connected Communities Program that has at least one fixed or mobile telecommunications service.
Program 1	Financial	Investment executed through the Connected Communities Program	Total sum of the executed amounts of the Fund for the funding and development of each of the projects of the Connected Communities Program.
Program 2	Management	Households contacted from the Connected Households Program by detailed status	Cumulative total of households registered in the System for the Administration of the Fonatel Connected Households Program, which have been contacted by a telecommunications service provider, for detailed status.
Program 2	Goal achievement	Households benefitted by the Connected Households Program by status	Cumulative total of households benefitted with a subsidy for Internet service and a device for its use (includes active and not active) of the Fonatel Connected Households Program, by activity status.
Program 2	Goal achievement	Achievement of the NTDP goal of households benefitted by Connected Households Program	Percentage of achievement of the goal established in the current National Telecommunications Development Plan (NTDP), within the framework of the Connected Households Program, over the total number of households benefitted with a subsidy for Internet services and a device for its use.
Program 2	Management	Districts with presence of the Connected Households Program	Cumulative total of districts with presence of the Fonatel Connected Households Program, with at least one household benefitted with a subsidy for Internet services and a device for its use.
Program 2	Management	Total number of Connected Households Program projects according to the status of each project	Cumulative total of projects developed through the Fonatel Connected Households Program, by status within the life cycle phases in which they are.
Program 2	Beneficiary	Subsidized subscriptions to the active Internet access service of the Connected Households Program	Cumulative total of subscriptions with subsidy to the Internet access service (with active service) provided through the Fonatel Connected Households Program.
Program 2	Management	Net penetration of fixed residential Internet service of the Connected Households Program	Total percentage of households in the country that have subscribed for the first time to residential fixed Internet access service provided through the Fonatel Connected Households Program and keep it active[10]
Program 2	Management	Total percentage of households benefitted by the Connected Households Program	Total percentage of households in the country that have been benefitted by the Fonatel Connected Households Program
Program 2	Beneficiary	Population benefitted by the Connected Households Program	Population in the country that has been benefitted by the Fonatel Connected Households Program (subsidy for Internet access service and a device for its use).
Program 2	Management	Households benefitted by the connected Households with female-headed households	Cumulative total households benefitted with the subsidy for Internet access service and a device for its use (includes active and non-active) of the Fonatel Connected Households Program, with female-headed households.

[10] It is calculated by dividing the net active subsidized subscriptions by the total number of housing units in the country reported in the National Household Survey (ENAHO), published by the National Institute of Statistics and Census (INEC). For the calculation of this indicator, it is divided by the housing units in order to be consistent with the penetration indicator calculated in the market, following the definition of the International Telecommunications Union (ITU), where the penetration corresponds to the proportion of the total of the market in which the services have been introduced. In this sense, a household corresponds to the physical infrastructure in which the services are installed, and which may include one or more households that have access to the installed services. Additionally, within the surveys applied by INEC, the ownership of telecommunications services is measured by household.

Group	Indicator Type	Indicator Name	Indicator Description
Program 2	Management	Minors benefitted by the Connected Households Program	Cumulative total of minors residing in households benefitted with a subsidy for Internet access and a device for its use (includes active and non-active) of the Fonatel Connected Households Program
Program 2	Financial	Investment executed through the Connected Households Program	Total sum of the executed amounts of the Fund for funding and development of the Connected Households Program.
Program 3	Goal achievement	Devices delivered by the Equipped Public Centers Program to PSPC for access and use of ICTs	Cumulative total of devices delivered to the Public Service Provision Centers (PSPC) through the Fonatel Equipped Public Centers Program for access and use of information and communication technologies.
Program 3	Goal achievement	Achievement of the goal established in the NTDP of devices delivered by the Equipped Public Centers Program to PSPC	Percentage of achievement of the goal established in the current National Telecommunications Development Plan (NTDP), within the framework of the Equipped Public Centers Program, on the total number of devices delivered to the Public Service Provision Centers (PSPC) for access and use of information and communication technologies.
Program 3	Management	Achievement of the goal established in the tender of devices delivered by the Equipped Public Centers Program to PSPC, according to institution	Percentage of achievement of the goal established in the awarded tender of the Equipped Public Centers Program, on the total number of devices delivered to the Public Service Provision Centers (PSPC) for access and use of information and communication technologies.
Program 3	Management	Total projects of the Equipped Public Centers Program according to the status of each project	Cumulative total of projects of the Fonatel Equipped Public Centers Program, by status within the life cycle phases in which they are.
Program 3	Management	Service provision centers Equipped Public Centers	Cumulative total of Public Service Provision Centers (PSPC) with devises for access and use of ICTs delivered by the Fonatel Equipped Public Centers Program.
Program 3	Management	Districts with presence of the Equipped Public Centers Program	Cumulative total of districts with presence of the Fonatel Equipped Public Centers Program, with at least one benefitted PSPC.
Program 3	Financial	Investment executed through the Equipped Public Centers Program	Total sum of the executed amounts of the Fund for funding and development of each one of the projects of the Equipped Public Centers Program.
Program 4	Goal achievement	Digital zones with free Internet access by availability status of the Connected Public Spaces Program service	Cumulative total of digital zones with free Internet access of the Fonatel Connected Public Spaces Program according to the status of availability of the service.
Program 4	Goal achievement	Achievement of the NTDP goal of digital zones with free access to Internet service of the Connected Public Spaces Program	Percentage of achievement of the goal established in the current National Telecommunications Development Plan (NTDP), within the framework of the Connected Public Spaces Program, over the total number of digital zones with free access to Internet service.
Program 4	Management	Percentage of progress of digital zones with free Internet access put into service of the Connected Public Spaces Program	Percentage of achievement of the total amount established in the tenders awarded for the Fonatel Connected Public Spaces Program, over the total number of digital zones with access to free Internet service.
Program 4	Management	Access points installed in the digital zones with free Internet access of the Connected Public Spaces Program by availability status	Cumulative total of access points (AP) installed in free Internet access areas of the Fonatel Connected Public Spaces Program according to availability status.
Program 4	Management	Total number of Connected Public Spaces Program projects according to the status of each project	Cumulative total of projects developed through the Fonatel Connected Public Spaces Program, by status within the life cycle phases in which they are.
Program 4	Management	Districts with presence of the Connected Public Spaces Program	Cumulative total of districts with presence of the Fonatel Connected Public Spaces Program, with at least one digital zone with free access to Internet service.
Program 4	Management	Unique devices that were connected to the Connected Public Spaces Program's free wireless Internet network	Cumulative total of devices (MAC addresses of the access terminals) that connected to the free wireless Internet network of the Connected Public Spaces Program.

Group	Indicator Type	Indicator Name	Indicator Description
Program 4	Management	Total initiated sessions in digital zones of access to free Internet service of the Connected Public Spaces Program	Cumulative total of initiated sessions in digital zones with free Internet access of the Fonatel Connected Public Spaces Program.
Program 4	Management	Total time of use of the network in digital zones with free access to Internet service of the Connected Public Spaces Program	Cumulative total of hours of use of Wi-Fi networks in digital zones with free Internet access service of the Fonatel Connected Public Spaces Program.
Program 4	Management	Total traffic of data in digital zones with access to free Internet service of the Connected Public Spaces Program	Total monthly data consumption, in GB, of the links in digital zones with free Internet access of the Fonatel Connected Public Spaces Program.
Program 4	Financial	Investment executed through the Connected Public Spaces Program	Total sum of the amounts executed from the Fund for the funding and development of projects of the Connected Public Spaces Program.

Source: Sutel, Directorate General of Fonatel, Costa Rica, 2020.

METHODOLOGY USED TO ASSESS THE QUALITY OF FIXED INTERNET ACCESS SERVICES

Providers included

To carry out this assessment, information is included corresponding to the four fixed Internet service providers that represent 94.3 % of the total fixed Internet market, taking into consideration that the national measurement system of fixed Internet access services includes equipment distributed throughout the country, which allows evaluating the quality of service of those operators with national representation and a higher concentration of users[11]. These providers are:

- ICE
- Cabletica
- Tigo
- Telecable

Assessed services

Internet service providers offer a wide variety of connectivity options, differentiated mainly by the speed at which each operator or provider is provisioning a particular service.

The assessment of the entire universe of speeds available for each operator is not feasible with the current measurement mechanisms, so an approach is adopted by which the most representative services are evaluated, the foregoing in accordance with the provisions of article 7, subsection 93 of the Regulation of provision and quality of services, which indicates that measurements of Internet access services will be carried out by evaluating the service that is most representative for each operator, which corresponds to the service with the highest number of active clients of each operator.

[11] In response to Sutel's obligation to control, pursuant to article 73 subsection k of the Law of the Regulatory Authority of Public Services, n.° 7593, the assessment of the quality of the fixed Internet access service focuses on those operators that have national coverage and significant market share, so that results obtained make it possible to visualize the quality of the service at the national level.

Thus, the results shown in this report are obtained from quality evaluations carried out on a total of 249 Internet services distributed in the seven provinces of the country. The number of Internet services used to evaluate each operator is as follows:

Table n.° 9. Costa Rica: Costa Rica: Number of fixed Internet services used to assess each operator

Operator	Number of Services
ICE	82
Cabletica	66
Tigo	54
Telecable	47

Source: Sutel, Directorate General of Quality, Costa Rica, 2020.

Equipment used to perform quality assessments

Each of the Internet access services is evaluated using measurement probes, which is a piece of equipment (hardware and software) specialized and dedicated for carrying out quality-of-service measurements.

All the measurement probes make up, together with the measurement and data processing servers, a distributed system for the national evaluation of the quality of services.

The use of measurement probes is identified by the International Telecommunications Union (ITU), as one of the measurement methodological options to evaluate the quality of service, in accordance with ITU-T recommendation E.806 called “Measurement campaigns, monitoring systems and sampling methodologies to monitor the quality of service in mobile networks”. Mainly, it stands out as the probes that “can provide results of performance of almost real behavior and history of quality of service from end to end, allowing to collect data that allows to identify degradations of quality of service.”

Quality indicators assessed

The three indicators established in the Seventh Chapter "Specific indicators for Internet access service" of the Regulation for the provision and quality of services in force are evaluated (published in Scope n.° 36 of the Official Gazette, on Friday, February 17, 2017). These indicators are:

- International delay
- Ratio of local or international data transfer speed to provisioned speed

Below is a detail of what each of these indicators consists of.

- **International delay**

The delay indicator is evaluated by performing ping tests, each of which sends 100 ICMP Eco Request packets and counts the time it takes to receive each of the ICMP Echo Reply responses. The average value of the 100 responses corresponds to the result of a ping test.

The evaluation of the international delay indicator is performed by carrying out ping tests against a server dedicated for this purpose and located in Florida, USA, specifically in the IXP and Data Center called NAP of the Americas.

Each of the measurement probes performs at least one ping measurement every 20 minutes, and measurements continue to be taken 24x7.

- **Relationship between measured speed and provisioned speed (local and international)**

The relationship between the data transfer speed and the provisioned speed is made through file transfers over the HTTP protocol, for at least 10 seconds. Separate measurements are made for data download (HTTP Download) and data upload (HTTP Upload).

The data transfer speed results obtained are compared against the speed value provided for each Internet access service to determine the rate or percentage that the measured speed represents with respect to the provisioned speed.

Each of the measurement probes performs at least one HTTP measurement every 20 minutes, and measurements continue to be taken 24x7.

METHODOLOGY USED TO ASSESS THE QUALITY OF EXPERIENCE OF USERS OF THE MOBILE INTERNET ACCESS SERVICE

Providers included

The three mobile service providers authorized in the country (network operators) are included. These providers are:

- ICE (Kölbi)
- Telefónica (Movistar)
- América Móvil (Claro)

Methods for assessing user experience

Users' mobile phones are directly assessed through the use of the OpenSignal application, which users voluntarily install and use to know at any time the status or quality of the mobile service.

The OpenSignal application is available in the official Apple Store and Google Play stores and can be downloaded and installed by any user for free and in this way collaborate with the user experience quality studies contracted by Sutel to the OpenSignal company.

The application collects the quality-of-service data both outdoors and indoors in buildings, as they are experienced by the users of the service and under a wide variety of situations, obtaining data that reflects the level of service obtained by the user directly in your telephone.

Data is collected both from measurements made by the user and from measurements made automatically by the application. Most of the data comes from automated measurements, run at random intervals to capture the user experience at specific moments in time.

This user experience measurement approach does not use dedicated test servers, instead it measures the end-to-end experience from the endpoint to the content delivery network (CDN), such as Google, Akamai, and Amazon.

Given that the application is installed voluntarily by users, the number of phones used varies over time, as it depends on the number of users who install the application and how long they keep it installed on their mobile devices.

Data included in this report comes from two semi-annual reports for 2020. The first one used 38 969 telephones and collected 130 565 302 samples, while the second one used 34 303 telephones and collected 120 471 092 samples.

METHODOLOGY FOR THE VALUATION OF COMMERCIAL OFFERS OF TELECOMMUNICATIONS SERVICES

Based on the premise that commercial offers adapt to the dynamism in consumption preferences of a user of telecommunications services, a qualitative analysis of the changes in the composition and characteristics of the offers between 2019 and 2020 is carried out for mobile and fixed telecommunications, with the aim of reflecting the new demands of consumers, as well as the responses given by the industry (supply).

In the case of mobile telecommunications (voice, SMS, and mobile data), all postpaid plans and prepaid bundles in December 2019 vs. December 2020, offered by authorized operators and that were marketing at the time, were considered. This information was collected through the Mi Comparador web tool.[12]

Regarding fixed telecommunications (fixed Internet, fixed telephony, and subscription TV), bundles offered in December 2019 were compared vs. December 2020, for the main operators in this market (taking as a reference those that accumulated a total of 95 % of 2020 subscriptions).

The foregoing allows us to observe the differences in terms of composition of services, amount of data, channels, speeds, free applications, type of applications with unlimited consumption, in short, a qualitative analysis that shows consumption trends at the national level.

METHODOLOGY OF THE MOBILE TELECOMMUNICATIONS PRICE INDEX (MTPI)

This index makes it possible to monitor the trend in the prices of services purchased by mobile telecommunications users, the construction of which is based on a series of technical criteria of a statistical and economic nature that are described in the following lines.

The index built allows monitoring the mobile telecommunications service in different ways or perspectives: general or national index, sub-indices according to payment method.

It is important to clarify that for the calculation of this index and its different levels of openness, no quality adjustments are made in mobile data, and that in the case of voice and SMS services they are considered homogeneous services, which indicates that the different operators maintain Quality factors of similar performances among them, given by the similarity in the telecommunications infrastructure used for the provision of services. Some calculation considerations are as follows:

- Mobile Internet services provided through Data cards are not included.
- Prepaid promotions, targeting specific segments, for example, double recharges only to numbers ending in 1 are excluded.
- Mobile telecommunications bundled with other services are not considered.

In addition, it should be noted that given that telecommunications are one of the most dynamic and changing groups from a technological point of view and in relation to changes in consumer habits, this methodology will be constantly updated and improved. Therefore, to the extent that changes are introduced, efforts will be made to maintain the possibility of making historical comparisons with due warnings.

[12] Mi Comparador is a platform of the Superintendency of Telecommunications that allows comparing, from different devices, plans and promotions of telephone, Internet, and television services, on the following web page: https://micomparador.sutel.go.cr/

The methodological description is presented below:

• Postpaid modality methodology

Monthly, for each operator (i), the following prices are analyzed:

- $\mathbf{plPT_{i,c,pl,m_1}}$ ➔ Unit prices[13] per component (on-net voice, off-net voice, on-net SMS and off-net SMS and mobile data) from selected plans. Each of the selected plans (pl) are those that represent at least 80 % of postpaid revenue in each month for each operator. Plans that are currently within the commercial offer are included, as well as those that, although not in force for new users, maintain affiliated subscribers.

- $\mathbf{pePT_{i,c,m_1}}$ ➔ Surplus prices per component.

At the operator level *(i)* and in the month of analysis ($\mathbf{m_1}$), in each selected postpaid plan there is a unit price for each component (c) ➔ $\mathbf{(plPT_{i,c,pl,m_1})}$. These are arithmetically averaged to obtain an average unit price per component from the information of the plans at the operator level. ➔ $\mathbf{(PMedplPT_{i,c,m_1})}$

Then, to obtain a single price per component for each operator in $\mathbf{m_1}$ that contemplates the price for surplus **(pePT)**, a weighted average is calculated that includes: (a) the average unit price of each component $\mathbf{(PMedplPT_{i,c,m_1})}$ weighted by the relative weight of plan revenue within total revenue[14] of each operator $\mathbf{(\propto_{i,m_1})}$ and (b) the surplus price of each component $\mathbf{(pePT_{i,c,m_1})}$ and is weighted by the relative weight of revenue from surplus within total postpaid revenue $\mathbf{(\beta_{i,m_1})}$. With the above we obtain for each operator in m1 a single price per component $\mathbf{(PPT_{i,c,m_1})}$.

Once the above has been obtained, calculation is made in $\mathbf{m_1}$ of the relative change of the single prices per component at the level of operator compared to July 2017 $\mathbf{(\Delta PPT_{i,c,m_1})}$. These, in turn, are weighted by the monthly share of each component within the operator's postpaid revenue $\mathbf{(\upsilon PT_{i,c,m_1})}$[15], thus obtaining a postpaid price index for each bidder in this market $\mathbf{(\mu PT_{i,m_1})}$.

To conclude, the index is taken per operator $\mathbf{(\mu PT_{i,m_1})}$ and it is weighted by the monthly share of each operator within the total postpaid revenue $\mathbf{(\text{þ}PT_{i,m_1})}$[16] , and with this we obtain the monthly postpaid index at the national level $\mathbf{(\tilde{I}PT_{m_1})}$.

Postpaid index formulas:

$$(1)\ PMedplPT_{i,c,m_1} = \frac{\sum_{npl=1}^{npl} plPT_{i,c,pl,m_1}}{npl_{i,c,m_1}}$$

$$(2)\ PPT_{i,c,m_1} = \propto_{i,m_1} * PMedplPT_{i,c,m_1} + \beta_{i,m_1} * pePT_{i,c,m_1}$$

$$(3)\ \Delta PPT_{i,c,m_1} = \frac{PPT_{i,c,m_1}}{PPT_{i,c,m_0}}$$

$$(4)\ \mu PT_{i,m_1} = \sum_{c=1}^{5} \Delta PPT_{i,c,m_1} * \upsilon PT_{i,c,m_1}$$

$$(5)\ \tilde{I}PT_{m_1} = \sum_{i=1}^{3} \mu PT_{i,m_1} * \text{þ}PT_{i,m_1}$$

$$(6)\ \tilde{I}PT_{c,m_1} = \Delta PPT_{i,c,m_1} * \text{þ}PT_{i,m_1}$$

Nomenclature

i=	Market bidders, where 1 = Kölbi, 2 = Movistar, and 3 = Claro
m0 =	Base month, July 2017
m1 =	Analysis month
c =	Components, 1 = on-net voice, 2 = off-net
3=	on-net SMS, 4 = off net SMS, and 5 = mobile data
PT=	Postpaid
pl=	This is the plan chosen by each operator, from 1 to z
z=	Total plans chosen by each operator in $\mathbf{m_1}$
$\mathbf{npl_{i,c,m_1}}$=	Number of plans of operator I that were selected and that contain the component that is being analyzed in $\mathbf{m_1}$

[13]Unit prices: to obtain unit prices, the value of each plan is distributed between: voice (on- and off-net), data and SMS (on- and off-net), according to the weighting at the operator level of these components in the postpaid revenue of July 2017 (reference month), and then, each of these amounts is divided by the number of minutes, messages, and GB contracted at the maximum speed available to each plan, obtaining a price per unit of measure.

[14] Total postpaid revenue = Minimum revenue (revenue for the monthly cost of bundles) + Revenue for surplus.

[15] Where for each i in m_1 $\sum_{c=1}^{5} \upsilon PT_c = 1$

[16] Where for each i in m_1 $\sum_{i=1}^{3} \text{þ}PT_i = 1$

• Prepaid modality methodology

The prepaid user faces three types of prices for each component: bundle prices ($\mathbf{paqPR_{i,c,paq,m_1}}$), prices in promotions ($\mathbf{prPR_{i,c,pr,m_1}}$) and recharge prices ($\mathbf{recPR_{i,c,m_1}}$).

In order to consolidate these prices, the approach for each one will be exposed:

1- For average monthly unit prices, per bundles in an operator ($\mathbf{paqPR_{i,c,paq,m_1}}$), the same methodology applied in the unit prices of the postpaid plans is used, with the exception that all prepaid bundles offered in m1 are used, obtaining ($\mathbf{PMedprPR_{i,c,m_1}}$).

2- Market prices of each component by operator in $\mathbf{m_1}$ ($\mathbf{recPR_{i,c,m_1}}$), these are already set by the operator.

3- In the case of promotions by operator in $\mathbf{m_1}$ ($\mathbf{prPR_{i,c,pr,m_1}}$), the details of the commercial offer are analyzed to estimate a price per component in each promotion, in addition to international reference information, for example, data consumption by mobile applications[17] (Facebook, WhatsApp, Waze, YouTube, among others) and based on information requested from the operators, such as the average consumption per user of unlimited minutes, data, and messages. Once the prices by components in each promotion for each operator have been obtained, these are arithmetically averaged, to obtain a single average price of promotions by components and operator ($\mathbf{PMedprPR_{i,c,m_1}}$).

Once the above has been obtained, the prices of the three previous sources are weighted in m1, weighted by their share within the prepaid revenue of the reference month[18] at the operator level, $\mathbf{wrec_i}$ (weight of revenue from recharges of operator i), $\mathbf{wpaq_i}$ (weight of incoming bundles of operator i) and $\mathbf{wpr_i}$ (weight of revenue from promotions of operator i), thus obtaining for each operator in the month of analysis a single price per component ($\mathbf{PPR_{i,c,m_1}}$).

Based on this information, in the month of study the relative percentage change of the one-time prices per component at the operator level with respect to July 2017 ($\mathbf{\Delta PPR_{i,c,m_1}}$). These are weighted by the monthly share of each component within prepaid revenue per operator ($\mathbf{ʊPR_{i,c,m_1}}$)[19], thus obtaining a prepaid price index for each bidder in this market in such month ($\mathbf{\mu PR_{i,m_1}}$).

To conclude, we take the index by operator ($\mathbf{\mu PR_{i,m_1}}$) and it is weighted by the monthly share of each operator within the total prepaid revenue of the study month ($\mathbf{þPR_{i,m_1}}$)[20], and with that we obtain the monthly prepaid index nationwide ($\mathbf{\tilde{I}PR_{m_1}}$).

Fórmulas índices prepago:

$$(7)\ PMedprPR_{i,c,m_1} = \frac{\sum_{npr=1}^{npr} prPR_{i,c,pr,m_1}}{npr_{i,c,m_1}}$$

$$(8)\ PPR_{i,c,m_1} = wrec_i * recPR_{i,c,m_1} + wpaq_i * PMedpaqPR_{i,c,m_1\,i,c,m_1} + wpr_i * PMedprPR_{i,c,m_1\,i,c,m_1}$$

$$(9)\ \Delta PPR_{i,c,m_1} = \frac{PPR_{i,c,m_1}}{PPR_{i,c,m_0}}$$

$$(10)\ \mu PR_{i,m_1} = \sum_{c=1}^{5} \Delta PPR_{i,c,m_1} * ʊPR_{i,c,m_1}$$

$$(11)\ \tilde{I}PR_{m_1} = \sum_{i=1}^{5} \mu PR_{i,m_1} * þPR_{i,m_1}$$

$$(12)\ \tilde{I}PR_{c,m_1} = \Delta PPR_{i,c,m_1} * þPR_{i,m_1}$$

Nomenclatura

i =	Market bidders: 1= Kölbi, 2= Movistar, 3= Claro, 4= Tuyomóvil, and 5= Fullmóvil
m0 =	Base month, July 2017
m1 =	Analysis month
c =	Components, 1 = on-net voice, 2 = off-net voice
PR=	Prepaid

[17] Empresa de Telecomunicaciones de Chile, ENTEL. www.entel.cl/calculadora-datos/
[18] SUTEL has information on this indicator only for the base month.
[19] Where for each i in m, it is true that $\sum_{c=1}^{5} ʊPR_c=1$
[20] Where for each i in m, it is true that $\sum_{i=1}^{3} þPR_i=1$

npr_{i,c,m_1}= Number of promotions of operator i and that contains the component being analyzed in m_1

pr= Each prepaid promotion from operator i for m_1, starts from 1 to £

£= Total promotions from I to m_1 pack

paq = Each bundle of operator i for m_1 starts from 1 to η

η= Total bundles of i for m_1

rec= Amount of recharge prices per unit of consumption of each component (one minute for voice, one SMS, or one Gb) of the operator i for m_1

- **National index ($\tilde{I}NAL_{m_1}$)**

For the m_1 the postpaid ($\tilde{I}PT_{m_1}$) and prepaid ($\tilde{I}PR_{m_1}$) are weighted based on the relative weight of each modality within the total revenue of mobile telecommunications[21] πPR_{m_1} (weight of the postpaid modality) and πPRm1* (weight of the prepaid modality)*[22].

National index formulas:

$$\tilde{I}NAL_{m_1} = \pi PT_{m1} * \tilde{I}PT_{m_1} + \pi PR_{m1} * \tilde{I}PR_{m_1}$$

Nomenclature

m1 = Analysis month

FIXED INTERNET PRICE INDEX METHODOLOGY

Internet in homes is increasingly common and has become, in many cases, essential for daily life, proof of this is that the total number of people with Internet at home is 60.2 % (INEC, 2015) and the most recent data is 86.34 % (INEC, 2019). In addition, the data presented in this report indicates that subscriptions registered for the fixed Internet service have had a growth between 2018 and 2019 of 8 %, thus having for 2019 a total of 903 735 subscriptions.

Another important aspect: in December 2017[23], Sutel declared this service under competitive conditions, prices are set by market dynamics between supply and demand.

Given the above, the need arises for a tool that measures the variation in prices per gig of speed[24] in such a way that Sutel has one more input for decision-making in the face of an ex-post regulation.

The Fixed Internet Retail Service Price Index (IPIF) measures the variation in prices per speed contracted by Costa Rican households as of July 2018, which allows us to analyze what is their trend in the market.

For the calculation of IPIF, the following is considered:

- The four operators with the largest market share are considered (Kölbi, Tigo, Cabletica, and Telecable, who together account for 95 % of subscriptions). Although there are a total of 18 operators that provide fixed Internet services, the rest of the operators each represent between 0 % to 1 %, which is why they are excluded, since the commercial actions they undertake will not significantly vary the results of the index.

- Commercial offers aimed at households (residential) are analyzed and also provided as a single service (not bundled).

- The technology (xDSL, HFC, FTTx and wireless) by which the operator offers the Internet service is not relevant for this calculation. According to the perception of the operators about the market competition "this occurs mainly at the price level because the end customer mainly focuses his purchase decision towards obtaining a better price and not necessarily towards obtaining better quality (according to report RCS-258-2016). In addition, in this report it is considered that Internet services from a fixed location have similar characteristics, quality and price levels; so, it is considered that all technologies belong to the same relevant market. Therefore, the determinant factor for consumption decision making is the speed required for their households.

[21] It is the sum of the prepaid revenue plus postpaid revenue for the month of the study.

[22] It is true that $\pi PT_{m_1} + \pi PR_{m_1} = 1$

[23] Sutel. (2016). "Revised1n of me1market of the retail service of residential Internet access from a fixed location, analysis of the degree of competition in said market, declaration of important operators and imposition of obligations "(RCS-258-2016) Recovered from: https://www.sutel.go.cr/sutel/resoluciones?field_tipo_documento_tid=All&=Aplicar

[24] El Internet es ilimitado en datos, por lo que las ofertas comerciales están en función de la velocidad contratada.

- These operators provide customers with a variety of Internet speeds. However, given that the quality levels and the amount for household consumption are lower than those for companies, not all speeds available in the market will be considered. For each operator, up to a maximum speed of 100 Mbps will be considered, based on the fact that up to 100 Mbps is the speed offered by most operators for fixed household Internet. In addition, given the behavior of household expenses, using 2013 information from Household Revenue and Expenses (Enigh) and using the relative weight of the expense structure, to extrapolate to 2018, expense in communications ranges between 13 000 and 64 000 colones per revenue quintiles, with an average of 36 000 colones. This information contrasts with the average value of the bundles of more than 100 Mbps that surpass 50 000 colones. Hence, it is determined that it is unlikely that a household consumes at speeds higher than 100 Mbps because it surpasses by far the total average estimated consumption per household in Enigh.

- Commercial offers are selected by operator, which represents at least 80 % of the subscriptions of fixed Internet service. In addition, this includes plans that are currently in the commercial offer as well as those that, even though not in effect, keep subscriptions.

- Prices that are analyzed, only measure the fixed Internet service; therefore, the cost of modem and installation are not included.

- The reference month is July 2018.

Calculation of the indicator:

1- Obtain unit prices ($\mathbf{PIF_{i,v,m_1}}$), by dividing the price offered by the amount of Mbps per second by the commercial offer in the study.

$$PIF_{i,v,m_1} = \frac{PIF_{i,v,m_1}}{Cant\ Mbps_{v,i,m_1}}$$

2- To get an average unit price per operator ($\mathbf{PMedIFi,m_1}$) each unit price per operator **(i)** and the month of analysis (**m1**) are weighted according to the revenue share for the reference month ($\boldsymbol{\delta}$ $\mathbf{i,v,m_1}$)

$$PMedIF_{i,m_1} = \sum_{v=1}^{v=n} PIF_{i,v,m1} \cdot \delta_{i,v,m_1}$$

3- To get a national average price $\mathbf{PIF_{m_1}}$, a weighted average of $\mathbf{PMedIF_{i,m_1}}$ is obtained according to the monthly share of each operator within total fixed Internet revenue for the month under study ($\boldsymbol{\beta}\mathbf{IF_{i,m_1}}$)

$$PIF_{m_1} = PMedIF_{i,m_1} \cdot \beta IF_{i,m_1}$$

4- Finally, the relative percent change of national prices in relation to the reference month is calculated $\boldsymbol{\Delta}\mathbf{PIF_{i,v,m_1}}$, thus obtaining the monthly fixed Internet index at the national level ($\mathbf{IIF_{m_1}}$)

$$\tilde{I}IF_{m_1} = \Delta PIF_{i,v,m_1} = \frac{PIF_{m_1}}{PIF_{m_0}}$$

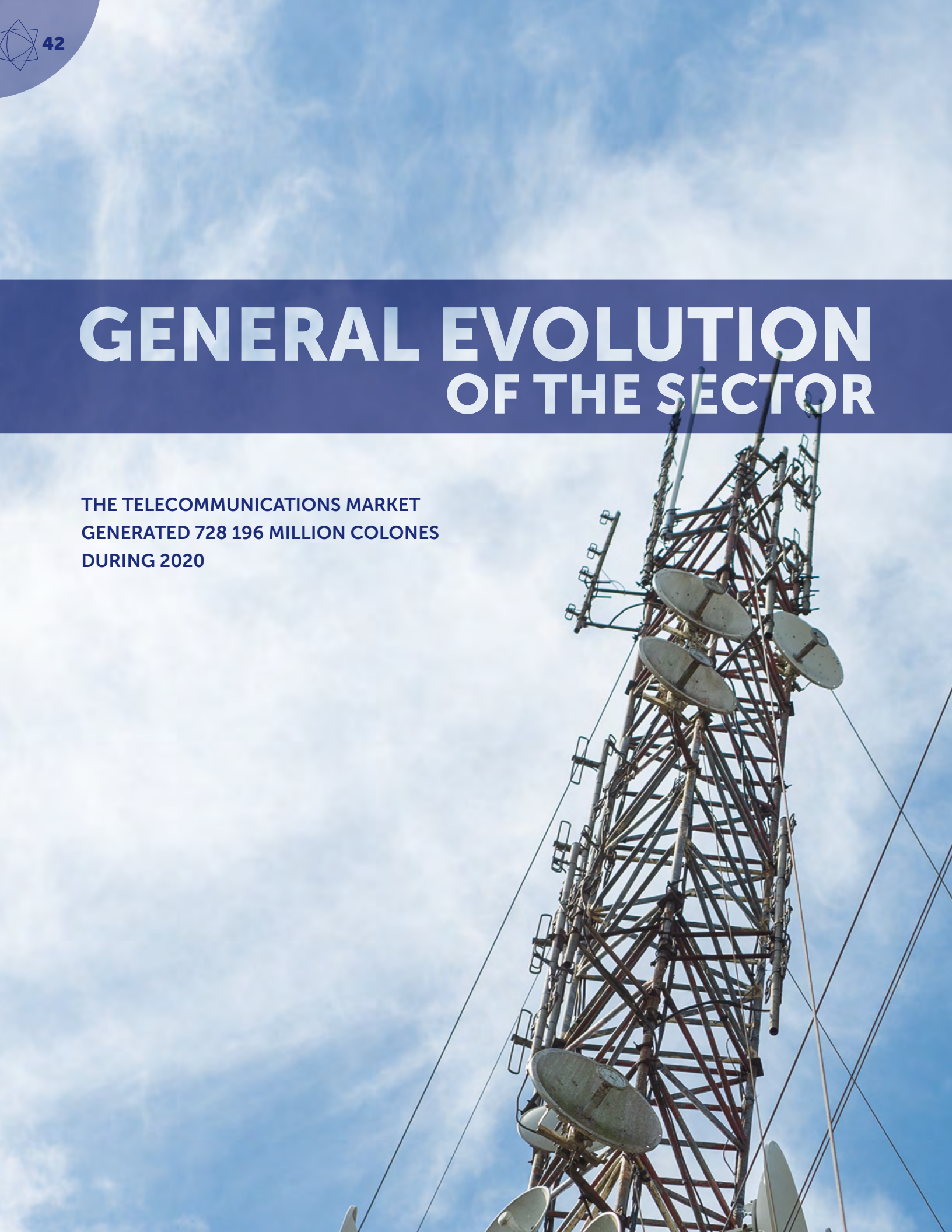
According to the theory, price indicator weightings are based on household expenses of goods and services. In this case, since fixed Internet expenses of households are not known, revenue for this item obtained by operators shall be used.

Nomenclature

Cant=	number of megabytes.
IF=	Fixed Internet
i=	Market bidders, where 1= Kölbi, 2= Tigo, 3= Cabletica, and 4= Telecable
m_0=	base month
m_1=	month of analysis
n=	number of bundles of the operator (i) that were selected in the month of analysis (m_1)
v=	speed of the commercial offer

GENERAL EVOLUTION OF THE SECTOR

THE TELECOMMUNICATIONS MARKET GENERATED 728 196 MILLION COLONES DURING 2020



Commercial offer of telecommunications services in 2020

At the end of 2020, 158 telecommunications service providers and operators were registered as qualified (with approximately 36 in the process of commercial activation). This implies that for this year of analysis, the amount increased by 10 compared to 2019 and by 23 compared to 2016.

Hence, it is important to note that despite the fact that 2020 had particular characteristics that affected the market and the economy in general, more companies sought to venture into the commercialization of telecommunications services. Of these new operators, 60 % seek to market services throughout the national territory and 40 % in areas outside the GMA. Additionally, 93 % focus on the sale of Internet, wireless links, and VPN to which, additionally, it is added that it is evident that the market is in a commercial rearrangement stage where the requirements of users (new and more demanding needs) and the offer of operators converge.

Regarding the number of operators that provided information during the analysis period, according to the service they provide, in the case of fixed telephony, 100 % of the active operators reported information; 100 % mobile telephony, data transfer[25] 60 %, and subscription television 100 %. In the case of data transfer, the behavior is maintained where the operators that provided information are those with the largest market share (95 %), so the general conclusions on this sector do not vary. Likewise, the remaining 40 % includes commercially active companies with other services, as well as those in the initial or pre-operational stages of the data transfer service.

REVENUE BEHAVIOR OF THE TELECOMMUNICATIONS SECTOR

For 2020, the market generated revenue for 728 196 million colones, registering a decrease in nominal terms of 4.2 % compared to 2019, which shows a contraction of the market and the possible impact on the sector by other factors, such as the country's economic adjustments during the last three years, as well as the effects on the country since the beginning of 2020, due to the COVID-19 pandemic. This reduction is also a consistent trend with the growth of national productive activity during this period.

On the other hand, building the relationship between total revenue of the sector and Gross Domestic Product26 at market prices (see Graph n.° 2), a ratio of 2.09 % is obtained for 2020. When compared with 2019 (2.1 %), the indicator is practically the same27. Regarding the behavior of revenue at the service level (see Graph n.° 3), in general terms it is observed that fixed telephony services (traditional basic and VoIP) and mobile telephony (voice and MSM) show a downward trend, and this is the fourth consecutive year with this behavior.

The case of mobile telephony stands out, as its revenue fell 9.3 %, but not for Internet access service as a whole (data transfer) and dedicated lines, which remained practically the same as in 2019, with 0.3 % and -0.3 %, of variation respectively, compared to 2019. What was observed in 2019 is confirmed for 2020; since data transfer revenue doubles mobile telephony revenue. This service is the one that leads the weight of revenue, which validating the existence of a change in consumption rates of current telecommunications users.

Regarding the behavior of revenue at the service level (see Graph n.° 3), in general terms, it is observed that fixed telephony services (traditional basic and VoIP) and mobile telephony (voice and MSM) show decreasing trend, and this is the fourth consecutive year with this behavior. The case of mobile telephony stands out, as its revenue fell 9.3 %, but not for Internet access service as a whole (data transfer) and dedicated lines, which remained practically the same as in 2019, with 0.3 % and -0.3 %, of variation respectively, compared to 2019. For 2020,

[25] Over the years it is ensured that the operators with the highest market share provide market information, allowing comparability of the statistics. In fixed Internet, the three operators with the largest share contribute almost 95 % of the market year after year, another seven operators contribute almost all the remaining 5 %.
[26] It is important to note that, during 2018, the Central Bank of Costa Rica made the change to the GDP calculation base. For this reason, as of 2018, the GDP value will be used with the base of 2012.
[27] It is important to note that, during 2018, the Central Bank of Costa Rica made the change to the GDP calculation base. For this reason, as of 2018, the GDP value will be used with the base of 2012.

what was observed in 2019 is confirmed, since data transfer revenue doubles mobile telephony revenue. This service is the one that leads the weight of revenue, which validating the existence of a change in consumption rates of current telecommunications users.

When analyzing each service separately, the following emerges:

Mobile telephony

When considering revenue from voice and messaging traffic, a total of 204 662 million colones is reported for 2020, which represents a decrease of 9.39 %, compared to 2019. For the 2016-2020 period, the average annual growth rate is -9.18 %, as detailed in Graph n.° 3. From the revenue reported in mobile telephony, it can be inferred that 97.2 % comes from voice traffic and the remaining 2.8 % from messaging, keeping this percentage weight practically the same when compared to 2019 (3 %).

Fixed telephony (traditional basic and VoIP)

For the fixed telephony service (traditional basic and VoIP telephony), revenue for 2020 was registered for a total of 47 695 million colones, which represents a decrease of 20.3 % compared to 2019. This service has shown a tendency to decrease over the years, due to less use, especially in the traditional basic modality, which is evident when analyzing the average growth rate of the 2016-2020 period of -14.08 % in annual average (see Graph n.° 3).

Traditional basic telephony

Revenue generated by traditional basic telephony had a decreasing behavior throughout the previous measurements. Thus, this service shows a reduction of 22.09 % in the last year in revenue generated and a negative annual average growth rate of 9 % for the period analyzed. The relative weight of this service in relation to total basic telephony remains the same as in 2019 with 85 %.

VoIP fixed telephony

Revenue associated with fixed VoIP telephony had been growing over the years, but in 2020, it experienced a decrease of 8.68 % compared to 2019. The average annual growth rate since 2016 is 8.25 %.

Internet access (includes mobile Internet access)

In the case of the Internet access service, the revenue heading shows a growing trend, since for the 2016-2020 period, the average annual growth rate is 8.73 %. For 2019, this service generated, as a whole, 426.514 million colones, maintaining amounts similar to those reported during 2019. It is important to highlight that revenue from fixed Internet represents 40.1 % and mobile Internet, 59.9 %. Growth rates for the last year for revenue generated by these services were 7.6 % and -3.4 %, respectively, from 2019 to 2020.

Dedicated lines

For 2020, 49 326 million colones generated by this service are reported, which represent stability in revenue with a rate of -0.3 % compared to 2019. In this case, the growth rate from 2016 to 2020 is on average 9.4 % per year. Revenue generated in the dedicated line service has shown an erratic behavior over the years, with increases and decreases.

When analyzing the percentage weights of revenue for each service in relation to the total revenue of the sector, two scenarios arise. The first one totals revenue from mobile telephony and Internet (mobile network) in the same category, followed by fixed Internet access, traditional telephony, and VoIP telephony, and, finally, dedicated lines (see Graph n.° 4). In the second scenario, revenue from fixed Internet access and mobile Internet is added in a single revenue line, followed by mobile telephony (voice only), traditional telephony, and VoIP telephony, and lastly, dedicated lines (see Graph n.° 5).

For the first scenario, mobile phone service and mobile Internet access (mobile network) represent 63 % of revenue for 2020. This percentage has been decreasing over the years, going from 68 % in 2016, to 66 % in 2017, to 65 % in 2018, and again 65 % in 2019. In the second place is the fixed Internet service with 23 %, followed by traditional basic telephony and VoIP telephony, with 7 % and dedicated lines with 7 %. The percentage weight that telecommunications services have over the mobile network represents almost two-thirds of the market.

In relation to the second scenario, the Internet access service (fixed and mobile), with 58 % of revenue, turns out to be the highest, followed by mobile telephony (voice only) that generates 28 %, which shows that the preference of consumer by data consumption is getting bigger and bigger, compared to 2019, where the percentages were 56 % and 30 %, respectively. Finally, as in the first scenario, fixed telephony contributes with 7 % and dedicated lines with 7 %. Here, the mobile phone service and Internet access together generate 86 % of the sector's revenue.

BEHAVIOR OF THE TELECOMMUNICATIONS SECTOR SUBSCRIPTIONS

An important aspect in the telecommunications market is to analyze the behavior of subscriptions in the different services due to the role they play in the growth of the sector. This can be seen in detail in Table n.° 12, where the information on the level of penetration of services measured by number of inhabitants or housing units for the period of analysis (2016-2020) is shown.

Mobile telephony

The mobile telephony service registered 7 512 370 subscriptions in 2020. 5 005 892 were recorded for the prepaid modality and 2 506 478 for postpaid, with a percentage ratio of 66.6 % and 33.4 %, respectively, out of the total.

If the total subscriptions are considered, for 2020 this service changed the behavior exhibited in 2019 that is the year in which it showed an increase of 54 658 subscriptions compared to 2018. This is because in 2020, total subscriptions decreased by 1 037 873. This decrease is taking place especially in the prepaid modality with 1 126 589 fewer lines; since 88 716 more lines are registered in the postpaid modality. The share of this service in 2020 is 147 %, with a decrease of 22 percentage points compared to that registered in 2019.

Fixed telephony (traditional basic and VoIP)

In the case of fixed telephony, indicators of the number of subscriptions in general continue to show a decrease as in previous years, going from 636 504 for 2019, to 556 617 for 2020, representing a decrease of 79 887 subscriptions (13 %). In relation to the penetration of the service in the population and in housing units, it is found that for 2020, it is 10 % and 32 %, respectively. This is a decrease of 1 and 4 percentage points, respectively, in relation to the figure registered on the previous year.

When separating traditional basic telephony and VoIP telephony, it is shown that decreases are focused on traditional basic telephony, where 67 532 fewer subscriptions were registered compared to 2019 (12 %); VoIP telephony service also registered a decrease, 12 355 subscriptions (19 %).

Regarding the penetration of services during 2020, separately, it can be seen that, for traditional basic at the population level, it is 10 % and for housing units, 32 %, while the VoIP service is 1.0 % and 3.1 %, respectively.

Traditional basic telephony

Subscriptions to traditional fixed telephony are decreasing. This is demonstrated in the behavior of the last 5 years. For 2020, 504 276 subscriptions were registered, 275 696 less than those registered for 2016 (779 972), with a negative average annual rate of 8.35 % for the 2016-2020 period.

VoIP fixed telephony

In the case of fixed VoIP telephony, in 2019, the upward behavior that they had had in recent years changed. For this year, 52 341 subscriptions were registered, 12 000 less compared to 2019, causing the average growth rate to be 0.48 % from 2016 to 2020.

Internet access (includes mobile Internet access)

Internet access service (fixed and mobile) shows an increase in subscriptions compared to 2019. By 2020, 5 634 419 were registered, which represents an additional 65 612 subscriptions. This increase effect can be detected by separating subscriptions into wired, fixed wireless, and mobile. In the first instance, wireline subscriptions show a growth of 10 % (87 991 subscriptions), as do wireless fixed services with 1 594 more subscriptions; but mobile services show a decrease of 22 379 subscriptions. This is related to the decrease in prepaid mobile phone subscriptions.

Dedicated lines

The behavior of the subscriptions of the dedicated lines service has been variable during the analysis period, but for 2020, there is an increase in subscriptions compared to 2019, with 761 more connections. This increase represents 3 % of connections, and 2019 is the year with the highest growth in the last 5 years, when there was an increase of 35 %.

Service bundles

As part of the monitoring of the commercialization of telecommunications services, indicators were implemented to monitor changes in the offer of said services, for this reason, during 2019, measurement of the subscription bundle indicators began.

For measuring, the term bundle was adopted as the set of telecommunications services, prepaid or postpaid, which corresponds to a commercial offer that includes two or more of the following services: fixed telephony, mobile telephony, fixed Internet, and subscription television, marketed as a single offer, with a single invoice and with a single price for the set of services included in the subscribed bundle under conditions that cannot be obtained by adding individual offers.

Provision of telecommunications services in a bundle has become one of the most frequent ways to market services, not only for operators, but also for users to purchase them. This is largely due to the phenomenon of convergence, which has led telecommunications networks to migrate to multi-service networks. This situation has allowed the proliferation of bundled offers.

Bundling can have a number of positive effects for consumers, for example, price discounts and transaction cost savings, among others. However, it could also have negative effects on competition, for example if bundles are used as a means to oust incoming competitors.

Bundling of telecommunications services generates a series of challenges in terms of competition and regulation, ranging from market monitoring to the way to define the relevant telecommunications markets for regulatory purposes or for cases associated with the Sectorial Regime of Competition in Telecommunications.

These challenges can only be addressed with information that allows Sutel to have a better understanding of how markets operate in these situations. The incorporation of bundle information in this report seeks to provide information in this regard and help understand how the telecommunications markets operate in Costa Rica.

In the first instance, the presence of bundled versus individual subscriptions is analyzed. In the case of

fixed Internet subscriptions, there is a clear presence in hiring this service together with another one, 63 % of the subscriptions were bundled during 2020 (it is detailed in Graph n.° 6). In the fixed telephony service, which has two modalities, traditional or conventional, the presence of bundled subscriptions is 28 %, while in the VoIP modality it is 80 % (see Graph n.° 7 and Graph n.° 8). For subscription television, 69 % of subscriptions are associated with another service (Graph n.° 9). It should be noted that during 2020, no operator and provider have commercialized mobile phone subscriptions bundled with another telecommunications service.

It is important to know which bundle has the highest number of subscriptions and in thus determine the consumption habits of users. This is detailed in Graph n.° 10 which shows that the highest number of subscriptions are in the fixed Internet and subscription TV bundle; followed by the triple bundle of fixed Internet, subscription TV, and VoIP fixed telephony; followed by the fixed Internet bundle - VoIP fixed telephony; and finally, VoIP fixed telephony with subscription TV.

Kilometers of fiber

The importance of technological change to achieve higher speeds of Internet access and other telecommunications services is evident. For this, the behavior of the fiber kilometers in recent years was measured. As seen in Graph n.° 11, for 2019, the installed fiber kilometers were 112 938, while for 2020, the value increased to 176 203; showing growth in this indicator (56 %). This behavior shows not only the expansion of the operators' networks, but also a greater precision in the records reported by the operators.

TOTAL INVESTMENT

Total investment in the telecommunications sector in recent years has shown no growth, but for 2020, this indicator decreased, representing 0.2 % of GDP in that year, compared to 0.6 % registered in 2019. This decline shows that the telecommunications market continues to contract, coupled with the behavior of the country's economy, where the approval of the fiscal plan caused different effects in the country and modified investment decisions. When crossing investment with gross capital formation, an increase is shown compared to the previous indicator. In this case the proportion went from 4.2 % to 1.7 % compared to 2019.

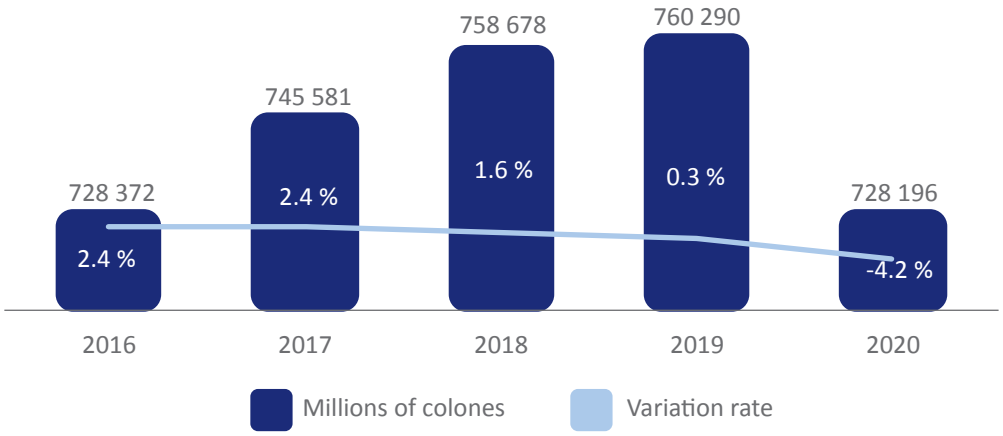
HUMAN RESOURCES EMPLOYED

In the case of human resources directly associated with telecommunications services, data corresponding to 2020 indicate that the contracted staff directly associated with the provision of telecommunications services increased by 230 people, representing a 2 % growth compared to 2019. (See Graph n.° 14). When comparing human resources of the sector in relation to the country's labor force, the indicator shows a slight increase compared to 2019, but always with stability throughout the analysis period (see Graph n.° 15). In the case of the sector's labor force and the total population, as observed in Graph n.° 16, no changes are shown over time, with a slight increase for the last year.

When analyzing the behavior of the female population working in the telecommunications sector, it is practically the same number compared to 2019. On this occasion, this indicator shows a slight increase in 2020, with a cumulative growth rate of 1.4 % in relation to 2016.

Graph n.° 1. Costa Rica: Total revenue of the Telecommunications Sector, 2016 - 2020

(annual figures in millions of colones and percent variation)

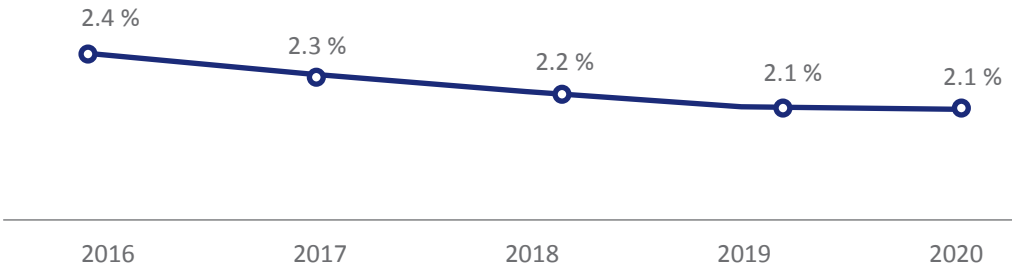


The telecommunications market generated 728 196 million colones during 2020

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 2. Costa Rica: Total revenue of the Telecommunications Sector as a proportion of the GDP*, 2016- 2020

(annual figures in percentages)

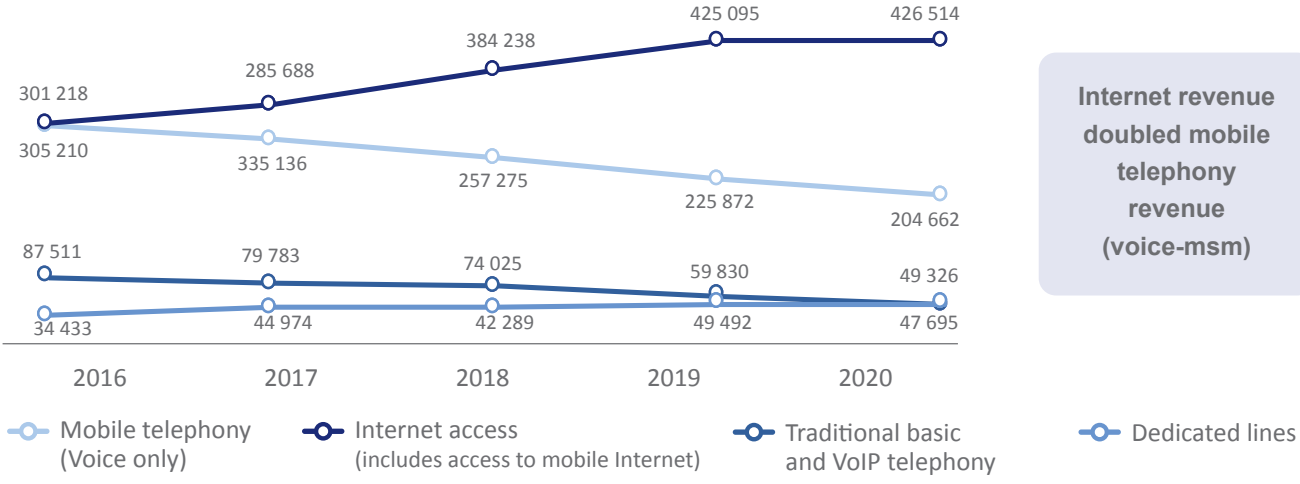


Note: *Gross Domestic Product at current market prices.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 3. Costa Rica: Total revenue of the Telecommunications Sector according to service, 2016 -2020

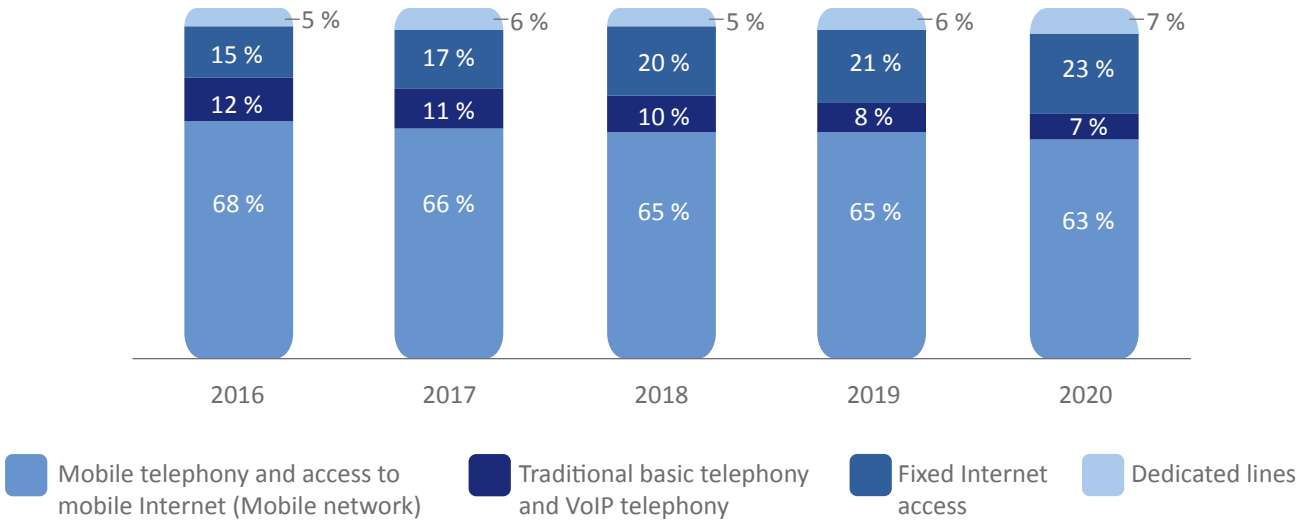
(annual figures in millions of colones)



Internet revenue doubled mobile telephony revenue (voice-msm)

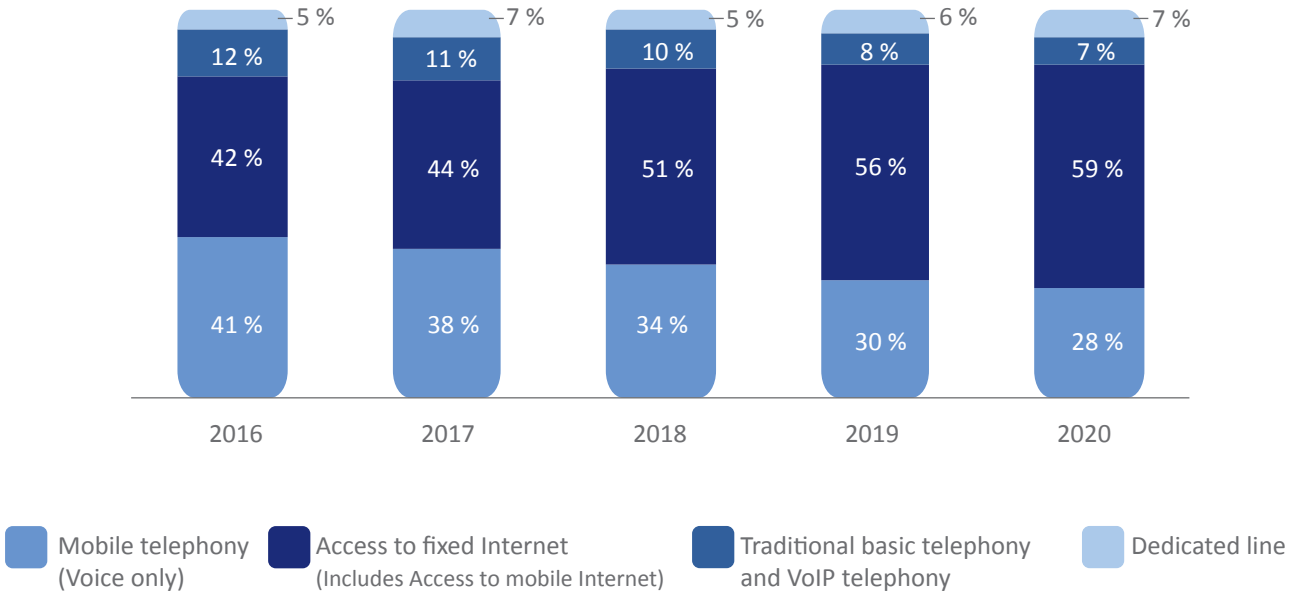
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 4. Costa Rica: Total revenue of the Telecommunications Sector according to service, 2016 - 2020
(annual figures in percentages)



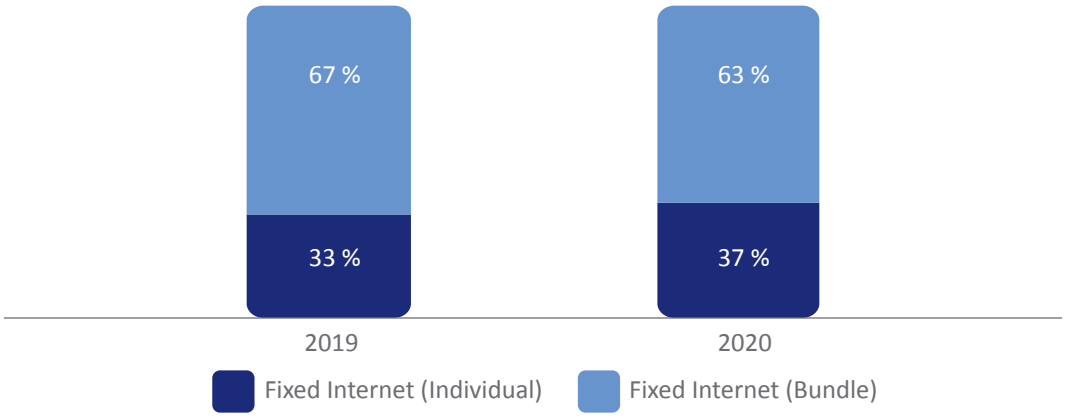
Note: The entry of mobile telephony also includes revenue generated by access to mobile Internet.
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 5. Costa Rica: Total revenue of the Telecommunications Sector according to service, 2016 - 2020
(annual figures in percentages)



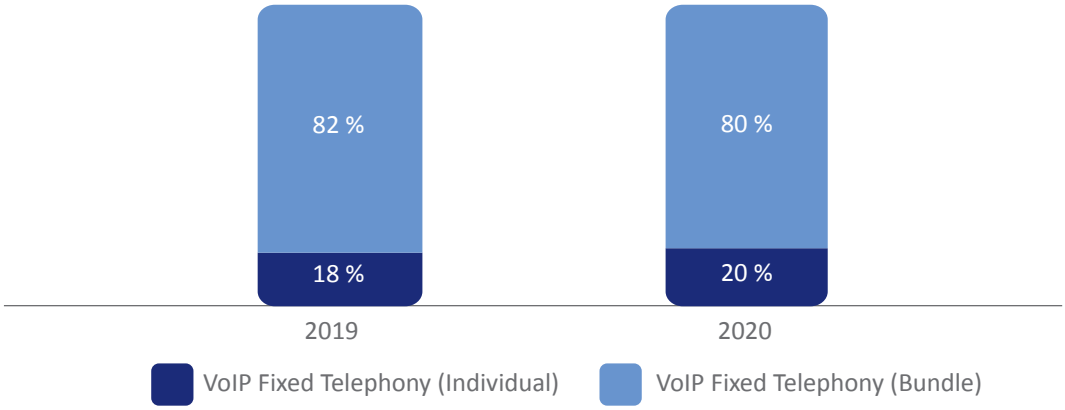
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 6. Costa Rica: Distribution of fixed Internet subscriptions according to individual contract or in bundle with other services. 2019-2020



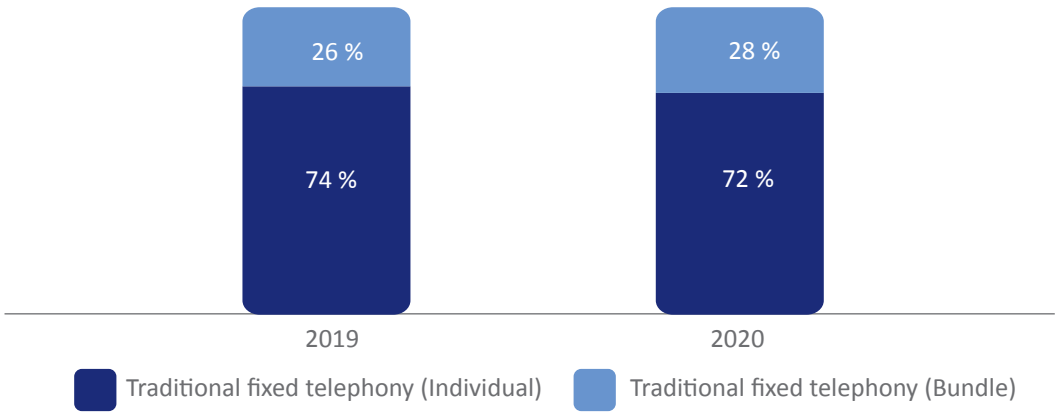
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 7. Costa Rica: Distribution of VoIP fixed subscriptions according to individual contract or in bundle with other services. 2019-2020



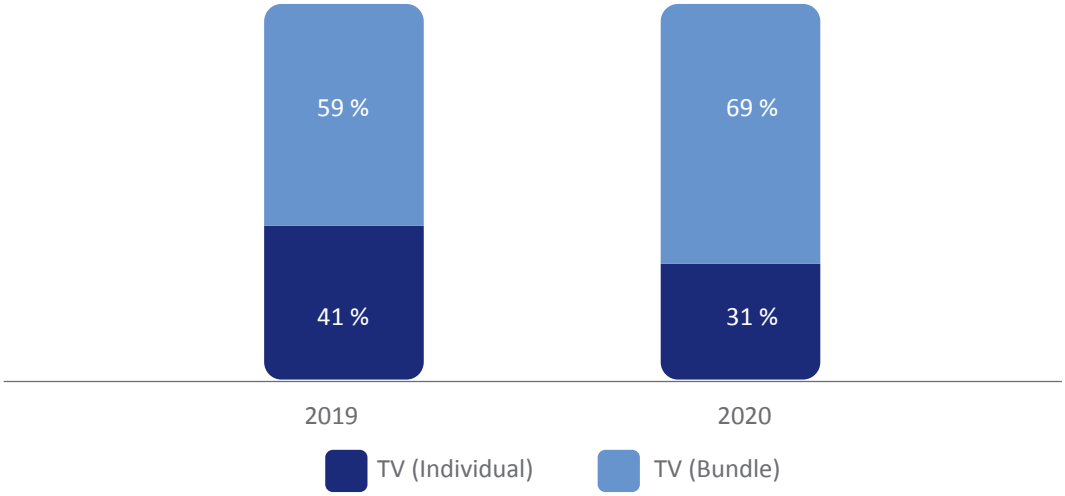
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 8. Costa Rica: Distribution of traditional fixed telephony subscriptions according to individual contract or in bundle with other services. 2019-2020



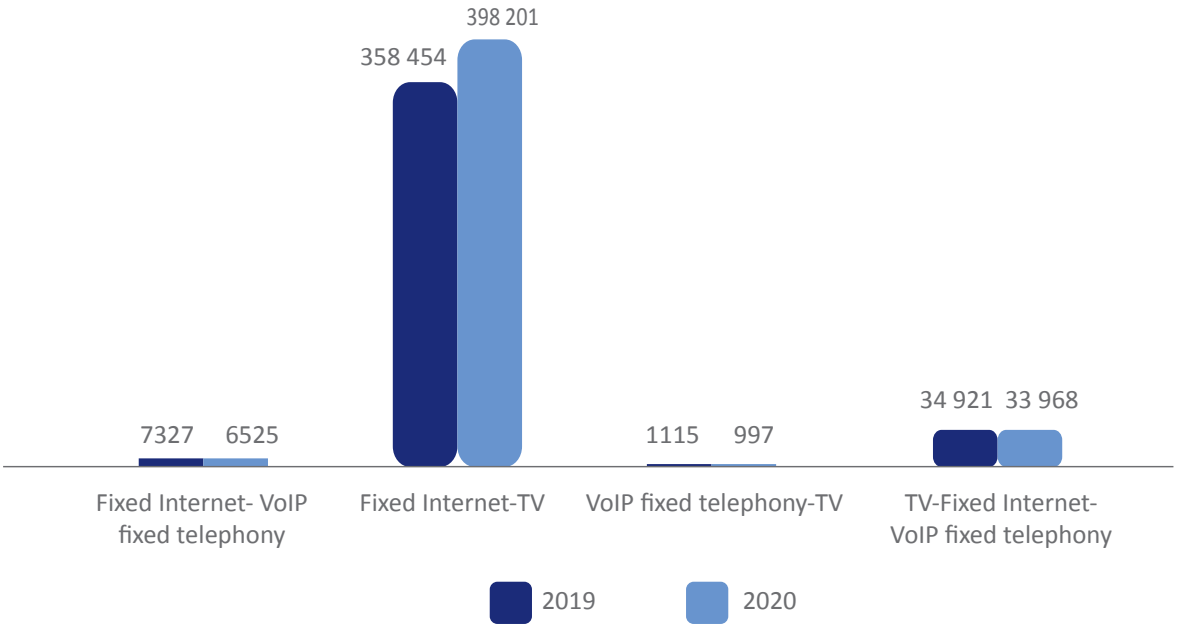
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 9. Costa Rica: Distribution of subscription TV subscriptions according to individual contract or in bundle with other services. 2019-2020



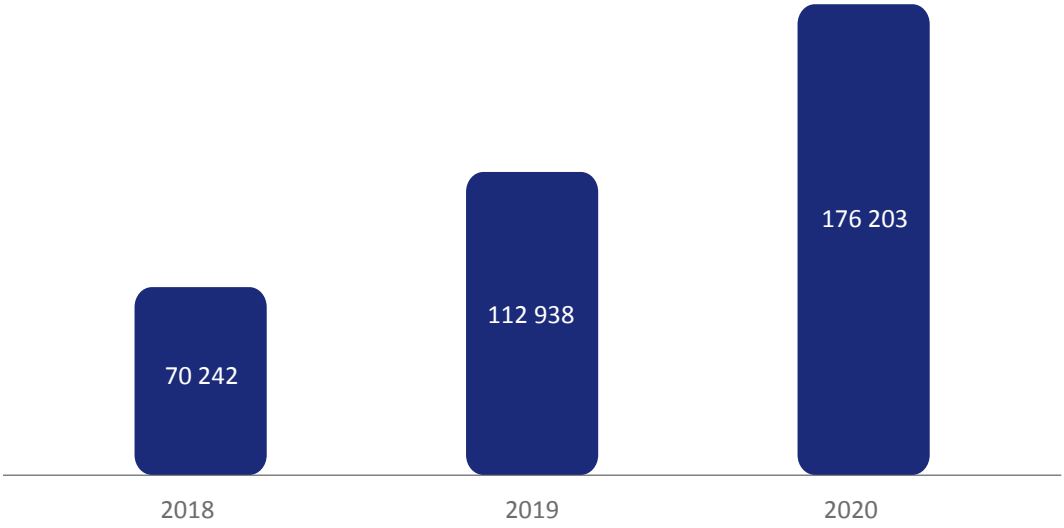
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 10. Costa Rica: Number of subscriptions according to type of telecommunications services bundle. 2019-2020



Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

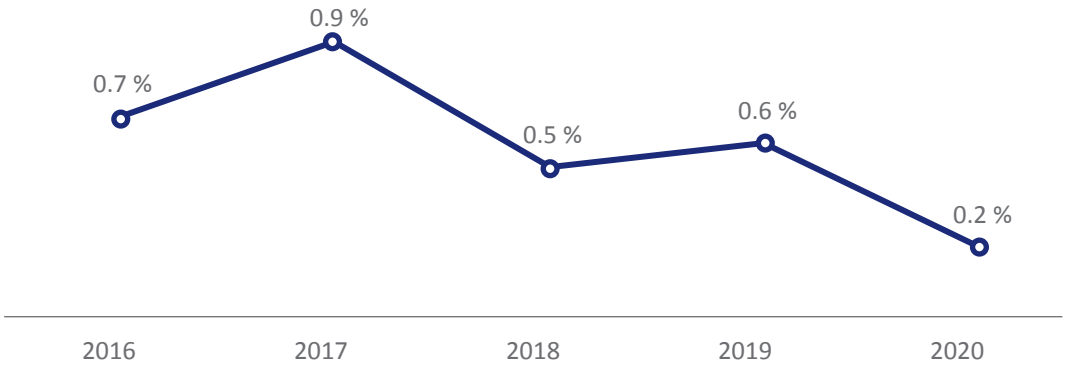
Graph n.° 11. Costa Rica: Number of kilometers of installed fiber optic. 2018-2020



Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 12. Costa Rica: Total investment of the Telecommunications Sector as a proportion of the GDP, 2016- 2020

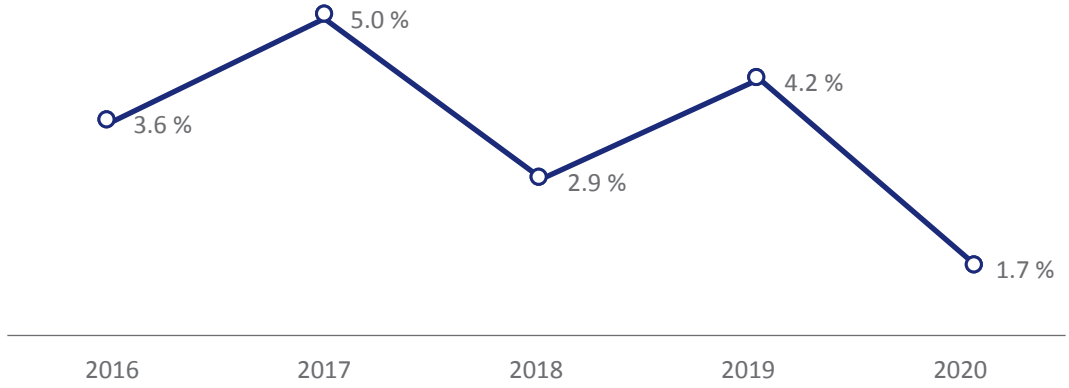
(annual figures in percentages)



Note: *Gross domestic product at current market prices.

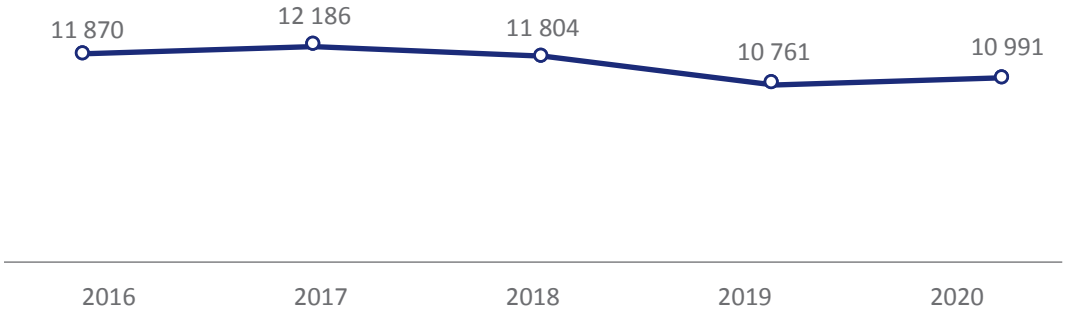
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 13. Costa Rica: Total investment of the Telecommunications Sector as a proportion of Gross Capital Formation 2016-2020.
(annual figures in percentage)



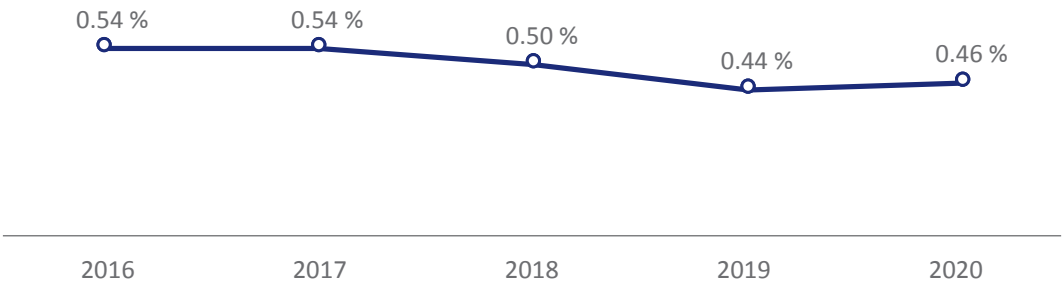
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n°. 14. Costa Rica: Work force of the Telecommunications Sector, 2016 - 2020
(annual figures)



Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

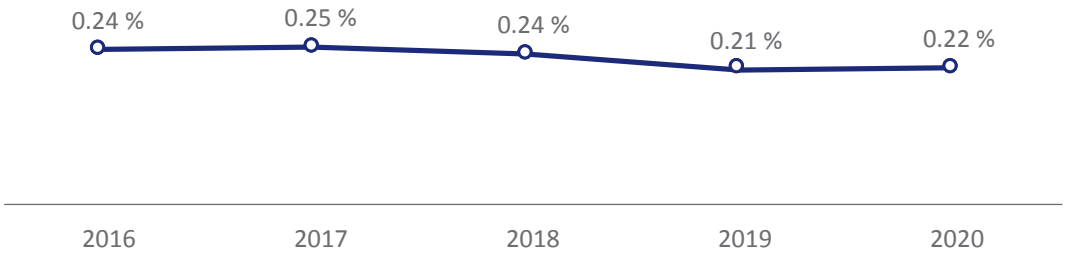
Graph n.° 15. Costa Rica: Percentage of the work force of the Telecommunications Sector in relation to the economically active population, 2016 - 2020
(annual figures in percentage)



Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

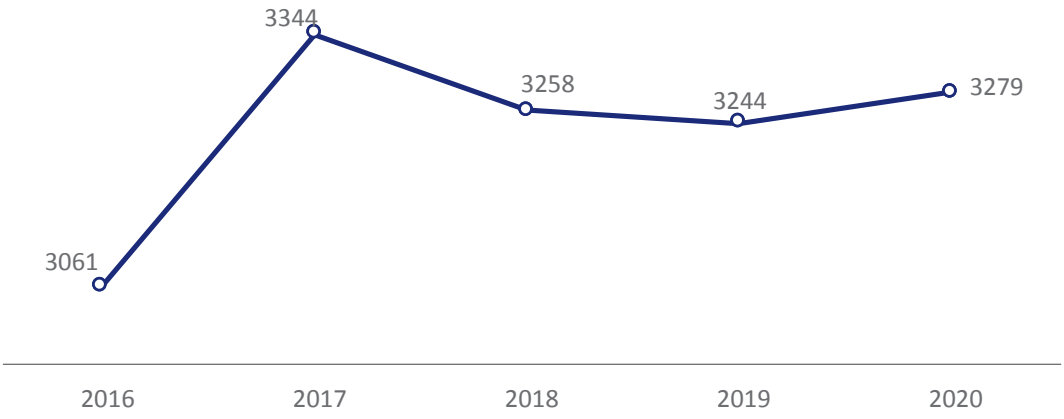
Graph n.° 16. Costa Rica: Percentage of the work force of the Telecommunications Sector in relation to the total population, 2016 - 2020

(annual figures in percentage)



Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 17. Costa Rica: Female work force of the Telecommunications Sector, 2016 - 2020



Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 10. Costa Rica: Number of operators and telecommunications service providers, 2016 - 2020

Indicator	2016	2017	2018	2019	2020
Total authorized companies	135	143	152	148	158
Indicator response rate	83 %	80 %	80 %	77 %	77 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 11. Costa Rica: Percent distribution of service companies included in the sector indicators report, 2016 – 2020

Service	2016	2017	2018	2019	2020
Fixed telephony	94 %	90 %	100 %	100 %	100 %
Mobile telephony	100 %	100 %	100 %	100 %	100 %
Date transfer*	97 %	55 %	61 %	68 %	60 %
Subscription television	100 %	97 %	100 %	100 %	100 %

* Through the years, operators with the most important market share contribute information to the market, ensuring comparability of statistics. In Fixed Internet, the three operators with the largest share contribute almost 95 % of the market year after year. Other seven operators contribute practically the pending 5 %.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 12. Costa Rica: Summary of Indicators on the performance of the Costa Rican Telecommunications Sector, 2016-2020

Indicator	2016	2017	2018	2019	2020
Indicator Aggregated sector data					
Total revenue (Millions of colones)*	728 372	745 581	758 678	760 290	728 196
Total revenue/GDP (percentage)	2.42 %	2.29 %	2.18 %	2.10 %	2.09 %
Total investment/GDP (percentage)	0.67 %	0.92 %	0.50 %	0.58 %	0.23 %
Total human resources employed	11 870	12 186	11 804	10 761	10 991
Total human resources employed/Total economically active population	0.54 %	0.54 %	0.50 %	0.44 %	0.46 %
Fixed telephony					
Total subscriptions	833 590	808 967	763 254	636 504	556 617
Total subscriptions /100 inhabitants	17 %	16 %	15 %	13 %	11 %
Total subscriptions /100 housing units	57 %	54 %	50 %	40 %	35 %
Total subscriptions basic traditional fixed telephony	779 972	747 428	695 518	571 808	504 276
Total subscriptions basic traditional fixed telephony /100 inhabitants	16 %	15 %	14 %	11 %	10 %
Total subscriptions basic traditional fixed telephony / 100 housing units	53 %	50 %	45 %	36 %	32 %
Total subscriptions Vo IP	53 618	61 539	67 736	64 696	52 341
Total number of public telephones	4 731	4 674	4 581	3 798	3 265
Mobile telephony					
Total subscriptions	8 330 664	8 840 342	8 495 585	8 550 243	7 512 370
Prepaid subscriptions	6 468 693	6 795 591	6 285 188	6 132 481	5 005 892
Postpaid subscriptions	1 861 971	2 044 751	2 210 397	2 417 762	2 506 478
Total subscriptions/100 inhabitants	170 %	179 %	170 %	169 %	147 %
Prepaid subscriptions/Total subscriptions	78 %	77 %	74 %	72 %	66.6 %
Postpaid subscriptions/Total subscriptions	22 %	23 %	26 %	28 %	33.4 %

Indicator	2016	2017	2018	2019	2020
Data transfer					
Total Internet access subscriptions	4 972 171	5 533 005	5 924 290	5 568 807	5 634 419
Total fixed Internet access subscriptions	636 087	744 041	834 784	904 734	992 725
Total wireline fixed Internet access subscriptions	625 466	735 833	829 296	900 276	986 673
Total wireless fixed Internet access subscriptions	10 621	8 208	5 488	4 458	6 052
Total mobile Internet access subscriptions	4 336 084	4 788 964	5 089 506	4 664 073	4 641 694
Total fixed Internet access subscriptions/100 inhabitants	13 %	15 %	17 %	18 %	19 %
Total fixed Internet access subscriptions/100 housing units	43 %	50 %	54 %	57 %	63 %
Total mobile Internet access subscriptions/100 inhabitants	89 %	97 %	102 %	92 %	91 %
Total mobile Internet access subscriptions/Total mobile telephony subscriptions	52 %	54 %	60 %	55 %	62 %
Total number of dedicated line connections	16 032	18 486	19 137	22 921	23 682
Subscription television					
Total subscriptions	821 575	831 907	883 883	874 088	866 593
Total subscriptions/100 inhabitants	17 %	17 %	18 %	17 %	17 %
Total subscriptions/100 housing units	56 %	56 %	57 %	55 %	55 %
Reference indicators					
Total population	4 890 379	4 947 490	5 003 402	5 058 007	5 111 238
Gross domestic product at market prices (Millions of current colones)**	30 048 726	32 506 356	34 691 057	36 279 504	34 893 724
Total housing units	1 465 259	1 496 053	1 540 029	1 578 161	1 581 585

* These figures do not include revenue associated to subscription television service.
**For 2018, BCCR changed the basis for calculating the GDP using 2012.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

COMPETITION

The General Telecommunications Law (Law 8642), the Law on Strengthening and Modernization of Public Entities of the Telecommunications Sector (Law 8660) and the Law of the Regulatory Authority of Public Services (Law 7593), jointly establish the principle of “effective competition”, as a substantial element of the economic dynamics of the Costa Rican telecommunications sector. For this purpose, Sutel has been granted faculties as the authority in charge of the defense and promotion of competition and free participation in the telecommunications and networks sector that support sound broadcasting and free access television services, pursuant to Article 29 and Chapter II of title II, as well as Article 2 of the Law for the Strengthening of Competition Authorities of Costa Rica, No. 9736.

In short, based on the aforementioned legal regulations, the main functions performed by Sutel as a sectorial competition authority in Telecommunications, refer to the areas of advocacy and promotion of competition, the investigation and sanction of practices contrary to the principles of competition and free participation in the market and the application of the prior control scheme of economic concentrations.

As indicated in the 2019 Telecommunications Sector Statistics Report[28] of 18 November 2019, Law 9736 came into force. This regulation strengthened the national competition authorities, providing them with an updated legal framework, attached to the best international practices in the matter.

As part of the work carried out by Sutel as a sectoral competition authority, together with the Commission to Promote Competition (Coprocom), a Road Map was prepared, in order to implement the new legal framework more efficiently, provided by the aforementioned Law 9736. To this end, the roadmap proposes three pillars for the achievement of its objectives: (1) regulatory strengthening; (2) institutional strengthening; (3) effective application of the competition rules.

The first pillar focuses on strengthening the regulatory framework in which Costa Rica's competition law is applied, in order to guarantee its compliance and effective application. In addition, the development and adoption of different guides and manuals for the application of competition policy is proposed.

The objective of the second pillar is to provide Costa Rican competition authorities with the technical capacities and tools necessary for the effective application of competition law. This includes reforming the institutional organization of the authorities to ensure their administrative and technical independence, assigning an appropriate budget, hiring human resources, and implementing the necessary inter-institutional coordination mechanisms.

The third pillar focuses on the effective application of the competition rules. This pillar will be implemented through actions in three areas: conducting market studies, ensuring transparency and accountability, and promoting education and training on the culture of competition.

Based on the actions defined in said roadmap, during 2020, Sutel achieved a percentage of progress in meeting the objectives set, as detailed below:

In relation to the first pillar, regarding regulatory strengthening and based on what is ordered by numeral 142 of Law 9736, Sutel[29] participated in an inter-institutional commission comprised by the Ministry of Economy, Industryand Commerce (MEIC), the Ministry of Foreign Trade (Comex) and Coprocom, to prepare the Executive Regulation to Law

[28] Document that can be accessed at the electronic address:
https://www.sutel.go.cr/sites/default/files/informe_estadisticas_sector_de_la_telecomuicaciones_2019_2019.pdf
[29] According to agreement 013-0582019 of the ordinary session 058-2019 of the Sutel Council.

9736. As part of said Commission, Sutel actively contributed to the drafting process of said Regulation, as well as to its public consultation, with a 90 % progress at the end of 2020.

Likewise, Sutel, in 2020, began the process of preparing a series of guides and manuals for the effective application of Law 9736, in particular of the following instruments:

- Internal Procedures Manual: in order to apply the procedures contained in Law 9736, in particular the special procedure and the merger notification procedure. With a progress of 20 % at the end of 2020.
- Guide for the Imposition of Fines: The Guide establishes the methodology and provisions that Sutel will follow in calculating the fines to be imposed for infringement of competition regulations; developing the legal parameters and circumstances that support the imposition of a specific fine, with the aim of providing transparency in the process of setting such sanctions. With a progress of 45 % at the end of 2020.
- Protocol for the Analysis of Cases with Shared Powers by Sutel and Coprocom: addresses the scope of the powers shared by both competition authorities in the application of the procedures contained in Law 9736. With a progress of 45 % at the end of 2020.
- Manual on Confidential Information Management: develops the procedure to be followed by Sutel in the management of confidential information, in relation to the procedures contained in Law 9736. With a progress of 45 % at the end of 2020.
- Guide for the analysis of concentrations: develops the standard economic merger analysis methodology, including the main analytical techniques and types of evidence used to assess whether a merger may significantly hinder competition. With a progress of 45 % at the end of 2020.
- Guide for the Notification of Concentrations: this Guide will establish the obligations and requirements for notifying concentrations to the authority. It also provides information on the concepts, regulations, and procedures associated with the notification of concentrations, in order to facilitate the processing of said procedure to economic agents. With a progress of 45 % at the end of 2020.

Additionally, in relation to the first pillar of the roadmap, Sutel in 2020 began the preparation of a proposal for "Technical Regulations to the Law for Strengthening of Competition Authorities of Costa Rica". This Regulation will develop the technical aspects associated with competition matters, in particular those related to the following:

- Competition advocacy and promotion
- Early termination procedure
- Inspection procedure
- Mandatory prior notification of concentrations
- Methodology for calculating fines for infringement of the Law
- Leniency program
- Surveillance and achievement of resolutions issued by the competition authorities.

Finally, on the first pillar, in 2019, together with the Commission to Promote Competition, the Ministry of Economy, Industry, and trade and the Ministry of Planning, a cooperation project was proposed to the Inter-American Development Bank (IDB). with non-reimbursable funds to develop a series of instruments for the effective application of Law 9736, including:

- Guide for the application of the leniency policy
- Internal manual for the application of the leniency policy
- Manual to detect collusive tenders
- Guide for the analysis of unilateral behaviors and vertical agreements
- Internal manual for conducting inspections
- Guide for ex post analysis of authority decisions
- Internal manual for ex post analysis of authority decisions
- Guide to Compliance Programs

In 2020, the IDB tendered the Consultancy for the Development of Capacities in Leniency and Strengthening of the Competition Authorities of Costa Rica, whose products will be the Guide to the program of benefits for exemption and reduction of administrative sanctions and the Internal Manual of the program of benefits of exemption and reduction of administrative sanctions and that are being prepared by a consultant, with the support of both competition authorities of the country.

In relation to the second pillar, related to institutional strengthening, Sutel, together with the support of the Board of Directors of Aresep, achieved broad progress in terms of restructuring and strengthening commitments in competition matters, reaching in particular the following:

1. Organizational restructuring of Sutel in competition matters:

a. Through resolution RE-0170-JD-2020 at 11:58 am on July 7, 2020, the Board of Directors of Aresep approved the Partial Reform to the Internal Regulation of the Organization and Functions of Aresep and its Decentralized Body (RIOF), for the Implementation in Sutel, of the Law for Strengthening the Competition Authorities of Costa Rica, Law 9736, through which the new Directorate General of Competition was created at Sutel, becoming the technical advisor of the Sutel Council, granting it the functions and powers indicated by Law 9736, Chapter II of Title III of Law 8642 and all those that are delegated to it by the Higher Body of the Sectorial Authority.

b. Per agreement 08-066-2020 of the minutes of ordinary session 66-2020, held on August 4, 2020, the Board of Directors of Aresep resolved to “Approve the modification to the Description Manual of Classes and Descriptive Manual of Positions sent by the Council of the Superintendency of Telecommunications through agreement 009-014-2020”, creating the job profiles and specific functions of the officials who work on competition matters.

2. Provision of human resources regarding competition issues:

a. Per agreement 07-71-2020 of the minutes of extraordinary session 71-2020, held on 20 August 2020, the Board of Directors resolved, "To approve the restructuring of human resources to staff the Directorate General of Competition" by transferring seven positions to comprise the Directorate General of Competition.

Furthermore, in relation to the second pillar, Sutel was able to strengthen its inter-institutional relations with its peers from other jurisdictions, pursuant to the provisions of Article 25 of Law 9736 and recognizing that international technical cooperation constitutes a fundamental element to increase the institutional capacities and effectiveness in the application of competition laws, signing in 2020 the following cooperation agreements:

a) Sutel-Coprocom-Federal Economic Competition Commission of the United Mexican States (Cofece).

b) Sutel- Superintendency of Competition of El Salvador.

c) Sutel- Federal Telecommunications Institute (IFT).

Similarly, Sutel's entry into various Regional Competition Centers stands out, in particular:

a) Regional Center of Competition for Latin America and the Caribbean (CRC), as of September 30, 2020.

b) Central American Network of Authorities in Charge of Competition Issues (Recac), as of October 29, 2020.

Finally, in relation to the third pillar, regarding the effective application of competition rules, Sutel currently has two market studies underway that seek to issue recommendations for the eventual elimination of barriers to competition that may exist in telecommunications markets. The ongoing studies that were carried out during 2020 are the following:

- Market study regarding access to common telecommunications infrastructure in business condominiums and all those properties for commercial use, which have common facilities necessary for the provision of telecommunications services, with the general objective of determining the existence or not of obstacles, barriers or distortions unrelated to the principle of free competition, in access to common telecommunications infrastructure in business condominiums and all properties for commercial use, which have common facilities necessary for the provision of telecommunications services within the national territory.

- Market study regarding the public contracting of telecommunications services, with the general objective of determining the existence or not of obstacles, barriers or distortions unrelated to the principle of free competition, in the public procurement processes of the State of telecommunications services, as well as in the offer by operators or suppliers active within the Costa Rican jurisdiction, in response to the State's demand for said services.

1. Statistics of the Directorate General for Competition 2020

The competition statistics summarize the results in terms of the cases processed by Sutel in 2020 in relation to the Sectorial Regime of Competition in Telecommunications.

These statistics are based on the indicators defined by the OECD Competition Committee in its Basic Statistics Survey document, which consists of five sections that group the usual tasks of a competition authority, namely: general data, tenders, abuse of position of dominance, concentrations, and advocacy.

Table n.° 13. Costa Rica: Statistics of Monopolistic Practices of the Telecommunications Sector, 2020.

Items	2019
MONOPOLISTIC PRACTICES	
Research	8
Initiated ex-officio	1
Initiated by a report	7
Sanctioned practices	0
Absolute monopolistic practices	1
Relative monopolistic practices	7
ECONOMIC CONCENTRATIONS	
Notified*	1
Authorized	0
Authorized with conditions	0
Rejected	0
Sanctioned	0

Note: * Economic concentration that is being processed by Sutel.
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

2. Case summary

Below is a detail of the cases considered in Table n.° 13, as well as a summary of other activities carried out by Sutel in the field of advocacy and competition promotion:

- Analysis of a request for authorization of economic concentration, which is in the second phase process by Sutel.
- Execution of eight preliminary ex officio investigations and for complaints associated with alleged monopolistic practices: two were elevated to administrative proceedings, four were archived, and two remain in the preliminary investigation stage.
- Review of two commercial transactions for alleged omissions to the prior control scheme of economic concentrations in telecommunications, which were archived.
- Promotion and advocacy activities:
  - Issuance of 11 opinions on competition and free participation, on two bills, a tender from the Ministry of Justice and Peace, and eight reviews of four relevant markets in telecommunications.
  - Execution of two market studies related to access to common telecommunications infrastructure in business condominiums and public purchases of telecommunications services.
- Other subjects: Statement on the application of competition rules in the Telecommunications Sector as a result of the crisis caused by COVID-19 (Agreement 021-041-2020 of May 29, 2020), in order to provide transparency and predictability to economic agents circumscribed to the jurisdiction of Sutel, offering a series of specific guidelines for the attention of the procedures regarding competition in the face of the declared emergency, defined, among other aspects, as: 1) that the first objective of Sutel will be to protect telecommunications services users, and 2) that the institution's commitment is maintained to ensure that the actions of telecommunications operators and providers do not affect the desired level of competition, and that these actions are maintained in accordance with the provisions of national competition regulations.

FIXED TELEPHONY

SUBSCRIPTIONS

For 2020, the number of subscriptions to the fixed telephony service (traditional basic and VoIP) showed the same downward behavior observed in recent years, going from 833 590 in 2016 to 556 617 at the close of 2020 (33.23 %). This trend is confirmed for the last year, by virtue of the 79 887 fewer subscriptions, which are equivalent to an annual decrease of 12.5 % in the last year (see Graph n.° 18).

In turn, Graph n.° 19 shows that the voice over Internet protocol (VoIP) service presents the same downward behavior in the number of subscriptions, which goes from 64 696 in 2019 to 52 341 in 2020, which means a decrease of 19.19 % compared to the previous year. On the other hand, the percentage distribution of the service by these technologies' changes with respect to the dynamics shown in previous years. This is due to the decrease in VoIP subscriptions in the last year, causing a decrease of 0.8 percentage points for 2020 compared to 2019 in the participation of this technology (see Graph n.° 20).

Regarding the number of quarterly subscriptions in the fixed telephony service, during 2019 and 2020, the decrease in the subscriptions to the service has been persistent during the eight quarters considered, where an average quarterly decrease rate of 3.29 % is recorded during 2020 (see Table n.° 38 of the Annex). Despite the fact that the average quarterly decrease is less than that shown in 2019 (4.42 %), this situation for 2020 has been caused, unlike what happened in previous years, by the reduction in subscriptions in both modalities of service as additionally exposed in Graph n.° 21.

Regarding the analysis on the level of concentration existing in the fixed telephony market, which includes both the traditional basic telephony service and VoIP, the declaration of ICE as an important operator must be reiterated, especially due to the monopoly still existing in the provision of the service for the first of these technologies.

In this sense, the determination of the Herfindahl-Hirschman Index (HHI) for 2020 offers the value of 8233 points, higher than the one presented in 2019 of 8096 points, but which also does not differ significantly from the calculation included in RCS-261 -2016 of 23 November 2016 (8771 points).

As indicated in the aforementioned resolution RCS-261-2016, as well as in previous reports, the HHI as a structural indicator shows that the entry of new competitors to the Costa Rican fixed voice communications market has had a slight impact on the recomposition of quotas, driven specifically by the dynamism in the behavior of VoIP telephony. However, the reduction in the share of VoIP telephony tends to slightly lower the HHI registered in the last year.

In relation to the indicators associated with the penetration of the service, the penetration of the fixed telephony service in general is consistent with the decreasing trend, mainly due to the behavior of both service modalities, as presented in Graph n.° 22 the percentage of subscriptions for 2016 goes from 17.0 % to 12.6 % in 2019 and to 10.9 % in 2020.

At the same time, the penetration of the traditional basic telephony service is exposed in Graph n.° 23, where the decreasing trend is shown during the 2016-2020 period, going from 15.9 % to 9.9 %, also decreasing 1.4 percentage points in the last year. On the other hand, the penetration of the voice service over the Internet protocol (VoIP) presents, for 2020, a decrease, both with respect to 2016 and 2020, when subscriptions decreased by 0.7 and 2.6 for each 1000 inhabitants, respectively (see Graph n.° 24).

In addition, the market share and distribution by operators of the fixed telephony service has two aspects. The first is associated with the traditional basic telephone service, in which the Costa Rican Electricity Institute, through its trademark Kölbi, is the only service provider under this modality and holds 100 % market share.

On the other hand, there is the VoIP fixed telephony service, with the share for the last two years is illustrated in Graphs n.° 25 and n.° 26, Cabletica is evidenced with a share in 2020 (44 %), followed by Tigo, which has two percentage points less. In addition, Telecable is in a third position that maintained its percentage share of 12 % in the last year.

As has been pointed out, the fixed telephony service also considers the public telephony service, which is why it is relevant to analyze the evolution of the number of public telephones available. Graph n.° 27 reflects the constant decrease in the number of these devices, which for December 2016, counted 4731 and for the same month of 2020 reached 3264, which implies in absolute terms 1466 less in the last five years, and with it a decrease annual rate of 9 %.

TRAFFIC

Telephone traffic through fixed networks continues to decline; while 2966 million minutes were transferred in 2016, by 2020, that traffic decreased to 1647 million minutes, which is equivalent to an average annual reduction of the 12.3 %. Regarding the dynamics between 2019 and 2020, this reduction is of 224 million minutes, which represents a decrease of 12 % in the last year (see Graph n.° 28). As can be seen, the behavior of the last year is consistent with the average trend observed in previous years.

In relation to the traffic specifically associated with the VoIP telephony service, as of December 2018, there has been a decrease, as indicated in previous reports, so that the minutes transferred through VoIP increased from 336 270 thousand minutes in 2016, to 183 323 thousand minutes in 2020. Specifically in the last period, this traffic presented a reduction of 58 116 thousand minutes compared to 2019, which implies a reduction of 24 % (see Graph n.° 29).

Regarding the dynamics of the traffic broken down by quarter and specifically for the eight quarters corresponding to the last two years, the decreasing trend is ratified as a consequence of the generalized reduction in the telephone traffic of the traditional basic telephone network (see Graph n.° 30). In the same way, the detail of the quarterly figures for the VoIP service, corresponding to the 2018-2019 period, shows an oscillating and decreasing behavior (see Graph n.° 31 and the Table n.° 41 of the Annex).

According to the percentage distribution of telephone traffic for the VoIP service by operator, for the year 2019, five operators grouped 74.1 % of the total VoIP traffic; in alphabetical order they are: American Data, Cabletica, CallMyWay, Telecable, and Tigo. This same number of operators for 2020 increases their total VoIP traffic share with 79.5 %, among which are, in the same order of occurrence: Cabletica, CallMyWay, R & H, Telecable, and Tigo (see Graph n.° 32 and Graph n.° 33).

Regarding the behavior of national fixed telephony outbound traffic to fixed and mobile networks, it follows that this is consistent with the downward trend that is characteristic of the service, both in outbound traffic to fixed networks and outbound traffic to mobile networks, during the five-year period of reference, for both cases an average annual decrease rate of 10 %. In particular, traffic to mobile networks maintains a proportion higher than 85 % during the 2016-2020 period (see Graph n.° 34).

On the other hand, regarding total incoming fixed telephony traffic during the 2016-2020 period, it presents an average annual decrease rate of 6.4 %. However, for the period 2019-2020, this traffic goes from 12 964 to 12 834, which represents a decrease of 1 %, showing that, at least in the last year, the behavior slows down in the last period (see Graph n.° 35).

Finally, linked to the traffic analysis for this service, the average traffic estimate per subscriber is presented. Particularly, for traditional basic telephony, in 2019 the average annual traffic per subscriber reached 2849 minutes, while in 2020, said annual average increased to 2902 minutes, which is equivalent to an average annual increase of 0.5 % for the period. On the contrary, in the VoIP service, its average annual traffic per user continues to decrease in the last five years, from 6272 minutes in 2016, to 3501 in 2020. In the last year, similar dynamics occur in the period 2019-2020 with a decrease in absolute terms of 230 minutes, which represents a decrease of 1.6 % (see Graph n.° 36).

REVENUE

Regarding revenue generated by the general provision of the fixed telephony service, the behavior is consistent with that of subscriptions and fixed traffic. Given the above, revenue of the fixed telephony service in general also shows a downward trend during the last five years.

Specifically, during 2016, fixed telephony generated 87 511 million colones, and for 2020, revenue was reduced to 46 884 million colones, that is, a decrease equivalent to 46.4 % during this period (14.4 % in annual average reduction). In particular, this reduction was enhanced last year given that in absolute terms the reduction in total service revenue was 12 112 million colones, which represents 20.5 %, this being the largest annual reduction recorded since 2009 (see Graph n.° 37).

In the same way, the VoIP service presents a reduction in revenue, hence at the end of 2019, revenue is 6856 million colones, and by 2020, 6261 million colones were reported (595 million colones less), which is equivalent to a decrease of 8.71 % (see Graph n.° 38)

On the other hand, when exposing revenue from this service in general according to the quarters of the last two years, it is shown that the revenue from fixed telephony also has a decreasing quarterly trend, which implies an average quarterly rate of 5.6 %, as can be seen in Graph n.° 39.

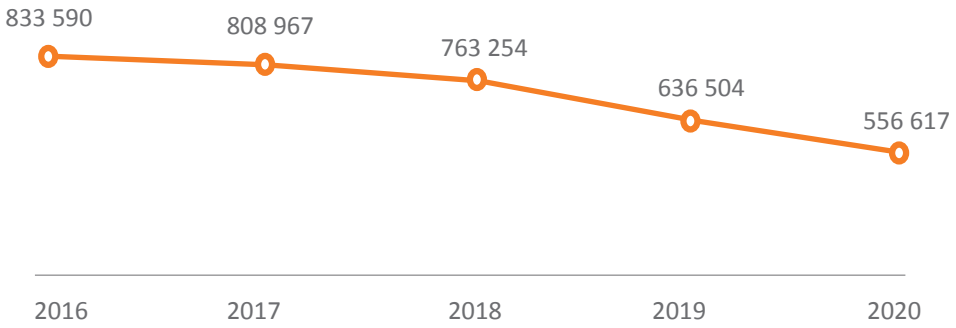
In relation to VoIP revenue, particularly on a quarterly basis, the eight quarters in 2019 and 2020, show a constant decreasing trend with an average quarterly rate of 2 %. Verifying this reduction from 1832 million colones quarterly in the first quarter of 2019, to 1632 million colones in the fourth quarter of 2020 (see Graph n.° 40).

Finally, regarding the estimate of the average revenue generated by each user to said operators (ARPU), both service modalities together show a very similar average annual revenue per subscriber for 2016 - 2020. However, for 2019 and 2020, the average annual revenue for both services tend to differ, for example, 119 624 for VoIP service and 80 556 for traditional basic telephony for last year (see Graph n.° 41 and Table n.° 48 of the Annex).

Similarly, Graph n.° 42 shows the results of the estimation of the average revenue per minute for both the traditional basic telephony service and for VoIP. In the first instance, traditional basic telephony shows a decrease in the average revenue per minute for last year, going from 32 to 28 colones. Secondly, in the VoIP service, as indicated since 2017, the average revenue per minute has increased, from that year until the end of 2020, from 15 to 34 (see Table n.° 49 of the Annex).

Graph n.° 18. Costa Rica: Traditional basic telephony and VoIP subscriptions, 2016 - 2020

(annual figures)

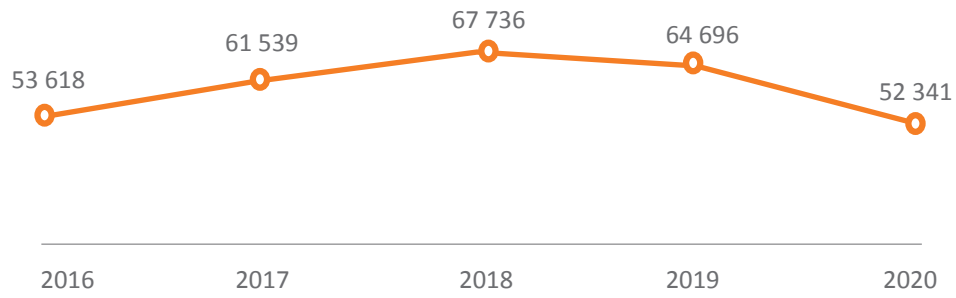


79 887 fewer subscriptions are registered for fixed telephony in 2020

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 19. Costa Rica: VoIP telephony subscriptions, 2016 - 2020

(annual figures)

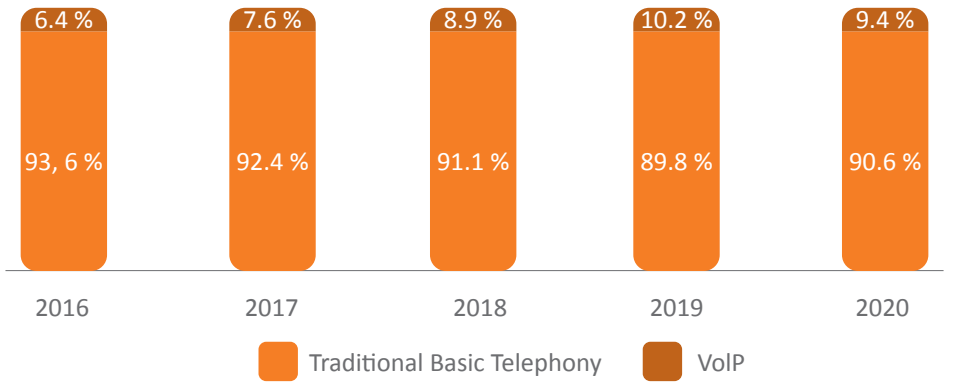


2020 closed with 19.14 % fewer VoIP subscriptions

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 20. Percent distribution of traditional basic telephony and VoIP telephony subscriptions, 2016 - 2020

(annual figures)

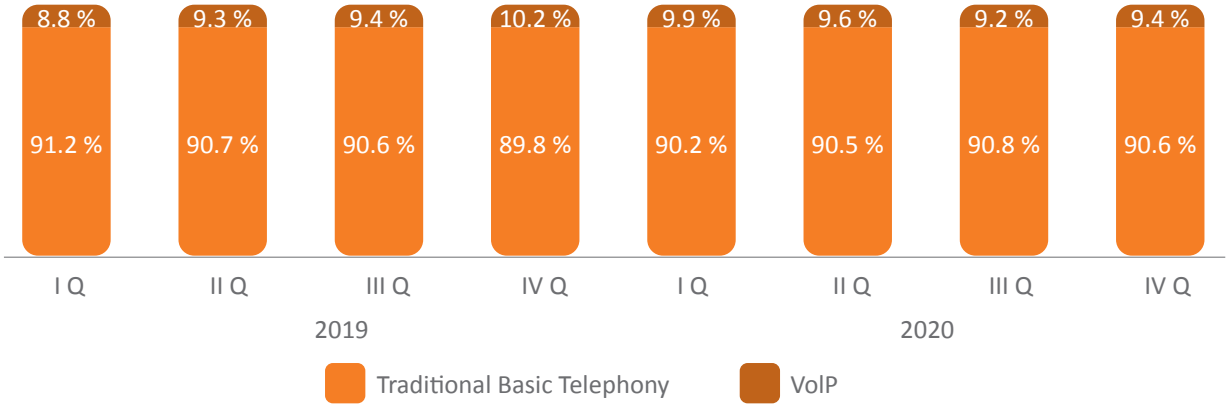


VoIP telephony reduced its share in 2020

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 21. Costa Rica: Percent distributions of traditional basic telephony y VoIP telephony, 2019 - 2020

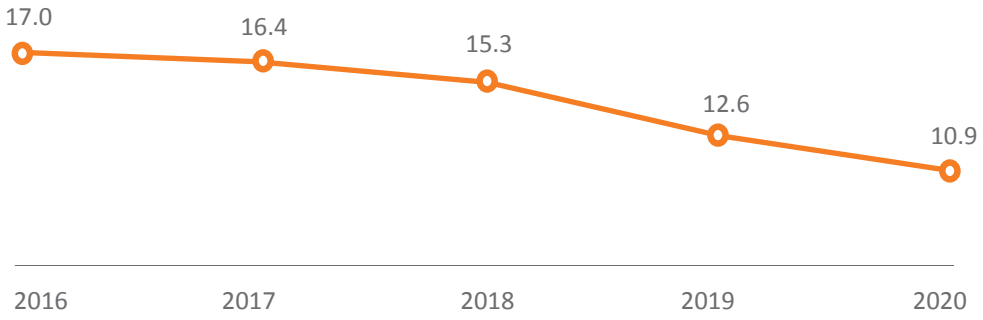
(figures at quarter closing)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 22. Costa Rica: Fixed telephony service market share, 2016 - 2020

(subscriptions per 100 inhabitants)

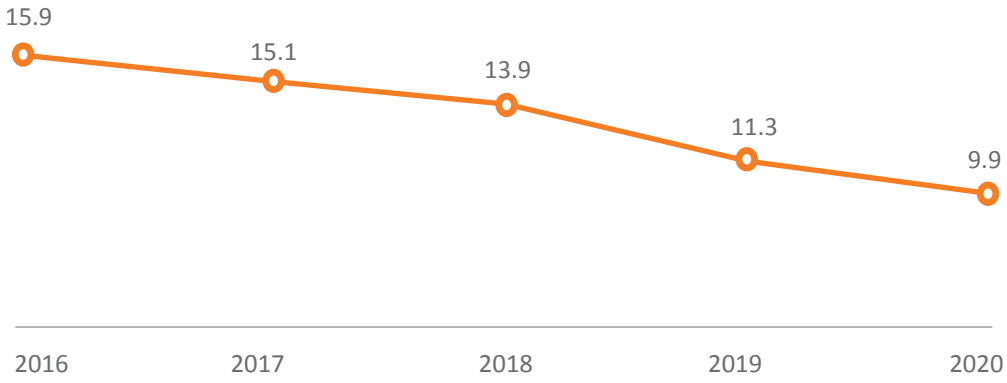


Since 2016, fixed telephony market share has been continuously dropping

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 23. Costa Rica: Traditional basic telephony market share, 2016 – 2020

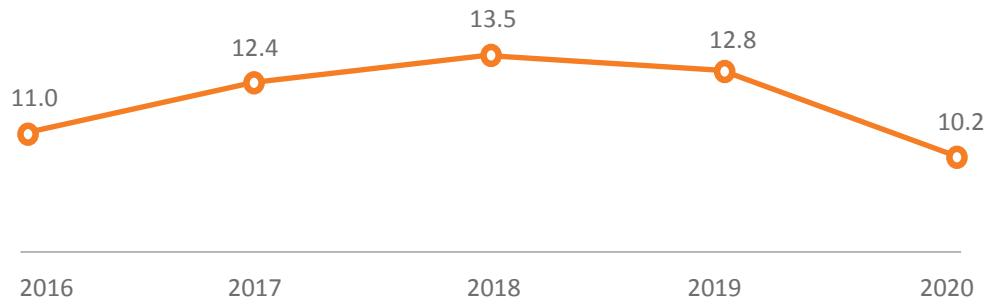
(subscriptions per 100 inhabitants)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 24. Costa Rica: VoIP telephony market share, 2016 - 2020

(subscriptions per thousand inhabitants)

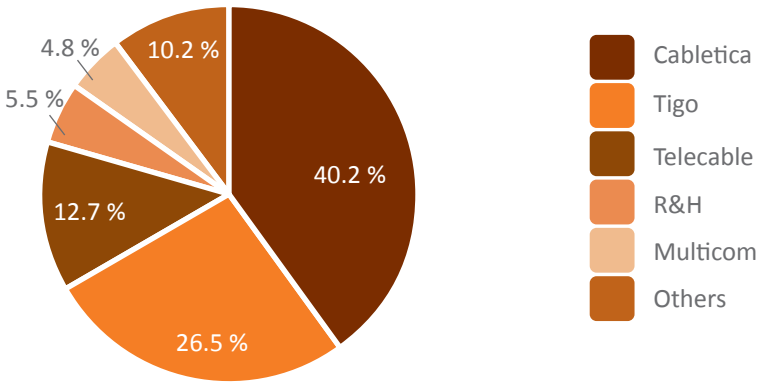


For 2020, VoIP market share continues dropping after reaching its peak in 2018

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 25. Costa Rica: Distribution of VoIP telephony subscribers per operator, December 2019

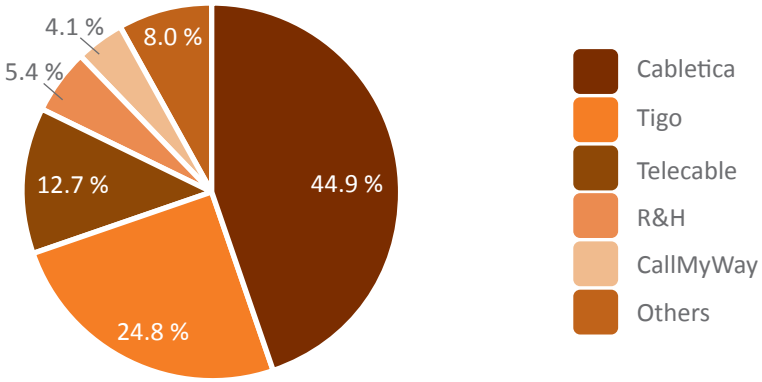
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 26. Costa Rica: Distribution of VoIP telephony subscribers per operator, December 2020

(figures in percentages)

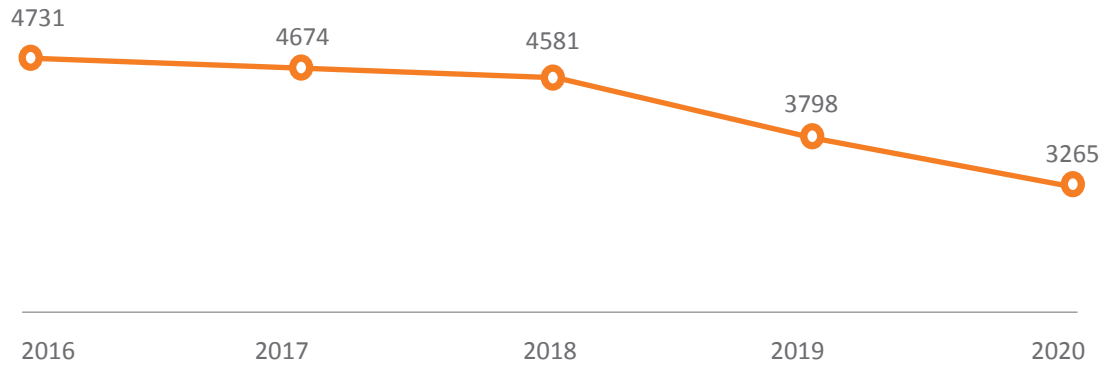


In 2020, more than 90 % of VoIP subscriptions concentrated in 5 operators

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 27. Costa Rica: Traditional basic telephony public telephones, 2016 - 2020

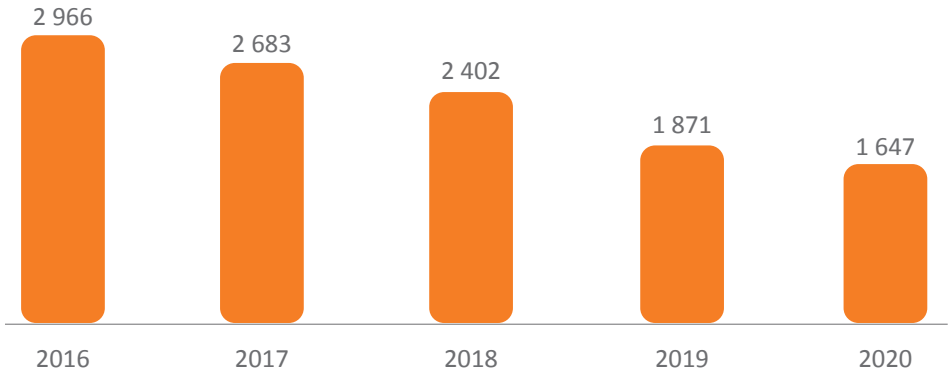
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 28. Costa Rica: Fixed telephony traffic, 2016 - 2020

(millions of minutes per year)

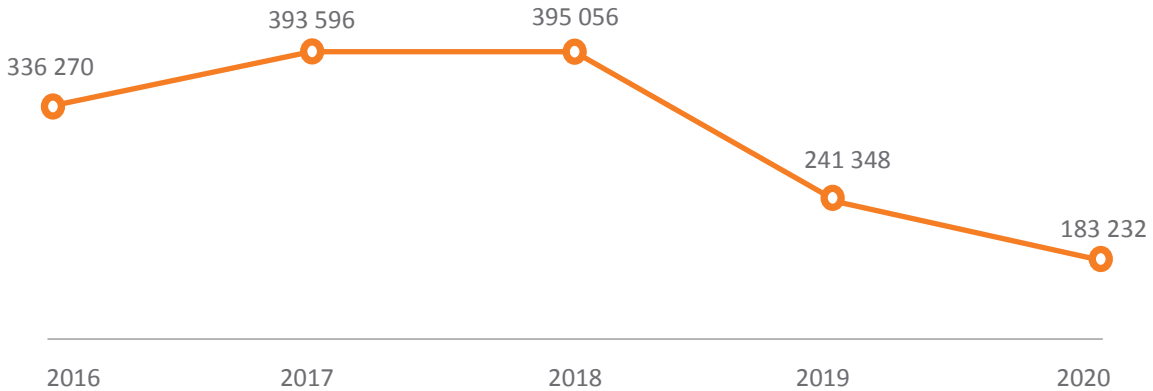


Traffic generated through fixed networks dropped by 12 % in 2020 compared to 2019

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 29. Costa Rica: VoIP telephony traffic, 2016 - 2020

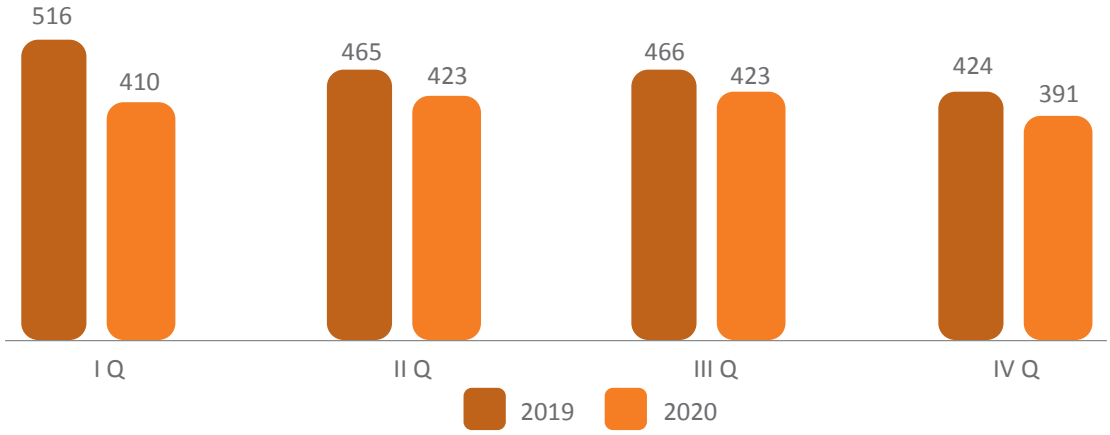
(thousands of minutes per year)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 30. Costa Rica: Fixed telephony traffic 2019 - 2020

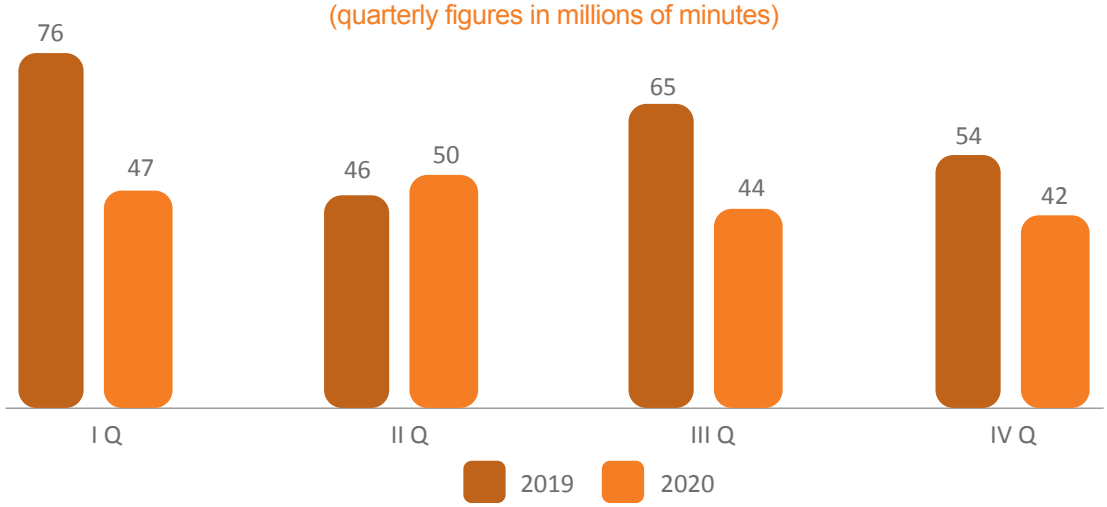
(quarterly figures in millions of minutes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

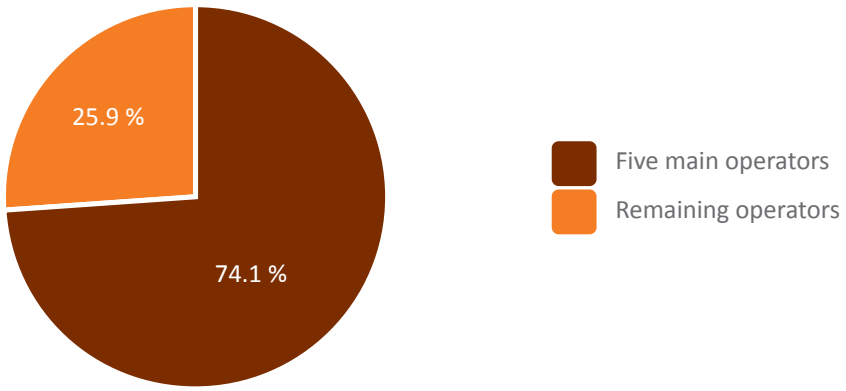
Graph n.° 31. Costa Rica: VoIP telephony traffic, 2019 - 2020

(quarterly figures in millions of minutes)



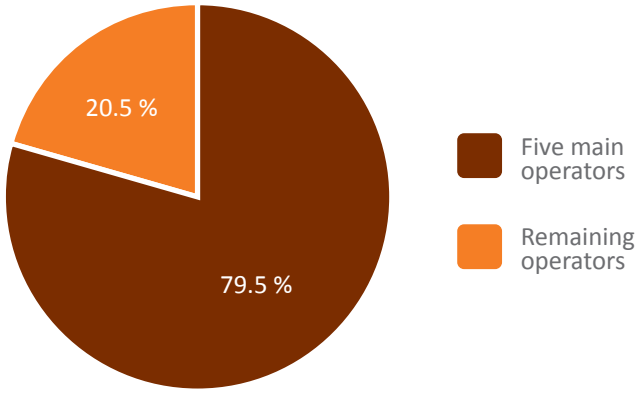
Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 32. Costa Rica: Percent distribution of VoIP telephony traffic per provider, 2019



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 33. Costa Rica: Percent distribution of VoIP telephony per provider, 2020

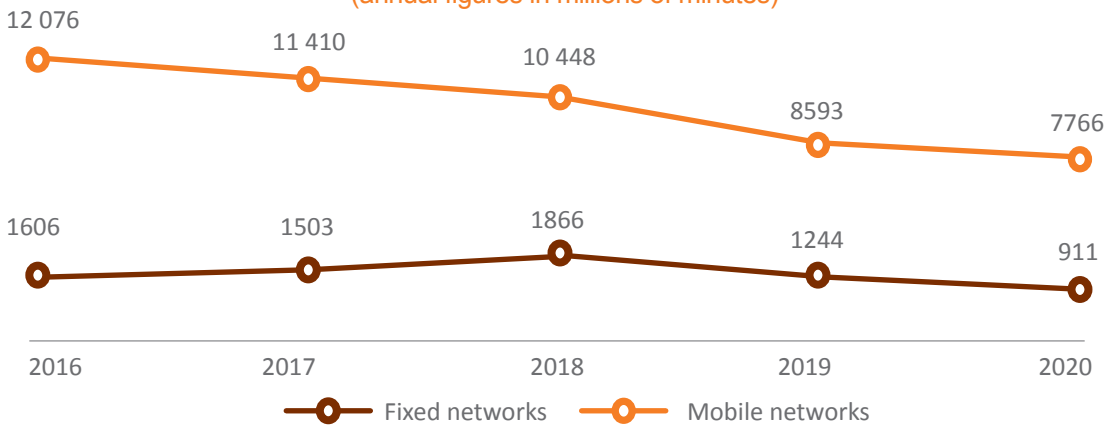


Cabletica, CallMyWay, R&H, Telecable, and Tigo are the operators with more traffic in 2020

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 34. Costa Rica: National outbound telephony traffic to fixed and mobile networks, 2016 - 2020

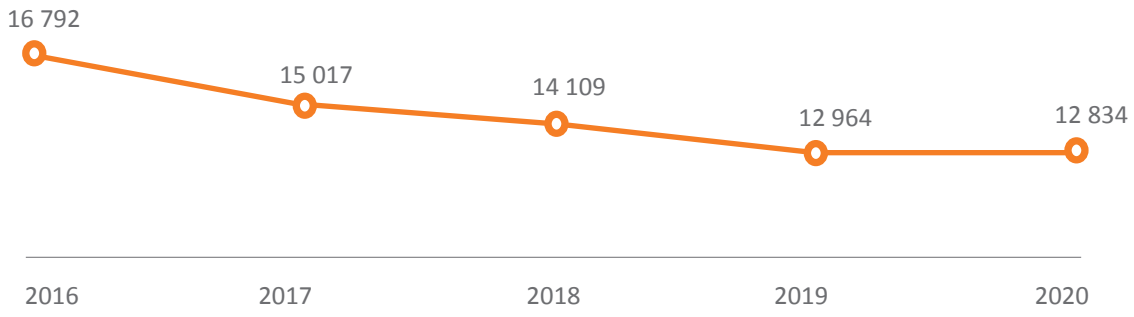
(annual figures in millions of minutes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 35. Costa Rica: Total inbound fixed telephony traffic, 2016 - 2020

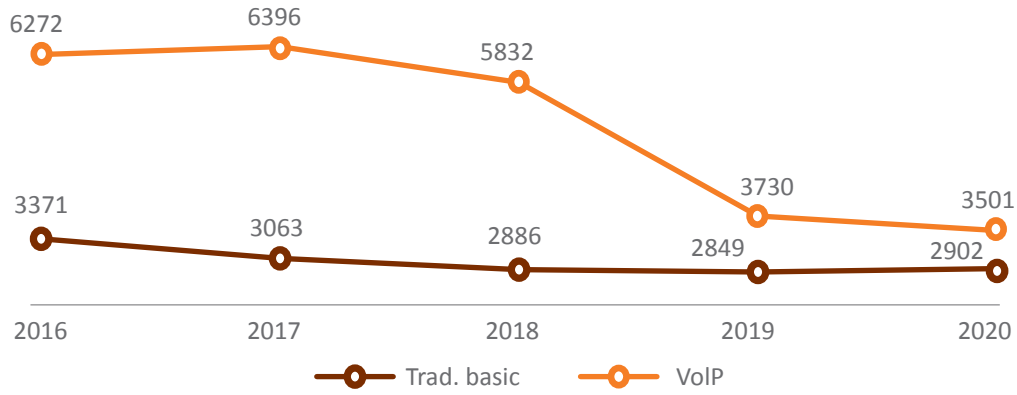
(annual figures in millions of minutes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 36. Costa Rica: Average traffic per fixed telephony subscriber per type of connection: traditional basic and VoIP, 2016 - 2020

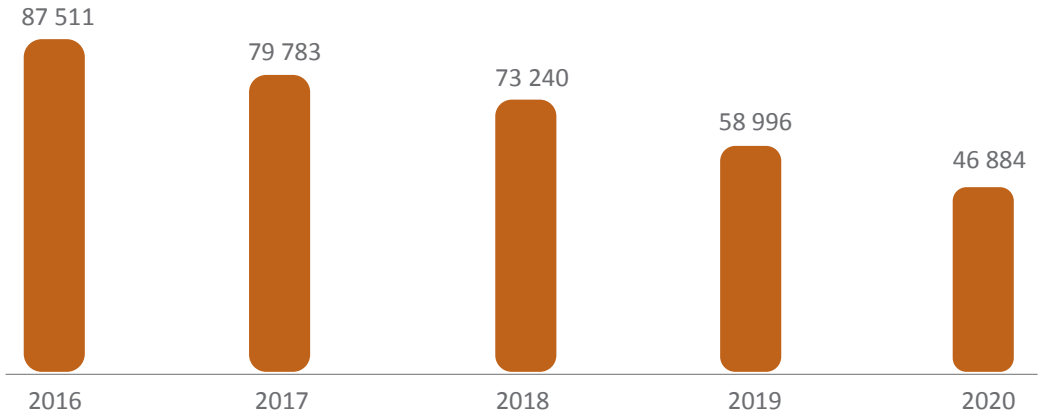
(figures in minutes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 37. Costa Rica: Fixed telephony revenue, 2016 - 2020

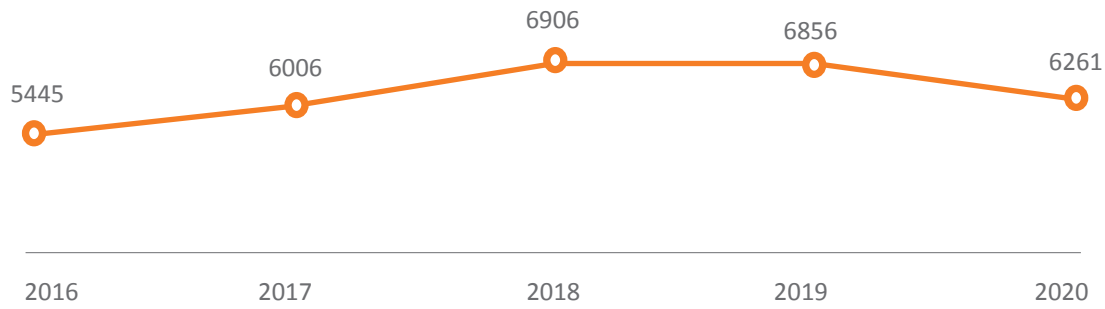
(figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 38. Costa Rica: VoIP telephony revenue, 2016 - 2020

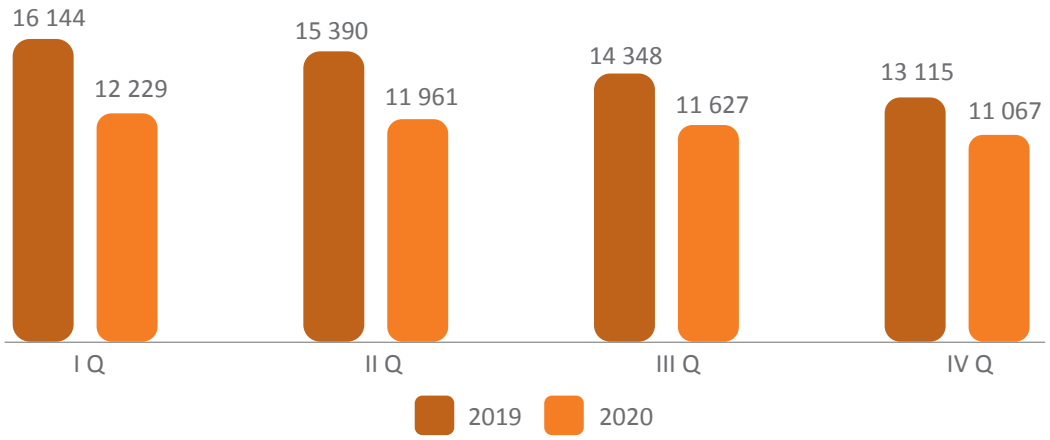
(figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 39. Costa Rica: Fixed telephony revenue, 2016 - 2020

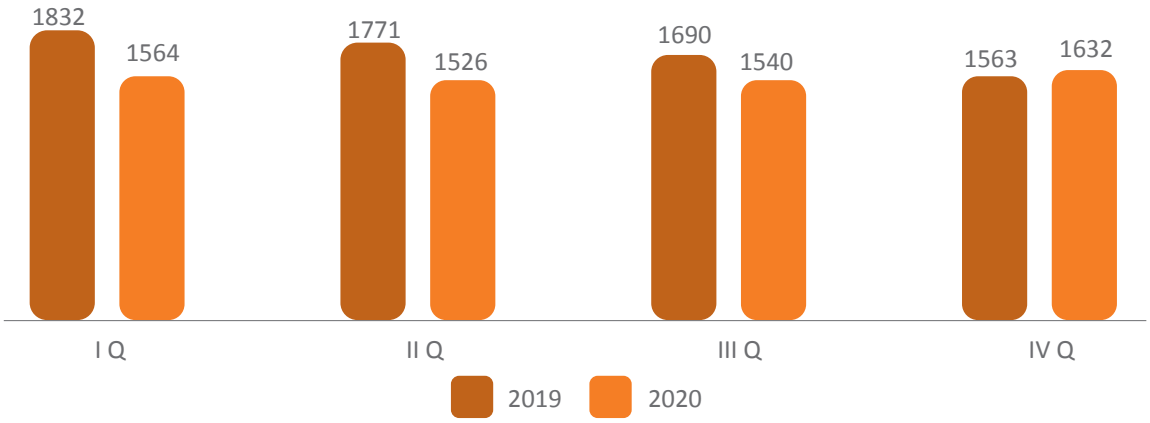
(quarterly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 40. Costa Rica: VoIP telephony revenue, 2019 - 2020

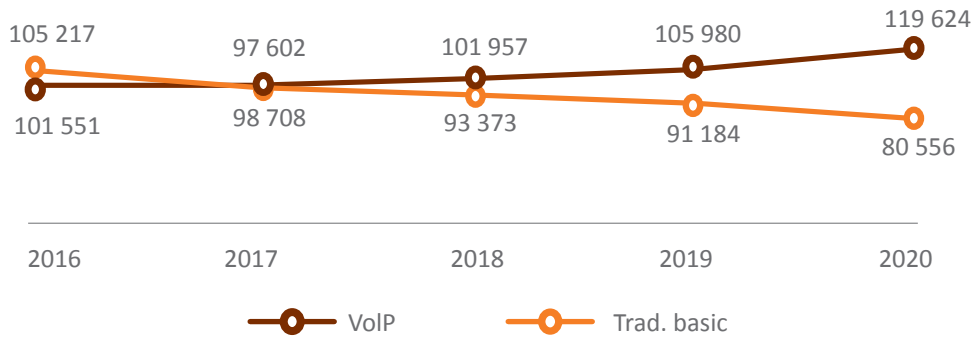
(quarterly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 41. Costa Rica: Average revenue per fixed telephony subscriber per type of connection: traditional basic and VoIP, 2016 - 2020

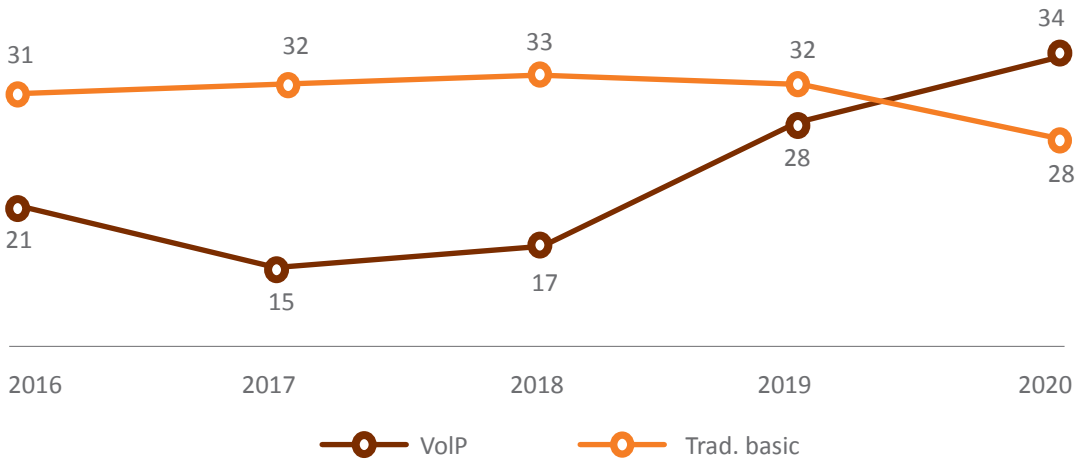
(annual figures in colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 42. Costa Rica: Average revenue per minute handled by fixed telephony according to the type of connection: traditional basic and VolP, 2019 – 2020

(annual figures in colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

MOBILE TELEPHONY


BIER

SUBSCRIPTIONS

The mobile telephony service closed 2020 with 7 512 370 subscriptions, which showed a reduction of 12.1 % compared to 2019 (see Graph n.° 43). This behavior turns out to be the largest decrease reported in the historical series for mobile telephony. Specifically, the prepaid modality was the one that had the greatest impact on this result, since its subscriptions were 18.4 % less than the previous year, against a slight growth of 3.7 % for the postpaid modality (see Graph n.° 44).

Mobile telephony market share showed a downward trend since 2017 when the highest share was reached (see Graph n.° 45), going from 178.7 % to 149.9 % at the end of 2020 (-19.1 percentage points compared to 2019).

In relation to behavior by payment method (see Graph n.° 46), at the end of 2020, 5 005 892 prepaid subscriptions were registered, which imply an annual growth rate in the last five years of 13.0 % On the other hand, the postpaid modality increased to 2 506 478 subscriptions, resulting in an annual growth rate in the last five years of 7.7 %, which means that by 2020 for each postpaid line there are two prepaid lines.

The aforementioned behavior means that the postpaid modality continues to expand its share in relation to total subscriptions, since at the end of 2020, it represented 33.4 % (5.1 percentage points more than in 2019), while the prepaid modality covered 66.6 % (see Graph n.° 47). It is important to note that the postpaid modality represented 22.4 % and the prepaid, 77.6 % in 2016 (yielding 10 percentage points between them in a 5-year period).

Regarding the market share in 2020 (see Graph n.° 49), ICE represented 41.1 % of total subscriptions, followed by Movistar with 38.6 % and Claro with 20.3 %. In the case of market distribution by modality, in prepaid, Movistar reached 45.2 %; ICE, 35 % and Claro, 19.9 %, while in the postpaid modality ICE registered 53.2 %; Movistar, 25.4 %, and Claro, 21.2 % (see Graph n.° 50).

Finally, regarding market concentration (see Graph n.° 51), in 2020, the HHI indicator was 3585, a figure that shows a level of concentration close to the most equitable distribution that a market comprised by three participants could achieve[30, 31, 32, 33]. It should be noted that since 2017, the year in which this market was declared in competition, this concentration index has been reduced by 240 points.

TRAFFIC

At the close of the year 2020, the voice traffic of the mobile telephony service registered a decrease of 5 % in relation to 2019 (see Graph n.° 52), closing with 5648 million minutes; this decrease was less than the annual growth rate of the last five years (-7.2 %). It is worth mentioning that the reduction in the number of minutes spent on mobile telephony is an uninterrupted behavior for the entire period under analysis.

The share by payment method is 72 % for postpaid, which continues its growing trend (10 percentage points higher than 2019) and 28 % prepaid.

The above resulted in that the average voice traffic (see Graph n.° 54) reported per user at a total level is 134 minutes per month (a figure similar to the average recorded in the last 5 years of 137 minutes and greater than the 127 minutes recorded in 2019). It is important to note that in the case of the prepaid mode, the downward trend continues reaching 27 monthly minutes, while postpaid, on the contrary, changed its downward trend presented until 2019, reaching 63 monthly minutes (5 minutes more than in 2019). What has been described concludes that for each prepaid minute 2.3 postpaid minutes are consumed.

Regarding the destination of the calls made (see Graph n.° 55), the consumption pattern has remained similar

[30] The HHI for 2017 (year in which the mobile telecommunications service was declared competitive) was 3825 points.
[31] https://es.wikipedia.org/wiki/Indice_de_Herfindahl. The Herfindahl Index or Herfindahl and Hirschman Index (IHH) is a measurement, used in economics that reports on the economic concentration of a market. A high index expresses a highly concentrated and uncompetitive market.
[32] RCS-082-2015 establishes that markets with an HHI greater than 3000 points are concentrated markets.
[33] The fairest distribution that a market of three participants can achieve is reflected in an HHI of 3333 points.

in the last five years, namely: 48.3 % with on-net mobile destination, 28.8 % off-net mobile, 18.9 % to fixed telephony and 4 % international. It is necessary to emphasize that the traffic generated in off-net calls maintains its slightly upward trend.

Traffic associated with international calls continues its downward trend, reaching 415 million minutes at the end of 2020 (-1 % compared to 2019), with outbound calls showing a decrease of 5 % in relation to the previous year, while inbound ones increased by 4 % (see Graph n.° 56).

The main change in relation to mobile phone traffic was reported in roaming service (see Graph n.° 57, 58, 59). As for voice, it reached 34 million minutes (-56.8 % in relation to 2019), thus becoming the lowest figure recorded in the last 5 years. In detail, roaming inbound traffic totaled 30 million minutes, and outbound, 4 million (-56 % and -63 %, respectively, compared to 2019). In terms of market share, the relationship of the last 5 years is maintained since inbound roaming represented 88.1 % of the voice total, and outbound roaming, 11.9 %.

As to SMS/MMS roaming, it reached 9 million messages, thus becoming the lowest five-year figure, and which in turn represents -56 % in relation to the previous year, a situation similar to data roaming, since it reached 799 TB, that is, - 30 % compared to 2019.

In relation to messaging, short messages (SMS) continue their downward trend, reaching 1414 million messages at the end of 2020 (-21.5 % compared to the previous year). It is important to note that the share of off-net messages is similar to on-net, as they represented 50.9 % and 48.8 %, respectively, while international messages contributed 0.3 % (see Graph n.° 60). This is a reflection of the fact that, on average, a user consumes 16 SMS per month, a decreasing trend that has slowed down since 2019, as in 2016, 52 SMS were consumed per month (see Graph n.° 62). On the other hand, multimedia messaging (MMS) has not been marketed since 2019 (see Graph n.° 61).

REVENUE

Mobile telephony revenue[34] in 2020, continued its decreasing trend (see Graph n.° 63), reaching a total of 204 662 million colones (-9.39 % compared to 2019). This behavior is consistent with the annual growth rate registered in the last five years of -9.22 %. This revenue is made up of 97.2 % of revenue generated by voice services and 2.8 % from messaging. This share is similar to that of the last five years (see Graph n.° 64).

This translates into an average monthly revenue per subscriber of ¢2206, which increased by 3.69 % in relation to the previous year (¢2127). It is important to highlight that in 2020, the downward trend in average revenue was reversed, promoted by an increase in average revenue per voice, as messaging continued its historic decline (3.13 % and -12.16 %, respectively, in relation to 2019, see Graph n.° 65).

Regarding revenue for roaming, voice showed a reduction of 58.3 %, reaching 1092 million colones (the lowest historical figure), caused by the drop in outbound and inbound roaming revenue (67.9 % and 35.5 %, respectively, in relation to 2019).

Like voice, data and SMS/MMS roaming was affected at the end of 2020, as it totaled 2567 million colones, 55.6 % below 2019 (see Graphs n.° 66 and 67).

Regarding international calls (see Graph n.° 68), in 2020, the downward trend continued, reaching the lowest number in the last five years for a total of 7432 million colones (-32 % in relation to the previous year). Of this amount 40.6 % corresponds to inbound international calls and 59.4 % outbound international calls. It should be noted that the growing trend in the share of outbound calls over the total continues.

If revenue by data is added to the entry of mobile telephony (voice + messaging), obtaining the revenue by mobile network, this number reached ¢460 275 million colones at the end of the study, which is the lowest reported revenue in the last five years and also represents the highest reported interannual decrease rate (-6.15 %).

[34] Does not include mobile data or roaming.

In 2020, mobile network revenue was made up of 43.2 % voice, 1.3 % messaging, and 55.5 % mobile data (see Graph n.° 69). It is important to note that, over the years, mobile data continues to expand its share; since, for example, in 2016, it represented 39.2 %, and in the last 4 years, it increased by 16.3 percentage points. The opposite situation occurs for voice and messaging components.

Regarding the composition by payment method (see Graph n.° 70) the decreasing share that the prepaid modality has in the total revenue of the mobile network is to be noted, since in 5 years it went from 46.2 % in 2016 to 22.6 % in 2020 (-23.6 percentage points), while postpaid, on the contrary, went from 53.8 % to 77.4 %.

Finally, the average monthly mobile network revenue was ¢5106 at the end of 2020 (¢326 more than in 2019), as a result of ¢1733 and ¢11 843 corresponding to its prepaid and postpaid components, respectively (see Graph n.° 71).

PORTABILITY

Number portability represents the possibility for users to move to the operator that suits their tastes and preferences while maintaining their cell phone number. This facility presented a growing trend from December 2013, (when number portability started in Costa Rica) until it reached its annual maximum in 2019, with 490 733 successful portings; however, in 2020, it decreased by 7 % to 454 429 portings (see Graph n.° 72).

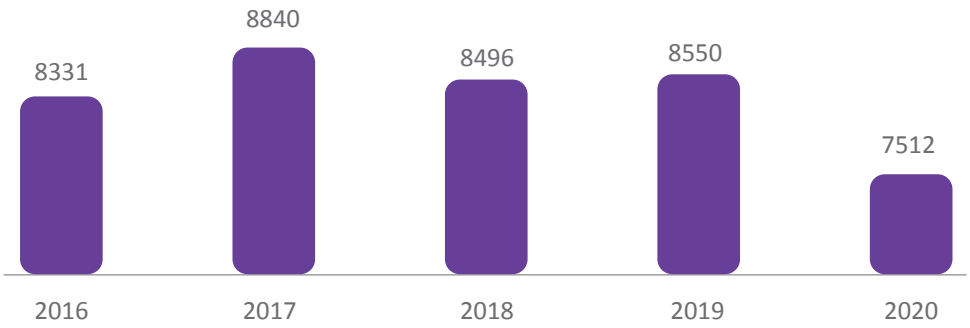
SITUATION ANALYSIS

In order to highlight variables of the mobile phone service with significant movements during 2020, quarterly comparisons were made for 2018, 2019, and 2020, and this is how it can be seen in Graph n.° 74 that total postpaid traffic remained significantly above in the first two quarters compared to their 2019 quarterly counterparts (16 % on average, maintaining the upward trend presented in recent years). However, the gap narrowed for the last two quarters of the year (4 % on average above its peers); meanwhile, prepaid continued its downward trend. Thus, in the first two quarters, it was below, on average, 31 % of its comparable elements in 2019; while, for the rest of the year, 26 % (slight increase in prepaid consumption for these quarters).

The biggest change within the mobile phone service is undoubtedly roaming traffic, since as Costa Rica and much of the world closed borders, it affected the market for users of this service. Regarding voice and data, the first quarter of 2020 presented a growing trend compared to its 2019 quarterly comparison (2 %, on average, above, for voice, and 50 % for data). However, traffic levels dropped suddenly for the rest of the year, showing a slight recovery at the end of 2020, closing the last quarter of 2020 with still negative figures in relation to the fourth quarter of 2019 of 68.8 % and 26.2 % for total voice and data traffic, respectively.

Graph n.° 43. Costa Rica: Mobile telephony service subscriptions, 2016 - 2020

(annual figures in thousands)

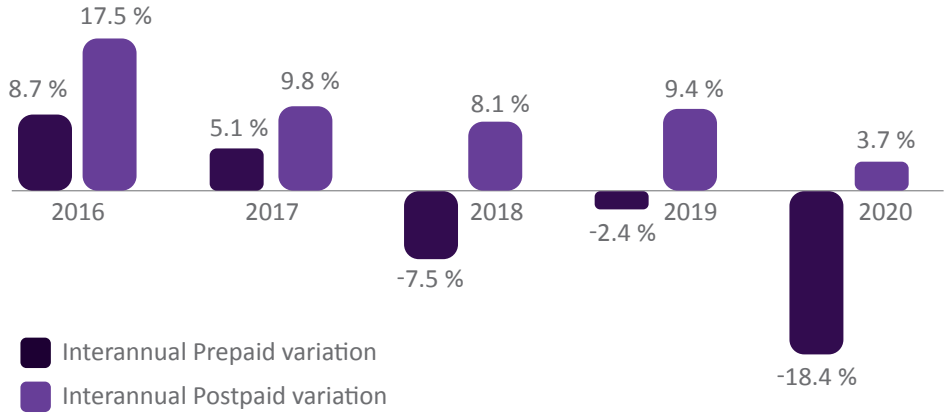


Mobile telephony subscriptions were reduced by 12.1 % in relation to 2019

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 44. Costa Rica: Annual subscription growth rate of mobile telephony service according to payment modality, 2016 - 2020

(annual figures in percentages)

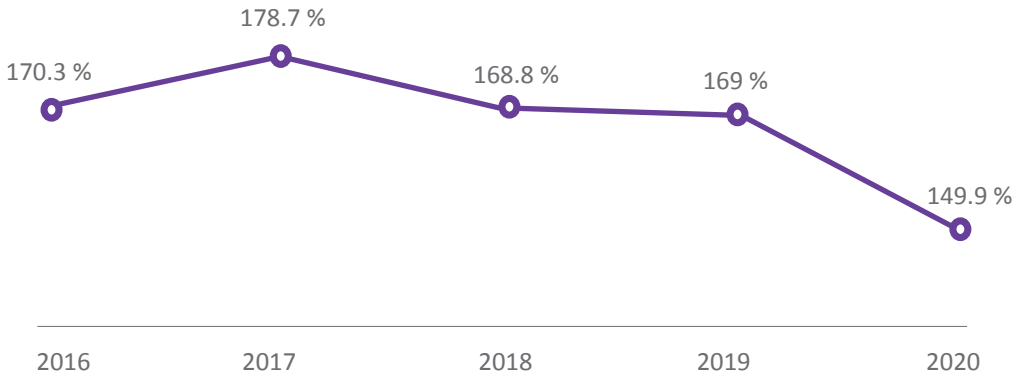


In 2020, prepaid modalities were reduced by 18.4 % in relation to 2019

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 45. Costa Rica: Mobile telephony service subscriptions per 100 inhabitants, 2016 - 2020

(annual figures in percentages)

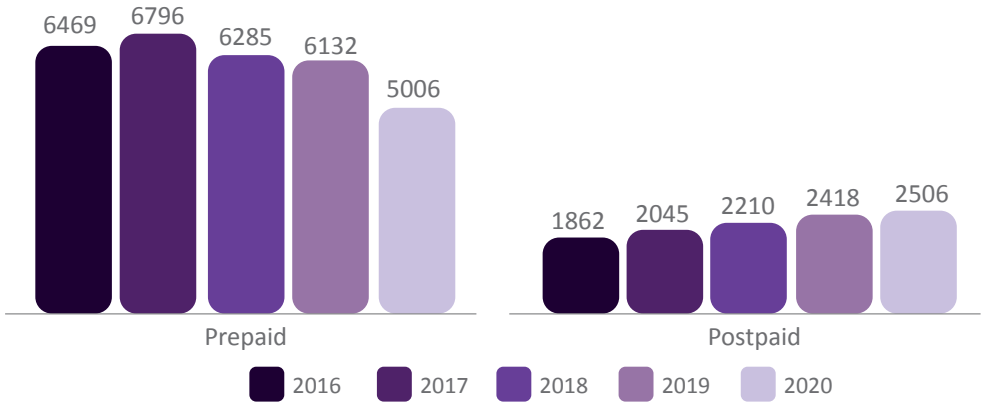


149.9 % mobile telephony market share in 2020

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 46. Costa Rica: Mobile telephony service subscriptions according to payment modality, 2019 - 2020

(annual figures in thousands)

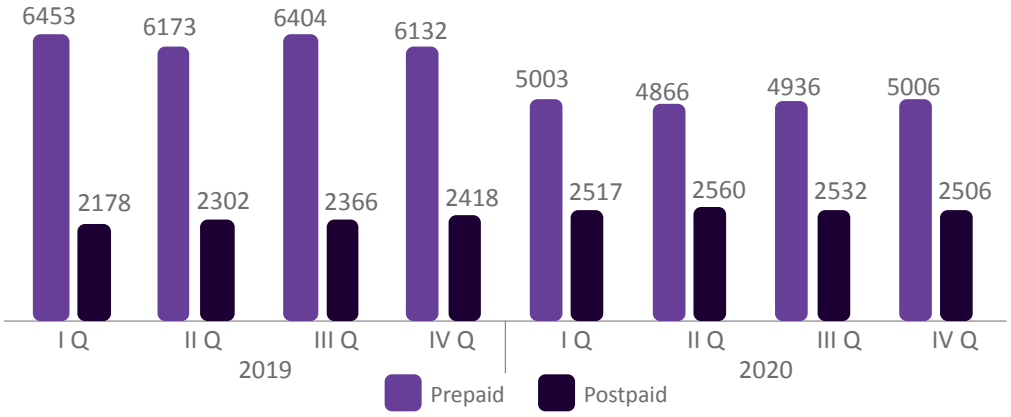


In 2020, 2 Prepaid subscriptions were registered per each Postpaid subscription

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 47. Costa Rica: Mobile telephony service subscriptions according to payment modality, 2019 - 2020

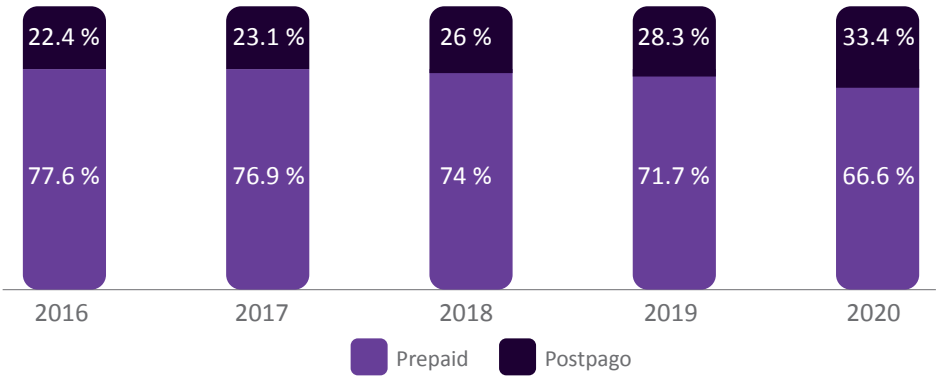
(quarterly figures in thousands)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 48. Costa Rica: Subscription distribution according to payment modality, 2016 - 2020

(figures in annual percentages)

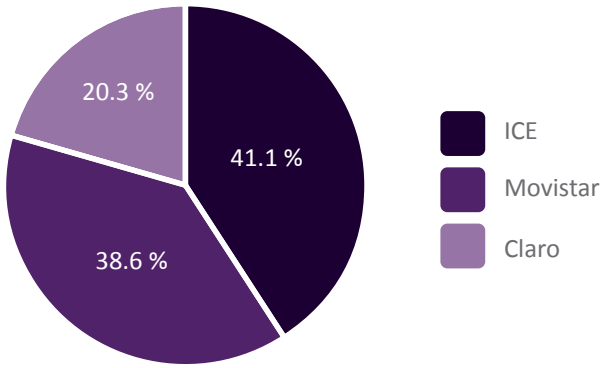


In 2020, Postpaid represented 33.4 % of the total subscriptions

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 49. Costa Rica: Mobile telephony service subscription distribution per operator 2020

(annual figures in percentages)

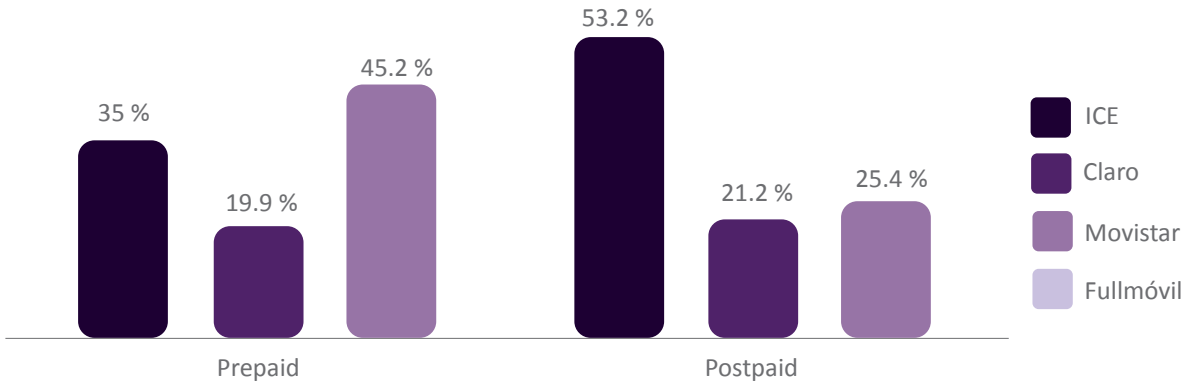


At the closing of 2020, ICE represented 41.1 % of the total subscriptions of mobile telephony

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 50. Costa Rica: Mobile telephony service subscription distribution per operator according to payment modality*, 2020

(annual figures in percentages)

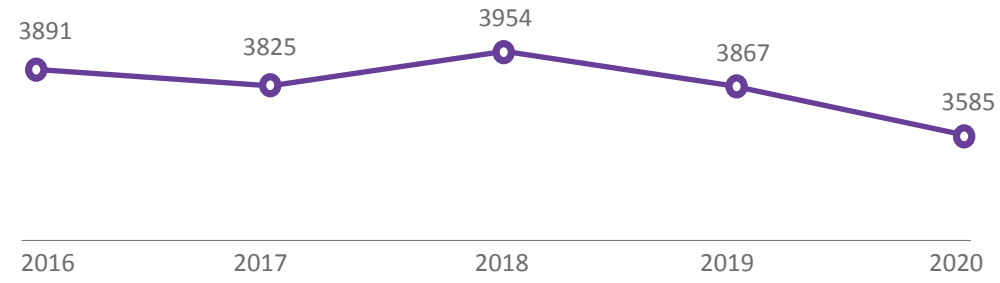


Note: *Fullmóvil markets only postpaid SMS.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 51. Costa Rica: HHI evolution per year, 2016 - 2020

(annual figures in percentages)

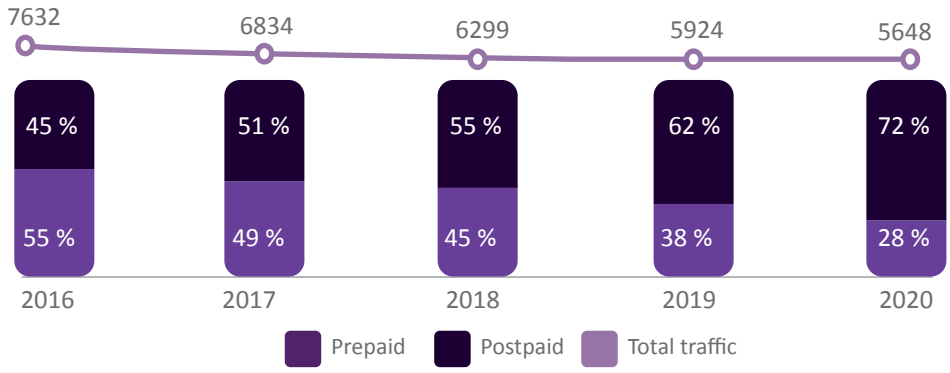


In 2020, HHI was 3585

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 52. Costa Rica: Mobile telephony service total traffic* and percent distribution per payment modality, 2016 - 2020

(figures in millions of minutes and percentages)

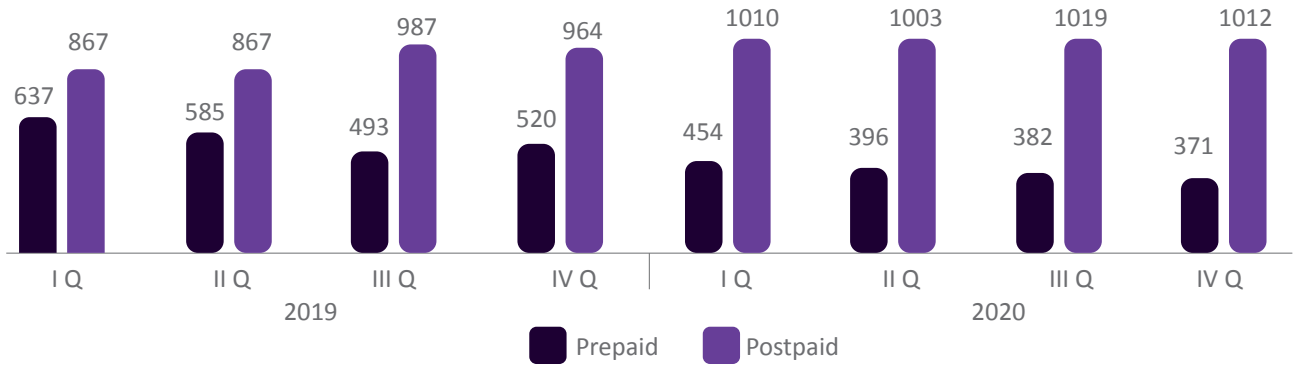


In 2020, postpaid voice traffic increased its share

Note: *Includes only national and international voice minutes, excludes roaming.
Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 53. Costa Rica: Mobile telephony service total traffic according to payment modality, 2019 and 2020

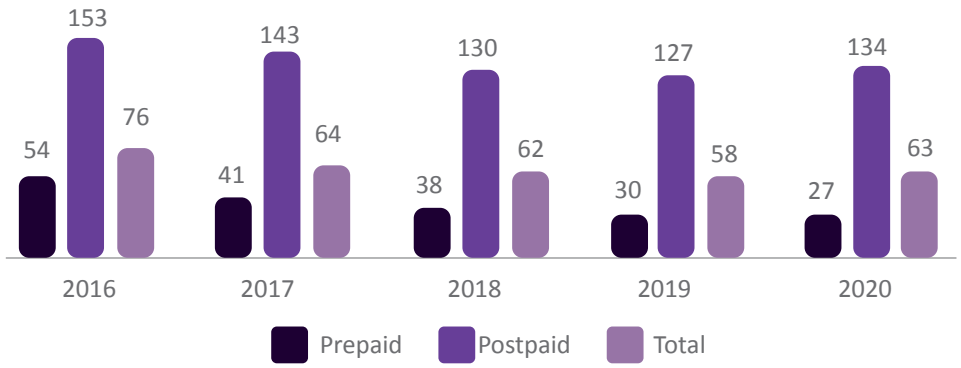
(quarterly figures in millions of minutes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 54. Costa Rica: Average monthly voice traffic per subscriber according to payment modality, 2016 - 2020

(annual figures in minutes per month and per subscriber)

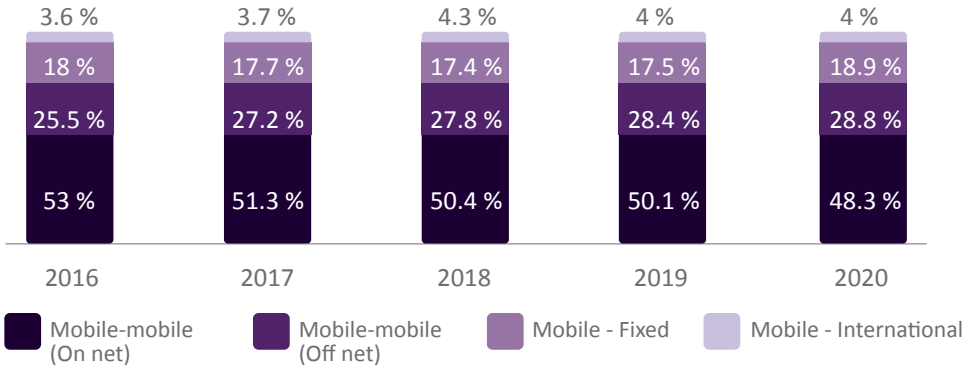


In 2020, a postpaid subscriber consumed in average 4.96 more times per month than prepaid

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 55. Costa Rica: Total traffic distribution associated to mobile telephony service by destination*, 2016 - 2020

(annual figures in percentages)

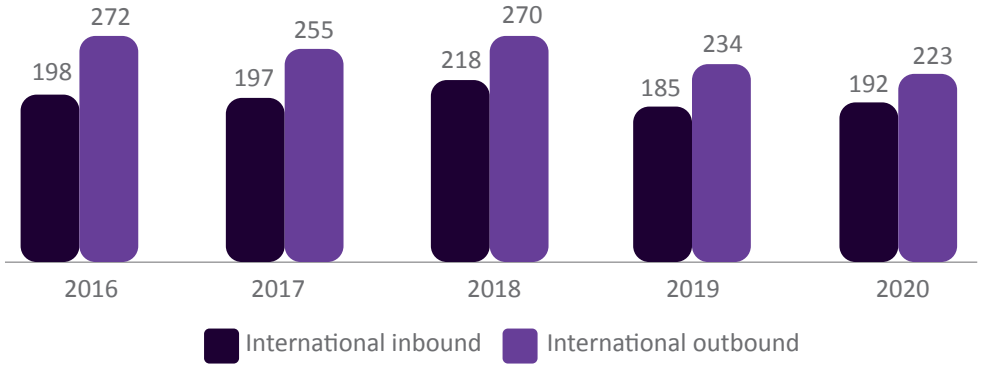


In 2020, mobile on-net traffic with on-net destination reached its lowest share since 2016 (48.3 %)

Note: *Only includes national and international voice minutes, excludes roaming.
Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 56. Costa Rica: Total international traffic associated to mobile telephony service, 2016 - 2020

(annual figures in millions of minutes)

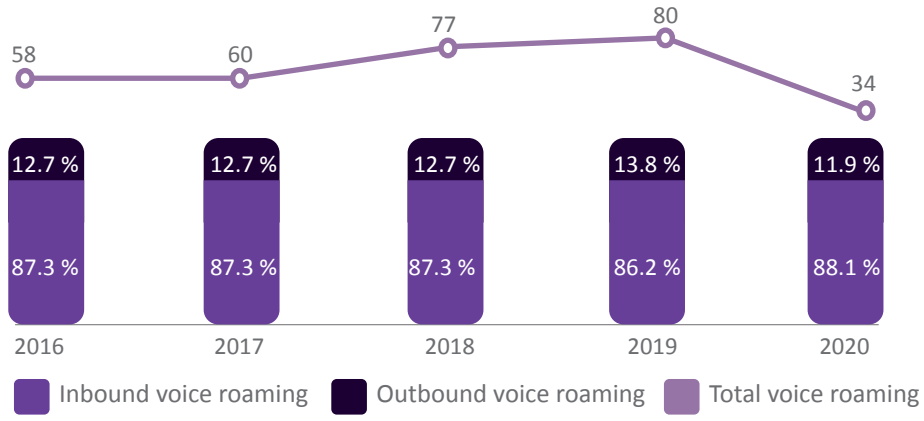


During the last year, total international traffic dropped 1 % in relation to 2019

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 57. Costa Rica: Total and percent distribution of voice roaming traffic associated to mobile telephony service, 2016 - 2020

(annual figures in millions of minutes and percentages)

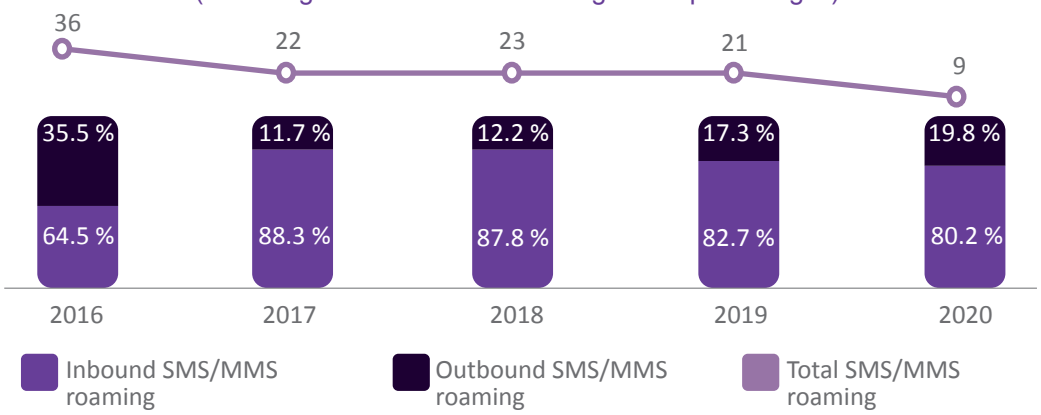


In 2020, voice roaming traffic reached its lowest level since 2016

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 58. Costa Rica: Total and percent distribution traffic of SMS/MMS roaming traffic associated to mobile telephony service, 2016 - 2020

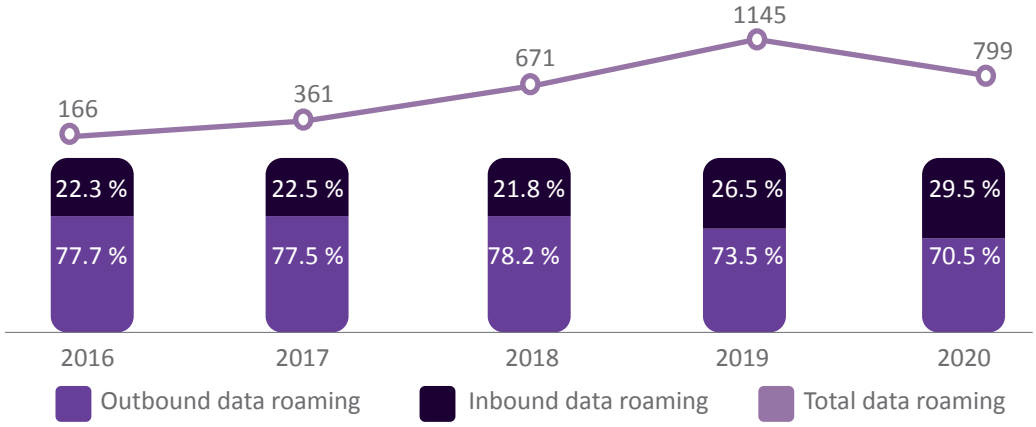
(annual figures in millions of messages and percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 59. Costa Rica: Total and percent distribution of data roaming traffic associated to the mobile telephony service, 2016 - 2020

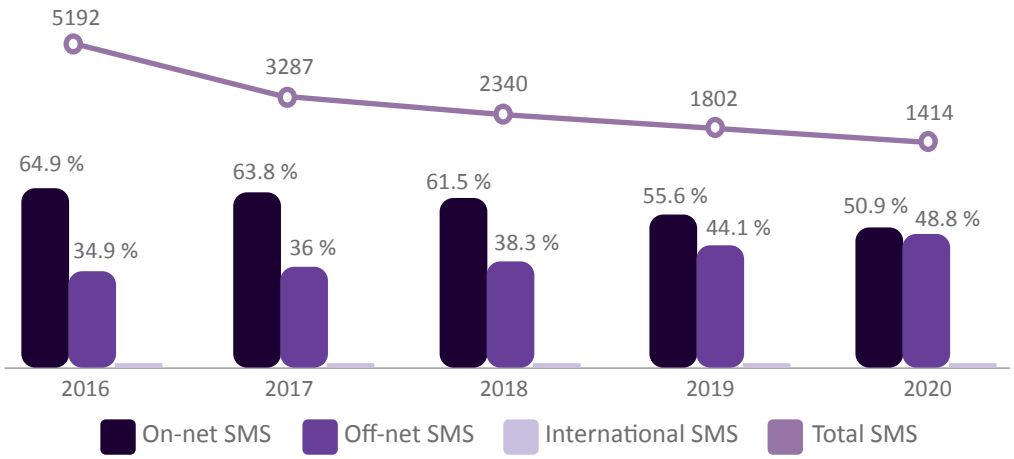
(annual figures in TB and percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 60. Costa Rica: Total and percent distribution of SMS traffic, 2016 - 2020

(annual figures in millions of messages and percentages)

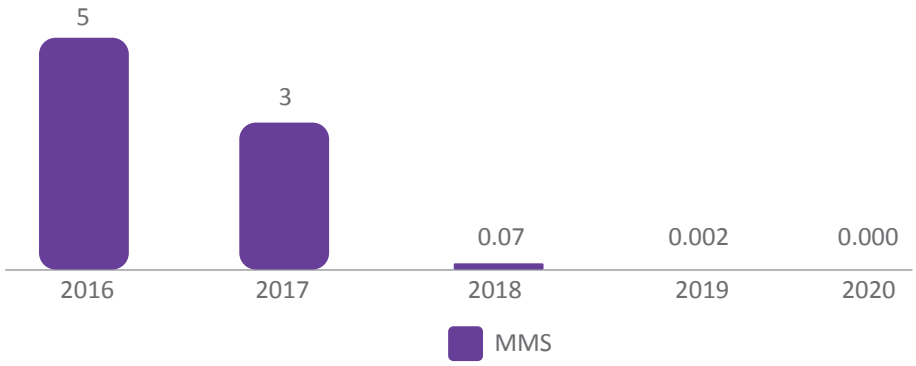


In 2020, SMS traffic reached its lowest level since 2016

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 61. Costa Rica: MMS total traffic, 2016 - 2020

(annual figures in millions of messages)

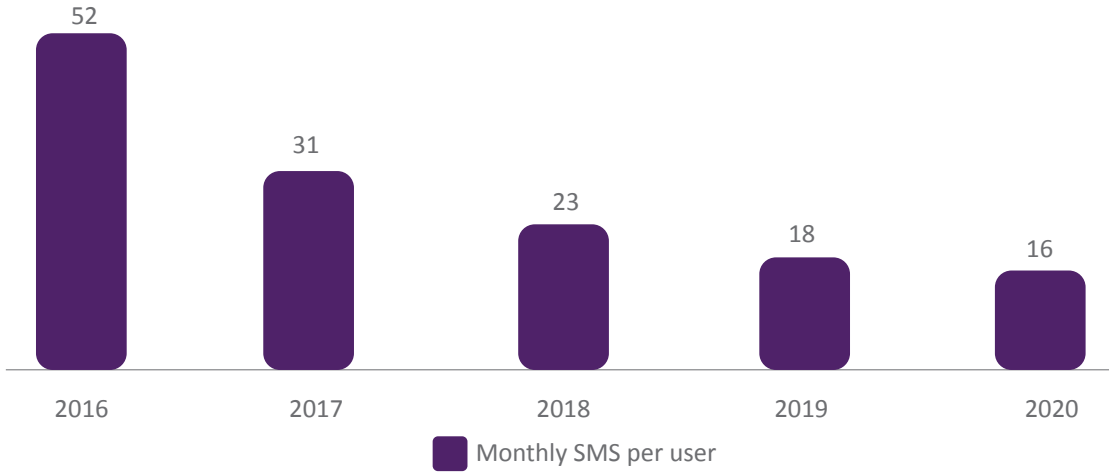


In 2020, there was no MMS traffic in Costa Rica

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 62. Costa Rica: SMS monthly average traffic. 2016 - 2020

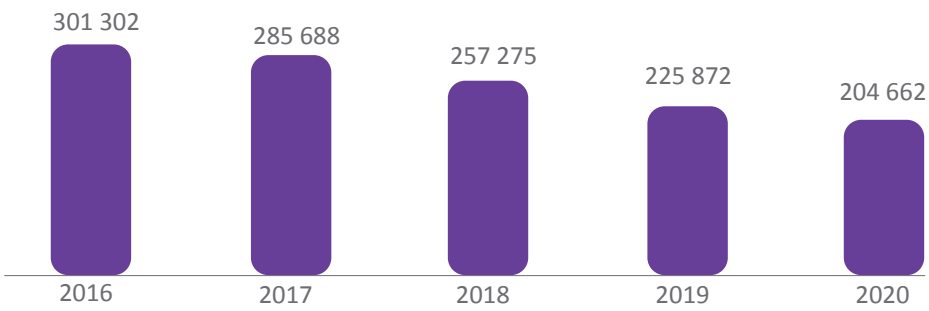
(figures in number of monthly messages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 63. Costa Rica: Mobile telephony service total revenue*, 2016 - 2020

(annual figures in millions of colones)



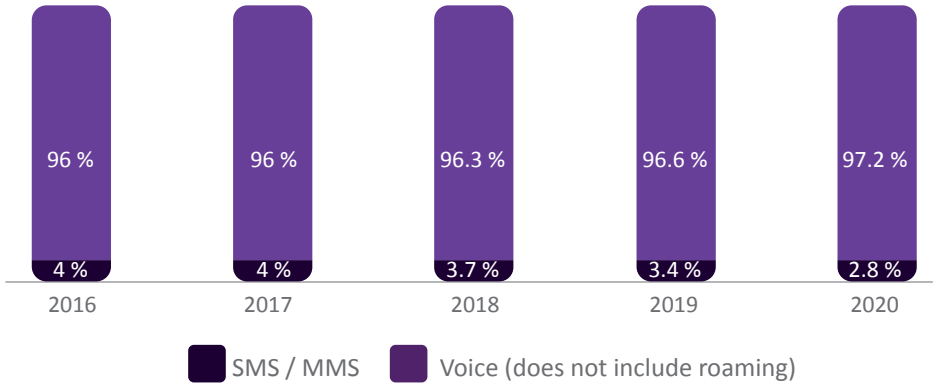
In 2020, mobile telephony revenue dropped by 9.39 % in relation to 2019

Note: *Does not include mobile data or roaming.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 64. Costa Rica: Total revenue distribution associated to the mobile telephony service according to component, 2016 - 2020

(annual figures in percentages)

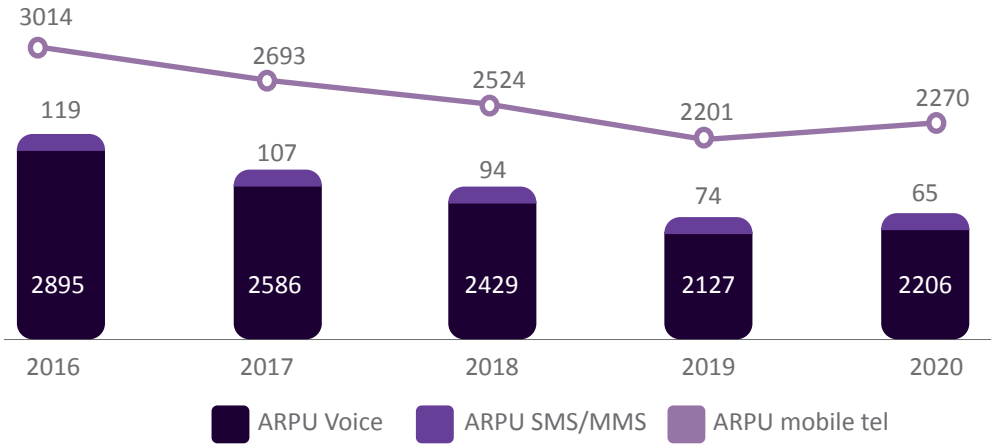


Market share of components in mobile telephony revenue remains practically the same since 2016

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 65. Costa Rica: Average monthly revenue per mobile telephony subscriber*, according to component, 2016 - 2020

(figures in colones)

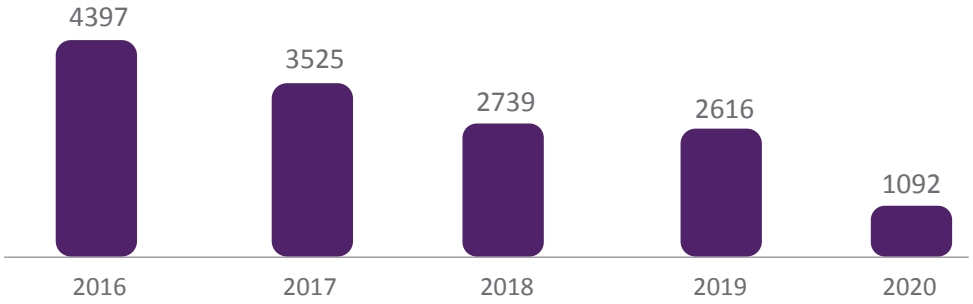


In 2020, average monthly revenue of mobile telephony increased by 3.13 % compared to 2019

Note: *Does not include roaming or data...
Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 66. Costa Rica: Total voice roaming revenue, 2016 - 2020

(annual figures in millions of colones)

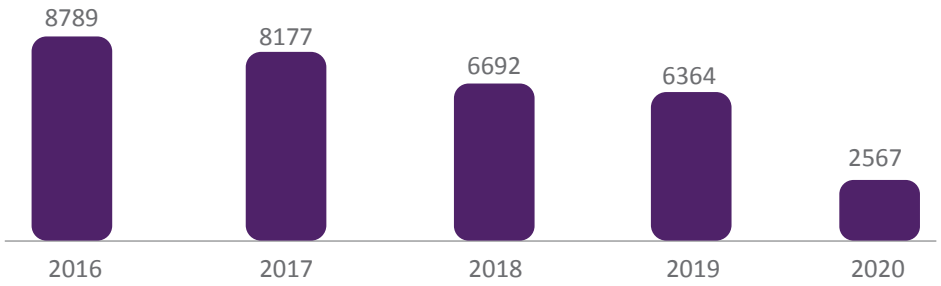


Voice roaming revenue reached its lowest level since 2016

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 67. Costa Rica: Total revenue for SMS/MMS and data roaming, 2016 - 2020

(annual figures in millions of colones)

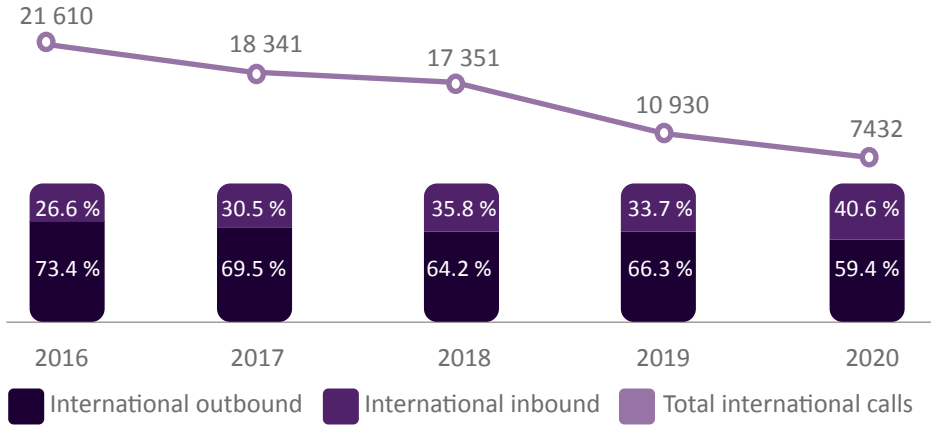


Revenue for SMS/MMS and data roaming dropped 55.6 % in 2020, compared to 2019

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 68. Costa Rica: Revenue for total international calls, 2016 - 2020

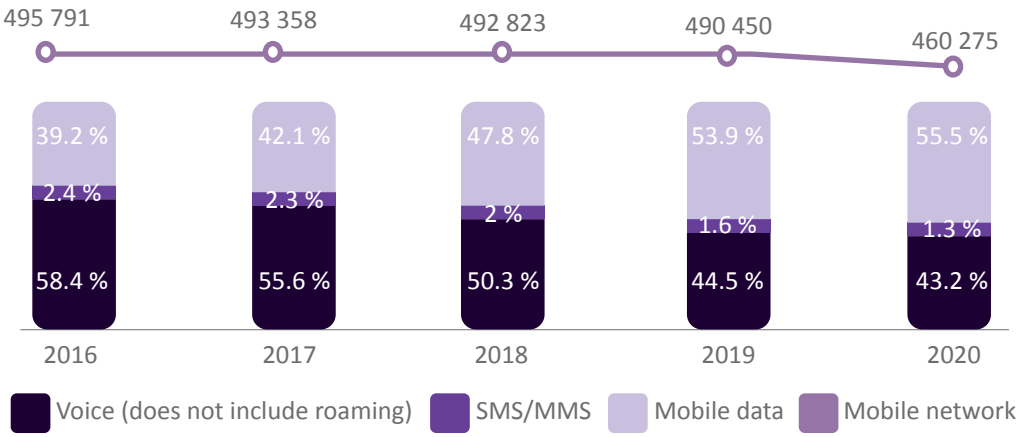
(annual figures in millions of colones and percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 69. Costa Rica: Total revenue distribution associated to the mobile network per component, 2016 - 2020

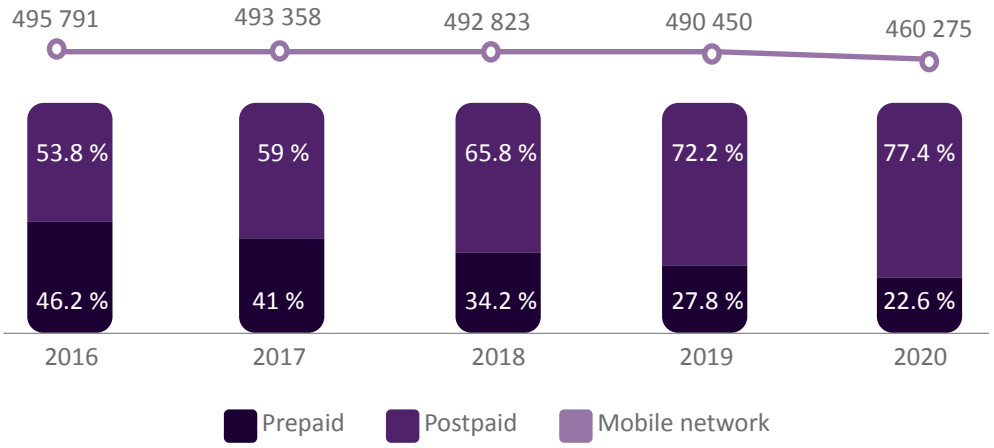
(annual figures in percentages and millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 70. Costa Rica: Total revenue distribution associated to the mobile network*, according to payment modality, 2016 - 2020

(annual figures in percentages)



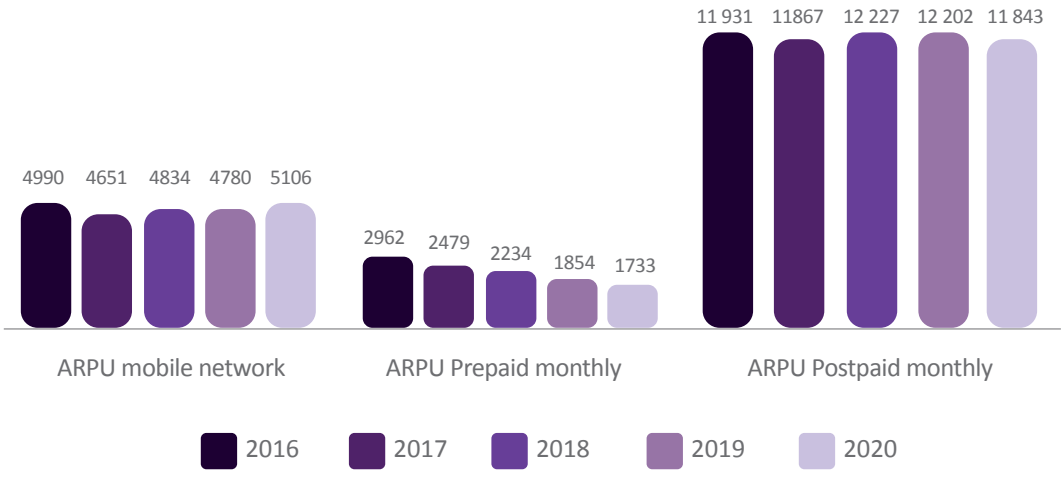
In 2020, Postpaid reached its highest market share in mobile network revenue in the last five years (77.4 %)

Note: *Includes revenue per mobile voice, messaging, and mobile data; does not include roaming.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 71. Costa Rica: Average monthly revenue per user* of the mobile network per payment modality, 2018 - 2020

(figures in colones per month)



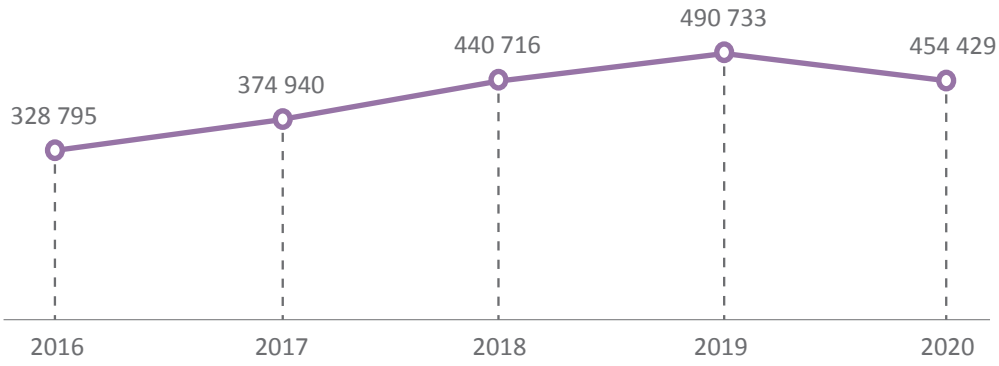
In 2020, revenue per subscriber in the mobile network, is the highest in the last five years

Note: *Average revenue per user (ARPU) includes revenue for national and international outbound and inbound mobile voice, national and international SMS/MMS, and mobile data; it excludes revenue for roaming (voice, SMS/MMS, and data).

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 72. Costa Rica: Successful annual porting*, 2016 - 2020

(annual figures)

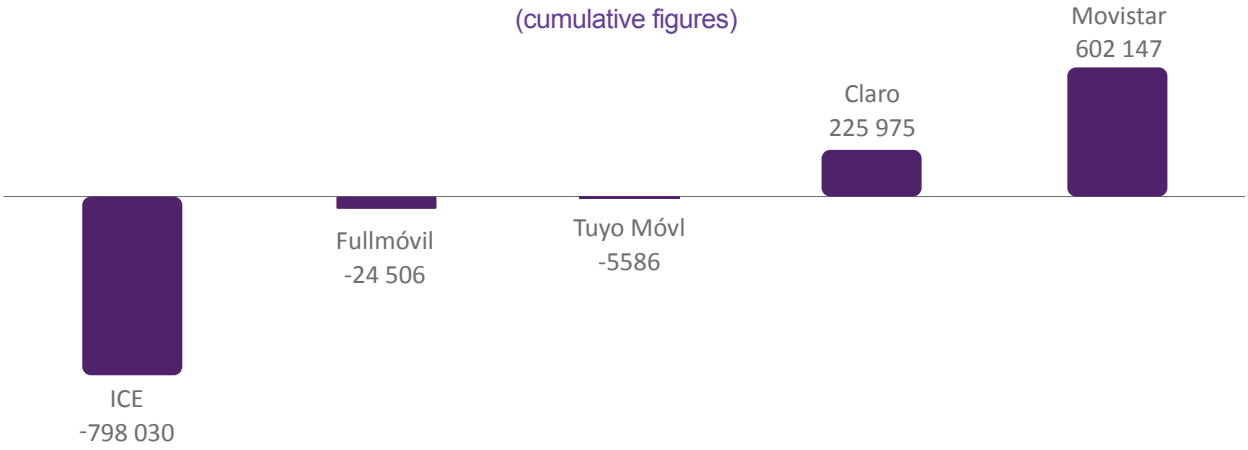


In 2020, successful porting dropped by 7.4 % compared to 2019

Note: *Successful porting: Number of portings that were finally activated in the new operator network.
Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 73. Costa Rica: Net porting* by operator, December 2013 - December 2020

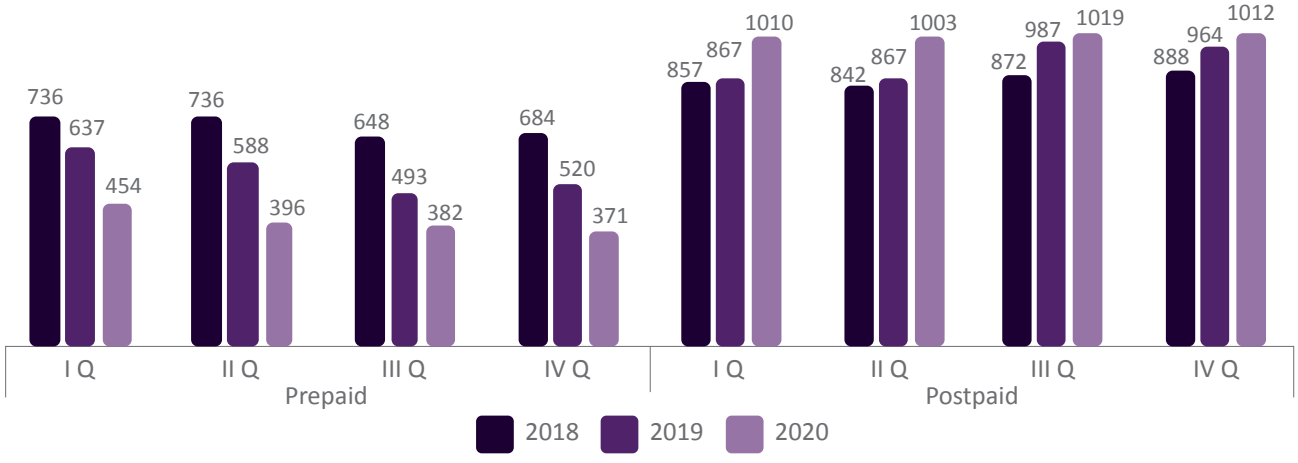
(cumulative figures)



Note: *Net portings: Net imported minus exported portings .
Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 74. Costa Rica: Total mobile telephony service traffic per year and quarter per payment modality, 2018 – 2020

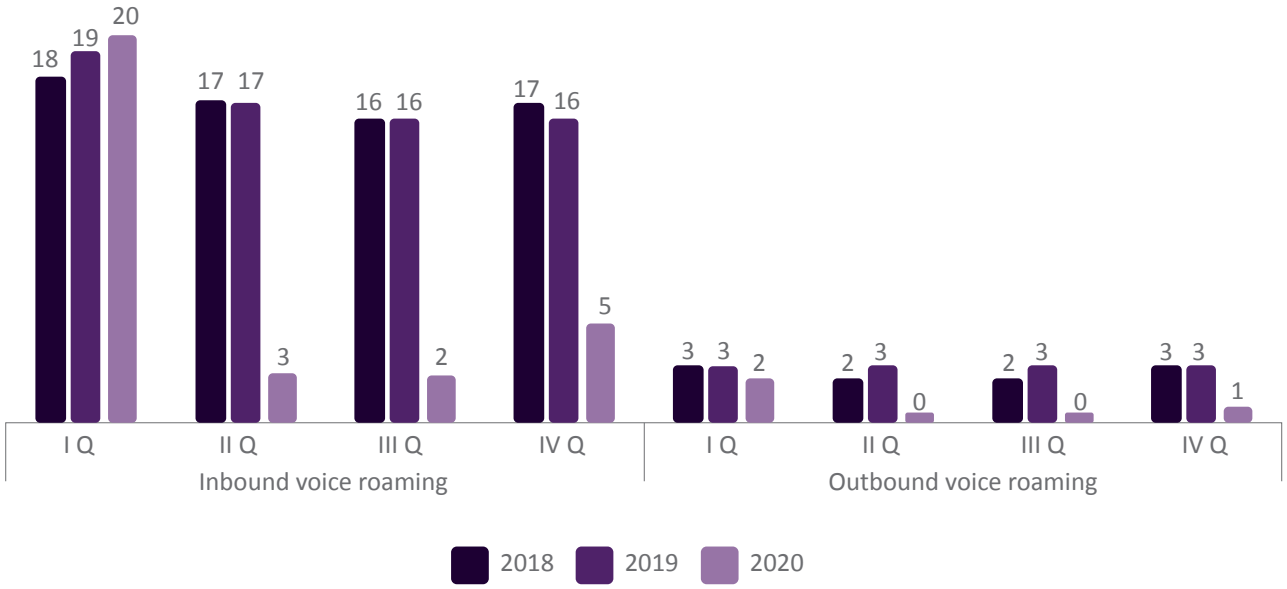
(quarterly figures in millions of minutes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 75. Costa Rica: Total voice roaming service traffic per year and quarter, 2018 - 2020

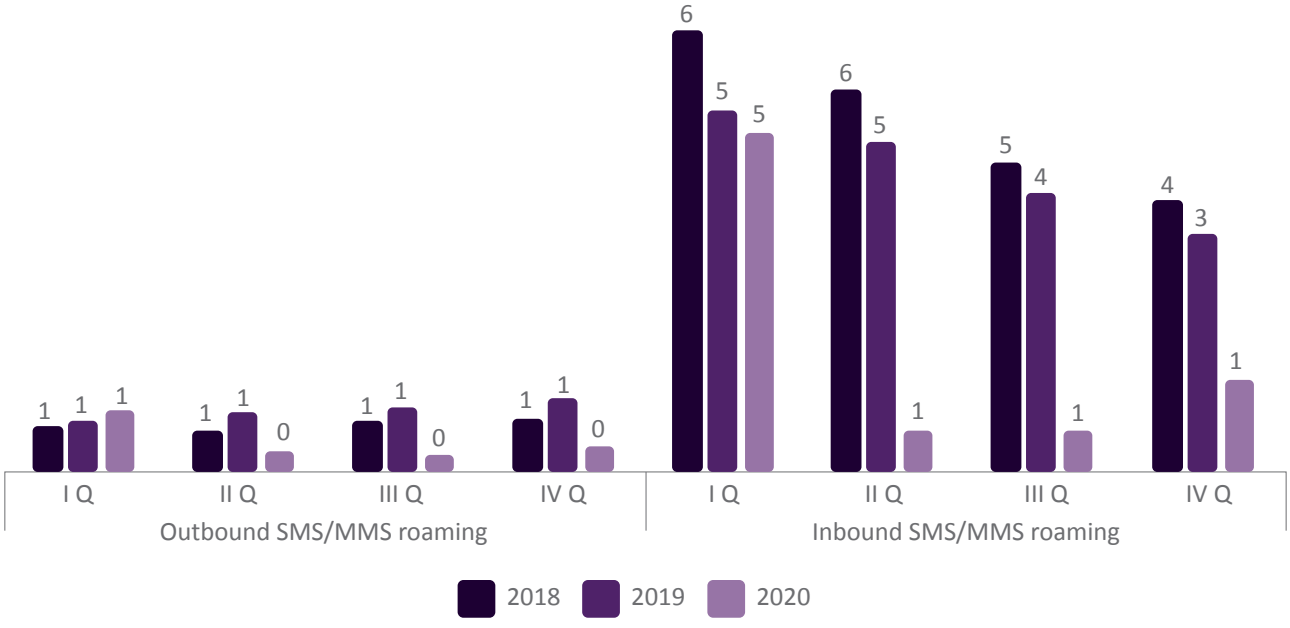
(quarterly figures in millions of minutes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 76. Costa Rica: Total SMS/MMS roaming service per year and quarter, 2018 - 2020

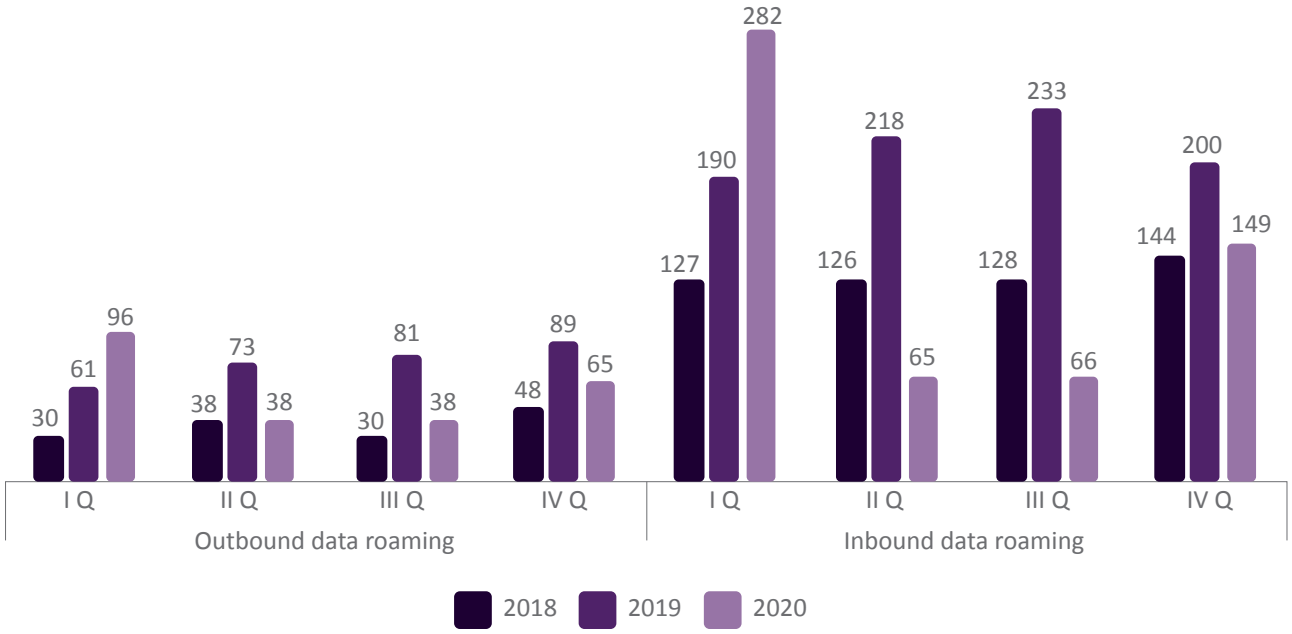
(quarterly figures in millions of minutes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 77. Costa Rica: Total data roaming service per year and quarter, 2018 - 2020

(quarterly figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

DATA TRANSFER

MOBILE INTERNET

Subscriptions

The analysis of mobile Internet service starts by showing, in Graph n.° 78, the total subscriptions for 2016-2020. At the end of 2020, mobile network operators reported a total of 4 661 694 subscriptions. This represents an average annual growth for the period of 1.7 %, despite the variation from 2019 to 2020 is -0.5 %.

Graph n.° 79 shows the 2019-2020 quarterly comparison. The percentage change for the first two quarters of each year is positive, while in the second half of the year, it is negative with a percentage change of -0.1 % for the third quarter and -0.5 % for the fourth quarter.

Graph n.° 80 shows the detail by payment method and device, where the percentage variations for the 2019-2020 period are: 3.4 % for data card/USB devices, -4.5 % for the prepaid mode, and 0.3 % for the postpaid mode. In absolute values, the decrease in prepaid was 100 263 subscriptions for the last year (-0.5 % of the total). Graph n.° 81 presents the monthly behavior from January 2019 to December 2020 for total subscriptions by payment method and device. It can be noted how, towards the end of 2020, the trend is the increase in postpaid subscriptions (percentage change of 0.4 % for the period). The increase of 12 831 subscriptions in data card/USB devices for the period shown is highlighted.

Graph n.° 82 details the percentage distribution by payment method and device in each quarter of 2020. For the fourth quarter, subscriptions by data card/USB represent 2.9 % of the total; those corresponding to the postpaid modality, 50.8 %; and the prepaid ones, 46.3 %.

Regarding the market share by operator and for each payment method and device in 2020, Graph n.° 83 shows the distribution for operators that offer Internet connection via data card/USB, where Telefónica closed the year with a 3.6 % share, while Claro did so with 10.7 % and ICE with 85.7 % of the total.

Graph n.° 84 shows the market share for the prepaid mode, where at the end of 2020, ICE has 45.5 % of the market share; Telefónica, 37.7 %; Claro, 16.5 %, and RACSA, 0.3 %. Finally, in the postpaid mode, Graph n.° 85 presents that ICE has 49.1 % of the market share; Telefónica, 25 %, and Claro, 25.9 %. In general, considering the total subscriptions of all companies, ICE covers 48.5 %; Telefónica, 30.3 %; Claro, 21.1 %; and RACSA, 0.1 %, with its prepaid service.

To broaden the review, the distribution of subscriptions is presented according to the contracted speed, for each payment method and device. Graph n.° 86 shows the detail for data card/USB subscriptions at the end of the year. The range between 5 Mbps and 8 Mbps, as in the previous year, is the one with the highest concentration of subscriptions with 80.9 % of the total.

Graph n.° 87 shows the percentage distribution for prepaid, where the range from 5 Mbps to 8 Mbps, like in 2019, is the one with the highest number of subscriptions, with 62 %. Then, Graph n.° 88 shows the distribution by speed for postpaid subscriptions, where four speed ranges are observed to group the different offers. The one with the highest number of subscriptions is the one that ranges from 2 Mbps to 5 Mbps with 45.7 % of the total (25.8 percentage points more than in 2019), followed by the range from 5 Mbps to 8 Mbps with 42.6 % (3.1 percentage points less than in 2019), then that of speeds lower than 2 Mbps with 9.4 % (2.5 percentage points less than 2019), and the range from 8 Mbps to 15 Mbps, with a 2.3 % of total subscriptions (20.2 percentage points less than in 2019).

To complement what is presented, the evolution of the market concentration indices, the Herfindahl-Hirschman index or HHI, is shown. Graph n.° 89 presents this value for the period 2016-2020. The decrease in market concentration between 2019 and 2020 is 136 points, calculated at 3711 points. Although this market is classified as highly concentrated, this reduction in the concentration index brings the market closer to the minimum concentration level that a market with three economic agents can reach, which is 3333 points, according to the analysis criteria defined by Sutel in resolution RCS-082-2015.

Graph n.° 90 shows the proportion of mobile Internet subscriptions versus the number of fixed Internet subscriptions, where a gradual decrease can be seen in the period, from 7.4 times in 2015 to 5.2 times in 2019. However, it should be noted that fixed subscriptions are associated with a greater number of end users, while, in the case of mobile ones, they are generally more individualized accesses (although their use by multiple users at the same time is not ruled out).

To close, Graph n.° 91 shows the number of subscriptions per 100 inhabitants at the end of each year in the period 2016-2020. For 2020, a market share of 90.8 % is calculated, a decrease of 1.4 percentage points compared to the value of 2019, but still higher than the 88.7 % registered in 2016.

Revenue

The mobile Internet service revenue review is presented. To start the review, Graph n.° 92 presents the total revenue reported for the period 2016-2020 where it is observed that in 2020 there is a decrease of 8944 million colones compared to 2019, this is a variation of -3.4 %.

Graph n.° 93 shows the comparison by quarter for 2019 and 2020. The percentage variation between quarters is only positive for the first with 1.9 %. For the next three, this variation is negative, with -4.7 %, -6.6 % and -4 %, respectively.

To extend the comparison between 2018 and 2019, the detail by payment method and device is presented, that is, comparing the annual totals of data card/USB revenue and mobile phone revenue divided by prepaid and postpaid.

Graph n.° 94 shows the comparison by payment method and device for the period 2019-2020. Revenue received in data card/USB varies by 15.9 % in the last year (1,449 million colones); for the prepaid modality, a percentage variation of -27 % (-19 342 million colones) is observed and for the postpaid modality, 4.9 %, (8949 million colones).

Then Graph n.° 95 displays the monthly detail of mobile Internet service revenue by payment method and device for the period 2019-2020, calculating average monthly growth in postpaid, prepaid, and data card of 0.7 %, -1.9 % and 1 % respectively for said year.

Graph n.° 96 shows the detail for 2020 in terms of the percentage distribution by payment method and device in each quarter of the year. In the fourth quarter of the year, the distribution is as follows: postpaid 76.7 %, prepaid 19 %, and data card/USB 4.3 %. Compared to 2019, postpaid increases by 27.8 percentage points, prepaid decreases 29.2 by percentage points, and data card/USB increases by 1.4 percentage points.

Then Graph n.° 97 shows the detail by contracted speed for the revenue associated with data card/USB devices. It can be seen that, in the range from 5 Mbps to 8 Mbps, the share was 56.9 % of the total; in the range of connections less than or equal to 2 Mbps, 21.8 %; for the range from 2 Mbps to 5 Mbps, 11.3 %; and for the range from 8 Mbps to 15 Mbps, 10 %.

Graph n.° 98 presents a circular diagram to show the distribution by speed in prepaid, where 55.8 % of the revenue comes from connections at speeds between 8 Mbps and 15 Mbps; 43.9 % comes from the range of 5 Mbps to 8 Mbps; and only 0.2 % for speeds equal to or less than 2 Mbps.

For postpaid, Graph n.° 99 shows that 54.9 % of revenue is obtained from subscribers with plans with speeds that range between 5 Mbps and 8 Mbps; 21.2 % for speed

range from 2 Mbps to 5 Mbps; 15.4 % for plans with speeds of connection between 8 Mbps and 15 Mbps; and finally, 8.5 % of subscribers with speeds of 2 Mbps or less.

Then, Graph n.° 100 shows the average monthly revenue per user in 2020 for each payment method and for data card/USB. A constant trend is observed in postpaid and data card/USB, but a more variable one in prepaid. At the end of 2020, there is an average revenue per user in postpaid of 16 318 colones, in prepaid of 4328 colones and of 908 colones in data card/USB. The increase in postpaid is highlighted, which goes from 6,776.5 colones per user in 2019 to the 16 318 mentioned.

Traffic

The social dynamics of 2020 had a direct effect on the amount of traffic on the mobile network. Graph n.° 101 shows the total traffic in TB for the period from 2016 to 2020. In 2020, a total of 222,815 TB is estimated, an increase of 39 % compared to the previous year. Next, a quarterly comparison is presented for 2019-2020 in Graph n.° 102. This graph shows how traffic values per quarter increased in 2020 by 41.3 % in the first quarter, 53.6 % in the second quarter, 31.6 % for the third quarter, and 30.9 % in the fourth quarter. In short, traffic in the fourth quarter of 2020 is 16.3 % higher than in the first quarter (8337 TB difference).

As a complement, Graph n.° 103 presents for the period 2019-2020, the detail by payment method and access device. It can be noted how traffic increases in all connection options, 1265 TB in prepaid, 590 TB in data card, and 60 281 TB in postpaid.

Graph n.° 104 shows the monthly detail of traffic by payment method and device for 2019-2020. There is a growing trend for total traffic, with a particular growth towards March 2020. Average monthly increases are calculated for postpaid, prepaid, and data card/USB, the respective values are: 2.6 %, 0.8 %, and 0.2 %.

The detail of each payment method and data card/USB in 2020, is seen every six months in Graph n.° 105. In the fourth quarter, market share in data card/USB was 2.7 % of the total, 8.1 % in prepaid, and 89.2 % in postpaid mode.

The traffic review for 2020 continues with the detail by speed for each payment method and by device. Graph n.° 106 presents the distribution for data card/USB, where it can be seen that 45.4 % of the traffic generated corresponds to customers with access to connections between 2 Mbps and 5 Mbps. In Graph n.° 107, the same is true for the prepaid mode, where 51.6 % of the traffic corresponds to customers with contracted speeds ranging from 5 Mbps to 8 Mbps. Then Graph n.° 108, for the postpaid mode, shows how 50 % of the revenue is generated in the speed range from 5 Mbps to 8 Mbps.

Finally, Graph n.° 109 presents the average traffic in GB per user and per month during 2020 (in prepaid, postpaid, and data card/USB). In postpaid, the composite percent variation for the period is 1.5 %; for prepaid, 3.2 %, and for data card/USB, -0.1 %. In absolute values at the end of the year, there is an increase in each category, closing 2020 with a consumption per user in postpaid of 7.89 GB (1.6 GB more), of 4.05 GB in prepaid (0.46 GB more), and 0.89 TB on data card (0.16 GB more).

FIXED INTERNET

Subscriptions

In the 2016-2020 period there is an increase in the total subscriptions of the fixed Internet service. Graph n.° 110 shows that 992 725 subscriptions were registered in 2020, a percentage variation compared to 2019 of 11.8 %. For the entire period, the average growth per year was 9.7 %.

In Graph n.° 111, the quarterly comparison is shown for 2019-2020. Each of the quarters registered a positive percentage change, 7 % in the first quarter, 9 % in the second, 8.3 % in the third quarter, and 9.7 % in the fourth quarter.

Graph n.° 112 shows the monthly behavior of that period, the solid line shows the cumulative total of subscriptions, and the bars represent the monthly variation. In 2020, the monthly change was negative only in August, while the greatest positive change was in April.

Continuing with the analysis of subscriptions in 2019-2020, a comparison is made by access technology. For this, Graph n.° 113 shows the variations for each technology, comparing the closing of each year. For last-mile networks over coaxial cable, the percentage variation is 7.1 %; for copper networks, 11.6 %; for fiber networks, 18.3 %; and, finally, for the group of wireless/other technologies (microwave, WiMax, satellite, and unspecified registries), a percentage change of 48.9 % is calculated.

Graph n.° 114 shows the cumulative total of subscriptions per month for the access technologies listed above. The growth per month is calculated from January 2019 to December 2020, obtaining the following monthly averages: 0.7 % for cable networks, -0.5 % for copper networks, 3.4 % for fiber optic networks and 1.5 % for the group of wireless/other technologies.

The technology review continues with Graph n.° 115, which shows the percentage distribution by quarter for 2020. For the fourth quarter, the share of each technology was: 63.8 % for cable (1.5 percentage points less than in 2019), 21.6 % for copper (0.4 percentage points more than in 2019), 13.9 % for fiber (1 percentage point more than 2019), and 0.7 % for wireless/other (0.1 percentage points more than 2019). Then Graph n.° 116 presents the number of operators that offer each technology. Thus, 28 operators are registered in wireless, 34 in fiber optic, 2 in XDSL, and 12 in cable.

Regarding the number of subscriptions by contracted speed ranges, in Graph n.° 117, an annual comparison is made for 2019-2020. It is clear that, for this graph, the contracted speed ranges are adjusted to only show four of them. There is then, in the range of speeds below 2 Mbps, a percentage variation of 3 %; in the range from 2 Mbps to 8 Mbps, a variation of 34 %; in the group from 8 Mbps to 100 Mbps, a percentage variation of -6 %; and for speeds over 100 Mbps, an increase of 141 %.

Graph n.° 118 shows the monthly subscriptions in 2019 and 2020 for each indicated speed range; Average growth per month is calculated, resulting in: -0.4 % for speeds below 2 Mbps, -0.9 % for the 2 Mbps to 8 Mbps group, 2 for speeds between 8 Mbps and 100 Mbps, 1 % and for subscriptions of more than 100 Mbps 19.6 %.

Graph n.° 119 presents the detail for 2020 including all the speed ranges that are requested from the operators. A decrease in subscriptions is observed between the months of March and July for ranges up to 15 Mbps, and an increase from July to December for ranges greater than 50 Mbps. To synthesize the behavior of each speed range, the monthly average growth is calculated, highlighting the one with the highest percentage growth, the one with speeds above 100 Mbps with 5.8 %. On the other hand, in absolute numbers, the range between 50 Mbps and 100 Mbps

showed an increase of 40 480 subscriptions between January and December.

To close the detail for contracted speeds, Graph n.° 120, displays the quotas of the total subscriptions for each quarter. In the fourth quarter, the range of speeds between 5 Mbps and 8 Mbps is the one with the highest share, 19.5 %, followed by the range from 15 Mbps to 30 Mbps, with 18.2 %.

Next, the number of companies with offers in each speed range is displayed. Thus, Graph n.° 121 shows that at least 38 operators reported having customers in the 5 Mbps to 8 Mbps and 15 Mbps to 30 Mbps ranges.

In Graph n.° 122, the measurement of market concentration (HHI) for fixed Internet service in 2015-2019 is shown. A value of 2328 is obtained, a result that implies a decrease of 484 points in the period, maintaining a moderate market concentration level as provided in resolution RCS-082-2015 by Sutel.

Continuing with the review, Graph n.° 123, shows the market share for fixed Internet at the end of 2020 by operator. ICE has a market share of 33.1 %, Cabletica has 22.2 %, Telecable 19.9 %, and Tigo 18.5 %, which leaves 6.4 % of total subscribers for the rest of market participants (37 operators and service providers).

Graph n.° 124 presents the market share of the fixed Internet service for the 2016-2020 period, which reached 19.4 % in 2020, a positive variation compared to the 17.9 % calculated in 2019. In a complementary way, Graph n.° 124 shows the market share of the fixed Internet service per household, a figure that increased by 3.1 percent points compared to 2018, closing with 62.8 %.

Revenue

Regarding revenue registered for fixed Internet service, a positive percent variation is shown in Graph n.° 125 and an upward trend for 2015-2019.

Graph n.° 126 for the period 2015-2019, an average annual growth of 11.5 %; a variation with respect to the last year of 6.5 % is also calculated.

Graph n.° 127 presents the quarterly comparison of revenue in 2019 and 2020. The percentage variation is calculated for each period, where all are positive, highlighting the variation of 12 % in the fourth period of 2020, compared to the same period in 2019.

Graph n.° 128 presents the monthly revenue for 2019-2020, where the continuous line is the cumulative total revenue per month, and the bars represent the monthly variation. It should be noted that the highest monthly variation occurred in April 2020.

Graph n.° 129 shows the total revenue for each technology. In cable networks, the variation between 2019 and 2020 is 9.9 %; in copper, -9.2 %; 14.9 % in fiber; and 11.5 % in wireless/other. In Graph n.° 130, the detail is expanded showing the monthly behavior for the 2019-2020 period, where the increase in revenue generated in fiber networks stands out, with an average monthly growth value estimated at 1.2 %.

Finally, regarding the analysis by technology, Graph n.° 131 presents the revenue share by quarter in 2020; for the fourth quarter, 43.9 % was for cable; for fiber networks, 31.6 %; in copper, 21.8 %, and in wireless, 2.6 %. It is highlighted that the greatest positive variation occurred in coaxial cable networks, registering an increase of 0.8 percentage points. Graph n.° 132 displays the review by speed range. In this case, four ranges are appreciated to simplify the visualization of the 2019-2020 period. There is a growth of 164 % for the revenue received by subscribers with access to more than 100 Mbps and positive increases for the ranges from 8 Mbps to 100 Mbps and speeds less than or equal to 2 Mbps. It is highlighted that the percentage variation was negative for the range between 2 Mbps and 8 Mbps.

Graph n.° 133 shows the monthly analysis of the revenue received for the same four ranges mentioned in the previous graph for the period 2019-2020.

In the range from 8 Mbps to 100 Mbps and contracted speeds of more than 100 Mbps, there has been an increase in revenue over time, showing average monthly growth of 1.5 % and 5.3 % respectively. Along the same lines as the above, Graph n.° 134 displays the revenue detail for every month in 2019, but with all ranges

updated in 2019. These eight ranges present a more accurate picture of the revenue distribution. In 2020, when calculating the average monthly growth, there are positive variations in the ranges from 2 Mbps to 5 Mbps, from 15 Mbps to 30 Mbps, from 50 Mbps to 100 Mbps, and speeds greater than 100 Mbps; respectively, the calculated values are: 0.8 %, 2.3 %, 7.8 %, and 4.1 %.

It concludes with Graph n.° 135, which shows the percentage distribution of each range by quarter. Specifically, for the fourth quarter, the range from 8 Mbps to 15 Mbps concentrates most of the revenue, 21.2 %, followed by the range from 15 Mbps to 30 Mbps with 14.6 %

Traffic

Traffic through fixed networks shows the changes in social dynamics in 2020. Graph n.° 136 presents the total data per year in TB during the years 2016 to 2020. In the last year, Sutel received information from the operators that allowed it to calculate a total of 2 221 271 TB, a 90 % variation compared to 2020. Graph n.° 137 compares 2019 and 2020, where the variation between quarters was: for the first quarter, 57 %; for the second quarter, 97 %; for the third quarter, 97 %; and for the fourth quarter, 106 %. Thus, data consumption in the fourth quarter of 2020 is 52 % higher than in the first quarter.

Finally, Graph n.° 138 presents the share of traffic by technology and by quarter for 2020. By the end of the year, 85.1 % of the traffic is transferred over cable networks and 7.6 % in fiber networks.

WHOLESALE INTERNET ACCESS

Connections

Wholesale Internet service registered an increase in the number of operators that offer the service in 2020, registering, according to Graph n.° 139, a total of 16 companies. Graph n.° 140 shows the number of registered connections for 2016-2020, where a percentage variation of 67 % can be seen between 2019 and 2020.

Graph n.° 141 shows the quarterly growth from 2019 to 2020. In all periods there is a positive percentage change; specifically in the fourth quarter of each year, the percentage change was 67 %. In Graph n.° 142, the distribution by technology for 2020 is shown, where at the end of the year there is a 1.6 % share in DWDM, 15.7 % in microwave, 82 % in fiber technologies (PON/AON/Ethernet/+), and 0.9 % in SDH.

In Graph n.° 143, connections are reviewed by speed range in 2020. There is a variation in the number of connections by speed between the first quarter and the fourth quarter of the year. For example, the range with speeds less than or equal to 2 Mbps and the range from 2 Mbps to 10 Mbps show downward changes, going, respectively, from 6.6 % to 4.5 %, and from 50.5 %. to 37.1 %. Meanwhile, the other three ranges show upward variations. The one from 10 Mbps to 100 Mbps goes from 28.5 % to 40.2 %; the one from 100 Mbps to 600 Mbps goes from 7.4 % to 8.4 %; and that from 600 Mbps to 10 Gbps goes from 6.9 % to 9.7 %.

Revenue

Following, in Graph n.° 144 the revenue of the Internet wholesale service for 2016-2020 is shown. An average growth for the period of 35 % and a percentage variation from 2019 to 2020 of 11 % is calculated.

Graph n.° 145 shows the percentage distribution per technology for each quarter of 2020. The increase throughout the year is the positive variation in fiber optic connections (PON/AON/Ethernet/+), which accounted for 63.1 % of revenue in the first quarter, and then, 80 % in the fourth quarter.

The detail by speed is shown in Graph n.° 146. The distribution of revenue per quarter can be seen for five speed ranges, namely, less than 2 Mbps, which begins the year with 23.8 % of revenue and closes the fourth quarter with 20.3 %; from 2 Mbps to 10 Mbps, which went from 4.3 % in the first quarter to 4 % in the fourth quarter. For the range from 10 Mbps to 100 Mbps, the revenue share increased from 18.7 % in the first quarter to 20 % in the fourth quarter; from 100 Mbps to 600 Mbps shows a decrease from 13.1 % to 8.9 %; and finally, the revenue share for the range from 600 Mbps to 10 Gbps was 40.1 % in the first quarter and from 46.9 % in the fourth quarter.

DEDICATED LINES

Connections

In Graph n.° 147 the number of dedicated line service providers for 2016-2020 is presented. By the closing of 2020, there were 38 active operators. Graph n.° 148 shows the number of connections in the 2016-2020 period, showing a total of 23 683 connections in 2020, a percentage variation of 10 % compared to 2019.

Graph n.° 149 shows the quarterly change between 2019 and 2020, showing positive variations towards 2020, namely: first quarter, 13.6 %; second quarter, 9.8 %; third quarter, 2.7 %; and fourth quarter, 3.3 %.

The analysis extends into Graph n.° 150 with the review by type of market, presenting the percentage distribution of connections by wholesale market and retail market. In the fourth quarter of 2020, the wholesale market covers 23 % of the total connections, and the retail market, the remaining 77 % of the total.

In Graph n.° 151, the composition of the connections is shown by territory where the service is provided (national territory or international territory). In this case, at the end of 2020, 97.8 % of the connections were registered within the national territory (in 2019, that value was 93.1 %).

Then Graph n.° 152, exhibits the percentage of connections in national and international territory for the wholesale market at the end of 2020, where 96 % are connections in the national territory. In the same way, in Graph n.° 153, the percent, age of retail connections according to territory is observed. It can be seen how 98 % of the connections are provided in the national territory.

The detail by type of market is expanded, including the detail by speed range. Graph n.° 154 displays data for the wholesale market by month in 2020. A singular variation is observed between March and April, and a growth towards the end of the year. To be precise, the average growth rates are calculated for each speed range, where the fastest growing are from 30 Mbps to 100 Mbps, with 3 %, and speeds greater than 100 Mbps with 4.2 %.

Graph n.° 155, presents speed data for the retail market on a monthly basis in 2020. In this case, the average monthly growth rates for the year are also calculated, resulting in the ranges from 8 Mbps to 15 Mbps, and more than 100 Mbps showing the greatest positive variations, respectively, 3.9 % and 5.6 %.

Next, the number of connections by technology is reviewed, clarifying that the distinction is not made by type of market as in the case of speeds. Only the technological one is considered for the provision of the service. In this way, Graph n.° 156 shows the variation from 2019 to 2020 for connections over virtual private networks (VPN), digital links, and a third group that collects the data provided in frames, port rental, analog links, and other types of connection. In 2020, the negative percentage variation in digital links of -17.3 % stands out.

Graph n.° 157 shows the evolution of connections by technology on a monthly basis in the period from 2019 to 2020. Connections for virtual private networks (VPN) have an average monthly growth of 0.1 %, digital links of 0.3 %, and for the Ports/Others/Analog/frames group an average annual growth of 6.1 %. Finally, Graph n.° 158 shows the percentage distribution by technology for each quarter of 2020, where in the fourth quarter there is 39 % for VPN, 31.1 % for digital links, and 29.9 % for the third group mentioned.

Revenue

In terms of revenue generated by dedicated lines, Graph n.° 159 shows the total annual revenue for the period 2016-2020, with 49 326 million colones in 2020, a percentage variation compared to 2019 of -0.3 %.

Graph n.° 160 presents the comparison by quarter for the 2018-2019 period, where a negative percentage variation of -8.9 % is observed in the first quarter; 2.4 % for the second quarter, 0.3 % for the third quarter, and 5.3 % for the fourth quarter.

In Graph n.° 161, the revision by market type is shown as a percentage for the revenue for each quarter of 2020. 23.4 % of the revenue from wholesale customers and 76.6 % from customers in the retail market is calculated for the fourth quarter.

Then in Graph n.° 162 the percentage distribution of revenue by territory, where the service is provided (national territory and international territory) is displayed; It can be seen that in the fourth quarter, 84.6 % of the revenue is received from customers in the national territory.

It is then analyzed by type of market and by territory of provision at the end of the year. Graph n.° 163 shows the percentage composition of the wholesale market by territory, where 84.5 % of revenue comes from customers outside the country's borders. Similarly, in

Graph n.° 164, the distribution of revenue in the retail market by type of territory is presented, where 84.7 % comes from international customers.

In Graph n.° 165, the percentage distribution by speed range for the wholesale market is seen on a monthly basis for 2020. By calculating the average monthly growth for each range, positive values are obtained for all ranges except for those from 5 Mbps to 8 Mbps and for speeds greater than 100 Mbps. Similarly, Graph n.° 166 displays detail by speed and by month for the retail market in 2020. The monthly average growth for the range of speeds greater than 100 Mbps is highlighted with 9.2 %.

The revenue by connection technology is analyzed, making the clarification that it is made for the total of connections without distinction of the type of market. Graph n.° 167 presents, for 2019-2020, the variation for VPN platforms, digital links, and the group of Ports/Others/Analogue/frames; respectively, variations of 1.5 %, -37.9 %, and 157.1 % were calculated for each one of them. Graph n.° 168 presents the revenue for each technological platform month by month during 2018 and 2019; the average growths obtained are: 0.3 % in VPN, -1.9 % in digital links, and 3.9 % in the Ports/Others/Analogue/frames group.

Finally, Graph n.° 169 shows the percentage breakdown of revenue received by technology platform by quarter in 2020, closing the year with 56.1 % of revenue in VPN.

SITUATION ANALYSIS

A monthly comparison is made, for 2018-2020, of the behavior of mobile Internet subscriptions as a result of the particular dynamics raised in 2020 in the country and the rest of the world. Linear graphs are presented to observe the evolution from January to December of each year, and at the same time, to compare between months to be able to appreciate revealing changes within the indicated period.

Graph n.° 170 presents the total mobile Internet subscriptions for each year of the indicated period. In this case, after 2018, it is observed that the evolution is downward, registering an average monthly growth in 2018 of -0.34 %, in 2019 of 0.03 %, and in 2020 of -0.06 %. However, in 2020, it is striking how a decrease is observed towards April, which, compared to April 2019, a variation between those months of -2 % is calculated, probably this is an immediate effect of the closures imposed by the executive branch to economic activities. There is also an increase in June 2020 of 4 % compared to the same month of 2019, which could be a symptom of recovery of some sources of revenue by users, which, however, were not maintained over time, and it is observed that after this month the trend is downward.

For more detail, this evolution of subscriptions is analyzed, separating two groups, first postpaid subscriptions are reviewed and prepaid subscriptions together with subscriptions using data card/USB devices. This is because users who buy postpaid plans are expected to meet more stable revenue profiles.

Graph n.° 171 displays the evolution of postpaid subscriptions month by month from 2018 to 2020. The three years show positive average monthly growth, 1.1 %, 0.5 % and 0.2 % respectively, which reflects that in 2020, growth in absolute values was lower than in previous years, that is, some 44 842 more subscribers in December 2020 than in January of that year. This decrease in year-on-year growth in 2020 could be explained by the loss of revenue that a large part of the population received after the measures applied by the authorities to contain the pandemic.

When comparing month by month between 2019 and 2018, positive percentage variations are calculated, and between February and August, two-digit values are reached. For example, in May, a variation of 13 % is registered, the highest of the year compared to 2019, and that may be the product of the change in social dynamics that forced many sectors to seek Internet connectivity for study, work, and leisure activities.

This behavior is reduced towards the last 4 months of the year, where, for example, the variation between December 2019 to December 2020 is 3 %, less than the 8 % that is calculated between December 2018 and December 2019.

Graph n.° 172 shows the evolution of prepaid subscriptions plus subscriptions over data card/USB. In this case, the average monthly growth for each year shows a decrease, -1.2 % in 2018, -0.4 % in 2019, and -0.3 % in 2020, which represents a change in user behavior regarding the purchase of these services, for example, from January 2018 to December 2020, the total reduction in subscriptions was 1 149 529 subscribers.

In 2020, it is observed how in April, when comparing with April 2019, there is a percentage variation of -15 %, the most pronounced decrease between months when comparing 2020 with the last year, which coincides with the decrease shown in postpaid in the same month (-2 %). This evidences the immediate impact that commercial closures had on the population's finances, which deprived thousands of Internet access. The -11 % calculated between July 2019 and July 2020 is also highlighted, which seems to be a direct effect of the second round of closures and restrictions imposed by the government.

Then Graph n.° 173 presents fixed Internet subscriptions in 2018-2020. The evolution in the three years is positive from January to December (0.8 %, 0.6 %, and 0.7 % respectively). In the same way, the percentage variations between each month are positive from 2018 to 2019 and from 2019 to 2020, which shows a greater interest of individuals in hiring fixed connections for their residences or businesses.

To have a better detail of the behavior of fixed Internet subscriptions, the next two graphs show the comparison by speed, establishing the threshold of 10 Mbps to appreciate the variation of subscriptions below and above said value. Graph n.° 174 presents the detail for subscriptions over 10 Mbps. In this case, the compound monthly growth in each year is: 9 % in 2018, 5 % in 2019, and 1 % in 2020. This shows how growth has been sustained since 2018 but is much less accelerated in 2020.

This slowdown in subscriber growth at these speeds towards 2020 also reflects an affordability gap for speeds greater than 10 Mbps, although it should be noted that when calculating the month-to-month variations between 2019 and 2020, positive values are shown in all months. Thus, in absolute values, the months of April, May, and June show values above 560 000 subscriptions, a value that decreases towards the end of the year, closing at 516 304 subscriptions (1 % of percentage variation with respect to December 2019). Said variation between April and June is undoubtedly the product of the increase in people in the houses, who left classrooms and offices to move to their homes (temporary phenomenon since for the month of July 2020 there is a reduction of 64 005 subscriptions at those speeds).

To complement the above, Graph n.° 175 shows the behavior for subscriptions equal to or less than 10 Mbps, which had a downward behavior since 2018. However, this is reversed after the social situation presented in 2020 as a result of the pandemic. Compound growths calculated for each year are: -0.7 % in 2018, -2.9 % in 2019, and 0.4 % in 2020 (this last value reflects how December 2020 closes with more subscriptions of less than 10 Mbps than January 2020).

Now, in 2020, the number of subscribers with these speeds falls steadily towards the month of June (showing a more pronounced decrease between April and June, coinciding with the rise that occurred in those months in speeds greater than 10 Mbps). The greatest decrease occurred in April (24 % compared to April 2019); however, from July to December 2020, there is an increase month by month (a simple average of 3853 subscriptions per month), where in December a

percentage variation of 21 % is calculated compared to the same month of 2019, which in absolute values reflects an increase of 83 932 subscriptions. In summary, the two previous graphs show for both speed ranges, a turning point between the months of April and June 2020, where the impact of the pandemic increased the acquisition of services of more than 10 Mbps, a situation that was reversed after July and until the end of the year.

It is relevant to mention that Sutel undertook the task of creating working groups with operators to monitor the actions taken during the situation caused by the health crisis declared by the Executive Power on March 16, 2020. In response to the inquiries made by the Superintendency through a survey, 21 companies provided a response on what measures they adopted to contain the exodus of customers.

In summary, 19 companies implemented payment arrangements or defined extensions so that users had flexibility in their finances and did not suspend the service. On the other hand, 15 companies offered their customers the transfer to bundles of lower speed at a lower price so that they could thus sustain the service. This is reflected in Graph n.° 175, whereas of July there is an increase in speeds lower than 10 Mbps. Along the same lines, 6 operators responded that they offered their customers to increase the download speed while maintaining the price of the bundle, for people who kept their jobs, but working from home, or by those who tried to keep virtual lessons for their children. Also, measures such as zero rating were observed, which is based on the fact that the consumption of certain applications on the mobile network is not counted within the available download; or the recommendation made that all operators join the traffic exchange point (crix) or that they co-locate in already available content networks.

Before moving on to review the dedicated lines service, it should be mentioned that Internet consumption per user during 2020 suffered a considerable increase from March to December. For example, comparing the first quarter of 2020 with that of 2019, the increase in data consumption per user per month was 46 %; however, in the other three quarters, this increase exceeded 80 %.

The details of the connections in the dedicated lines service for the 2018-2020 period are presented, which is mainly offered to the business market, but also includes a wholesale market segment and which could also serve individual customers. In this case, in the same way as in fixed Internet, the behavior by speed range is observed, marking a threshold at 10 Mbps.

Graph n.° 176 shows connections over 10 Mbps. Positive average monthly growths are calculated for the three years of the period, 2.7 %, 3.6 %, and 2.6 % respectively, showing that in December 2020, there were more.

It is also observed how, when comparing the months of 2019 with those of 2020, the percentage variations are positive, highlighting the 22 % that occurs in June, the month in which companies probably redesigned their business strategies and executed digital transformation plans.

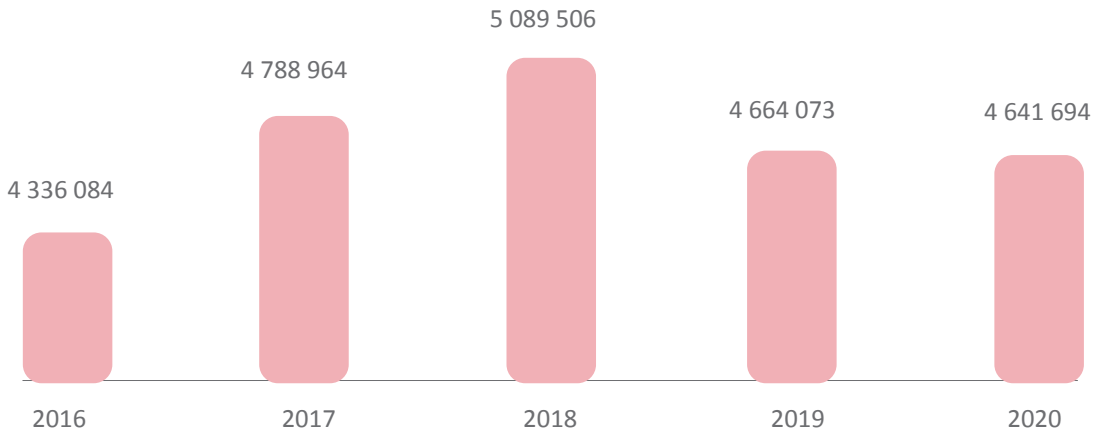
In the same way, Graph n.° 177 presents the detail for connections with speeds equal to or less than 10 Mbps, showing or the 2018-2020 period, the monthly fluctuation of each year, calculating average monthly growth of 0.2 % in 2018, 0.3 % in 2019, and -0.5 % in 2020.

This -0.5 % reflects how towards the end of the year the number of connections at speeds lower than 10 Mbps is being reduced, where the decrease of 625 connections between March and April stands out, and how as of July 2020, the month-to-month variations with respect to 2019 are negative. For example, in December 2020, there was a -2 % compared to December 2019, closing at 15,775 connections in this speed range, 1,011 connections less than in January.

Finally, Graph n.° 178 shows the behavior of wholesale connections for Internet access reported in the 2018-2020 period. This variable has a positive trend since 2018 (average monthly growth of 1.1 %, 3.1 %, and 2.7 % respectively). However, towards April 2020, it presented a drop of -16 % compared to March of that year, just before the uncertainty posed by the restrictions on freedom of movement and business imposed by the government in response to the pandemic.

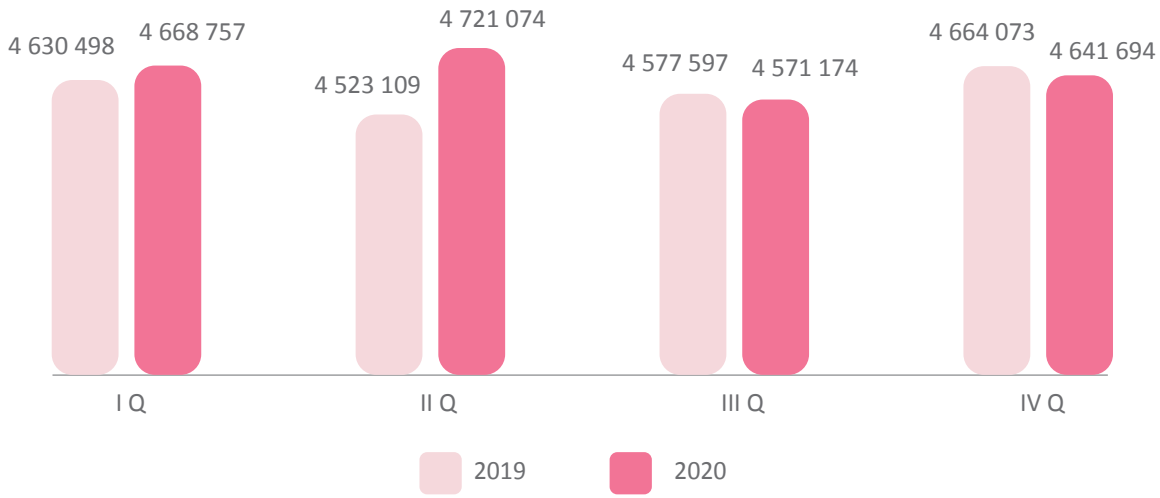
Then, a recovery in the wholesale business is evidenced in the same graph, closing December 2020 with an increase of 67 % in relation to December of the previous year, and 250 more connections in December 2020 compared to April 2020, which could represent the way in which business between operators was streamlined to respond to new social dynamics and its effect on Internet consumption.

Graph n.° 78. Costa Rica: Subscriptions, access to Internet on the mobile network, 2016-2020
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

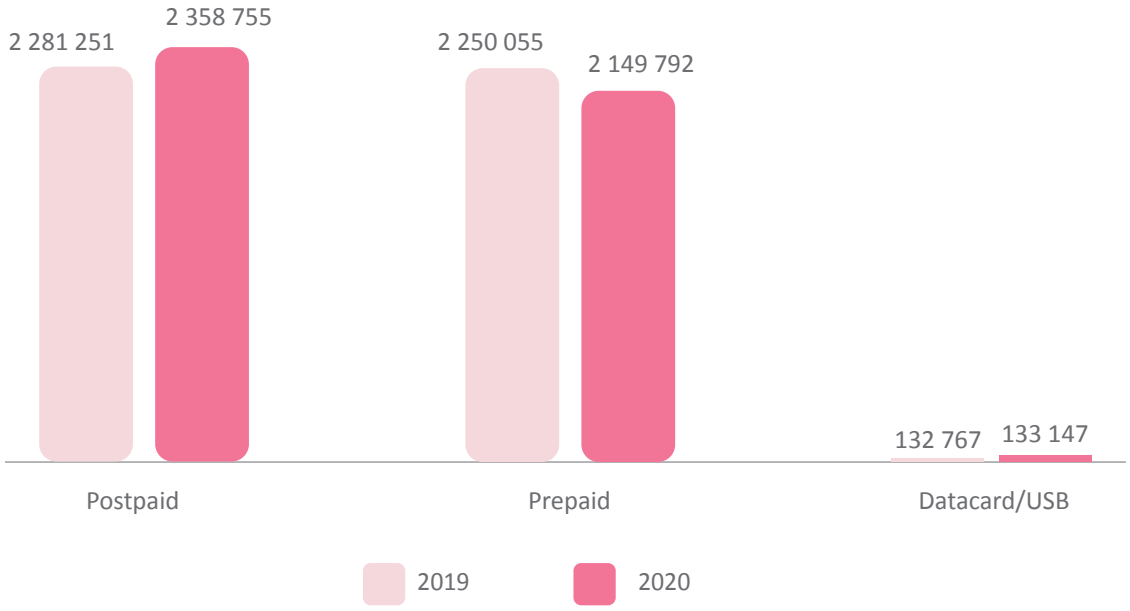
Graph n.° 79. Costa Rica: Subscriptions, access to Internet on the mobile network, 2019-2020
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 80. Costa Rica: Subscriptions, access to mobile Internet, comparison per payment modality and access device, 2019-2020

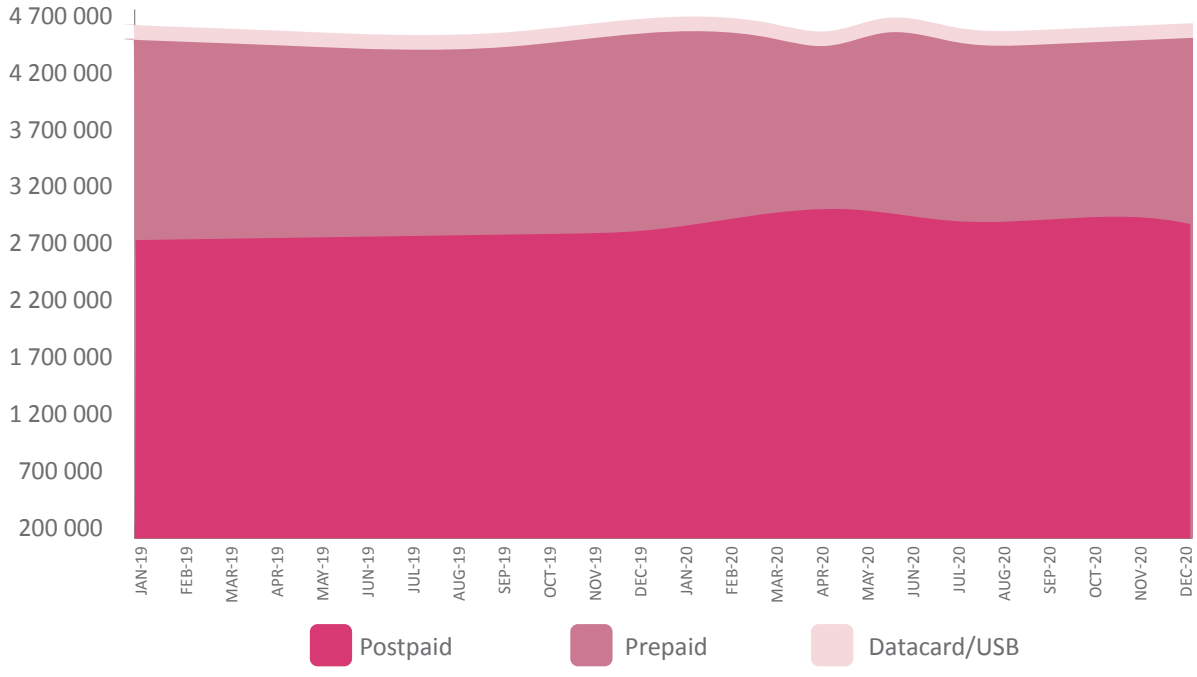
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 81. Costa Rica: Subscriptions, access to mobile Internet, comparison per payment modality and access device, 2019-2020

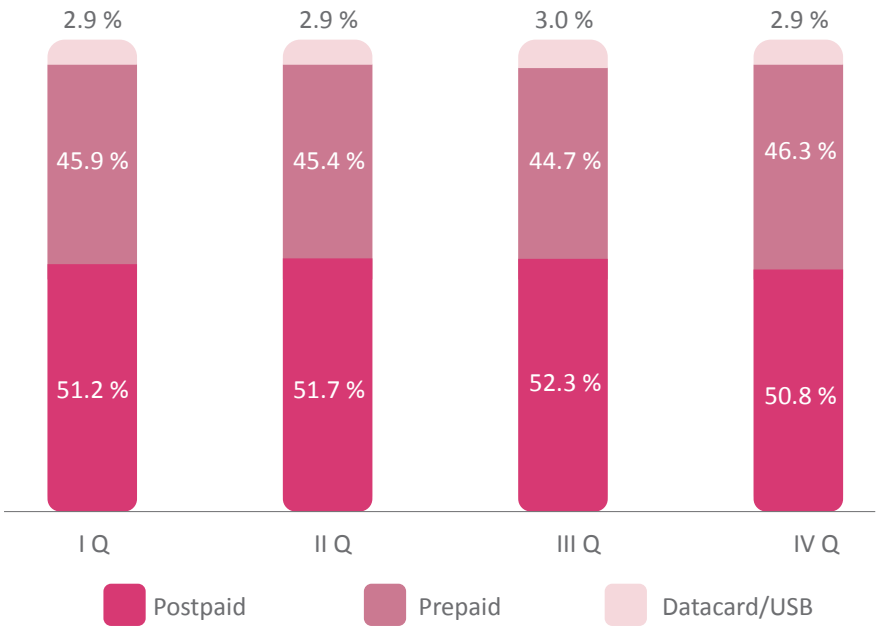
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 82. Costa Rica: Subscriptions, access to Internet on the mobile network, percent distribution per payment modality and access device, 2020

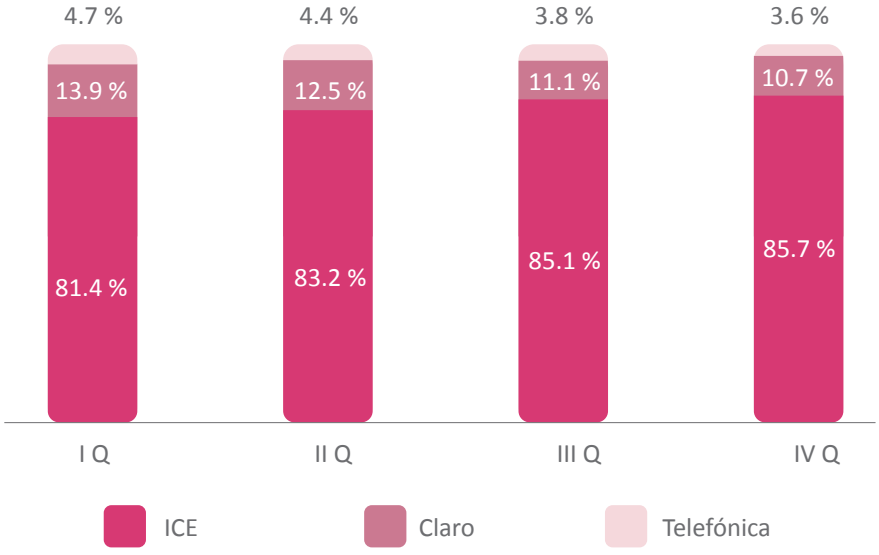
(quarterly figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 83. Costa Rica: Subscriptions, access to Internet on the mobile network, data card. Percent distribution per operator, 2020

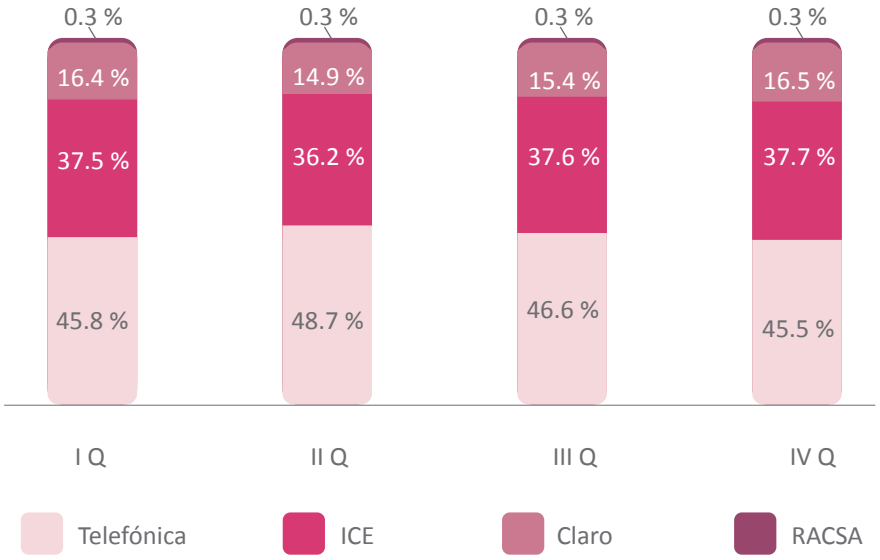
(quarterly figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 84. Costa Rica: Subscriptions, access to mobile Internet, comparison per payment modality and access device, 2019-2020

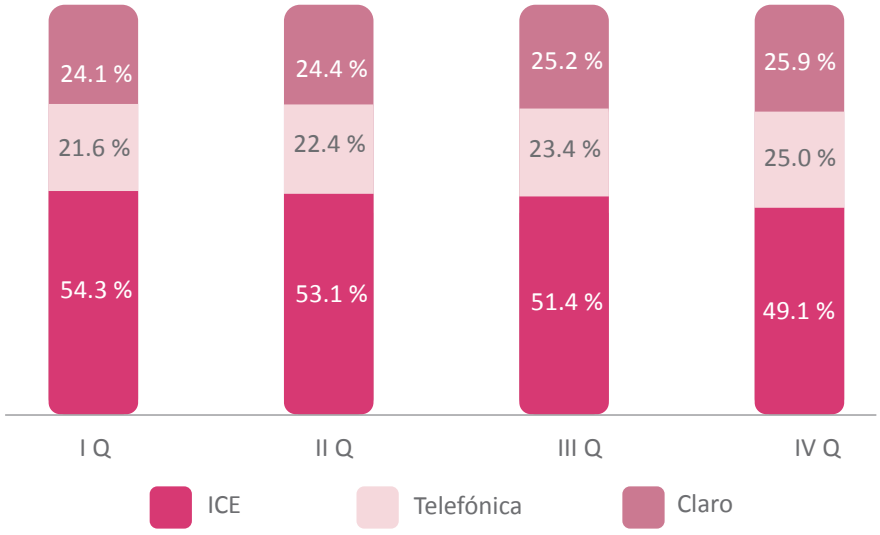
(quarterly figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 85. Costa Rica: Subscriptions, access to Internet on the mobile network, postpaid. Percent distribution per operator, 2020

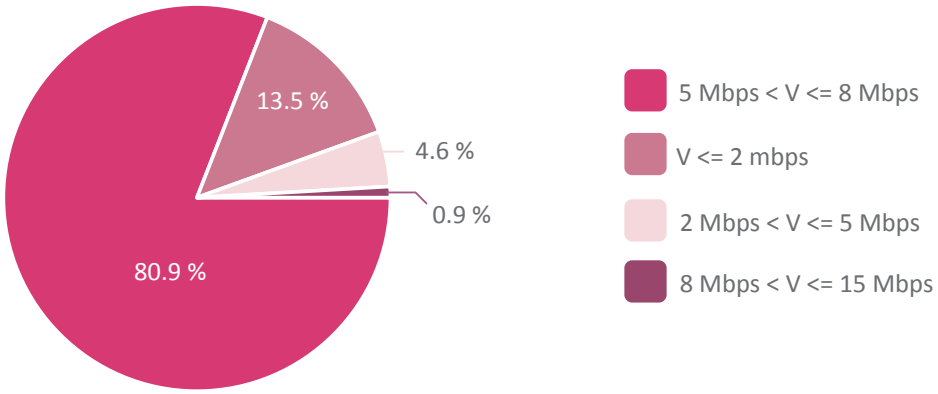
(quarterly figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 86. Costa Rica: Subscriptions, access to Internet on the mobile network. Percent distribution per speed, data card, 2020

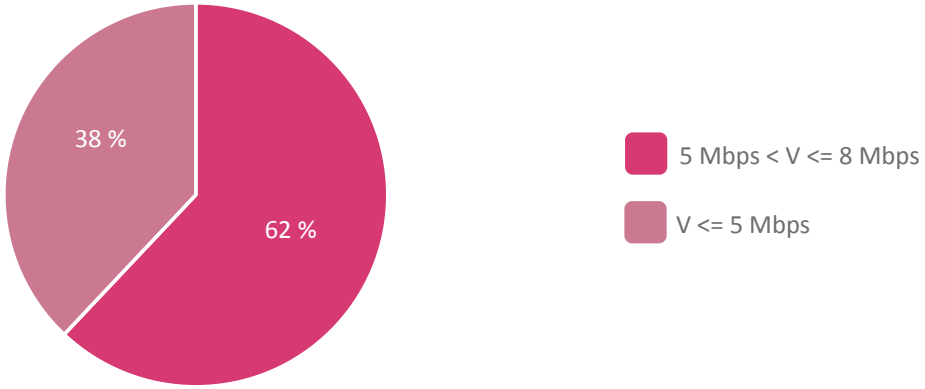
(figures in percentages at year-end closing)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.°87. Costa Rica: Subscriptions, access to Internet on the mobile network, 2019-2020

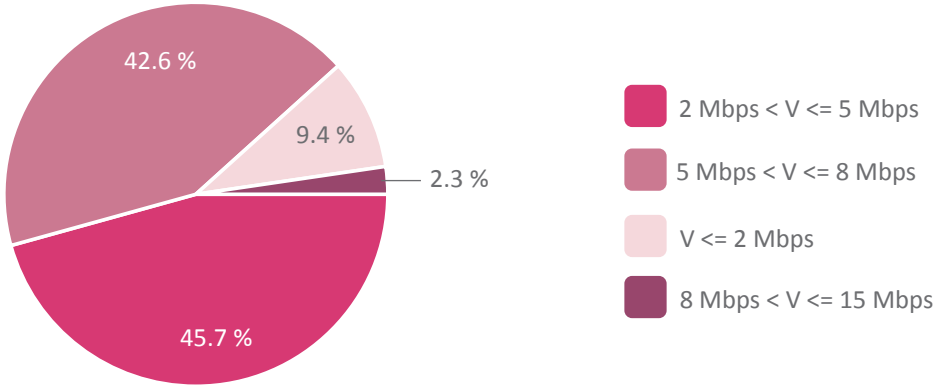
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 88. Costa Rica: Subscriptions, access to Internet on the mobile network. Percent distribution per speed, Postpaid modality, 2020

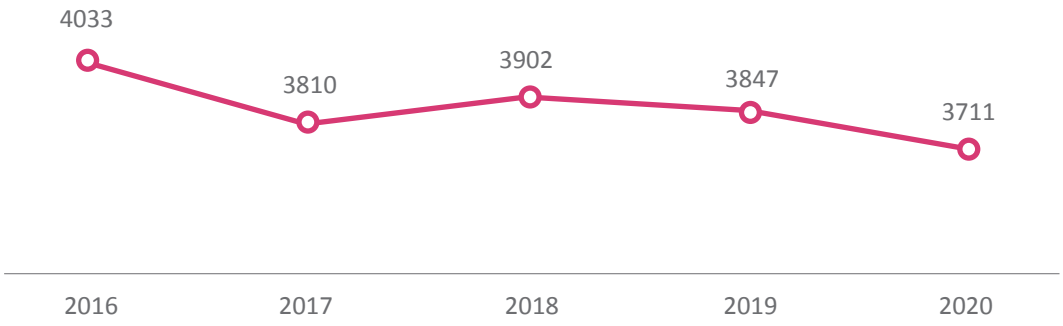
(figures in percentages at year-end closing)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 89. Costa Rica: HHI Evolution, access to Internet on the mobile network, 2016-2020

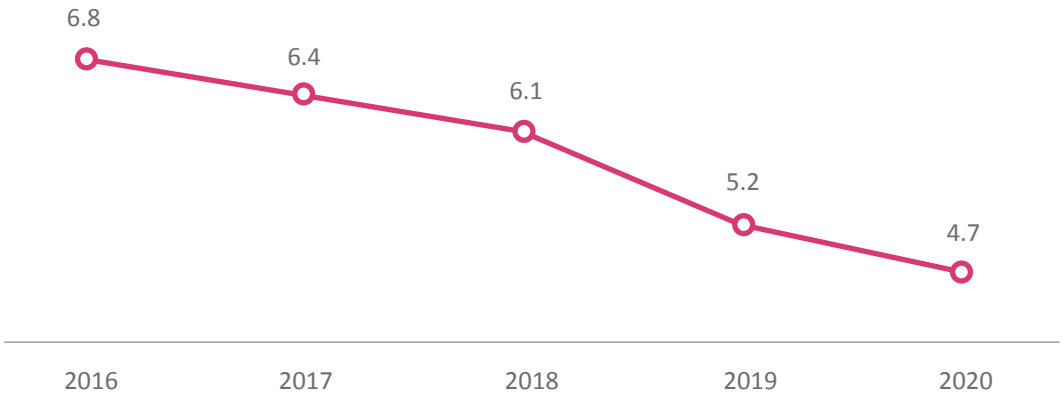
(figures at each year-end closing)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 90. Costa Rica: Proportion of mobile Internet subscriptions regarding fixed Internet, 2016-2020

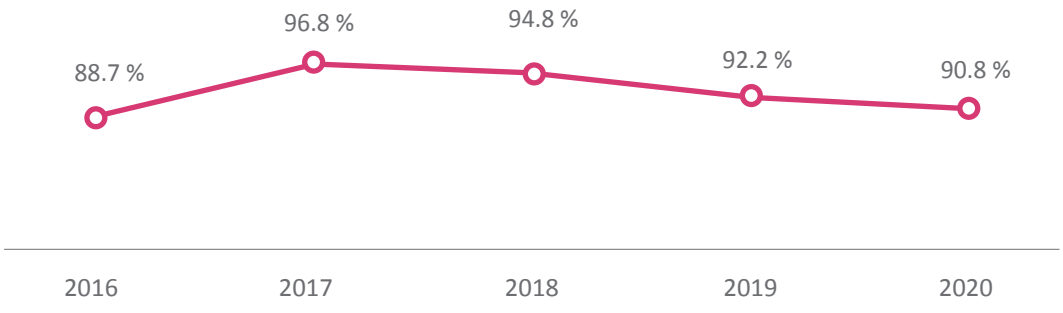
(figures at each year-end closing)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 91. Costa Rica: Subscriptions, access to mobile Internet per each 100 inhabitants, 2016-2020

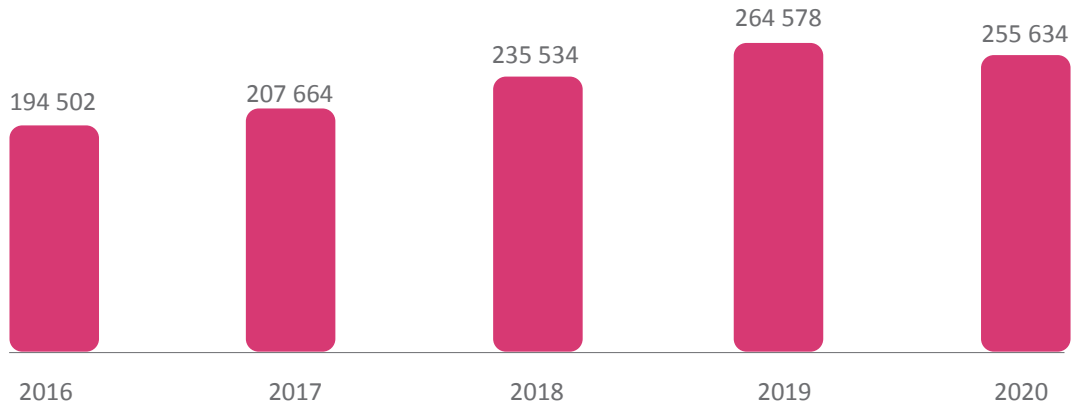
(figures at each year-end closing)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 92. Costa Rica: Revenue, access to Internet on the mobile network, 2016-2020

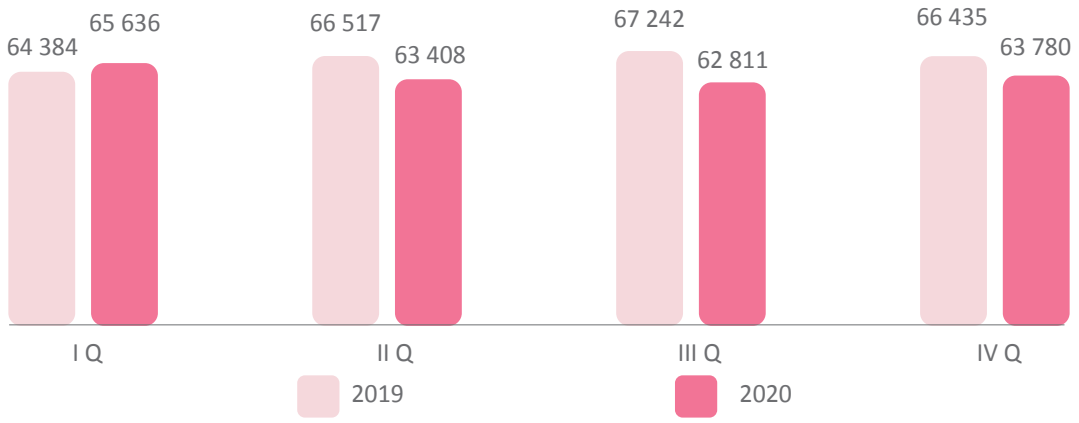
(annual figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 93. Costa Rica: Revenue, access to Internet on the mobile network, 2019-2020

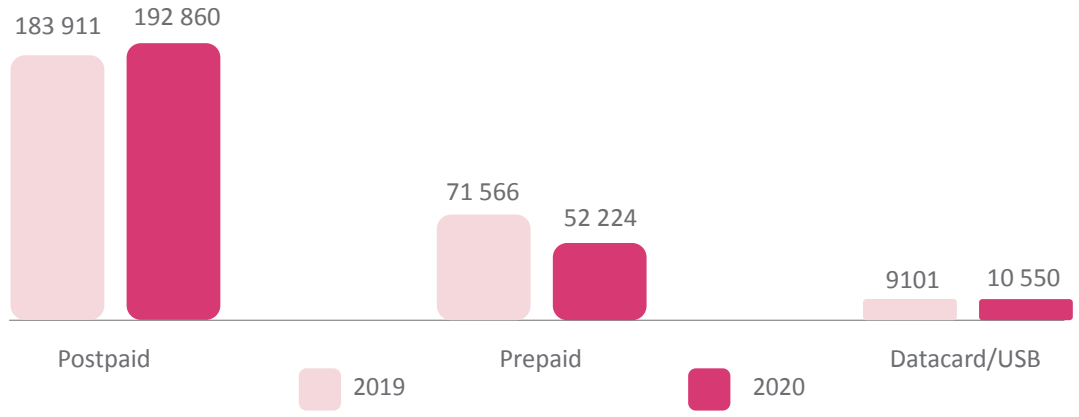
(annual figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 94. Costa Rica: Revenue, access to mobile Internet, comparison by payment modality and access device, 2019-2020

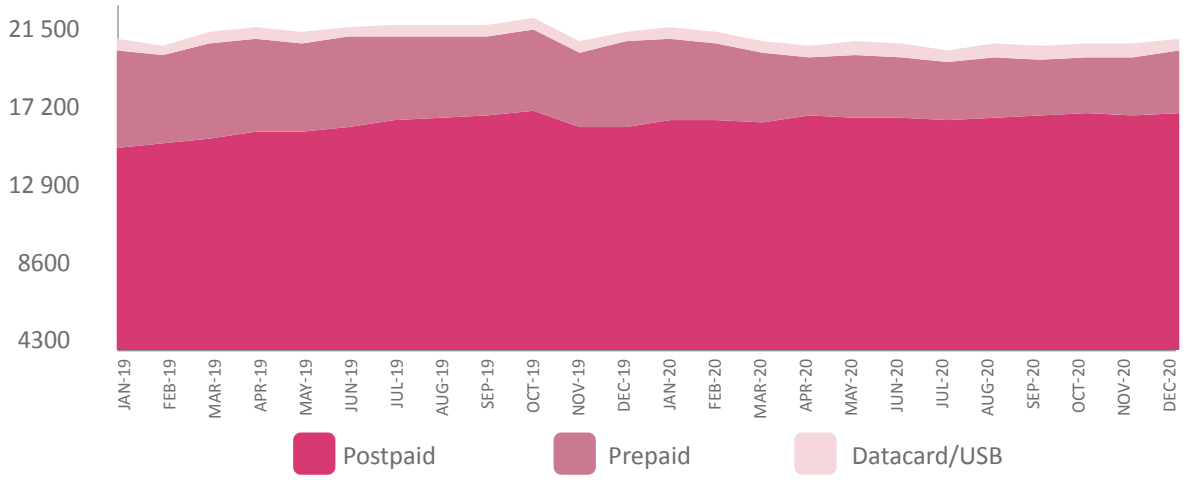
(annual figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 95. Costa Rica: Revenue, access to mobile Internet, comparison by payment modality and access device, 2019-2020

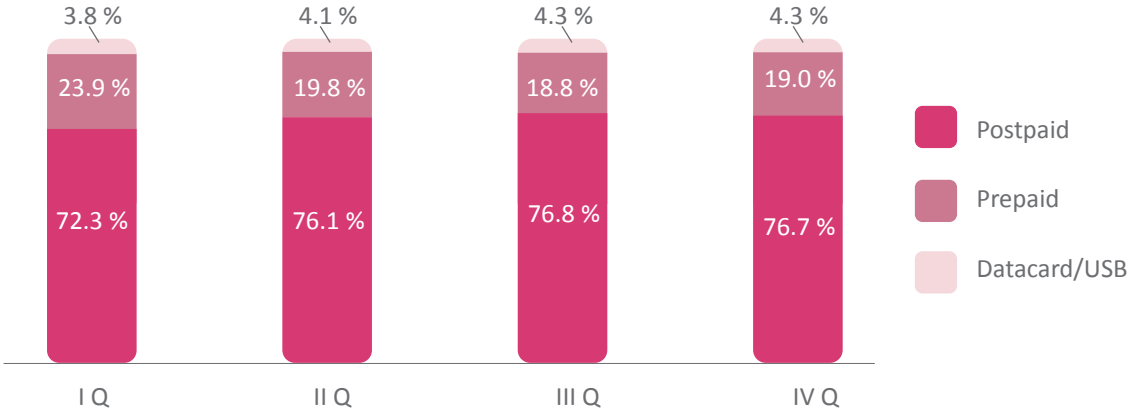
(monthly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 96. Costa Rica: Revenue, access to Internet on the mobile network, percent distribution per payment modality and access device, 2020

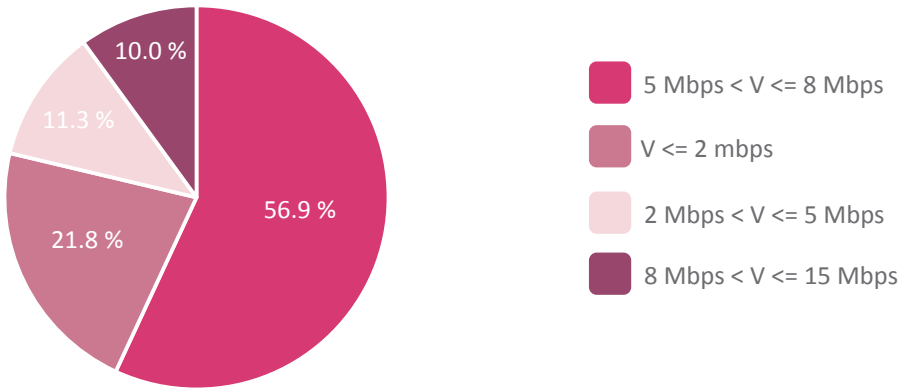
(quarterly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 97. Costa Rica: Revenue, Internet access in the mobile network, data card. Percent distribution per speed, 2020

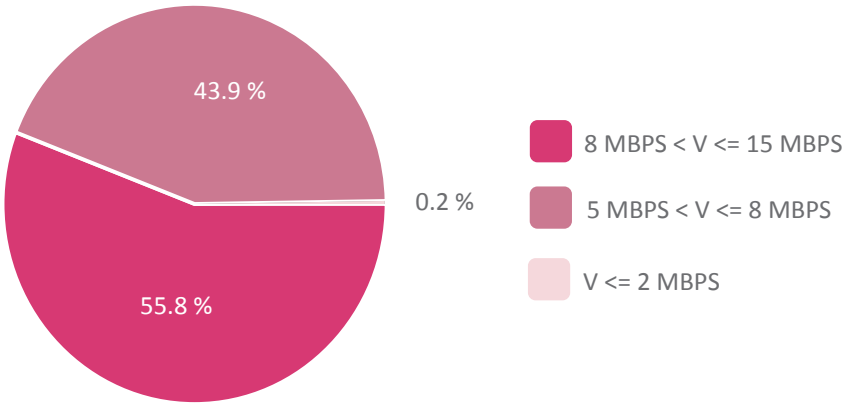
(annual figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 98. Costa Rica: Revenue, Internet access on the mobile network, prepaid. Percent distribution per speed, 2020

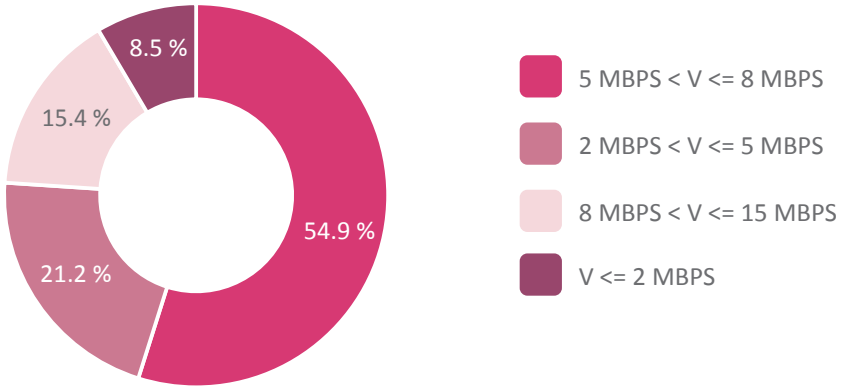
(annual figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 99. Costa Rica: Costa Rica. Revenue, Internet access on the mobile network, Postpaid. Percent distribution per speed, 2020

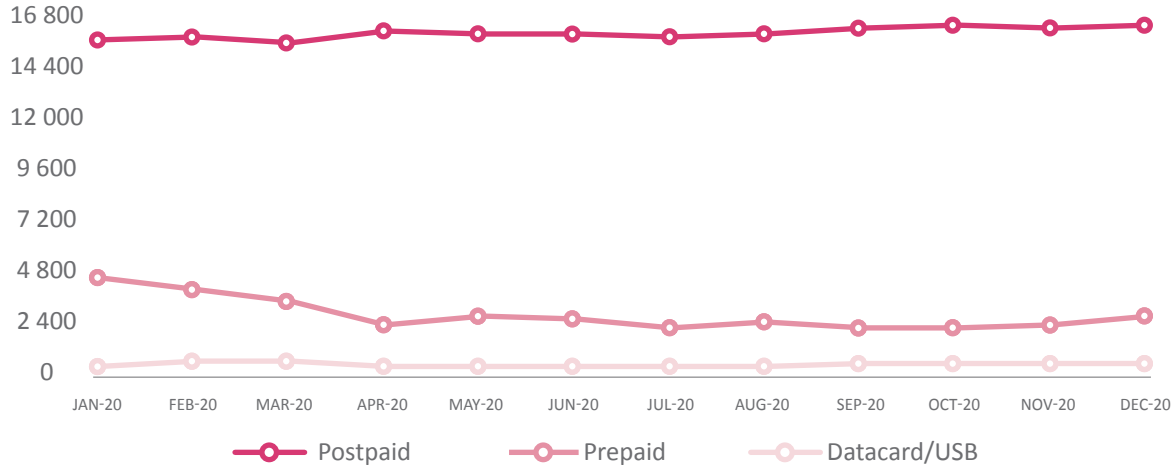
(annual figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 100. Costa Rica: Revenue, access to Internet on the mobile network, average revenue per user per each payment modality and on data card, 2020

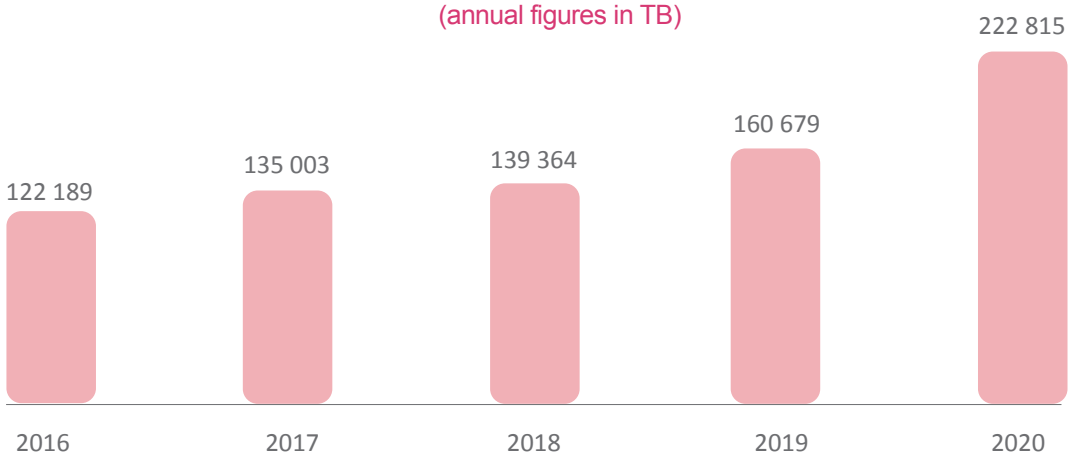
(monthly figures in colones per user)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 101. Costa Rica: Traffic, access to Internet on the mobile network, 2016-2020

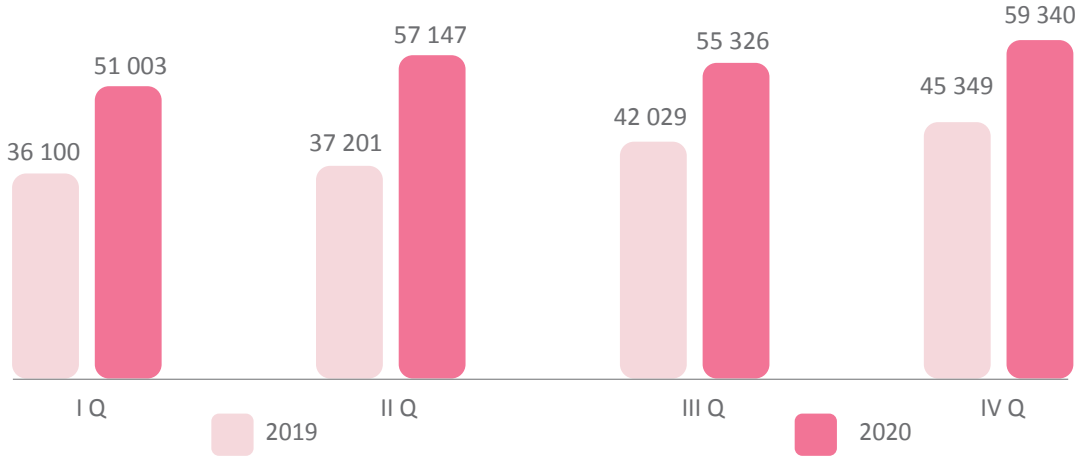
(annual figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 102. Costa Rica: Traffic, access to Internet on the mobile network, 2019-2020

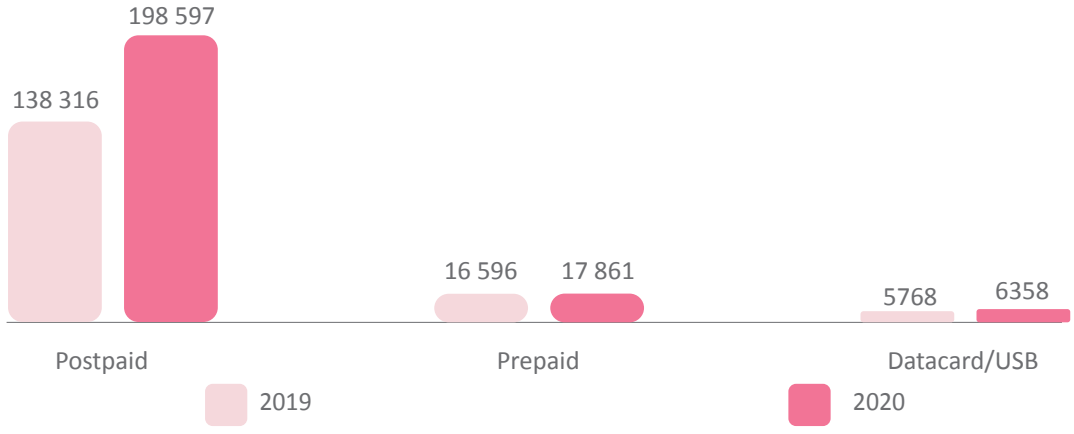
(quarterly figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 103. Costa Rica: Traffic, access to mobile Internet, comparison per payment modality and access device, 2019-2020

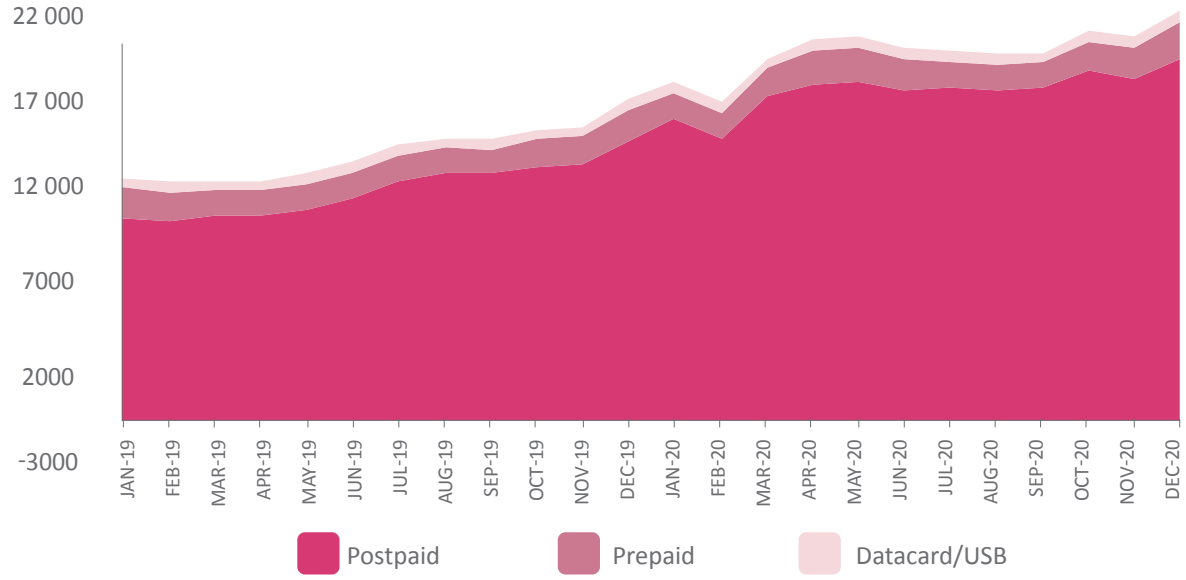
(annual figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 104. Costa Rica: Traffic, access to mobile Internet, comparison per payment modality and access device, 2019-2020

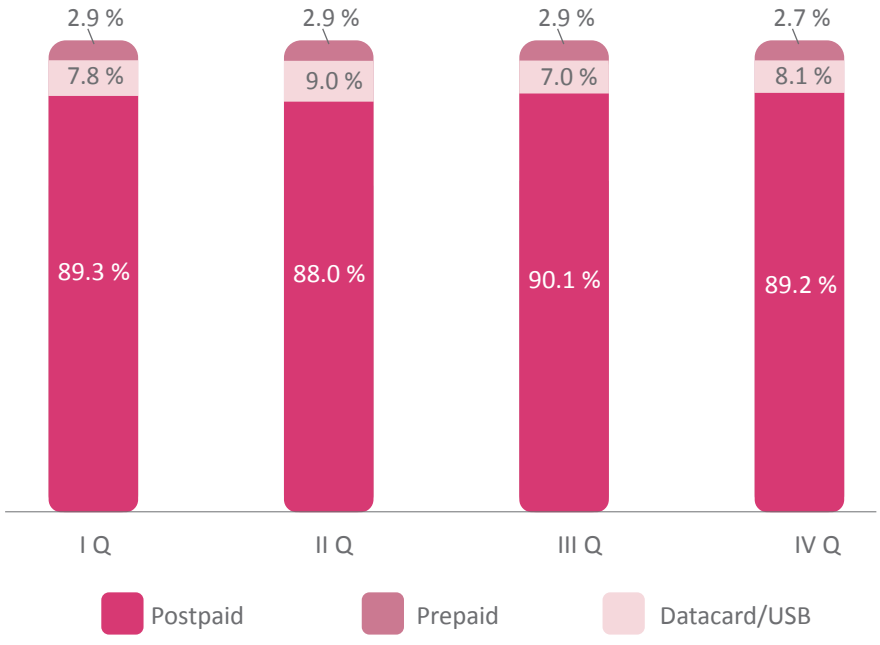
(monthly figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 105. Costa Rica: Traffic, access to Internet on the mobile network, percent distribution per payment modality and access device, 2020

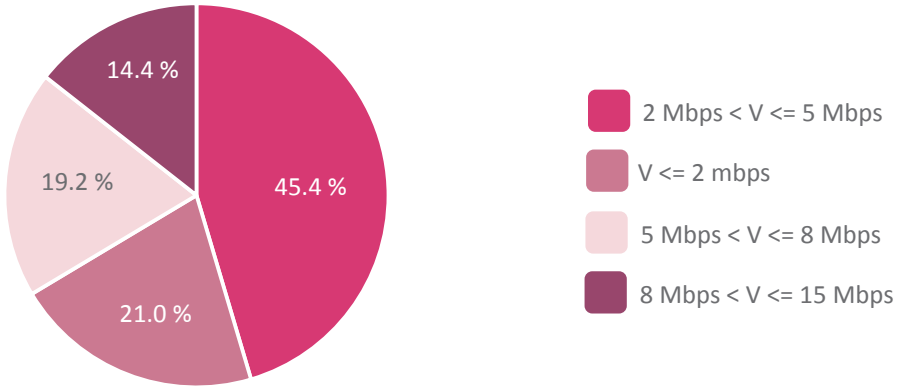
(quarterly figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 106. Costa Rica: Costa Rica. Traffic, access to Internet on the mobile network, data card. Percent distribution per speed, 2020

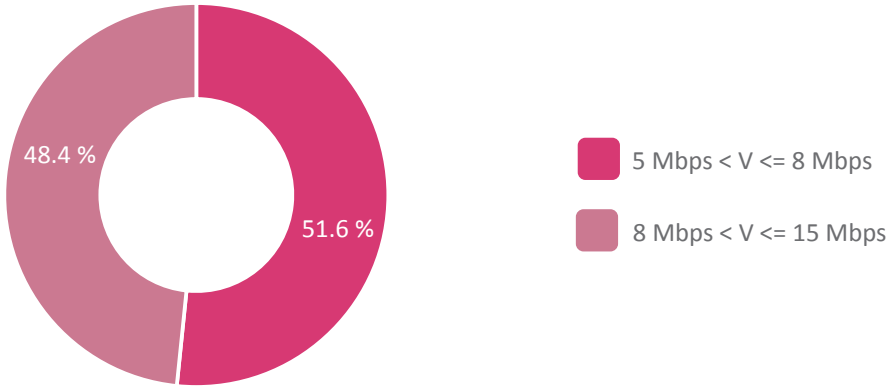
(annual figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 107. Costa Rica: Traffic, access to Internet on the mobile network, prepaid. Percent distribution per speed, 2020

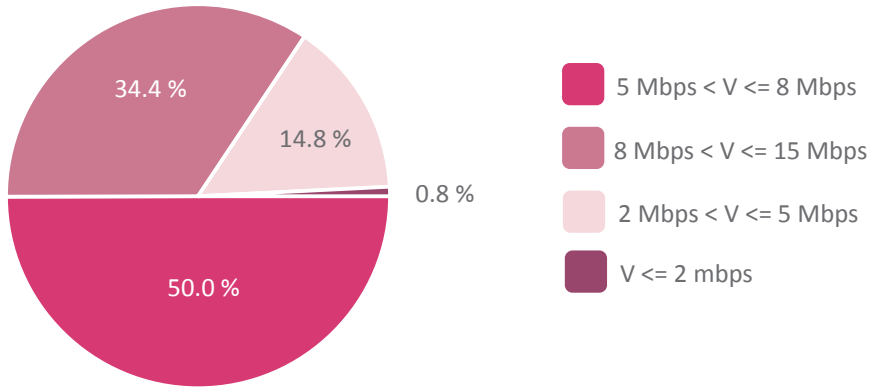
(annual figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 108. Costa Rica: Traffic, access to Internet on the mobile network, postpaid. Percent distribution per speed, 2020

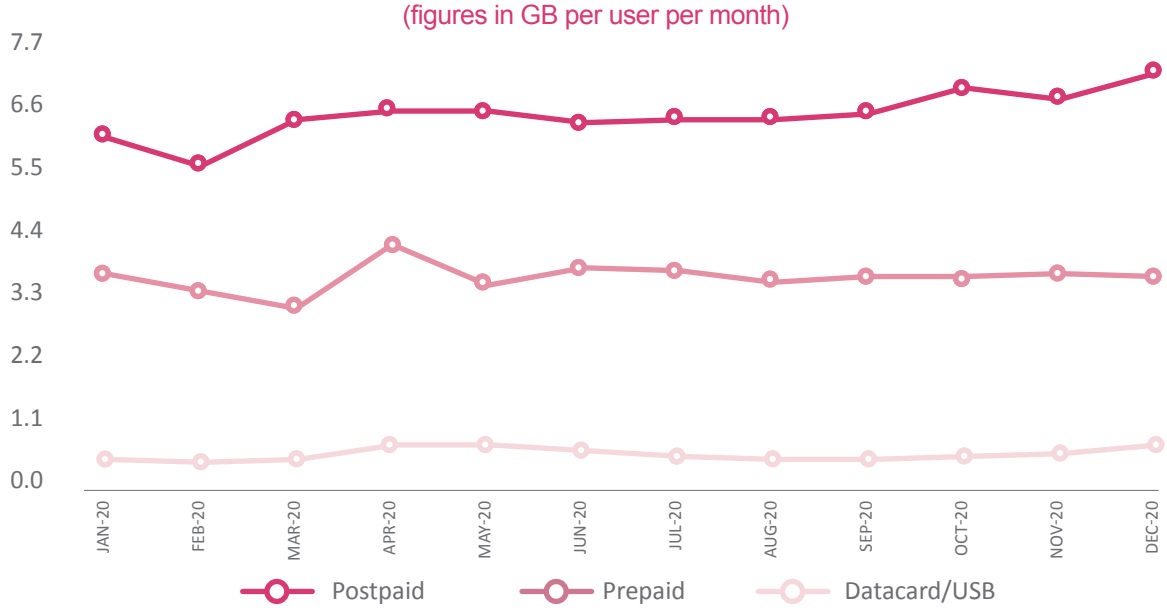
(annual figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 109. Costa Rica: Traffic, access to Internet on the mobile network, average traffic per user for each payment modality and on data card, 2020

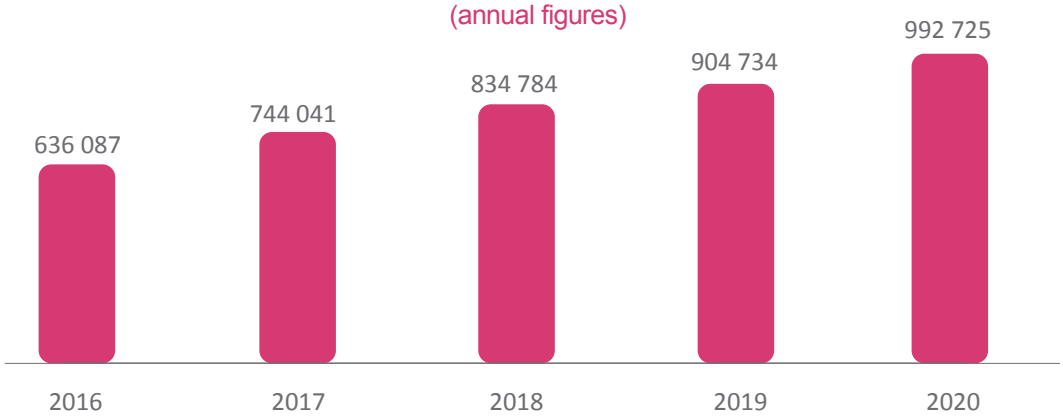
(figures in GB per user per month)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 110. Costa Rica: Subscriptions, Internet access on the fixed network, 2016-2020

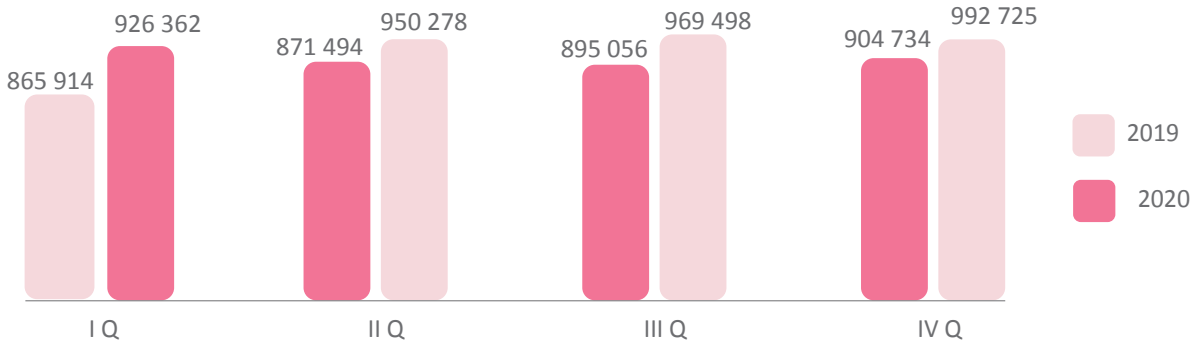
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 111. Costa Rica: Subscriptions, Internet access on the fixed network, 2019-2020

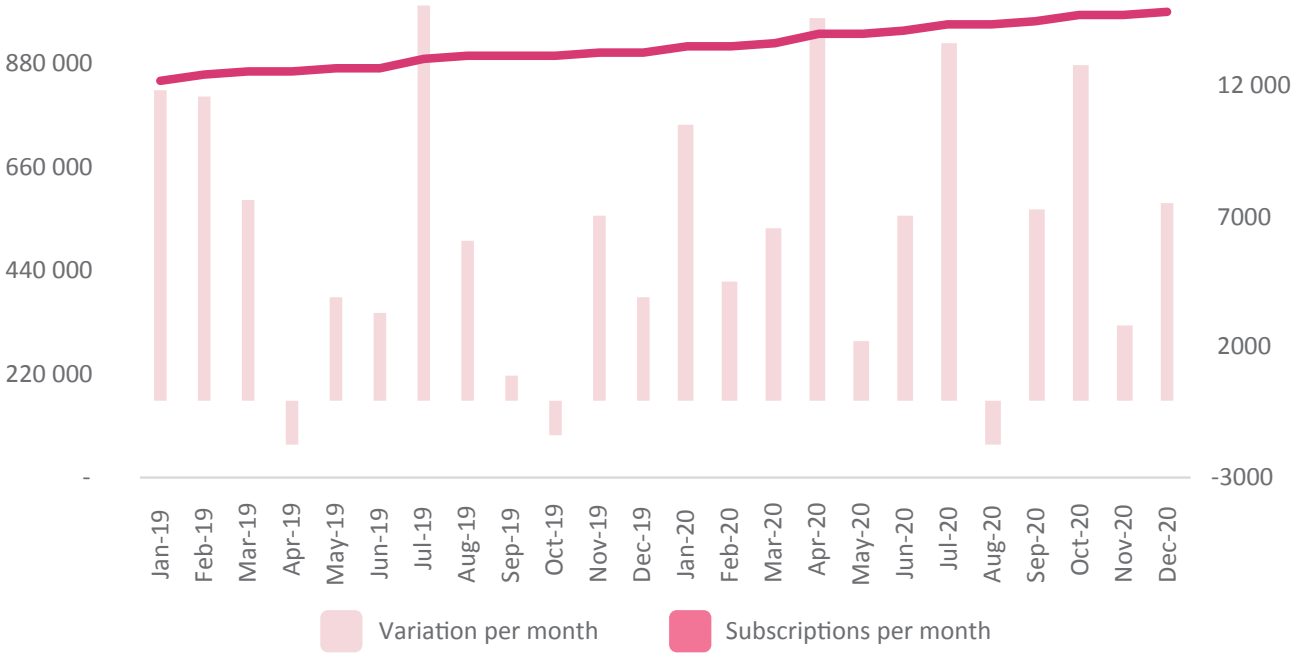
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 112. Costa Rica. Subscriptions, access to Internet on the fixed network, accumulated total and monthly variation, 2019-2020

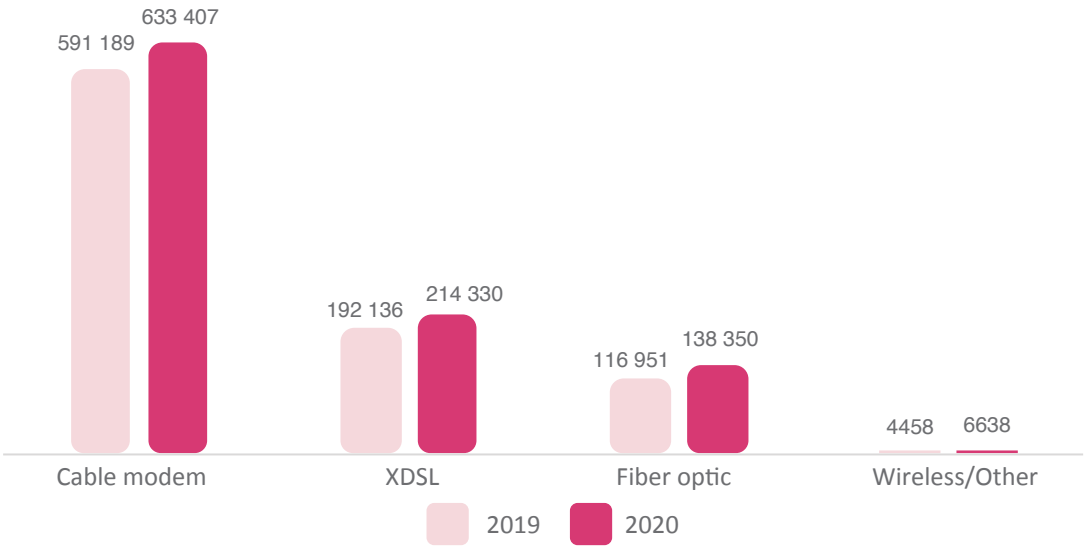
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 113. Costa Rica. Subscriptions, access to Internet on the fixed network, accumulated total and monthly variation, 2019-2020

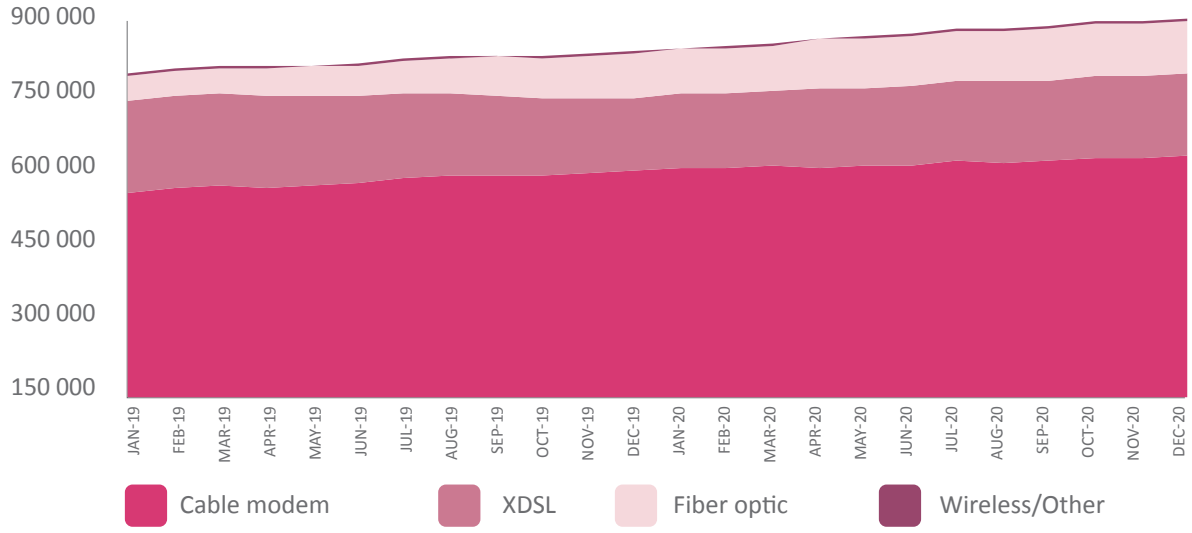
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 114. Subscriptions, access to fixed Internet, comparison by technology, 2019-2020

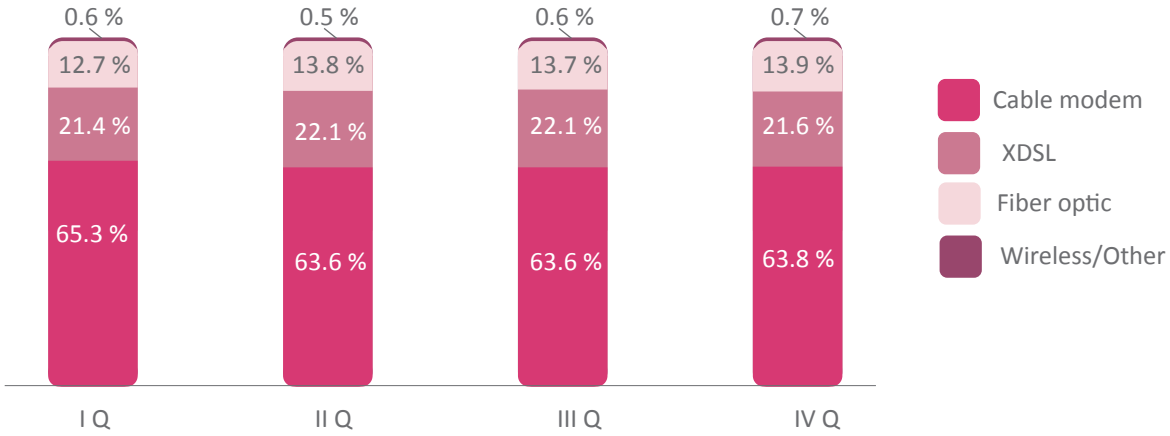
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 115. Costa Rica: Subscriptions, access to fixed Internet. Percent distribution per technology, 2020

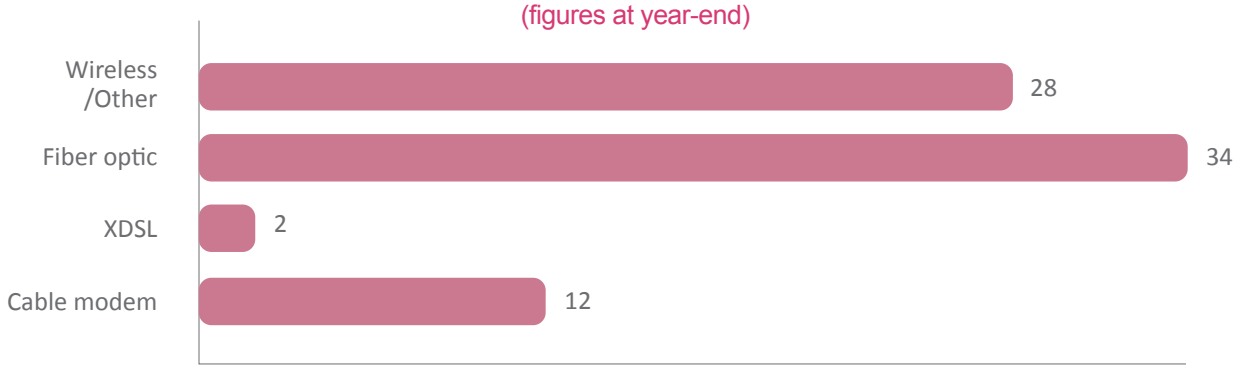
(quarterly figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 116. Costa Rica: Costa Rica. Subscriptions, access to fixed Internet, number of operators per technology, 2020

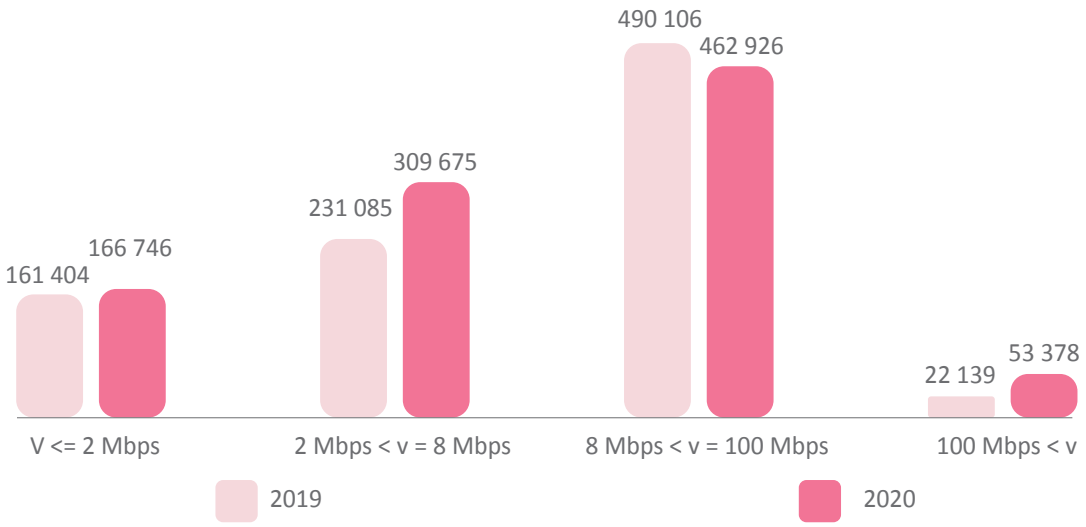
(figures at year-end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 117. Costa Rica: Subscriptions, access to fixed Internet, comparison per speed, 2019-2020

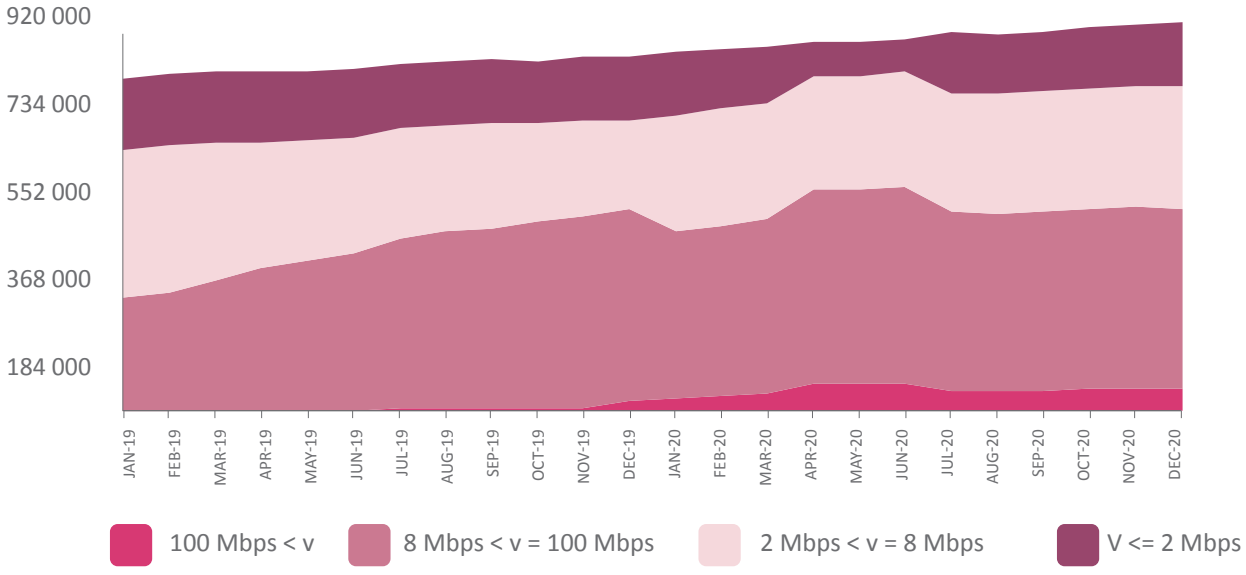
(figures at each year-end closing)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 118. Costa Rica: Subscriptions, access to fixed Internet. Detail per speed, 2019-2020

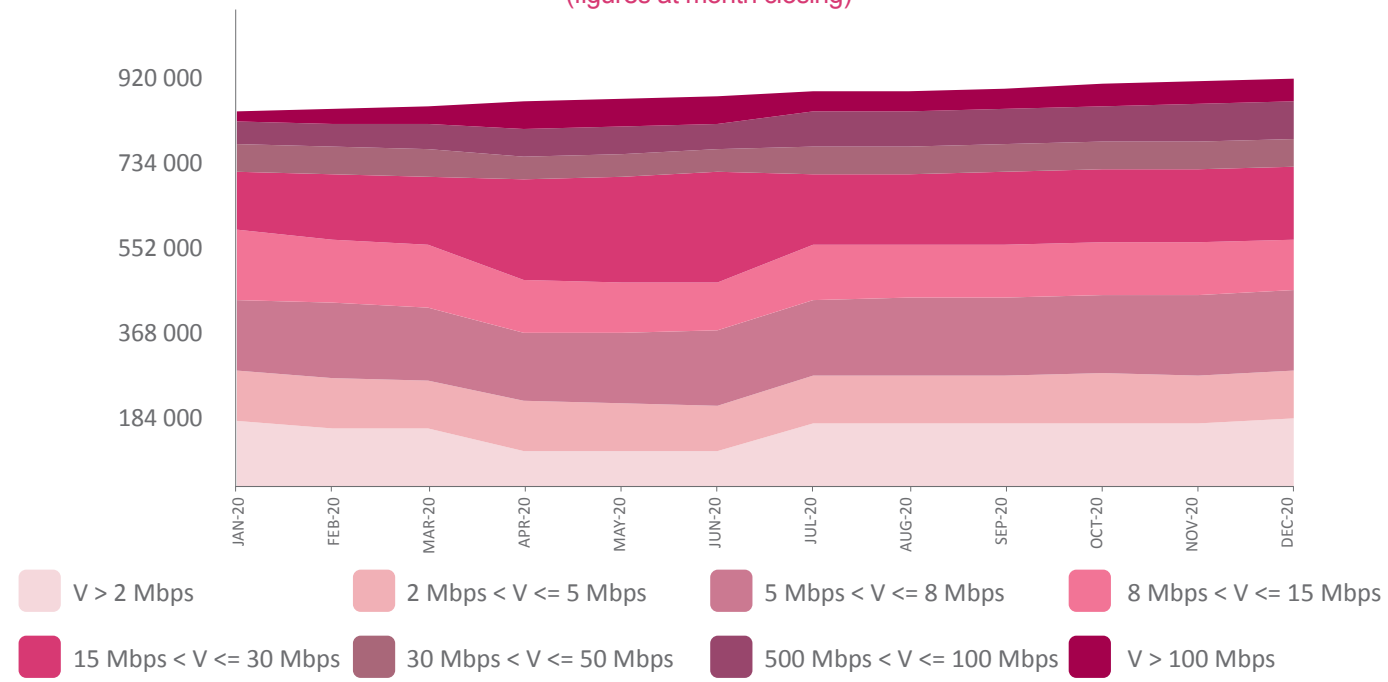
(figures at month closing)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 119. Costa Rica: Subscriptions, access to fixed Internet, detail per speed ranges and per month, 2020

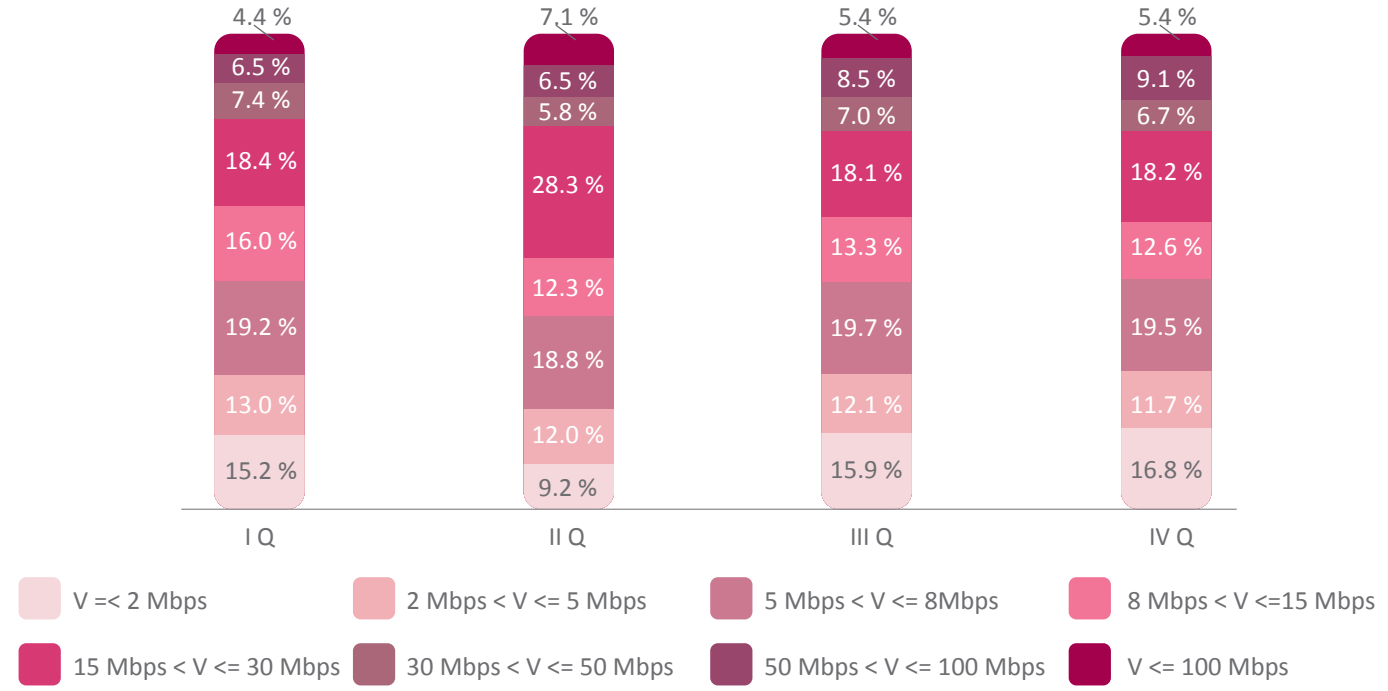
(figures at month closing)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 120. Costa Rica: Subscriptions, access to fixed Internet. Percent distribution per speed, 2020

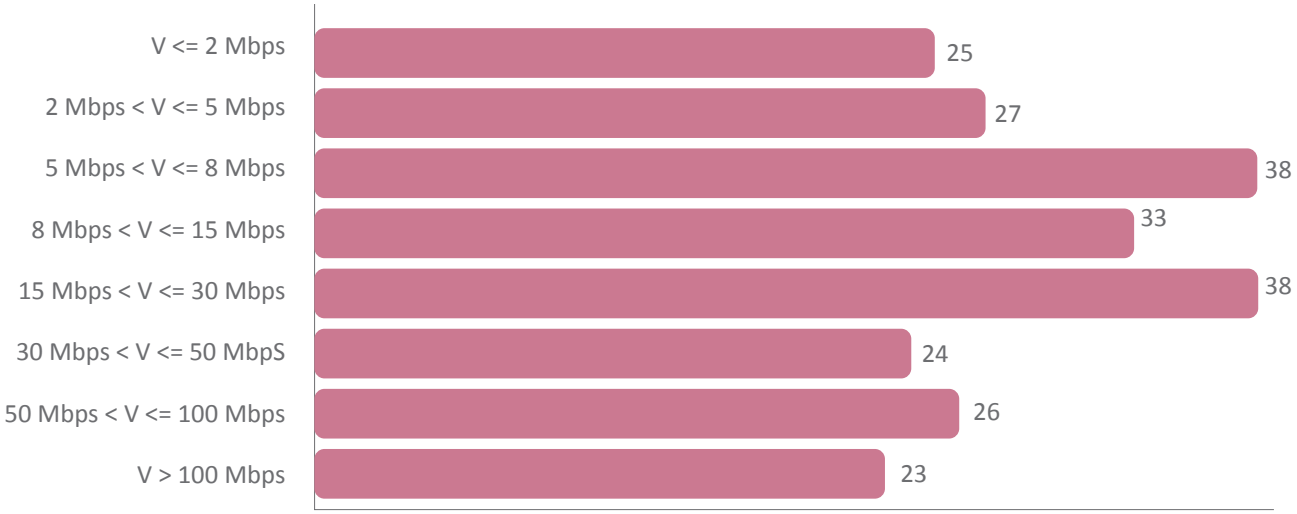
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 121. Costa Rica: Subscriptions, access to fixed Internet, number of operators per speed range, 2020

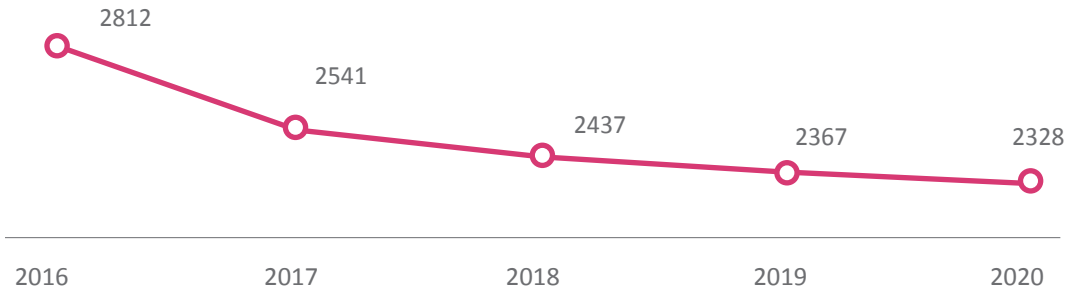
(figures at year-end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 122. Costa Rica: HHI evolution, access to fixed Internet, 2016-2020

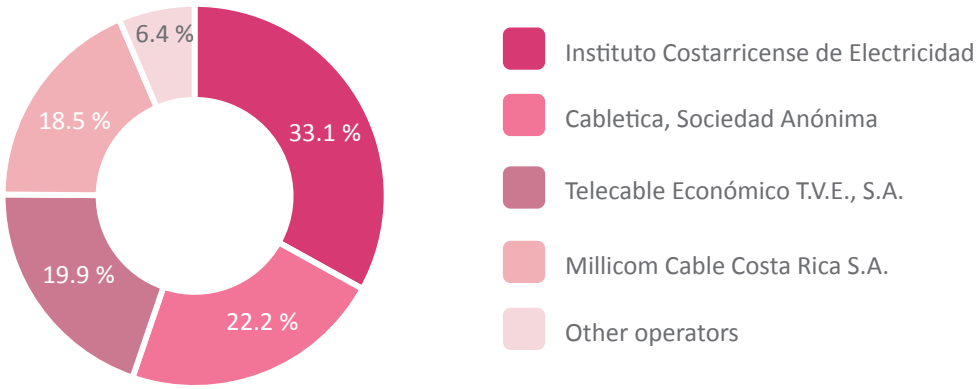
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 123. Costa Rica: Market share, access to fixed Internet, 2020

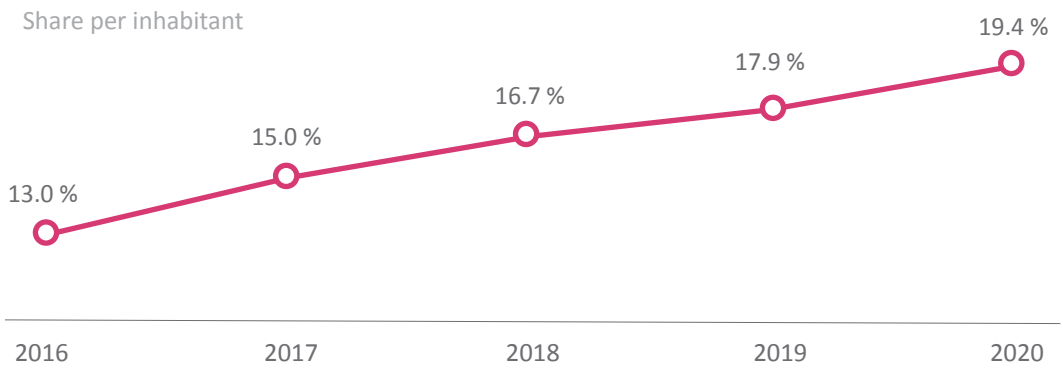
(figures at year-end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 124. Costa Rica: Subscriptions, access to fixed Internet per each 100 inhabitants, 2016-2020

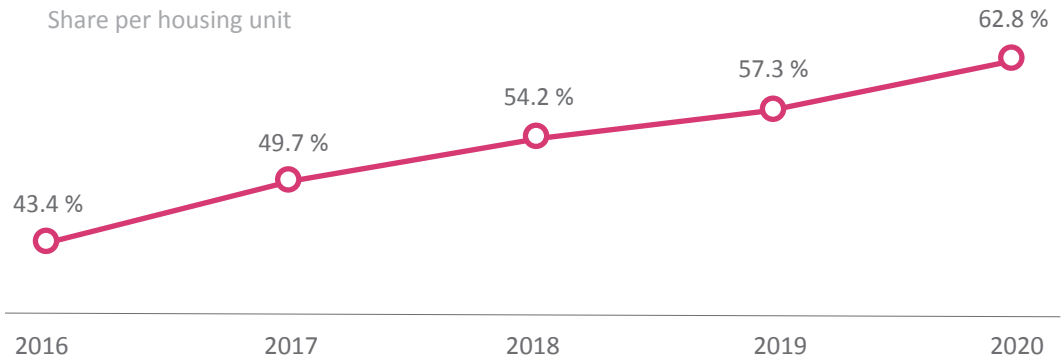
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 125. Costa Rica: Subscriptions, access to fixed Internet per each 100 housing units, 2016-2020

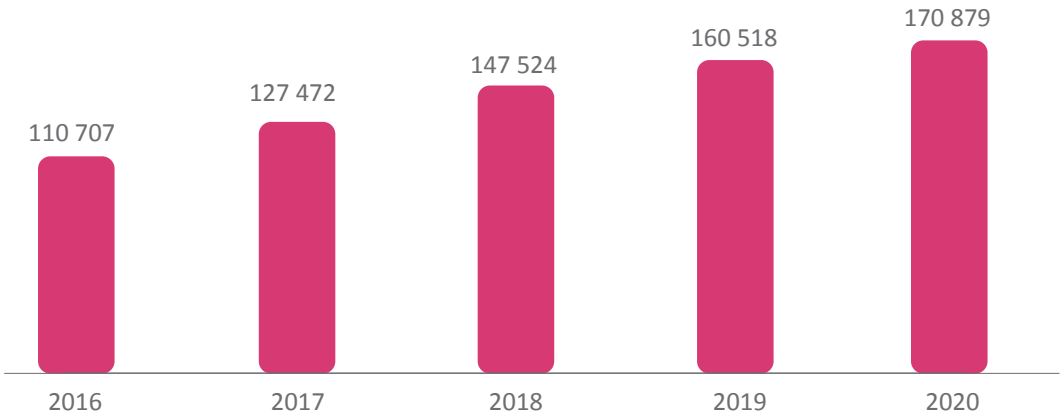
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 126. Costa Rica: Revenue, Internet access on the fixed network, 2016-2020

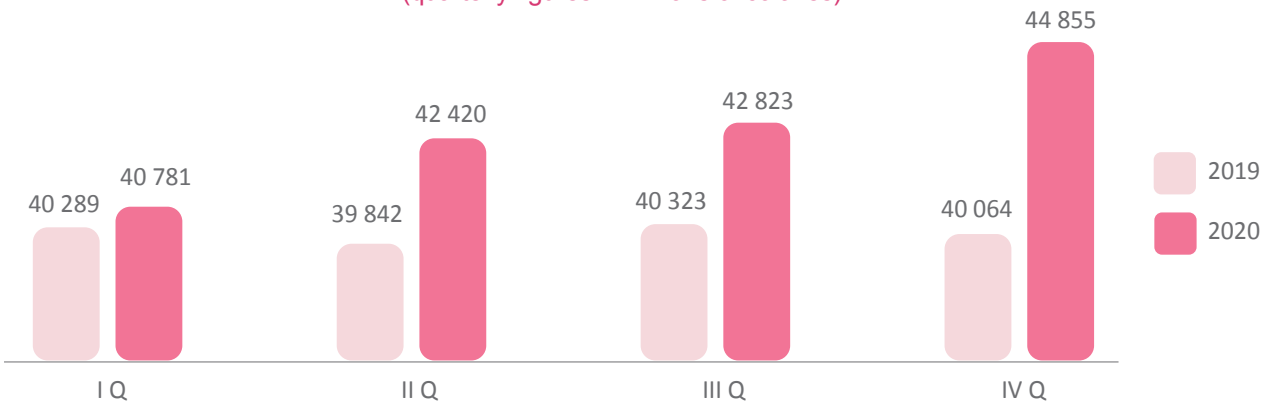
(annual figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.°127. Costa Rica: Revenue, fixed Internet access, 2019-2020

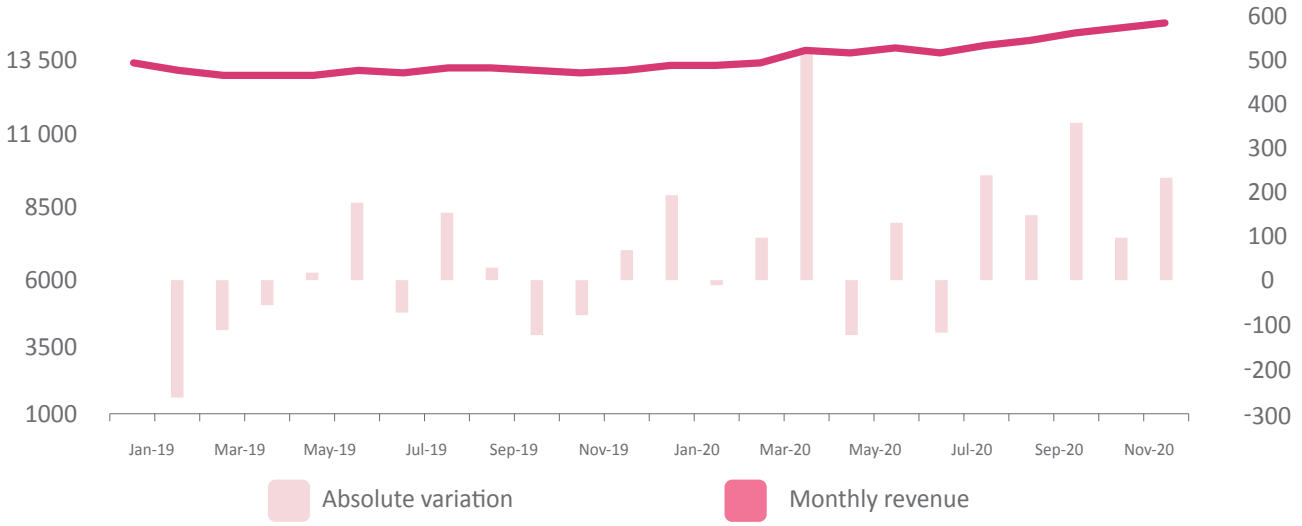
(quarterly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 128. Costa Rica: Revenue, Internet access on the fixed network, accumulated total and monthly variation, 2019-2020

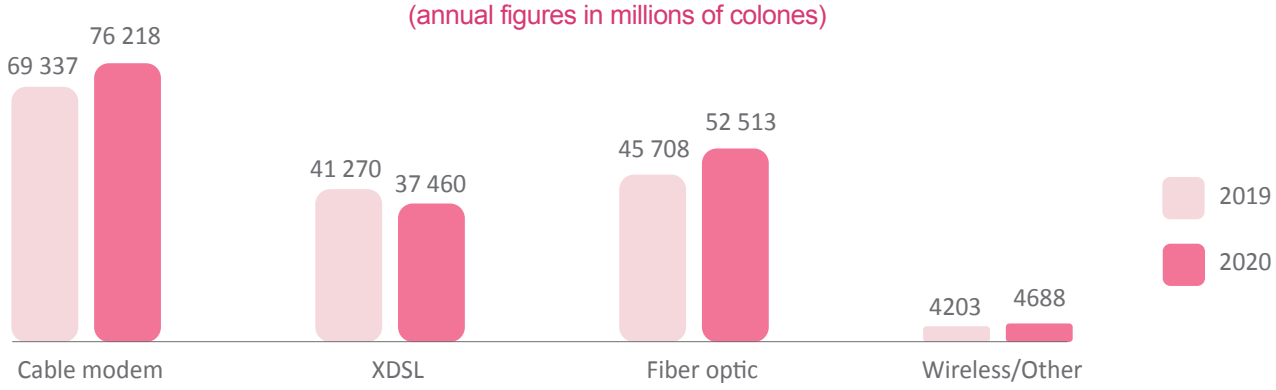
(annual figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 129. Costa Rica: Revenue, fixed Internet access, comparison per technology, 2019-2020

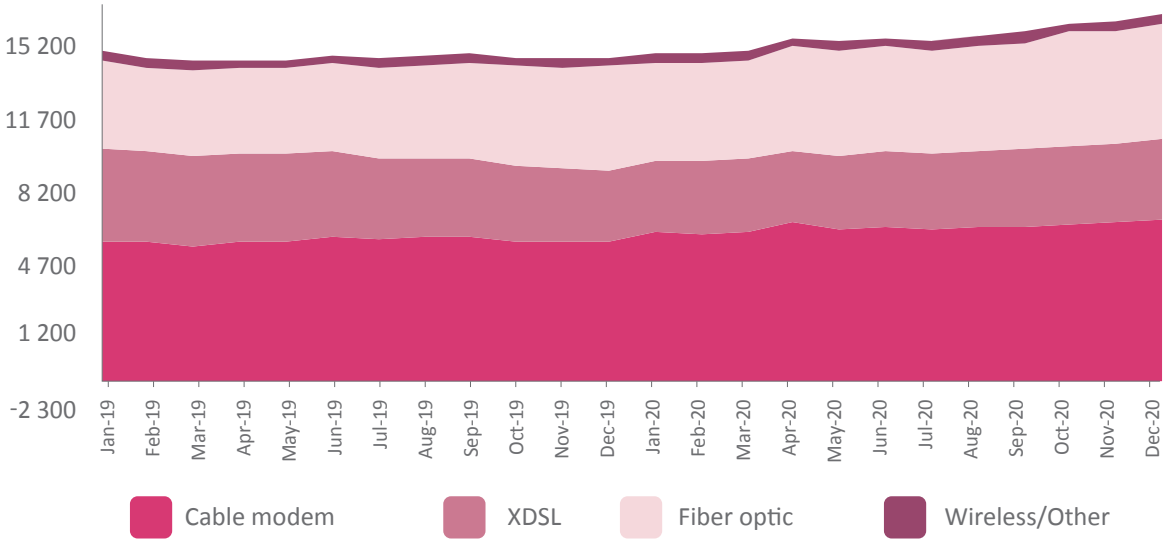
(annual figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 130. Costa Rica: Revenue, fixed Internet access. Percent distribution per technology, 2019-2020

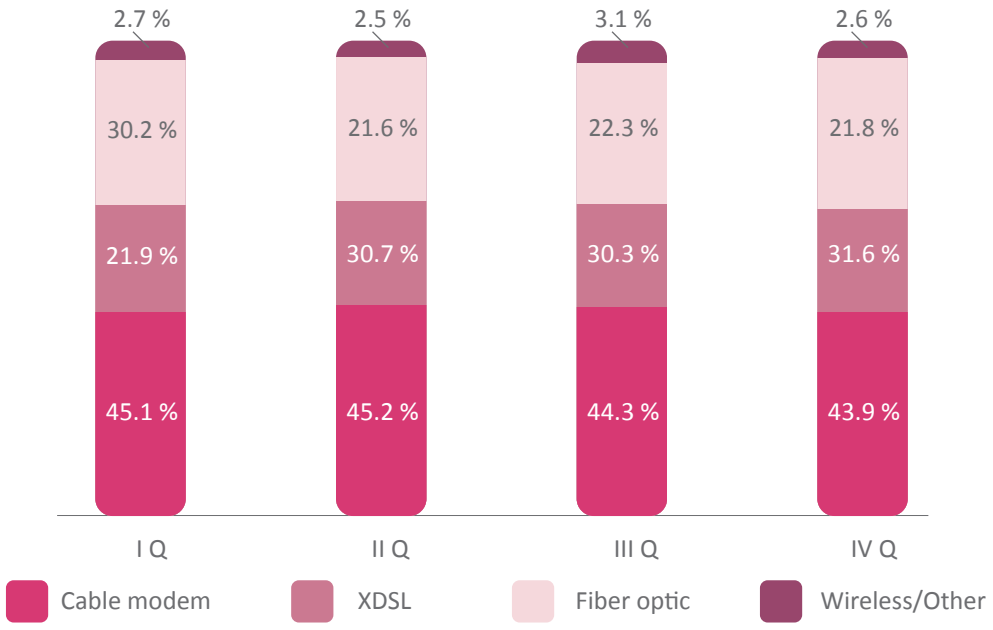
(monthly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 131. Costa Rica: Revenue, fixed Internet access. Percent distribution per technology, 2020

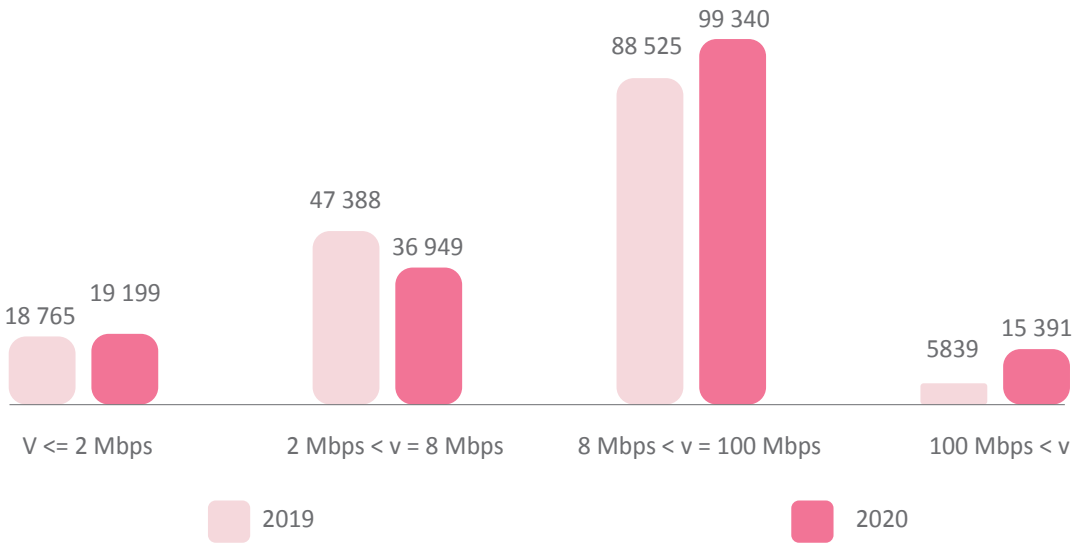
(quarterly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 132. Costa Rica: Revenue, fixed Internet access, comparison per speed, 2019-2020

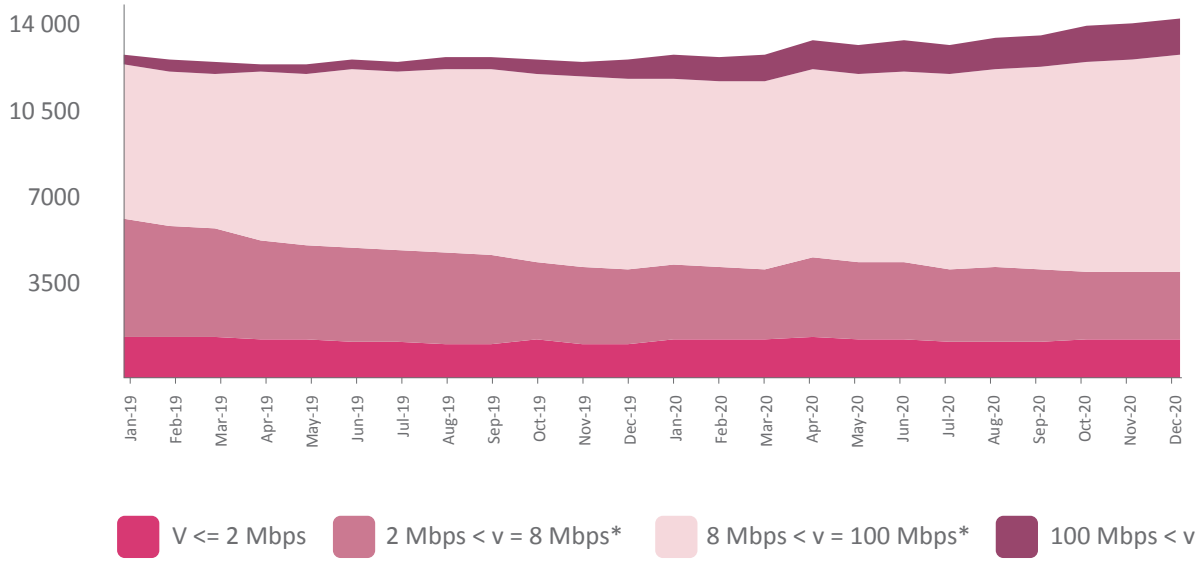
(annual figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 133. Costa Rica: Revenue, fixed Internet access, comparison per speed, 2019-2020

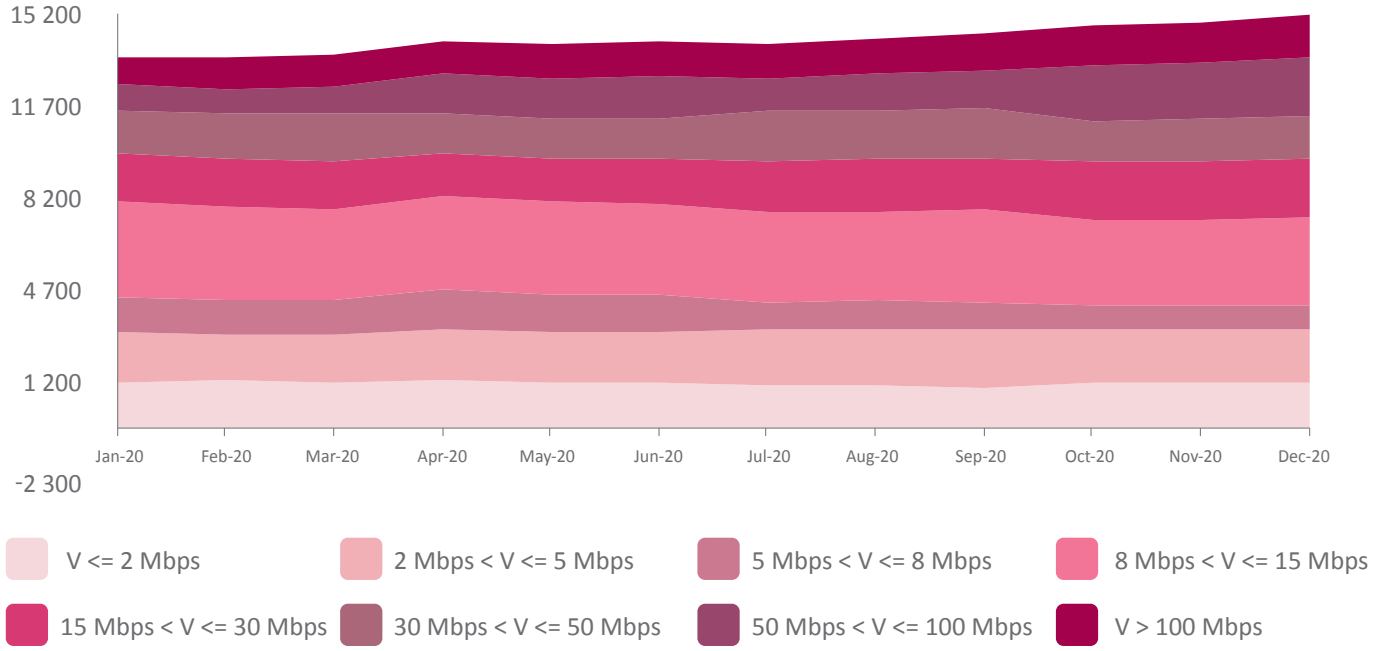
(monthly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 134. Costa Rica: Revenue, fixed Internet access, comparison per speed, 2020

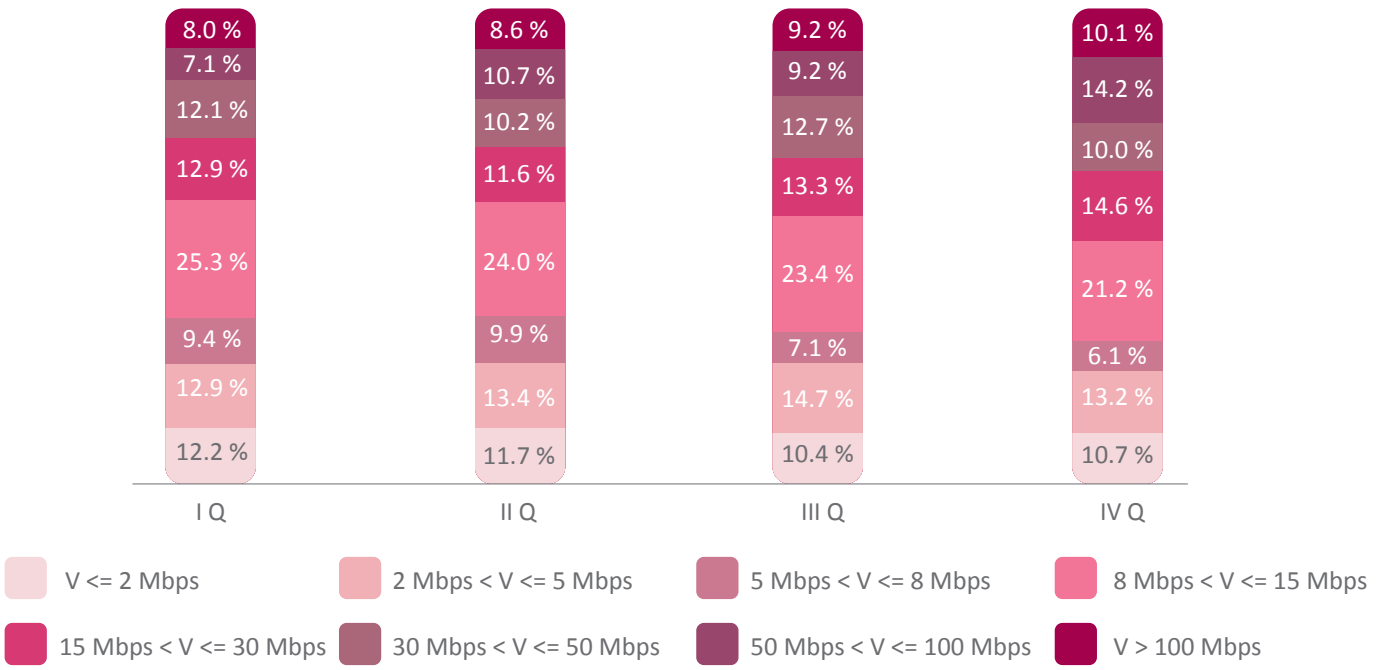
(annual figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 135. Costa Rica: Revenue, fixed Internet access, distribution per new speed ranges, 2020

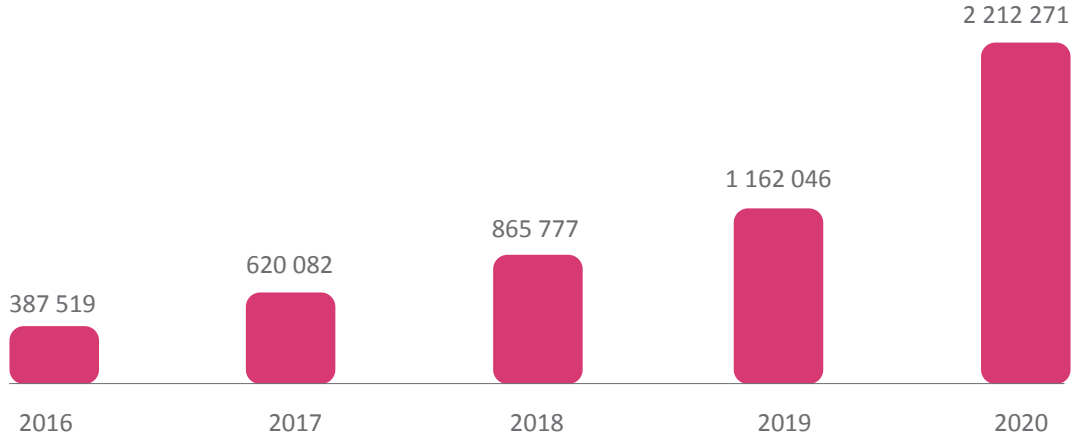
(quarterly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 136. Costa Rica: Traffic, Internet access on the fixed network, 2016-2020

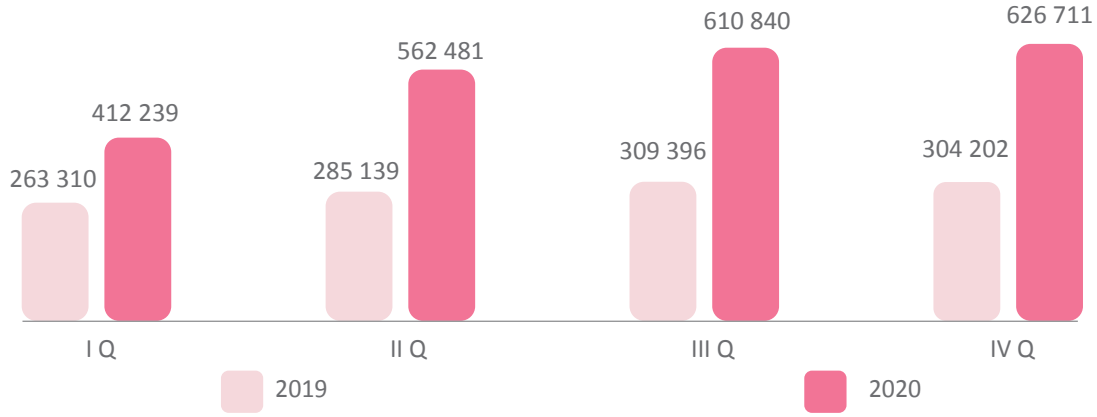
(annual figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 137. Costa Rica: Traffic, access to fixed Internet, quarterly comparison, 2019-2020

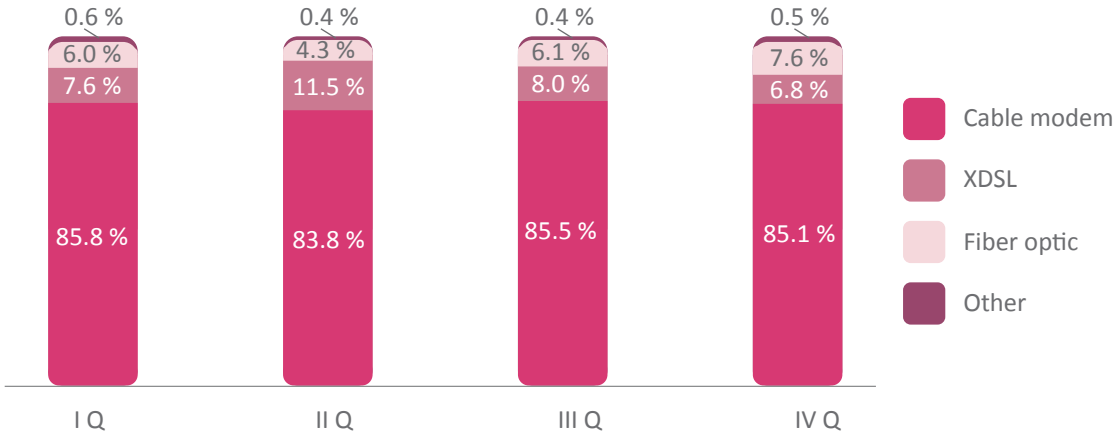
(quarterly figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 138. Costa Rica: Traffic, mobile Internet access, comparison per technology, 2020

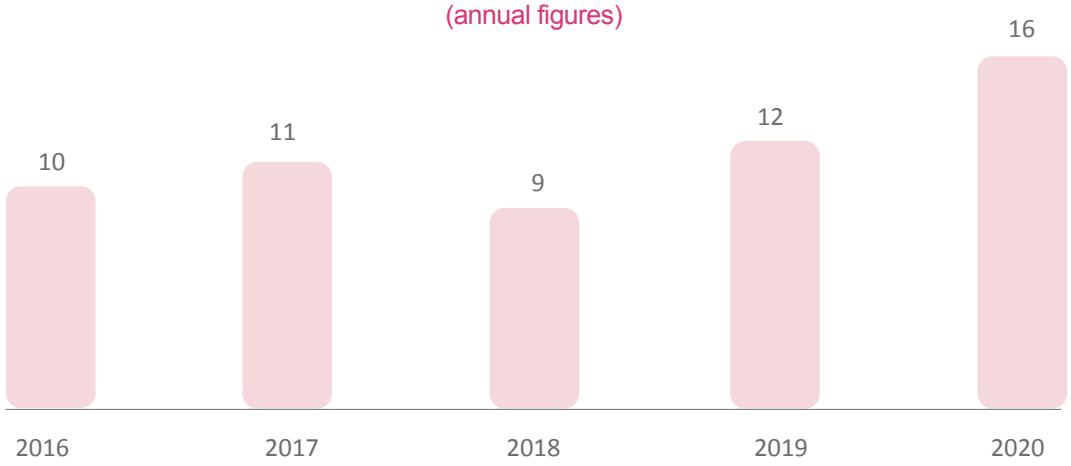
(quarterly figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 139. Costa Rica: Connections, wholesale Internet access, number of participating companies, 2016-2020

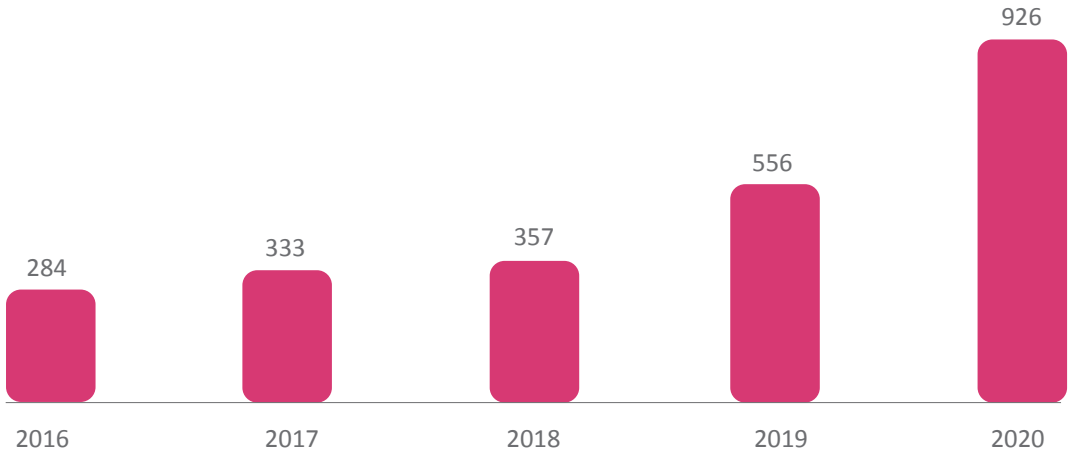
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 140. Costa Rica: Connections, wholesale Internet access, 2016-2020

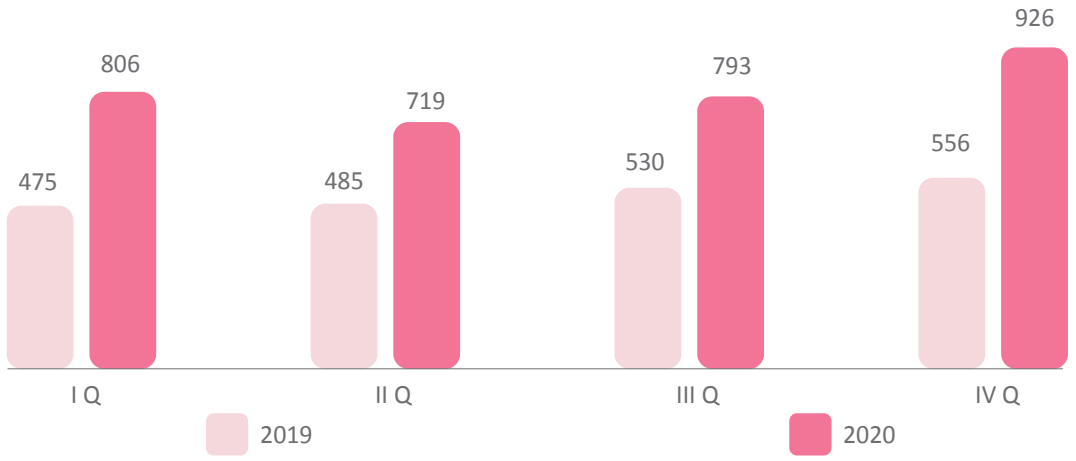
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 141. Costa Rica: Connections, wholesale Internet access, 2019-2020

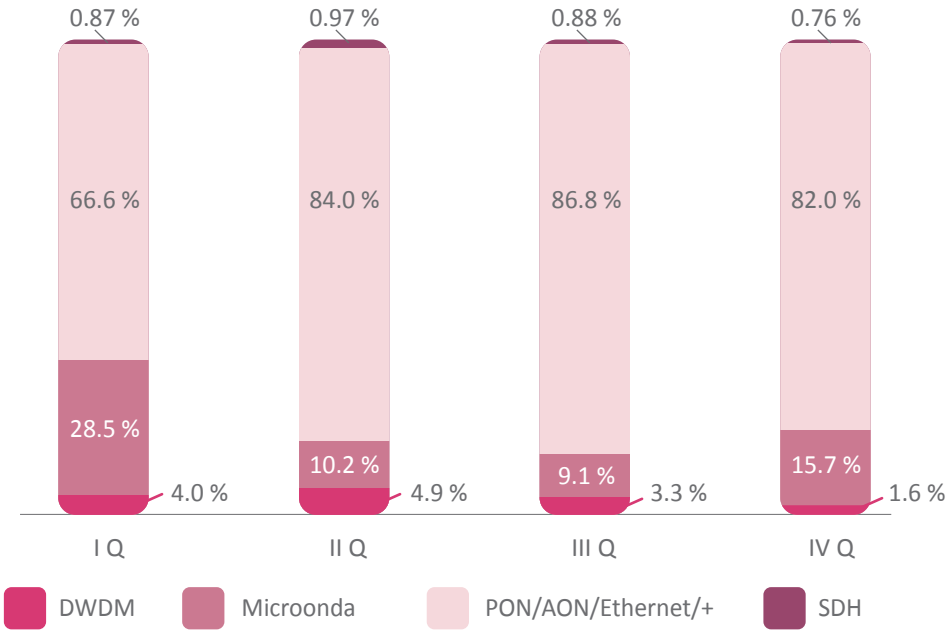
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 142. Costa Rica: Connections, wholesale Internet access, percent distribution per technology, 2020

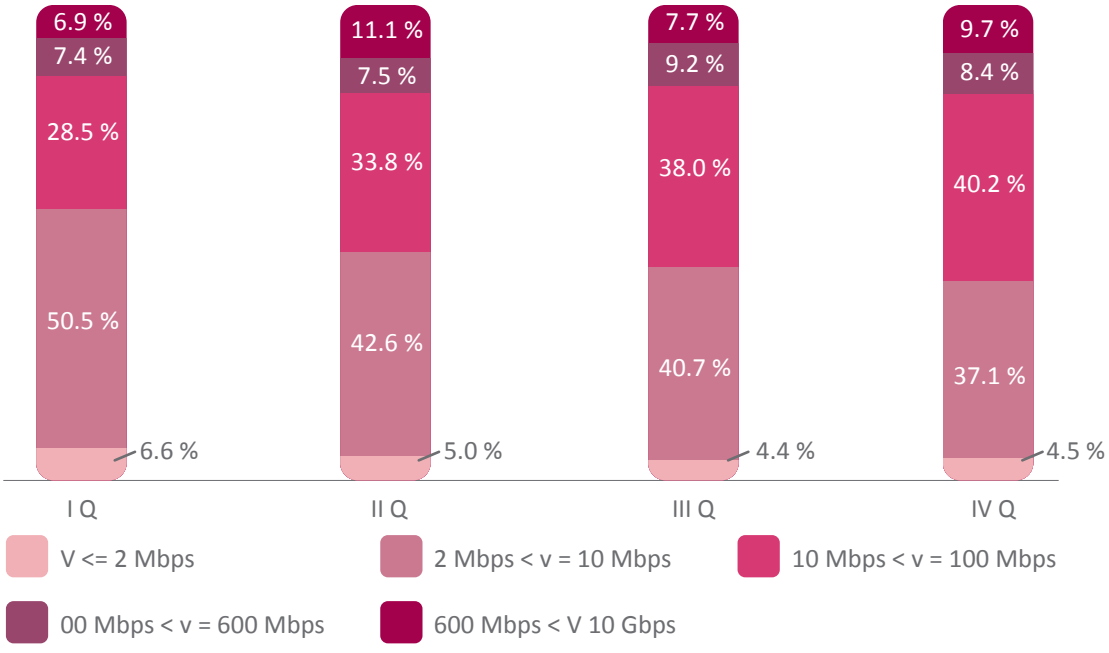
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 143. Costa Rica: Connections, wholesale Internet access, percent distribution per speed, 2020

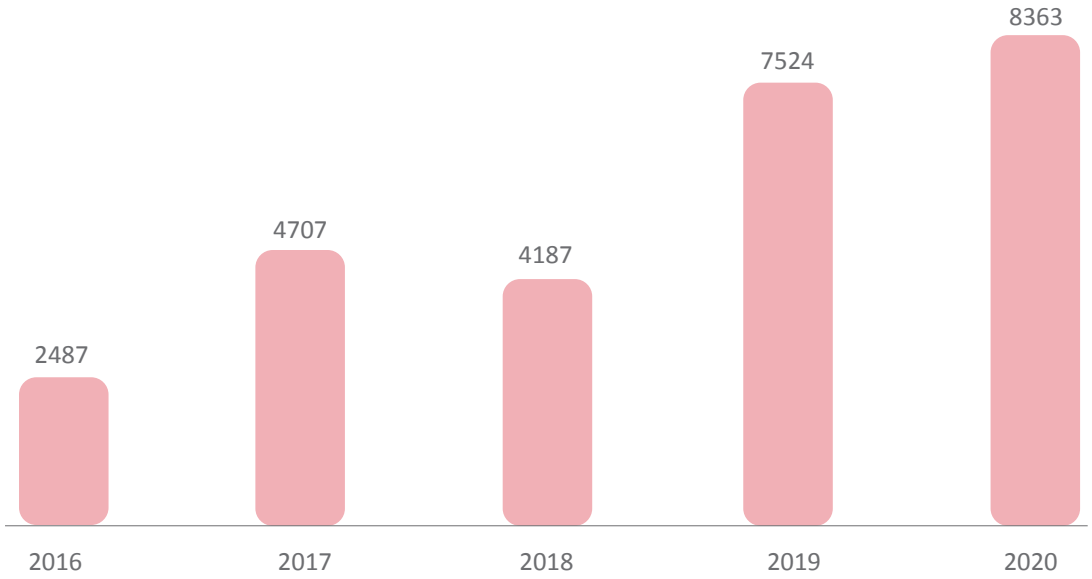
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 144. Costa Rica: Revenue, wholesale Internet access, 2016-2020

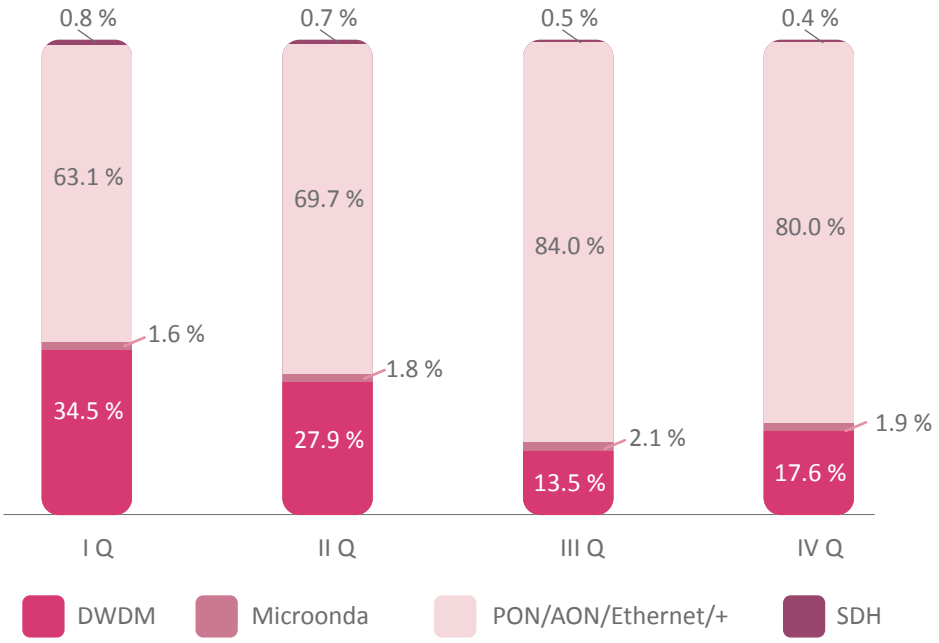
(cifras anuales en millones de colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 145. Costa Rica: Revenue, wholesale Internet access, distribution per technology, 2020

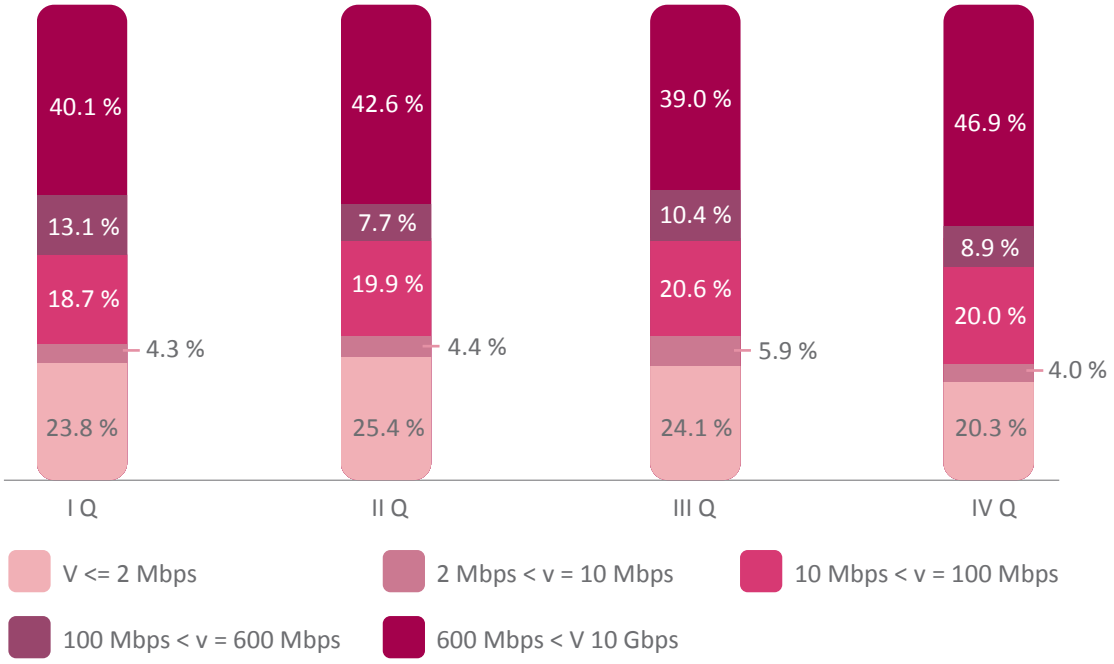
(quarterly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 146. Costa Rica: Revenue, wholesale Internet access, distribution per speed, 2020

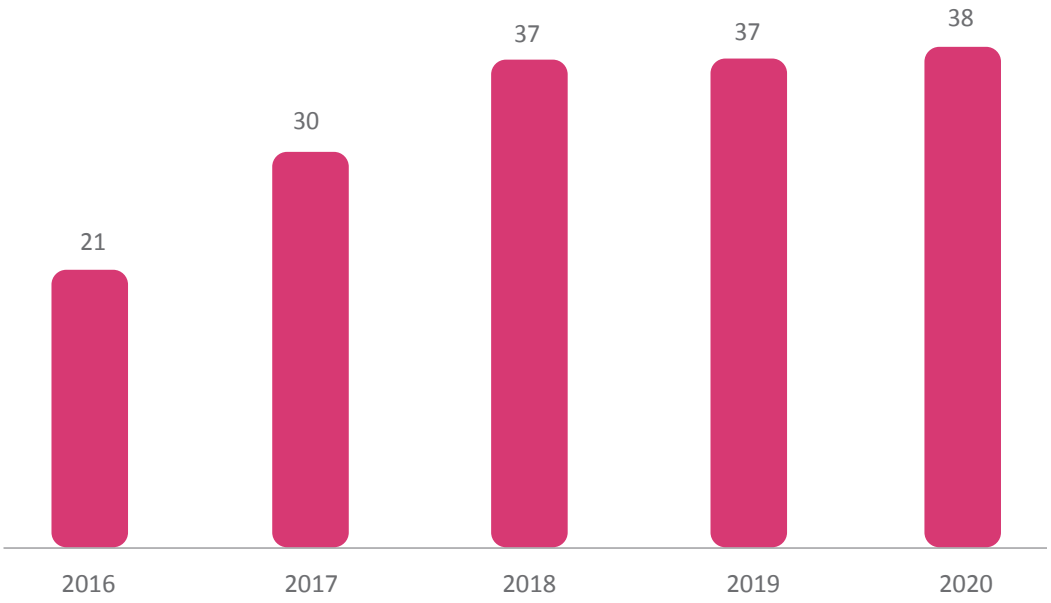
(quarterly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 147. Costa Rica: Connections, dedicated lines, number of active companies, 2016-2020

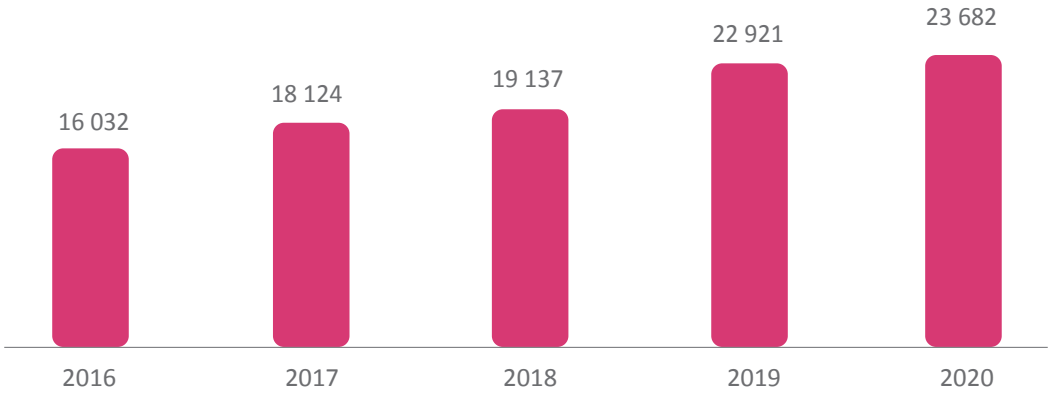
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 148. Costa Rica: Connections, dedicated lines, 2016-2020

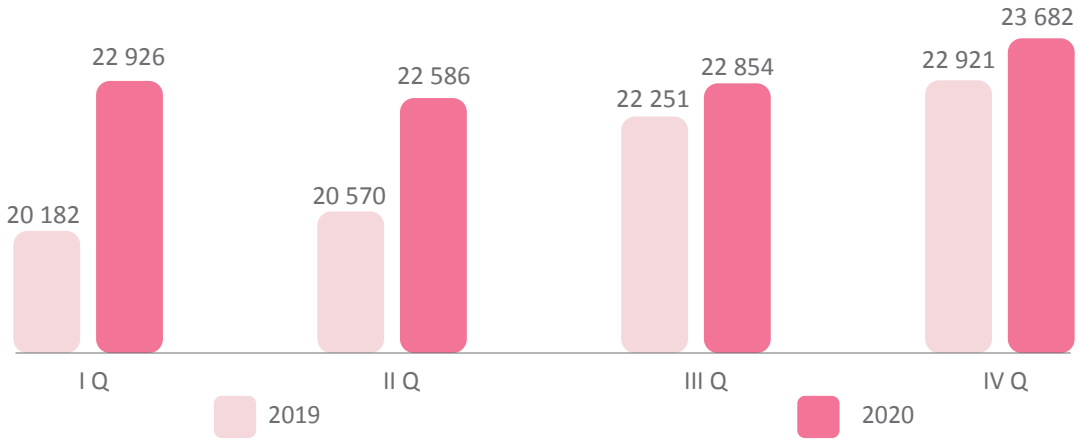
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 149. Costa Rica: Connections, dedicated lines, 2019-2020

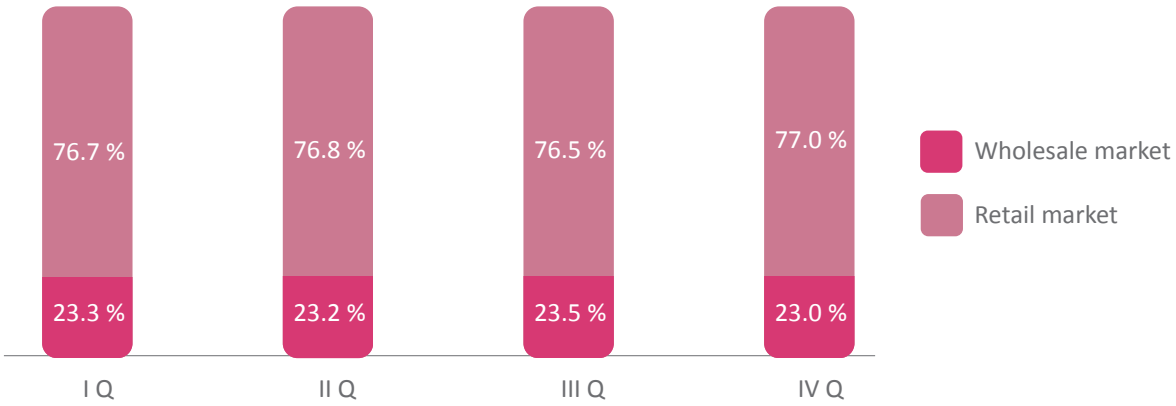
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 150. Costa Rica: Connections, dedicated lines, comparison per type of market, 2020

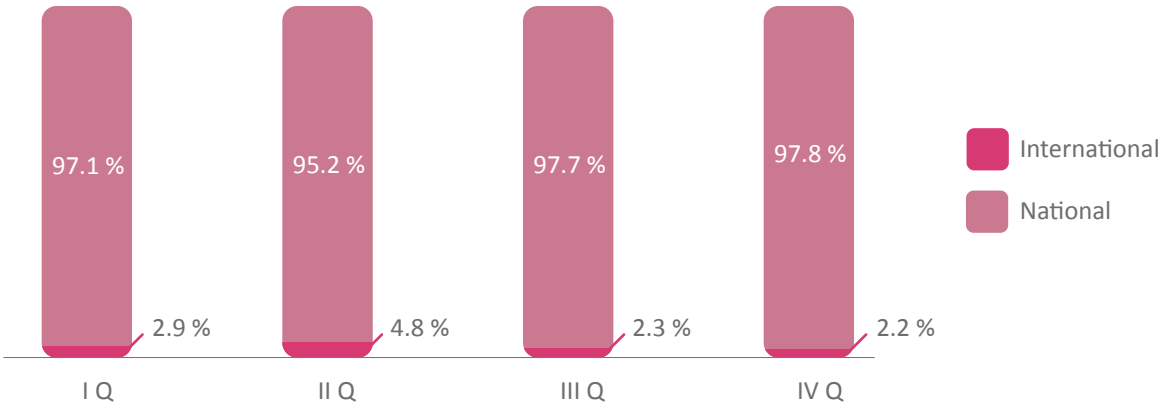
(quarterly figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 151. Costa Rica: Connections, dedicated lines, comparison per territory of service provision, 2020

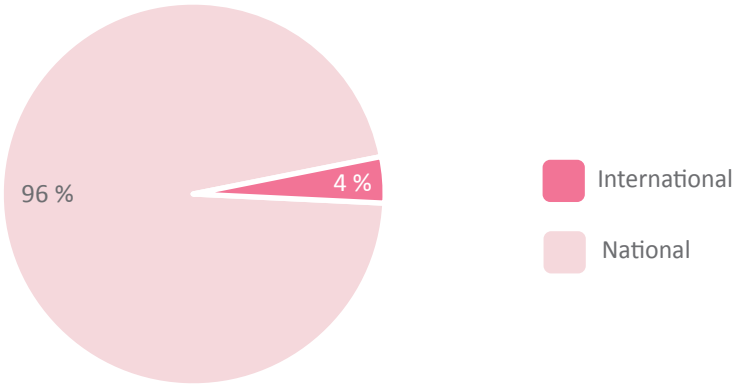
(quarterly figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 152. Costa Rica: Connections, dedicated lines, distribution per territory of service provision, wholesale market, 2020

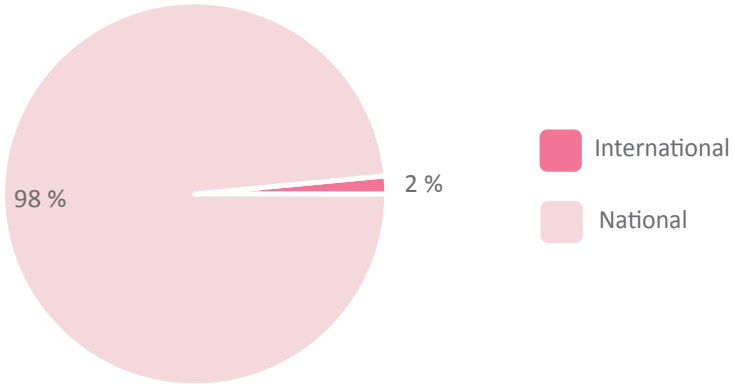
(figures at year-end closing in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 153. Costa Rica: Costa Rica. Connections, dedicated lines, distribution per territory of service provision, retail market, 2020

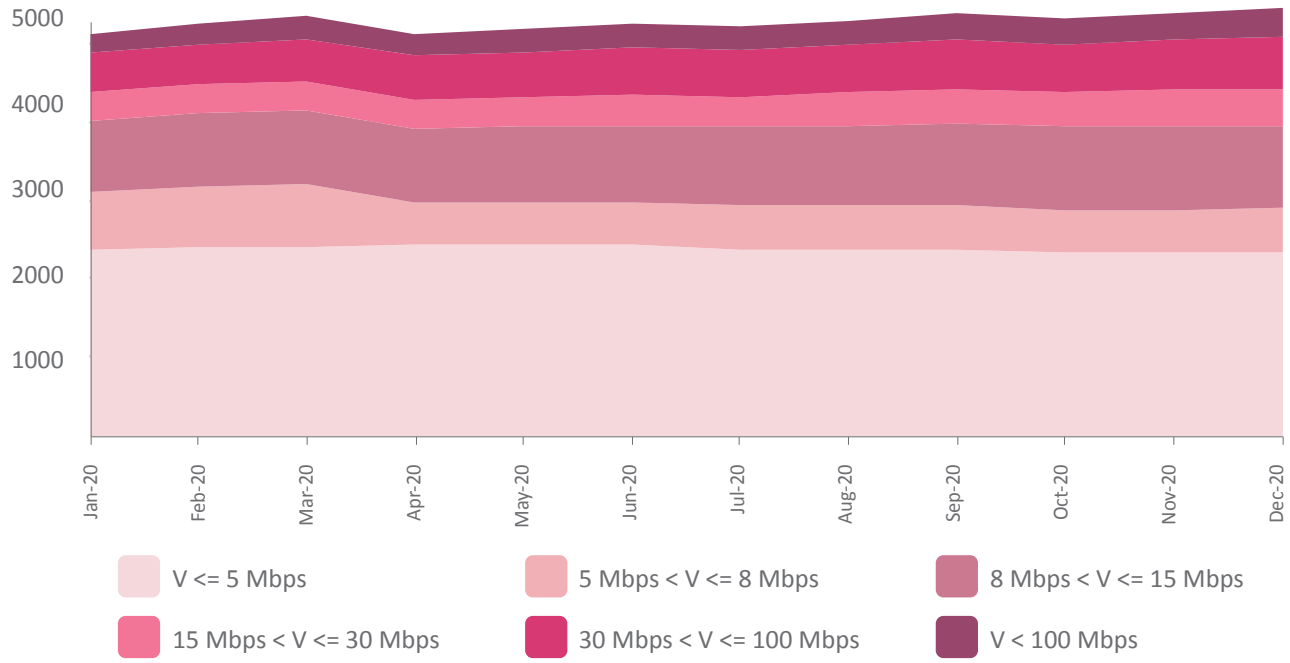
(figures at year-end closing in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 154. Costa Rica: Connections, dedicated lines, distribution per speed, wholesale market, 2020

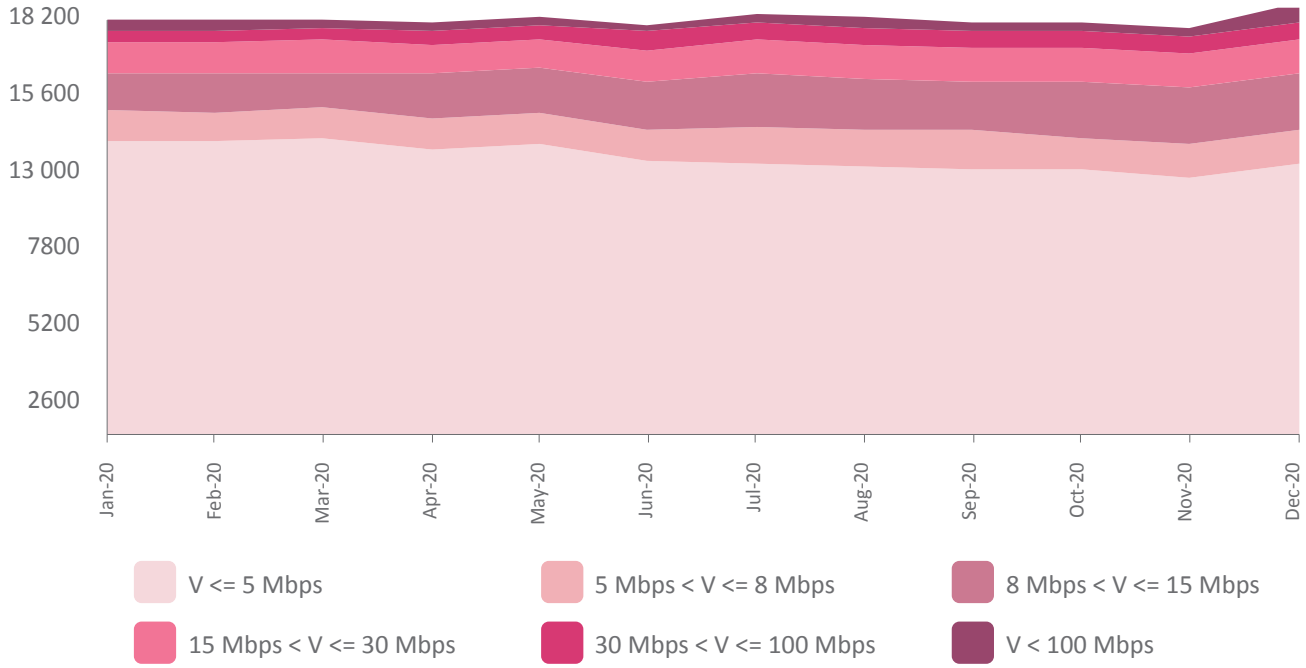
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 155. Costa Rica: Costa Rica. Connections, dedicated lines, distribution per speed, wholesale market, 2020

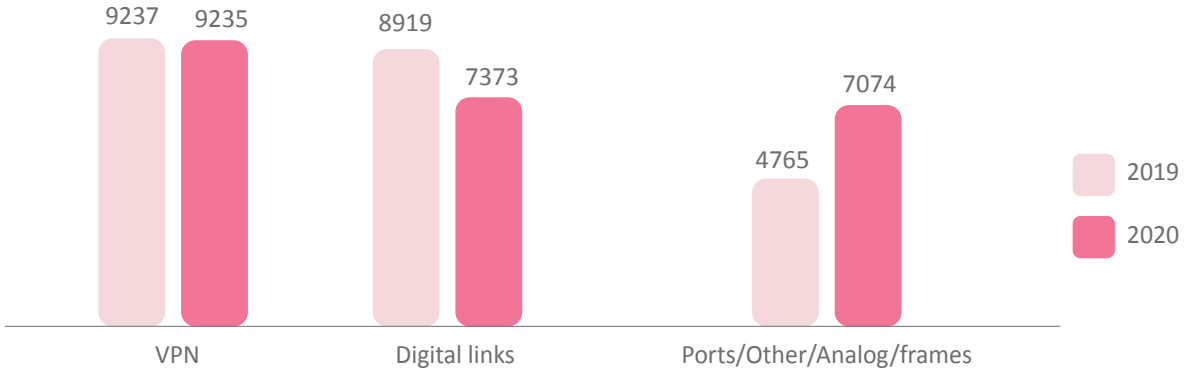
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 156. Costa Rica: Connections, dedicated lines, market total, distribution per technology, 2019-2020

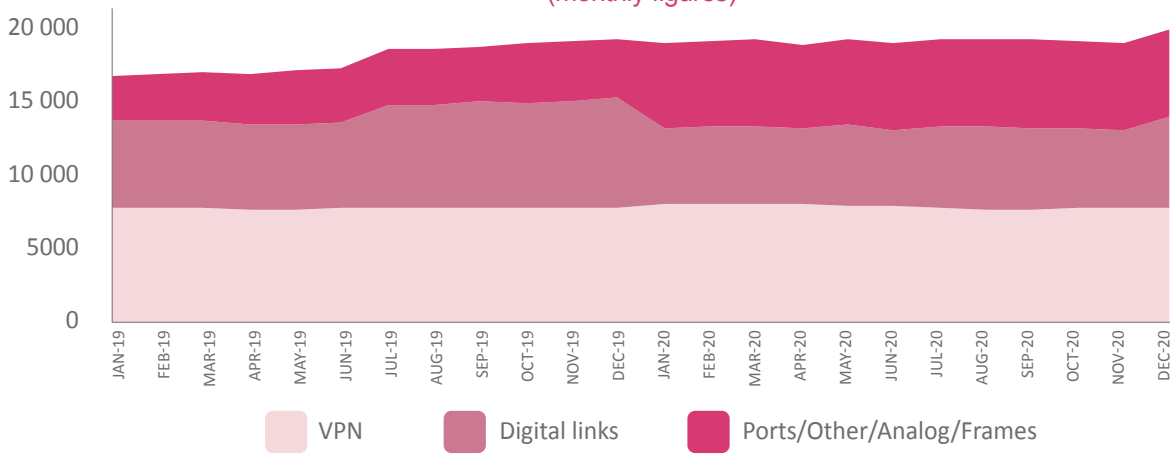
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 157. Costa Rica: Connections, dedicated lines, market total, distribution per technology, 2019-2020

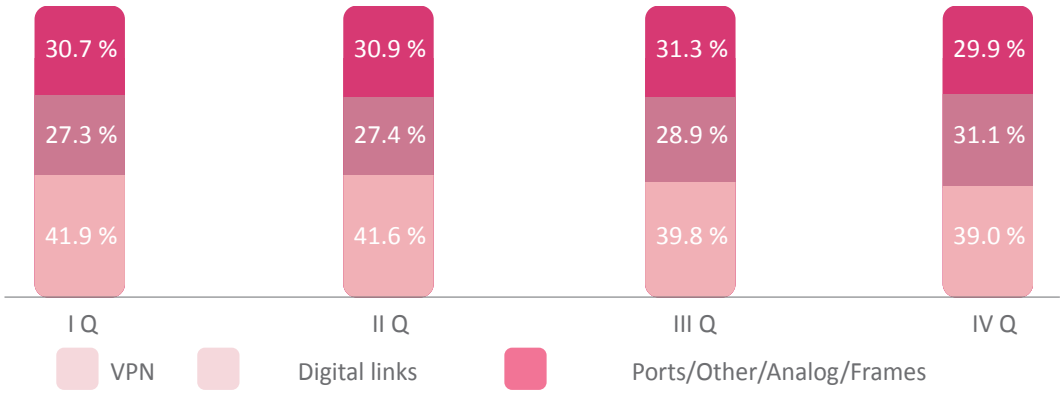
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 158. Costa Rica: Connections, dedicated lines, market total, distribution per technology, 2020

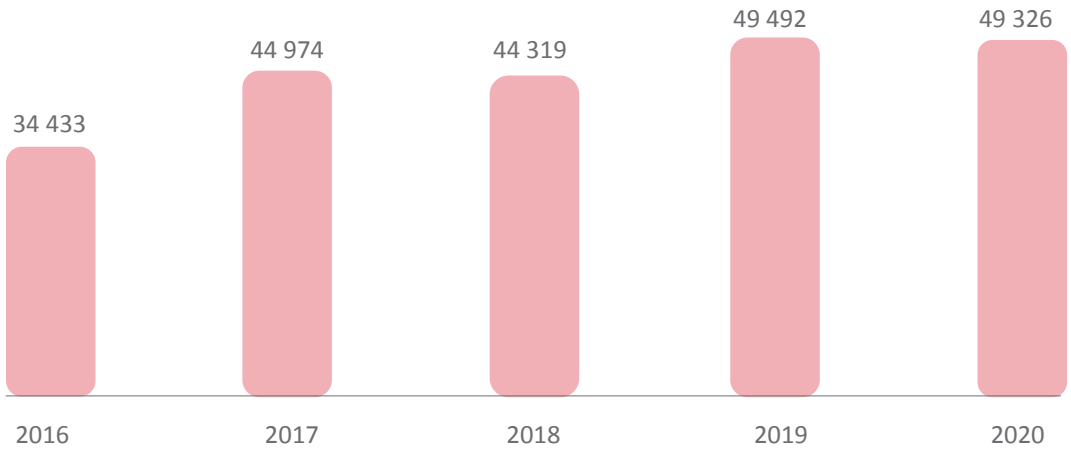
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 159. Costa Rica: Revenue, dedicated lines, 2016-2020

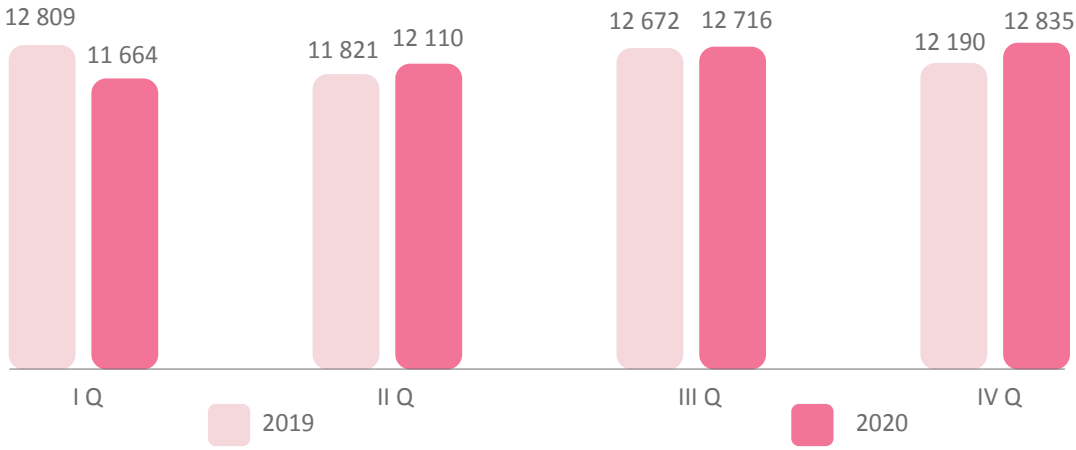
(annual figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 160. Costa Rica: Revenue, dedicated lines, 2019-2020

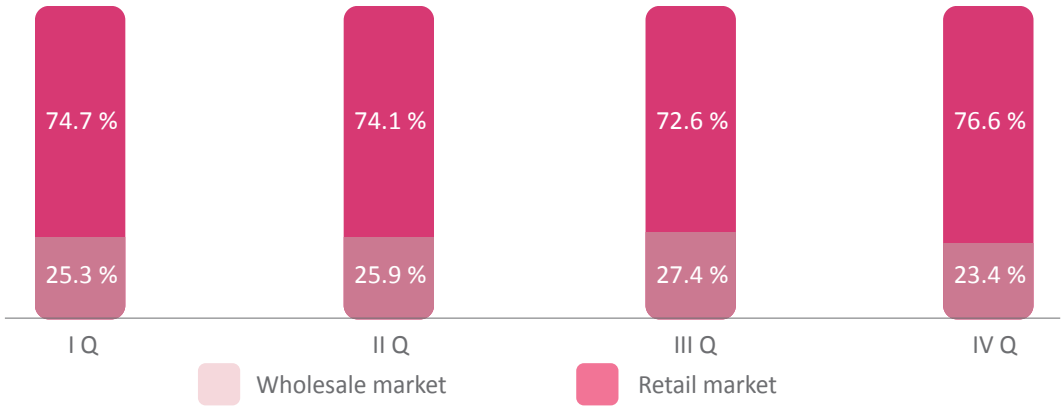
(quarterly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 161. Costa Rica: Revenue, dedicated lines, comparison per type of market, 2020

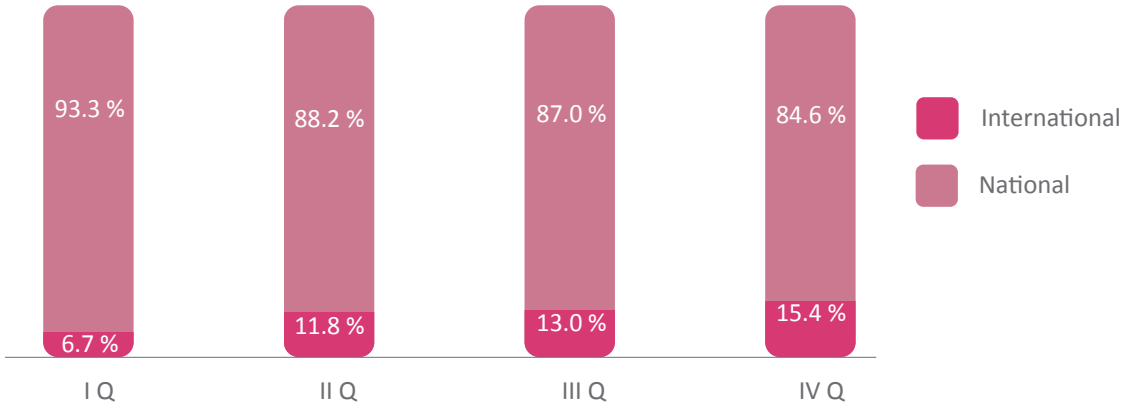
(quarterly figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 162. Costa Rica: Revenue, dedicated lines, comparison per territory of service provision, 2020

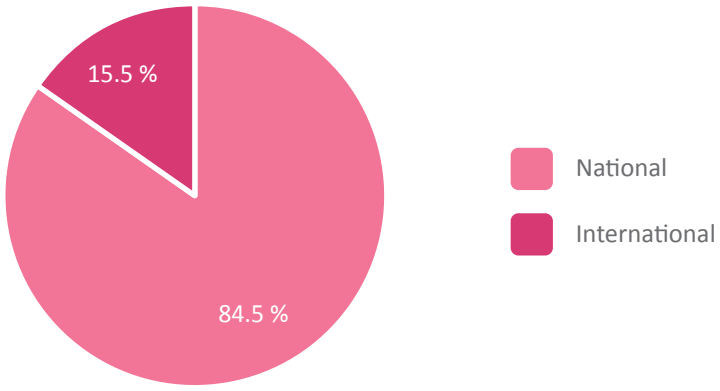
(quarterly figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 163. Costa Rica: Revenue, dedicated lines, distribution per territory of service provision, wholesale market, 2020

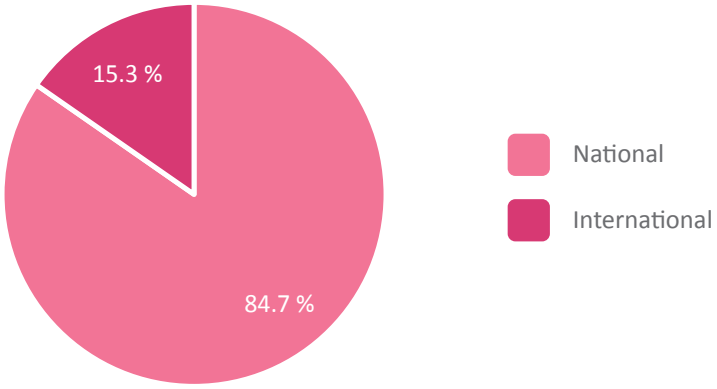
(figures at year-end closing in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 164. Costa Rica: Revenue, dedicated lines, distribution per territory of service provision, wholesale market, 2020

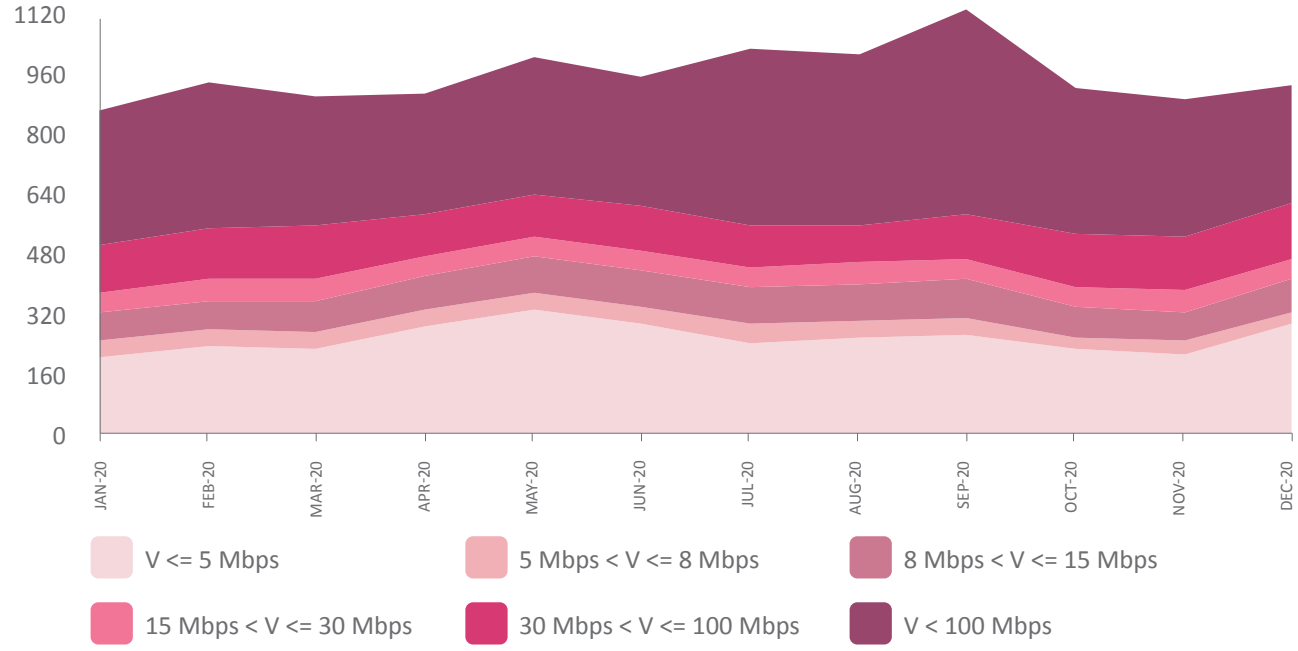
(figures at year-end closing in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 165. Costa Rica: Revenue, dedicated lines, distribution per speed, wholesale market, 2020

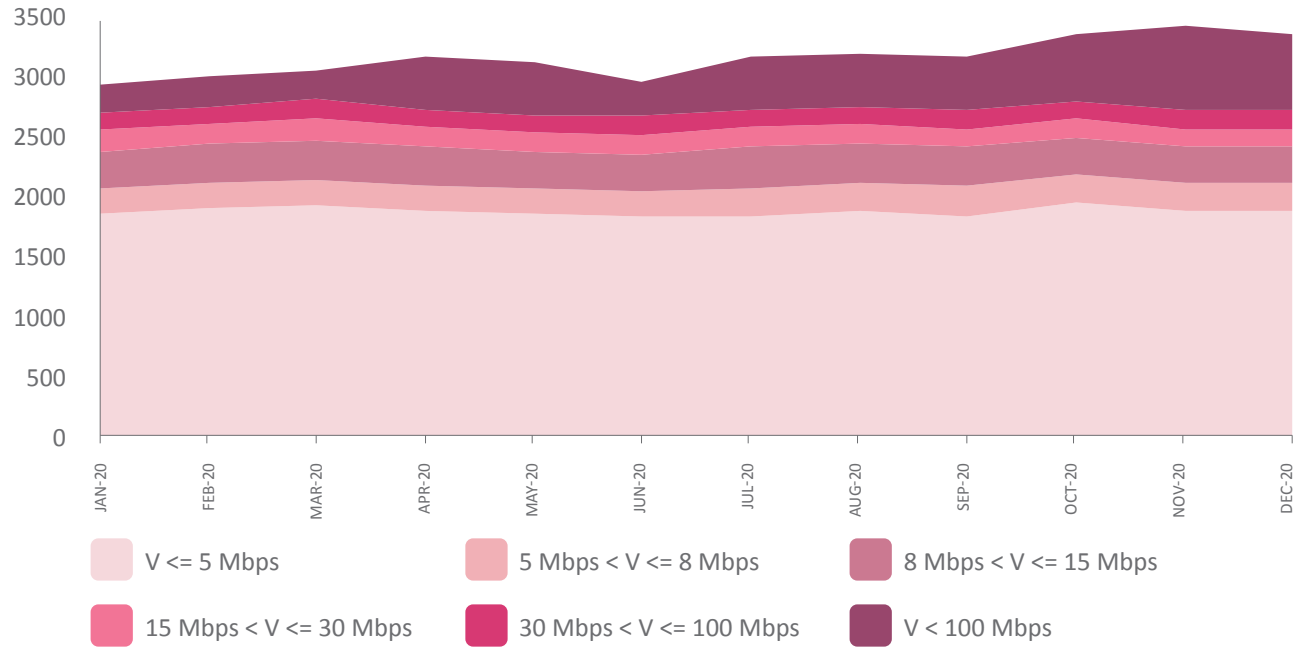
(monthly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 166. Costa Rica: Revenue, wholesale Internet access, distribution per speed, 2020

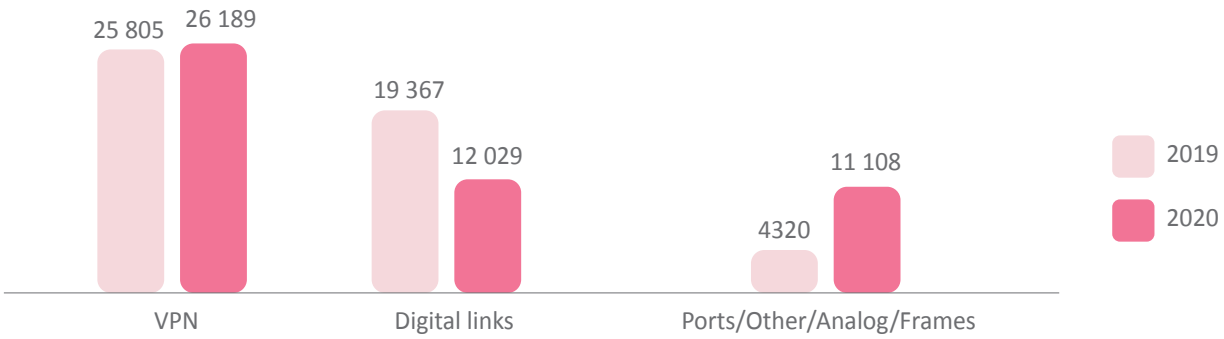
(quarterly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.°167. Costa Rica: Revenue, dedicated lines, market total, distribution per technology, 2019-2020

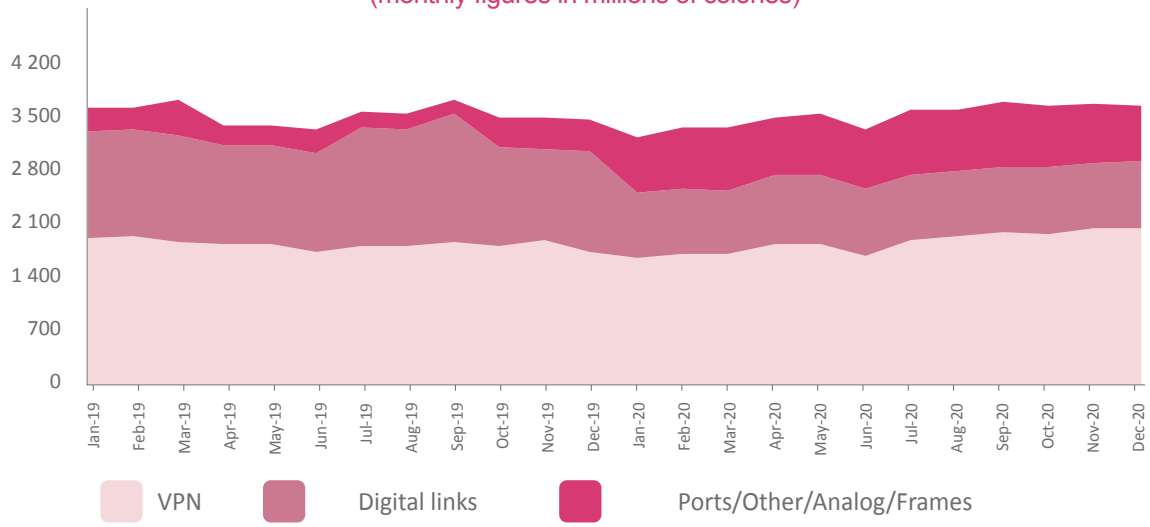
(annual figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 168. Costa Rica: Revenue, dedicated lines, market total, distribution per technology, 2019-2020

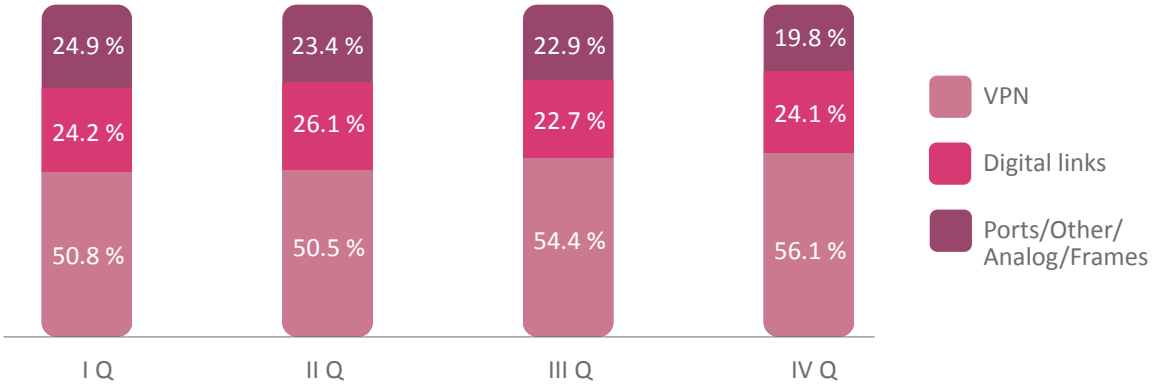
(monthly figures in millions of colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 169. Costa Rica: Revenue, dedicated lines, market total, distribution per technology, 2020

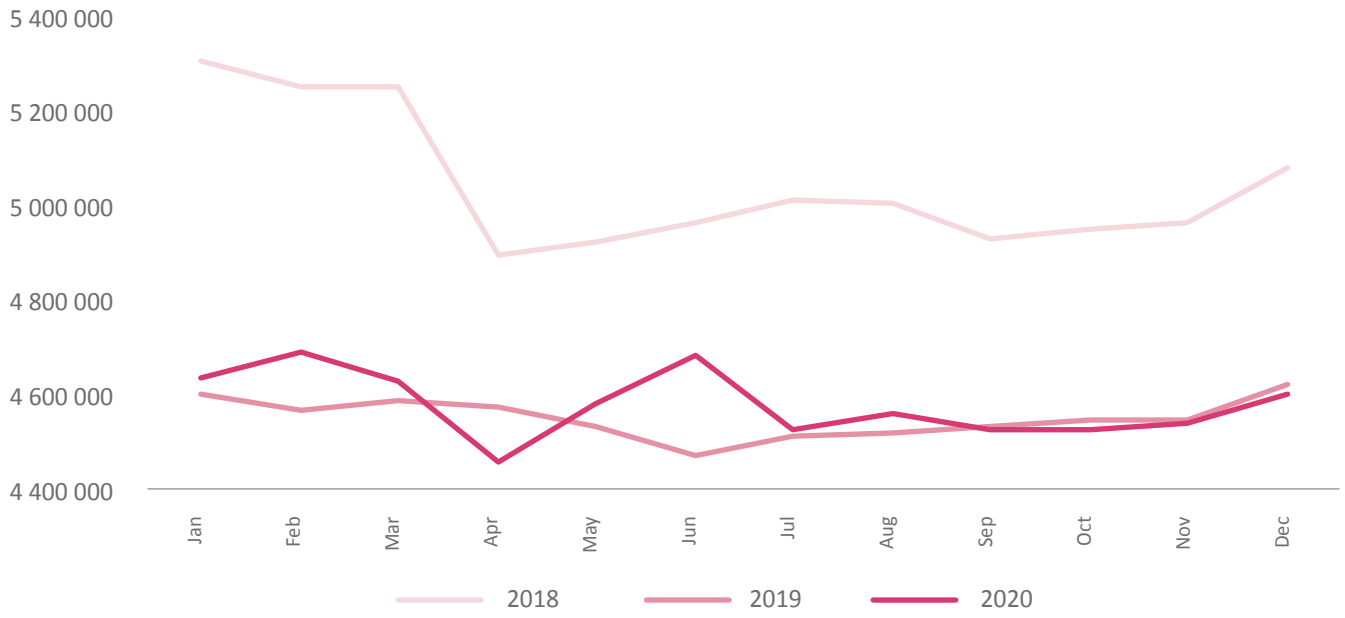
(quarterly figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 170. Costa Rica: Subscriptions, access to Internet on the mobile network, monthly comparison, 2018-2020

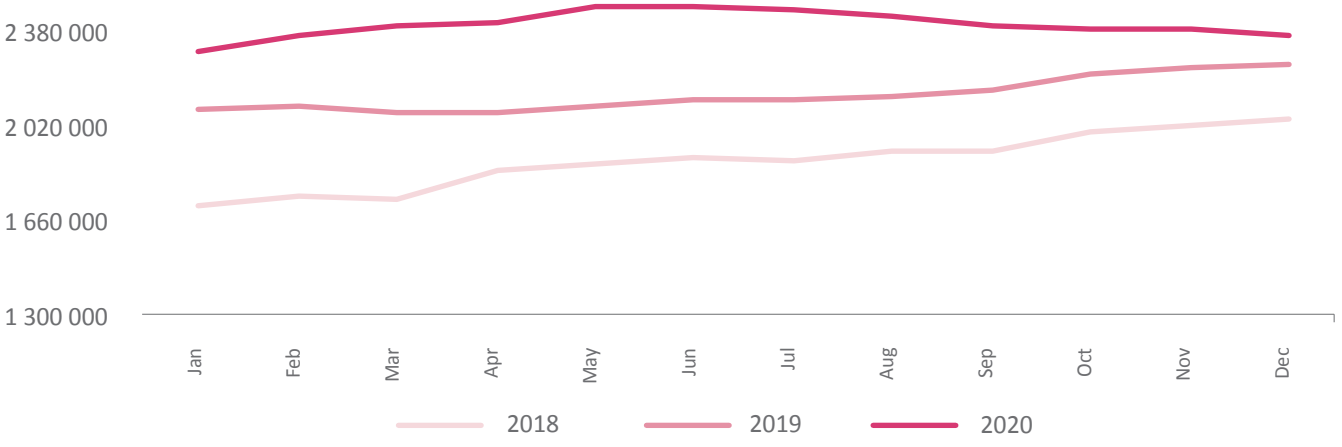
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 171. Costa Rica: Subscriptions, access to Internet on the mobile network, postpaid, monthly comparison, 2018-2020

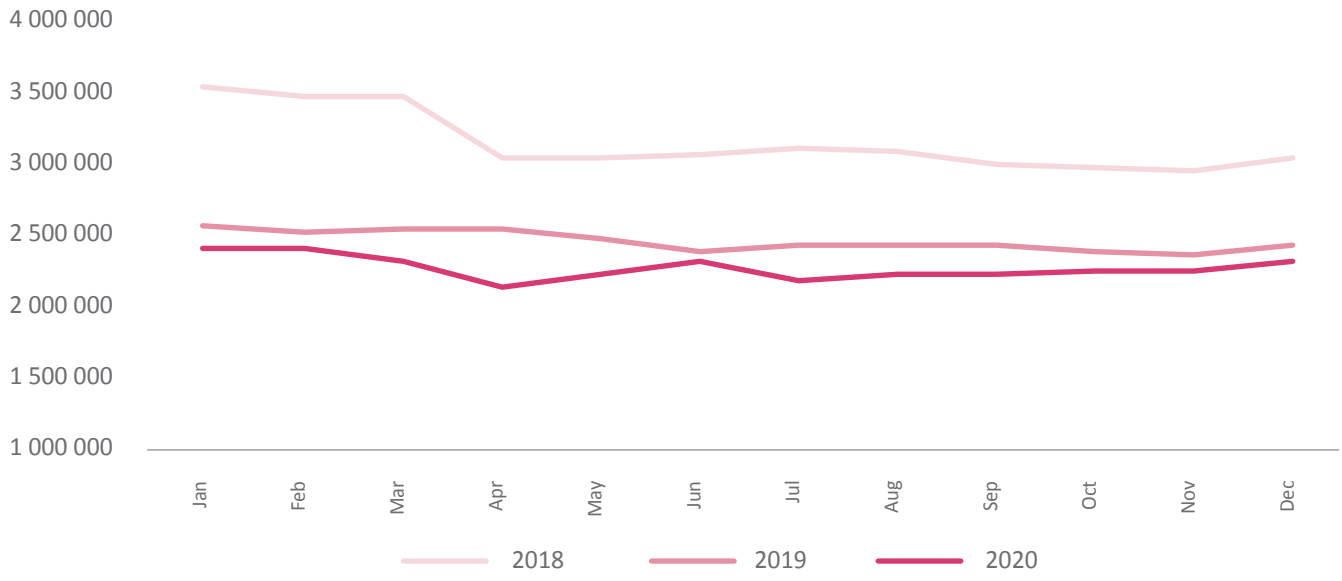
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 172. Costa Rica: Connections, dedicated lines, distribution per territory of service provision, wholesale market, 2020

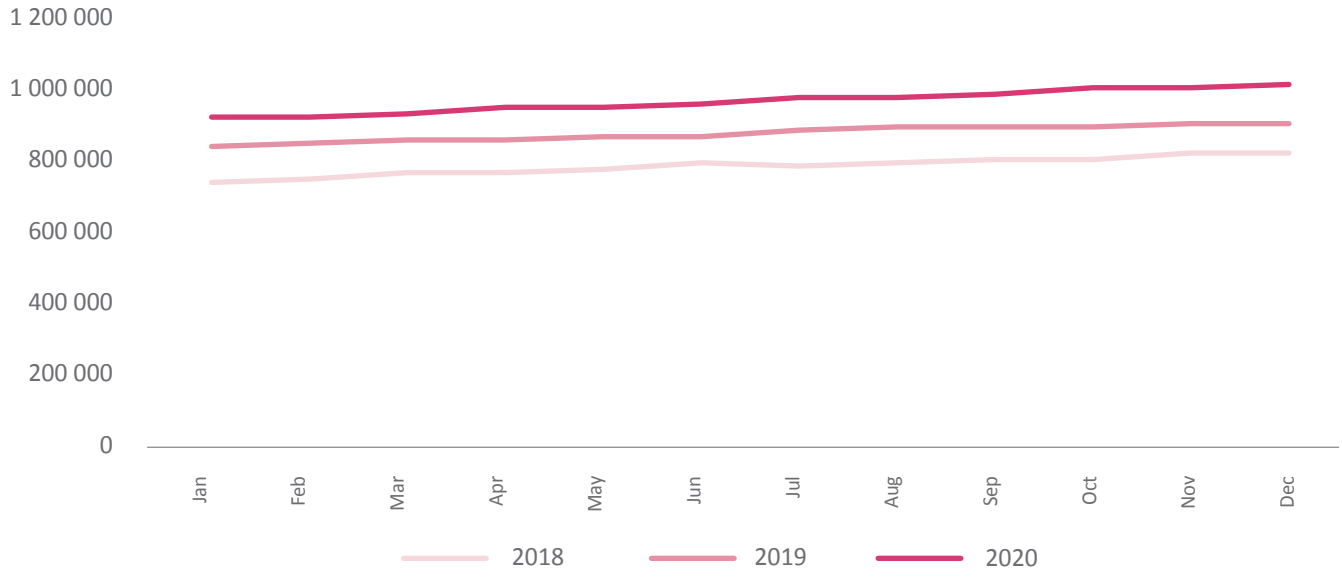
(figures at year-end closing in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 173. Costa Rica: Subscriptions, Internet access on the fixed network, monthly comparison, 2018-2020

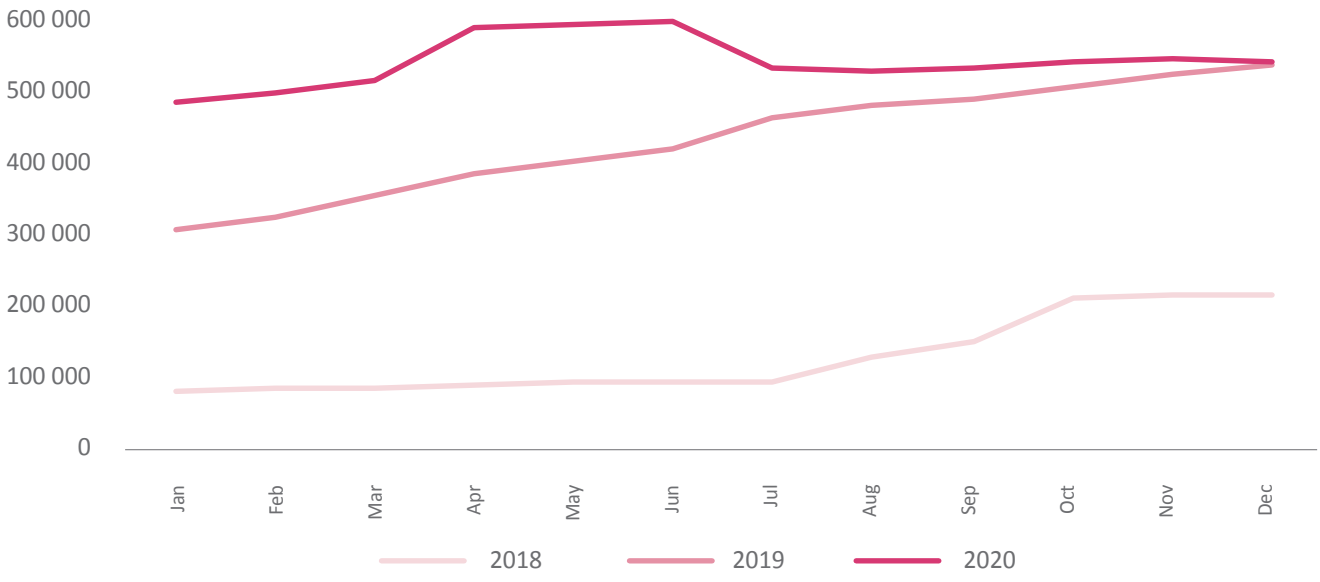
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 174. Costa Rica: Subscriptions, Internet access on the fixed network, speeds higher than 10 Mbps, monthly comparison, 2018-2020

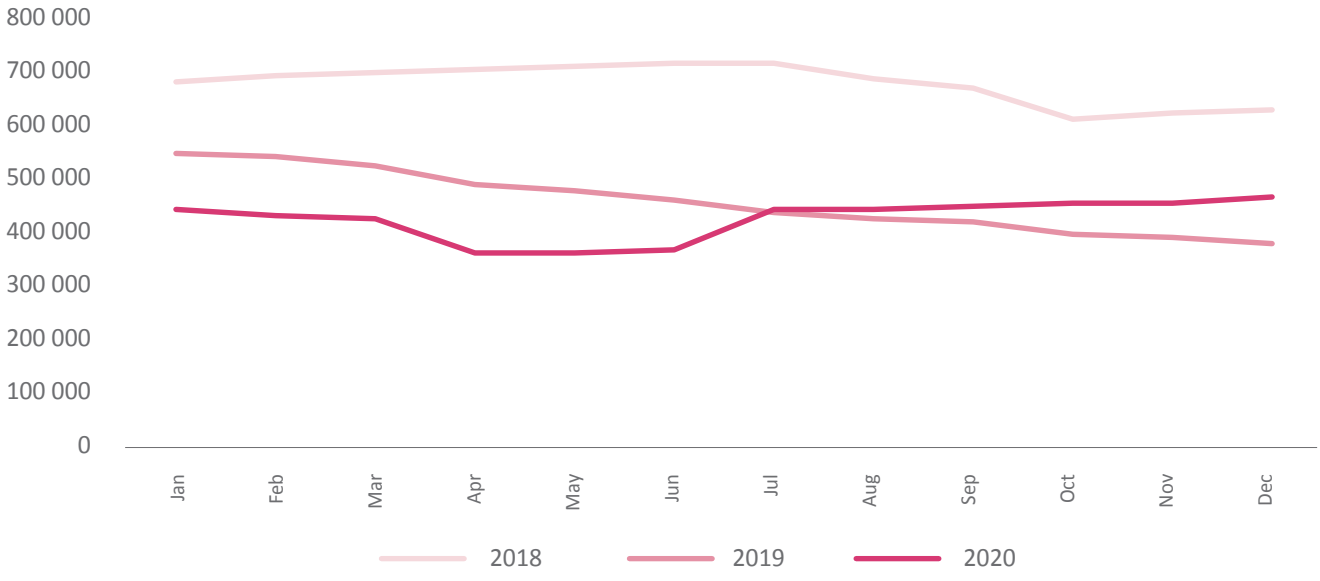
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 175. Costa Rica: Subscriptions, Internet access on the fixed network, speeds lower than or equal to 10 Mbps, monthly comparison, 2018-2020

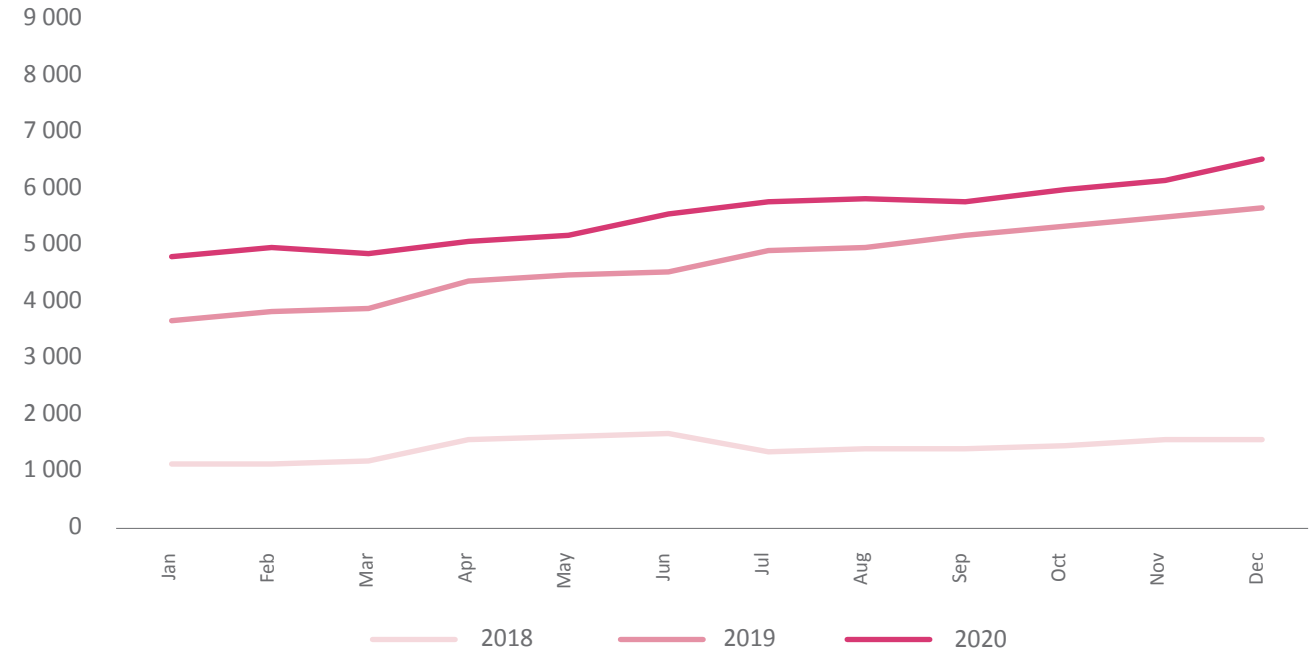
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 176. Costa Rica: Connections, dedicated lines, speeds higher than 10 Mbps, monthly comparison, 2018-2020

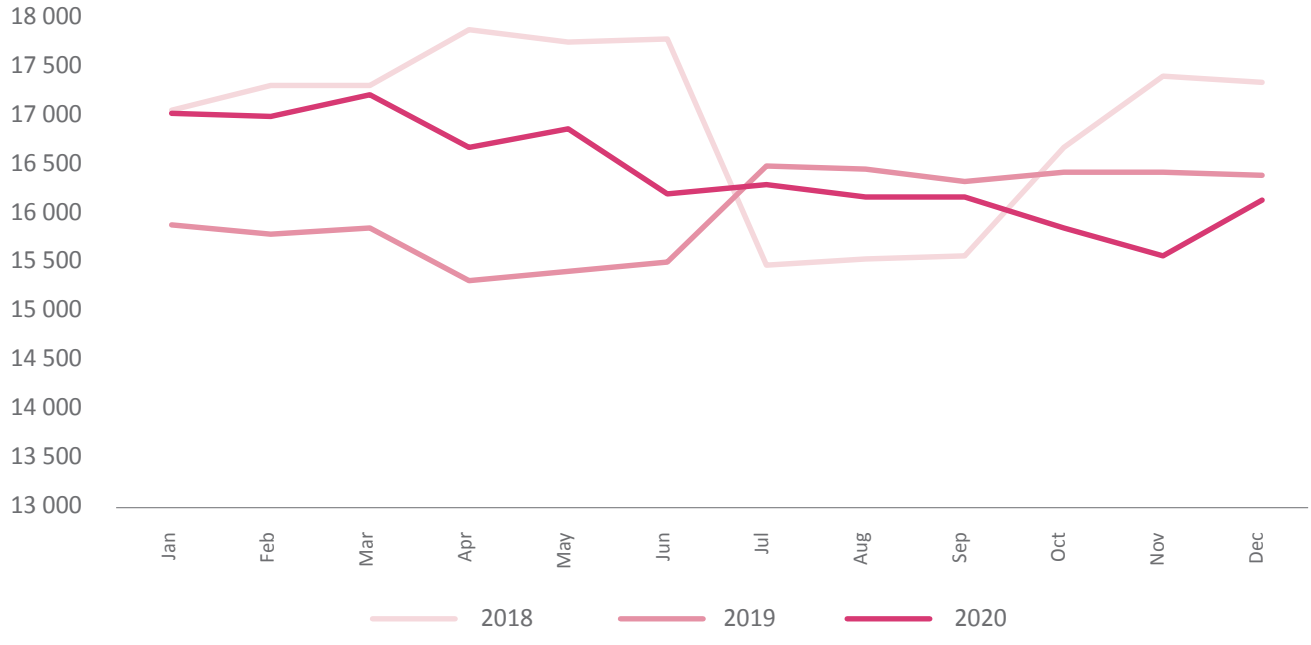
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 177. Costa Rica: Connections, dedicated lines, speeds lower than or equal to 10 Mbps, monthly comparison, 2018-2020

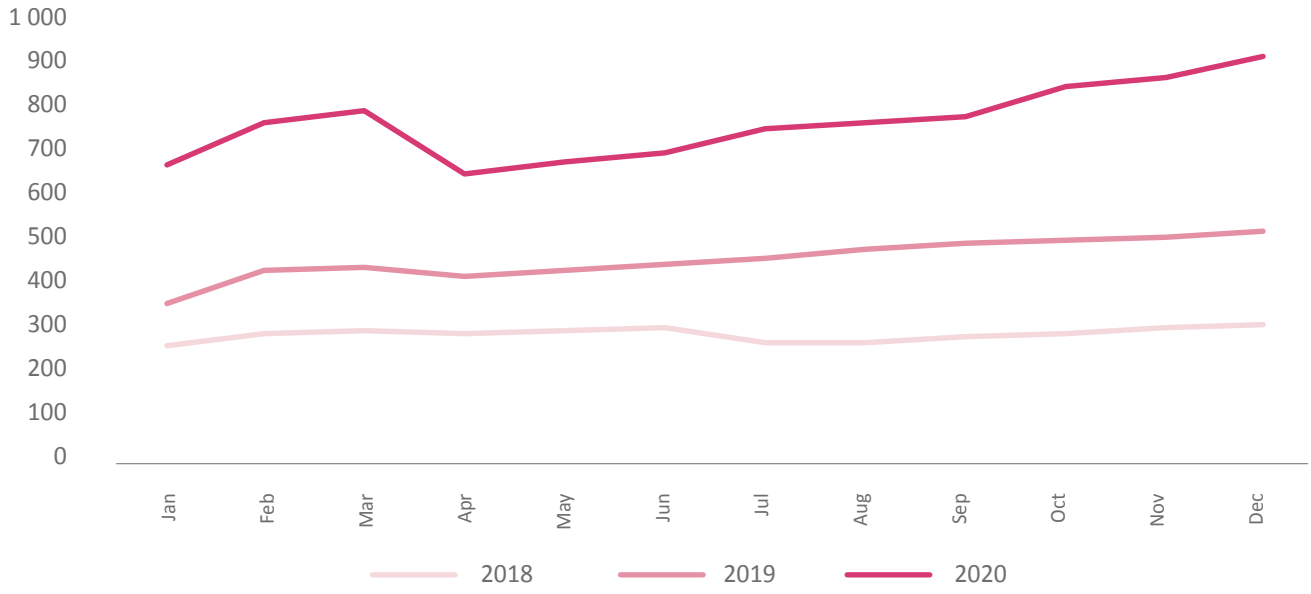
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 178. Costa Rica: Subscriptions, access to wholesale Internet, monthly comparison, 2018-2020

(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

SUBSCRIPTION TELEVISION

THE TELEVISION OVER IP SERVICE CONTINUES ADDING OPERATORS AND SUBSCRIPTIONS FOR THE FOURTH CONSECUTIVE YEAR, REACHING 94 076 SUBSCRIPTIONS AT THE END OF 2020, WHICH REPRESENTS A 14.64 % INCREASE.

The subscription television service, as of December 2020, once again presented a transformation compared to the previous year in its commercial offer, registering for the second consecutive year a reduction in the number of operators, for a total of 26 providers compared to 28 in 2019. In particular, this service continues to be offered by providers of different kinds, including regional providers and others of a national and international nature, so that they can offer either one or more of the service modalities.

On this particular issue, in 2020, it stands out that of the 22 providers of the coaxial cable service, four offer other technologies. Of these, three offer IPTV and one satellite television. Thus, three of the four that offer subscription to Internet television (IPTV) market other technologies, mainly driven by the convergence of services.[35] Regarding the wireless multichannel multipoint distribution television service (MMDS), it is important to state that this modality ceased to be offered as of September, due to landslides in the Irazú volcano area, which caused the loss of essential infrastructure for the provision of the service.

SUBSCRIPTIONS

In relation to the total subscriptions to this service, in 2020, there were 7495 subscriptions less than in the previous year, for a total of 866 593, which implies a decrease of 1 % for the second consecutive year. In Graph n.° 179, the dynamics of total subscriptions to the service is shown, which is consistent with the behavior of other telecommunications services and the sector in general, where the number of subscribers tends to grow to a lesser extent.

Regarding the interannual behavior, of the total subscriptions disaggregated on a quarterly basis and when comparing 2019 with 2020, there is a similar dynamic to that exposed when comparing 2018 and 2019. That

[35] This total amounts to 28 because a telecommunications service provider can offer its services under various modalities.

is,relatively constant growth rates are registered with a decreasing trend of less than 1 % during these periods. This reaffirms the new trend, in contrast to the slight growth presented during 2018 (see Graph n.° 180).

On the other hand, the distribution of subscriptions by type of access technology for 2020 maintains the historical trend, in which the predominance in the market of the provision of the service through coaxial cable continues, at 63 %, followed by satellite television with 26 %, and finally television over IP and multipoint, which group the remaining 11 % (see Graph n.° 181).

Regarding this breakdown by technology during 2016-2020, the transformation that this service is presenting in the last five years is confirmed, mainly because the coaxial cable service decreases its market share and continues to increase for commercialization of subscription television over IP and Multipoint (see Graph n.° 182).

In recent years, the television service provided over IP has shown a constant growth in the number of subscribers and of operators that offer this technology. From 2019 to December 2020, the company Blue Sat - Servicios Administrativos de Telecomunicaciones, with its trademark "Blue Sat" and more recently Cabletica S.A. with its trademark "Cabletica", are incorporated into the commercialization of this service, which together with the other existing operators in this segment (Kölbi and Coopeguanacaste), caused this service modality to continue growing, specifically 73 % for this last year, which represents 39 600 new subscriptions. This increase registered in 2020 is the highest since this technology began to be marketed (see Table n.° 14).

In relation to the share indicator of the subscription television service in relation to the population, this indicator remains at around 17 % for 2020. Regarding the relationship between the total number of subscriptions to the subscription television service and the number of housing units for 2020, this association remains at 55 subscriptions to the service for every 100 houses (see Graphs n.° 183 and n.° 184).

Regarding the level of market concentration associated with the subscription television service, the Herfindahl-Hirschman Index (HHI)[36], for 2020, has a reduction of 3 points, for a value of 1725, which shows that the absence of relevant structural changes continues. Since this estimate is below 3,000 points, but above 1,500, the subscription television market is a moderately concentrated market[37] (watch Graph n.° 185).

Continuing with indicators related to the subscription television service, from the National Household Survey (Enaho) carried out by the National Institute of Statistics and Census, the calculation derives from the tenure of the subscription television service in households, where for 2020, 71.4 % of housing units (1 128 579) have access to subscription television service in any of its technologies. This means there are 10 470 more homes with the service (3 % growth) compared to 2018. Contrary to this perspective, Enaho indicates that the percentage of homes that use the open television signal decreased to 26.2 % (see Graph n.° 186).

Regarding the cantonal geographical breakdown, of the total subscriptions to the television service compiled by Sutel, Tables n.° 15 and n.° 16 present the share of the service for 2019 and 2020 in the cantons with respect to the population in each of them. Hence, the cantons with the highest market share percentages can be seen for 2020. Among them, Garabito, in the province of Puntarenas, as well as Santa Cruz de Guanacaste stand out, which maintain the highest share in 2020 and also compared to 2019 with 51.8 % and 32.3 %. In contrast, for 2020, there are the cantons of Sarapiquí (7.6 %) and Los Chiles in the province of Alajuela (8.1 %) sharing the lowest share at the cantonal level. It is important to note that for 2020 there are still limitations for estimating this indicator for the canton of Río Cuarto.

[36] See definition in the Methodology section.
[37] RCS-082-2015 establishes that markets with an HHI greater than 3000 points are concentrated markets.

REVENUE

In relation to revenue generated by the provision of the subscription television service, these continue to show a growing trend. However, to a lesser extent for 2020, they reached 164 032 million colones, which in absolute terms implies an increase of 3264 million colones, for a growth rate compared to 2019, of 2 %. Hence, when taking 2016 as a reference, the total revenue for this service with respect to 2020 presents an annual increase rate of 4 % (see Graph n.° 187).

Regarding revenue disaggregated by quarter, the fourth quarter is the period with the highest quarterly revenue, 41 009 million colones in 2019, and 41 614 million colones in 2020. In addition, the estimate of the average quarterly revenue for 2020 is 41 008 million colones, 816 million colones more than in 2019. However, when comparing the quarterly average variation rate for the 2019-2020 period, the value remains constant at 1 % (see Graph n.° 188).

When addressing the percentage composition of revenue according to technology and consequently with the distribution of subscriptions, the revenue indicator confirms the predominance of the service provided by coaxial cable. This type of service represents 66 % of the total revenue generated by the service in in 2020, followed by satellite service with 25 % and the rest of the technologies representing 9 % (see Graph n.° 189).

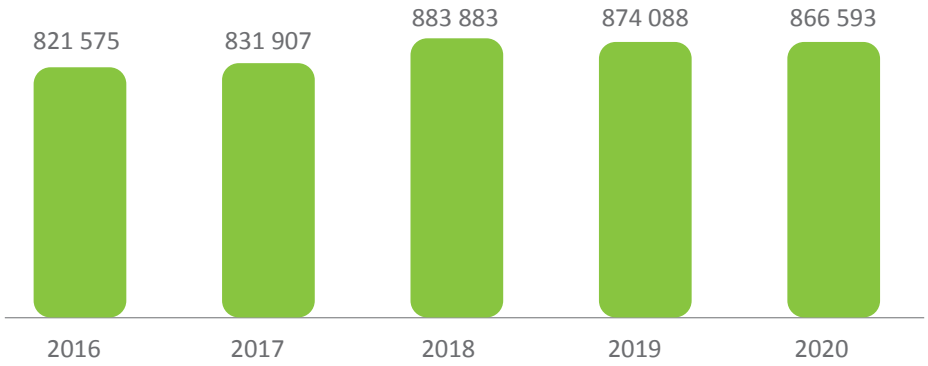
In addition, when presenting the percentage composition of revenue for the 2016-2020 period, it can be confirmed that revenue associated with television service presents a percentage redistribution. The above is seen in Graph n.° 190, where a percentage decrease in revenue associated with the service via coaxial cable is shown, going from 74 % in 2016 to 66 % in 2020. In contrast, the percentage presented by satellite technology and other technologies (IPTV and MMDS-multi-channel multipoint) show an increasing trend, as together they grew from 26 % to 34 %.

Linked to the above, Table n.° 17 indicates in absolute terms the detail of the recomposition of revenue associated with the service. Specifically for the 2019-2020 period, it can be seen that revenue from the coaxial cable service decreased by 1738 million colones, and also revenue from the satellite service decreased by 575 million colones. The opposite is the case with the IPTV service, which for that period increased its revenue by 5562 million colones, more than double the amount that the coaxial cable service ceased to receive.

Finally, in relation to the average revenue per subscriber for the service in general during 2020, this increased to 15 774 colones (446 colones more per subscriber per year), which represents an increase of 3 % in relation to 2019. As indicated in previous reports, this indicator continues to show an uneven behavior according to access technology, in particular for 2020 compared to 2019, the revenue of the cable service increases approximately by 387 colones per year, as does the satellite modality that increases (1249 colones). However, the IPTV service and the multi-channel multipoint modality continue to decrease by 1033 and 3247 colones per year, respectively (see Graph n.° 191 and Table n.° 18).

Graph n.° 179. Costa Rica: Total subscriptions to the subscription television service per subscription, 2016 - 2020

(annual figures)

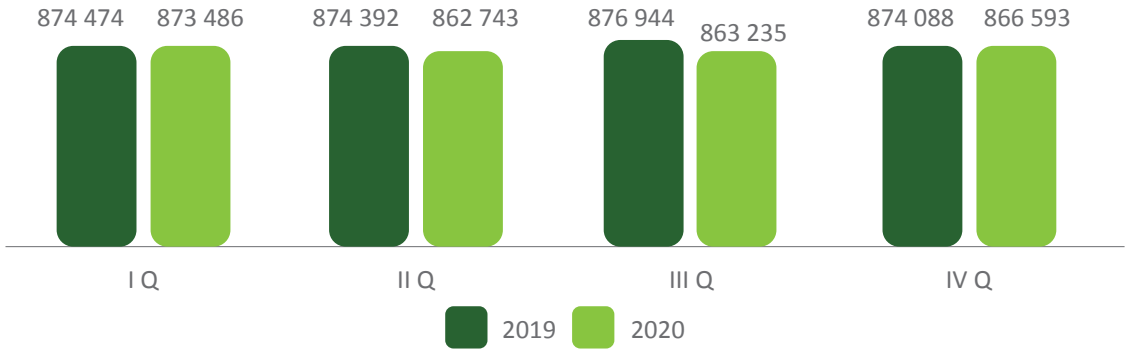


In 2020, a total of 866 593 TV subscriptions was reached

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 180. Costa Rica: Subscriptions to the subscription television service per quarter, 2019 - 2020

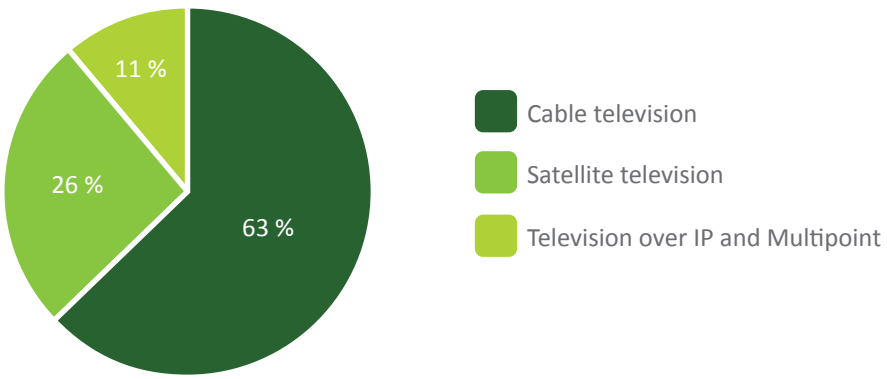
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 181. Costa Rica: Percent distribution of subscriptions to the subscription television service according to access technology, 2020

(annual figures in percentages)

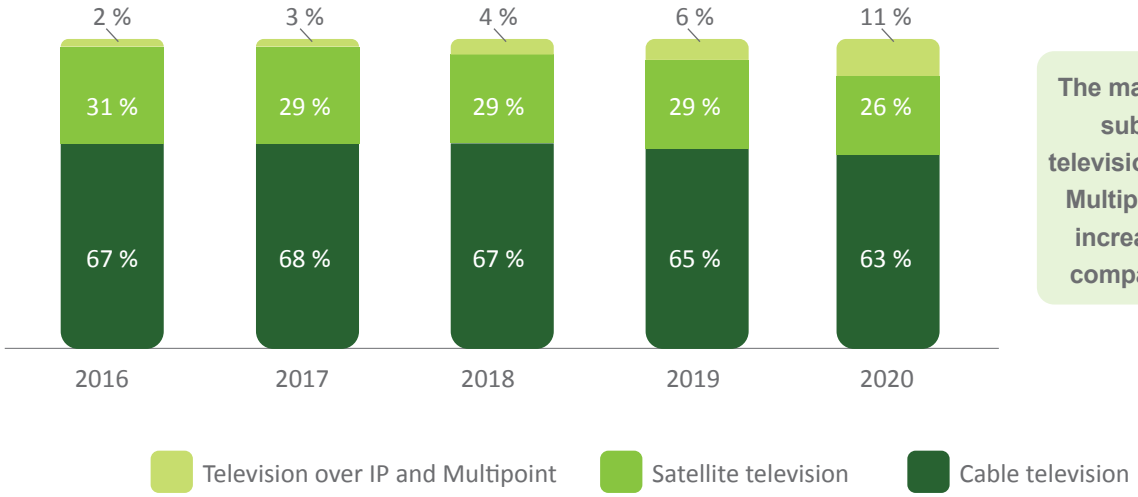


63 % of subscriptions marketed in 2020 are via coaxial cable

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 182. Costa Rica: Evolution of the percentage of market share of subscription television service per type of technology, 2016 - 2020

(figures in percentages)



The market share of subscription television over IP and Multipoint for 2020 increased by 5 % compared to 2019

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Table n.° 14. Costa Rica: Total subscriptions to subscription television per access technology, 2016 - 2020

(annual figures)

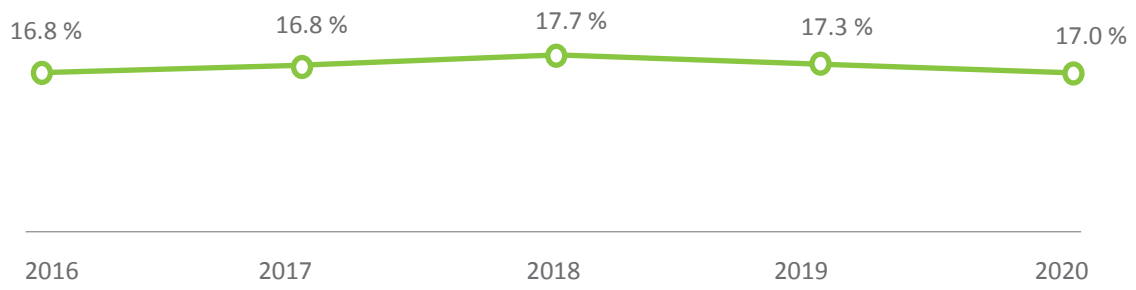
Technology	2016	2017	2018	2019	2020
Cable television	548 113	563 607	594 508	570 176	548 052
Satellite television	257 486	244 881	255 193	248 269	224 465
Television over IP	14 702	22 054	33 075	54 476	94 076
Land television by multipoint distribution	1274	1365	1107	1167	0
Total	821 575	831 907	883 883	874 088	866 593

In 2020, 39 600 new subscriptions were registered for the over IP service

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 183. Costa Rica: Subscriptions to subscription television service per each 100 inhabitants, 2016 - 2020

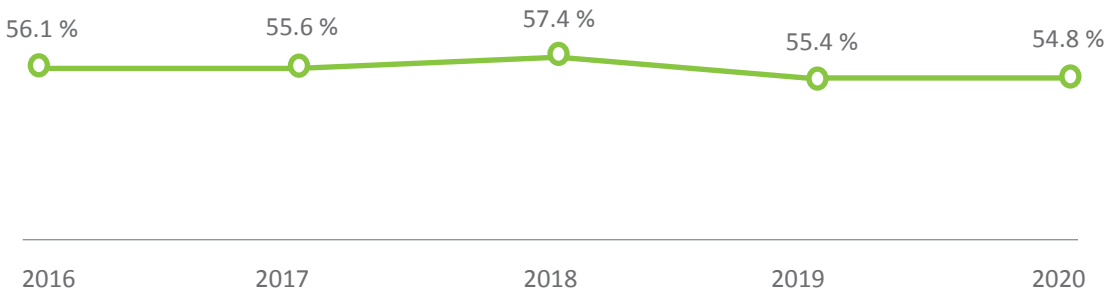
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 184. Costa Rica: Subscriptions to subscription telephony service per each 100 housing units, 2016 - 2020

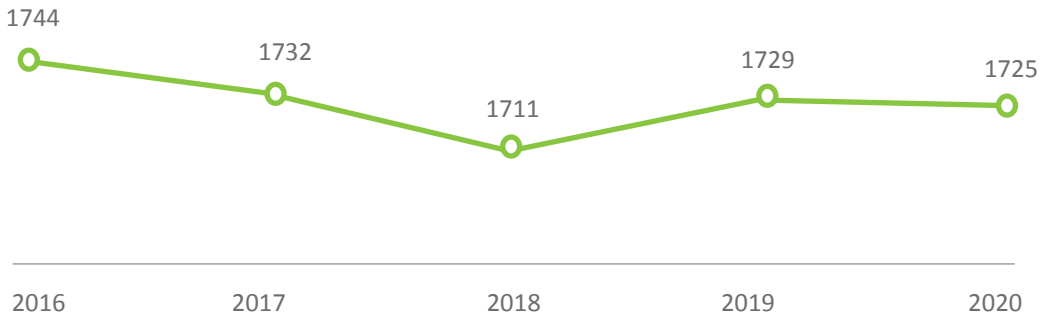
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 185. Costa Rica: HHI evolution per year, 2016 - 2020

(figures in percentages)

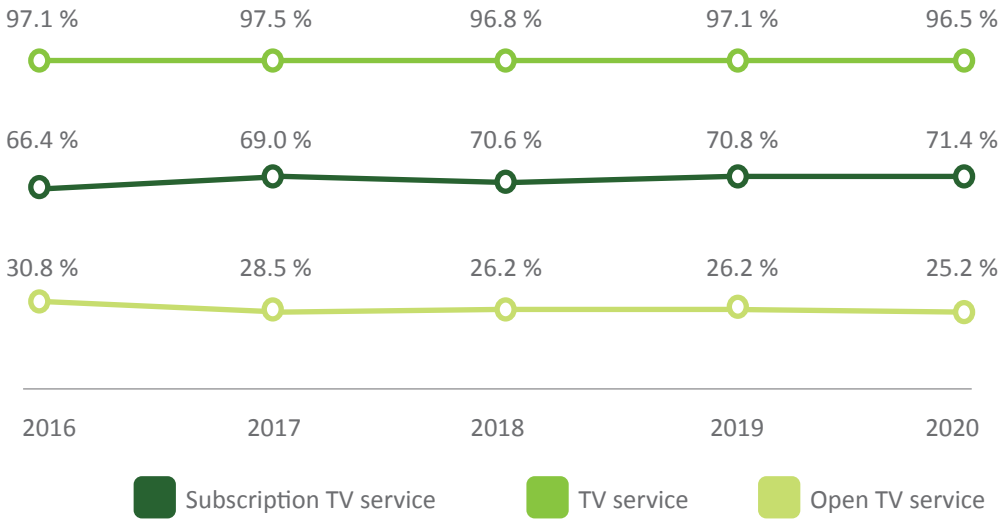


In 2020, 39 600 new subscriptions were registered for the over IP service

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 186. Costa Rica: Percentage of housing units with some kind of television service, 2016 - 2020

(figures in percentages)



In 2020, the percentage of housing units with subscription television service increased

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Table n.° 15. Costa Rica: Subscriptions to subscription television service per each 100 inhabitants per canton, 2019

(figures in percentages)

CANTON	%	CANTON	%	CANTON	%	CANTON	%	CANTON	%
Garabito	50.4	Zarcero	21.8	San Ramón	17.9	Alajuela	16.2	Aserrí	14.2
Santa Cruz	32.2	Liberia	21.7	Atenas	17.8	Coto Brus	16.2	Paraíso	14.0
Carrillo	28.0	Grecia	21.7	Santo Domingo	17.6	Turrialba	15.9	San Rafael	13.7
Parrita	26.5	San Mateo	21.4	San Carlos	17.4	La Cruz	15.9	Santa Bárbara	13.3
Alvarado	26.3	Montes de Oro	21.3	Vásquez de Coronado	17.2	Pérez Zeledón	15.6	Guatuso	13.2
Nicoya	26.1	Tilarán	21.2	Tarrazú	17.2	Naranjo	15.4	Valverde Vega	12.7
Escazú	25.0	Orotina	21.1	La Unión	17.2	Tibás	15.3	El Guarco	12.5
Acosta	24.9	Puntarenas	20.7	Cartago	17.1	León Cortés Castro	15.1	Pococí	12.5
Dota	24.6	Turrubares	20.1	Cañas	17.0	Siquirres	15.1	Corredores	11.7
Belén	23.8	San Isidro	20.1	Puriscal	16.9	Jiménez	15.1	Matina	10.9
Osa	23.7	Limón	19.9	Flores	16.7	Golfito	14.9	Buenos Aires	10.9
Mora	23.6	Abangares	19.8	San Pablo	16.7	Barva	14.5	Oreamuno	10.9
Montes de Oca	23.4	Esparza	18.6	Palmares	16.6	Goicoechea	14.5	Alajuelita	10.5
Hojancha	23.3	Nandayure	18.5	Moravia	16.6	Desamparados	14.4	Guácimo	9.5
Aguirre	22.7	Bagaces	18.3	San José	16.5	Santa Ana	14.3	Sarapiquí	8.7
Heredia	22.3	Curridabat	18.0	Poás	16.3	Upala	14.2	Los Chiles	8.0
				Talamanca	16.3			Río Cuarto	ND

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Table n.° 16. Costa Rica: Subscriptions to the subscription television service per each 100 inhabitants by canton, 2020

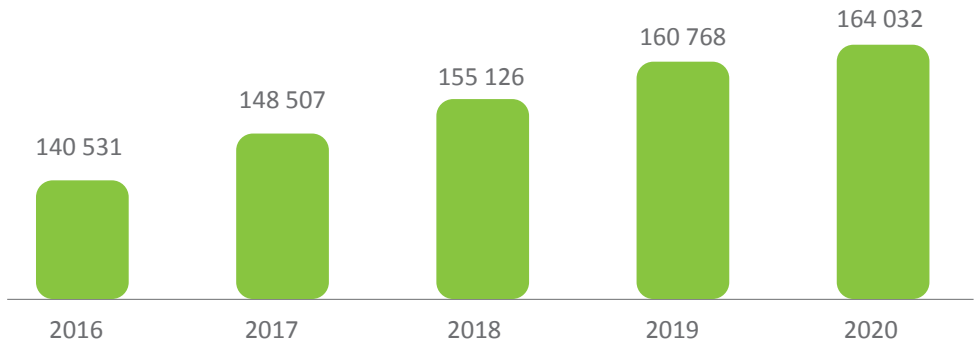
(figures in percentages)

CANTON	%	CANTON	%	CANTON	%	CANTON	%	CANTON	%
Garabito	51.8	Orotina	22.8	Flores	18.9	Turrialba	15.5	Barva	14.0
Santa Cruz	32.3	Osa	22.7	Bagaces	18.9	Siquirres	15.2	Guatuso	13.7
Nicoya	27.7	La Unión	22.6	Curridabat	18.7	Upala	15.0	Valverde Vega	13.5
Santa Ana	26.3	Belén	22.5	Santo Domingo	18.4	Goicoechea	14.9	El Guarco	13.4
Carrillo	26.0	San Isidro	22.1	Tarrazú	18.3	Desamparados	14.7	Pococí	13.3
Dota	25.6	Aguirre	21.8	Palmares	18.2	Cañas	14.7	Jiménez	13.3
Montes de Oca	25.2	Escazú	21.4	Cartago	18.1	Acosta	14.6	San Pablo	12.6
Parrita	25.1	Tilarán	21.2	Puriscal	17.6	San Rafael	14.5	Guácimo	11.3
Mora	24.7	San Ramón	20.4	Vásquez de Coronado	17.5	Pérez Zeledón	14.4	Corredores	11.0
Hojancha	24.4	Abangares	20.4	Alajuela	17.4	Paraíso	14.3	Alajuelita	10.6
Heredia	23.4	Esparza	20.2	Grecia	17.4	Santa Bárbara	14.3	Matina	9.2
Liberia	23.4	Alvarado	20.1	Tibás	17.0	Moravia	14.2	San José	9.2
Montes de Oro	23.2	Puntarenas	19.9	San Carlos	16.8	Coto Brus	14.1	Buenos Aires	8.5
Turrubares	23.1	Atenas	19.6	Talamanca	16.4	León Cortés Castro	14.1	Oreamuno	8.5
Zarcero	23.1	Nandayure	19.5	La Cruz	16.4	Golfito	14.1	Los Chiles	8.1
San Mateo	23.0	Limón	19.5	Naranjo	16.1	Aserrí	14.0	Sarapiquí	7.6
				Poás	15.7			Río Cuarto	N.D.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 187. Costa Rica: Total revenue of subscription television 2016 - 2020

(annual figures in millions of colones)

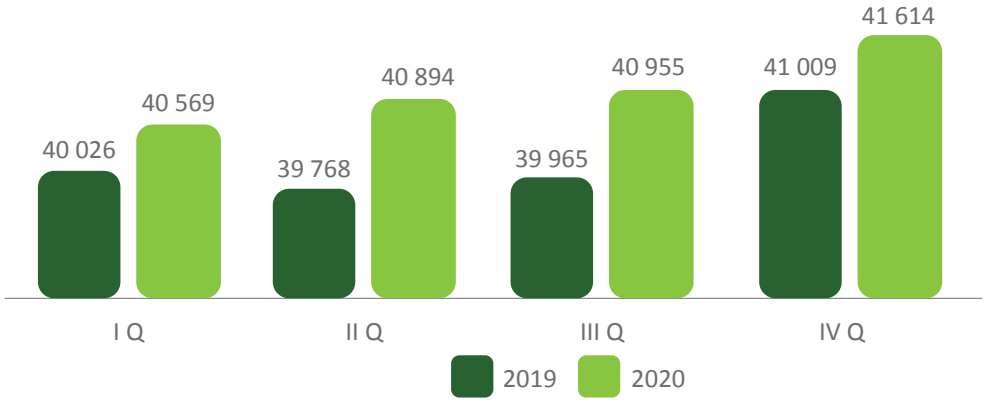


For 2020, revenue generated by subscription television service reached 164 032 millions of colones

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 188. Costa Rica: Total revenue of the subscription television service per quarter, 2019 - 2020

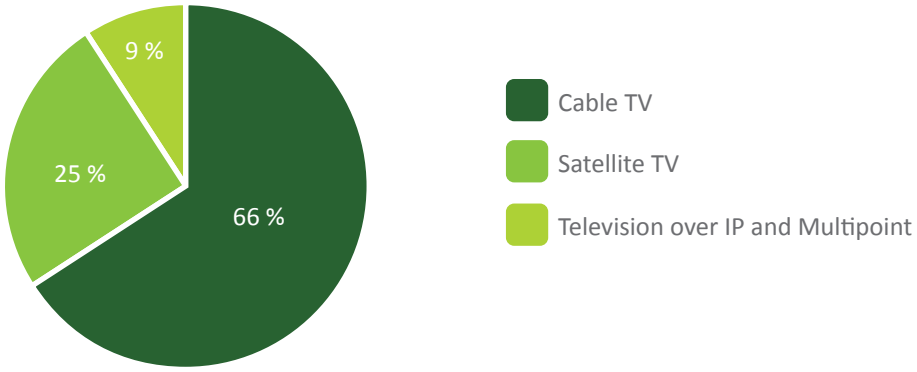
(figures in millions of colones)



Average quarterly revenue 2020 is 41 008 million colones

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

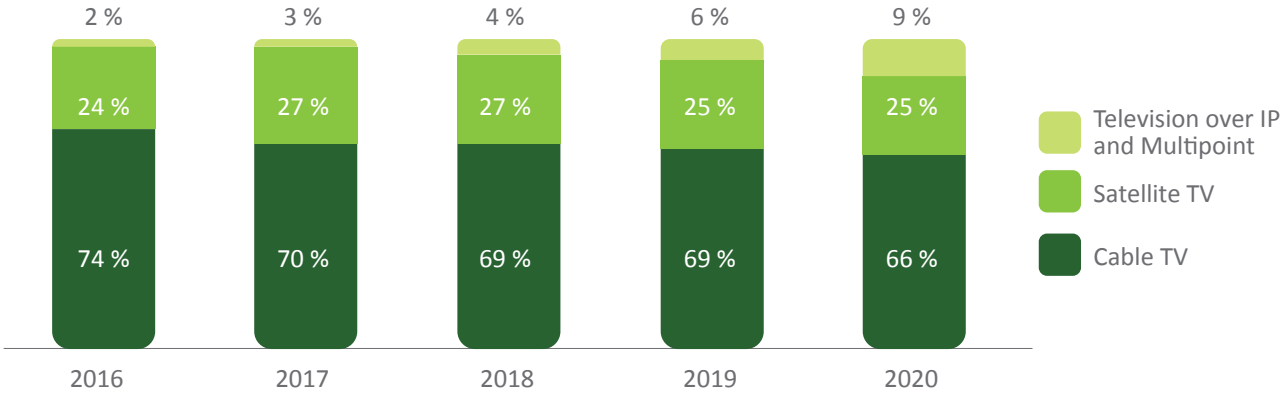
Graph n.° 189. Costa Rica: Percent distribution of revenue per subscription television service, per access technology, 2020



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 190. Costa Rica: Evolution of percent distribution of subscription television service per technology, 2016 - 2020

(annual figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Table n.° 17. Costa Rica: Total revenue for subscription television service per access technology per quarter, 2016-2020

(figures in millions of colones)

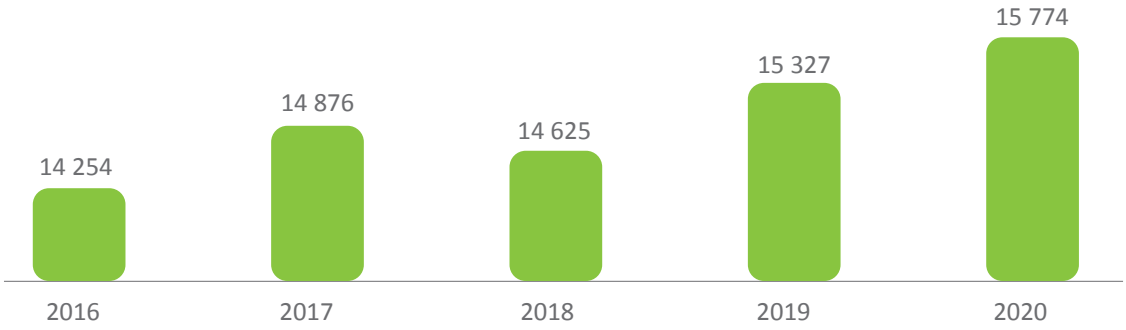
Technology	2016	2017	2018	2019	2020
Cable TV	103 927	103 471	107 843	110 463	108 724
Satellite TV	34 220	40 870	41 191	41 004	40 428
Television over IP	2335	4117	6045	9256	14818
Local TV by multipoint distribution	49	50	47	45	61
Total	140 531	148 507	155 126	160 768	164 032

Revenue for television over IP and Multipoint increased by 5 577 millions of colones in 2020

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n.° 191. Costa Rica: Monthly average revenue per subscription television service subscriber, 2016 - 2020

(monthly figures based on quarterly date in colones per subscriber)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Table n.° 18. Costa Rica: Average revenue per subscription television service subscriber per access technology, 2016 - 2020

(annual figures in colones)

Technology	2016	2017	2018	2019	2020
Cable TV	15 801	15 299	15 117	16 145	16 532
Satellite TV	11 075	13 908	13 451	13 763	15 009
Television over IP	13 234	15 555	15 231	14 159	13 126
Land TV by multipoint distribution	3198	3033	3569	3247	0
Total	14 254	14 876	14 625	15 327	15 774

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

COMMERCIAL OFFERS AND PRICES

The telecommunications market is characterized by being a dynamic market, from the point of view of supply in aspects such as the adoption of new technologies, as well as from the point of view of demand, given the varying needs and tastes of users.

Therefore, for the Superintendency of Telecommunications, as a regulatory entity, it is important to monitor from a qualitative and quantitative point of view the commercial offers and prices that are offered in the market to guarantee users the continuity and variety of the different options for fixed and mobile telecommunications, so that they can choose among the operators in the Costa Rican market that best suit their needs for quality, price, and coverage, among other aspects.

This chapter has two areas of study. The first one corresponds to a qualitative approach with the purpose of understanding the dynamism of consumer tastes and preferences in the telecommunications market based on the adjustments that operators make to their commercial offers (characteristics and composition) to adapt to the needs of users. For this, the fixed telecommunications bundles (fixed telephony, fixed Internet and subscription TV) of the three main operators in the country in 2020 (based on market share) are taken and compared with what was offered in December 2019, and in the same way, for mobile telecommunications bundles.

The other approach is from a quantitative point of view. The objective of this approach is to analyze the trend of the prices offered in the market in order to monitor their evolution and provide inputs for making regulatory and consumer decisions. For this, the average prices of fixed telecommunications bundles are analyzed, and a price index is calculated for mobile telecommunications and for fixed Internet.

COMMERCIAL OFFERS

Next, a comparison will be made of the plans and bundles of mobile and fixed telecommunications services. The differences in their compositions and characteristics in relation to the commercial offer in force in December 2019 and December 2020, will be addressed from a qualitative standpoint[38].

MOBILE TELECOMMUNICATIONS COMMERCIAL OFFERS

Mobile telecommunications are understood to be mobile voice, messaging, and mobile data services, which are offered to the user in postpaid and prepaid modalities; therefore, the analysis is carried out separately.

Postpaid

The offer of postpaid plans (see Annexes n.° 65 and n.° 66) went from 20 offers in 2019 to 22 offers in 2020, given an increase in two new plans that correspond to the Kölbi commercial brand.

Claro maintained the 2019 plans, however, it increased the range of data capacity at the highest contracted speed, since for 2019 the maximum was 30 Gigs with the "Connection 6" plan and for 2020, capacity is unlimited in that same plan. Annexes n.° 65 and n.° 66 shows that Claro offers 6 plans that adjust to different user profiles, as prices range between ¢9 800 and ¢44 000, which vary depending on the minutes and data of each plan. It is

[38] This information is taken from the "My comparator" web platform.

highlighted that Claro added benefits such as free and unlimited social networks to these plans, in such a way that even when prices were maintained, these additional benefits increase the consumption capacity for the user in relation to 2019, and in general, the value perceived by the user or reduction of the implicit price.

Kölbi, for on the other hand, expanded its offer with two new plans focused on users who mainly use short messaging to communicate (SMS), as these are made up of a few minutes of voice and data and focus on offering a large number of messages for the user. The “Conversón” plans did not undergo changes, but the “4GK” plans maintained the number of minutes and messages and increased the maximum data download capacity since the range of options for 2019 was from 4 to 28 Gigs against 5 to 34 in 2020. Price was maintained in at least 3 of the 6 plans, and for the rest, there was an increase that was less than what the difference in data capacity valued at surplus data prices would cost. In addition, in 2020, benefits such as the use of certain social networks at no cost were added to most plans, with the consequent reduction in the implicit price.

Movistar maintained its commercial offer; however, for all its plans it increased the download data capacity by 1 GB, translating it into a pure benefit for the user, since for the same price there is more data available (the price reduction is implicit).

In conclusion, for 2020, the number of postpaid plans offered practically remained the same, but two aspects stand out in the offer of postpaid plans: 1) it was generalized for all operators to grant additional benefits especially with the free use of social networks and popular apps such as Waze in each of the plans, and 2) most of the plans increased download capacity.

Prepaid

For the prepaid mode (see Annexes n.° 63 and n.° 64), in 2019, there were 33 bundles of which 73 % was destined to mobile data, 9 % to minutes, and 18 % to the combination of these two, while in 2020, it increased to 45 offers (36.36 % growth), made up of 53 % data, 9 % minutes, 29 % a combination of minutes and data, in addition to 9 % of messages; so, not only did the offer increase, but also diversified its composition. The presence of SMS-only messaging bundles is striking.

At the operator level, Claro increased its offer by 36 % compared to 2019, and modified its composition because while for the previous year, 72 % were Internet-only bundles, for 2020, it was 37 %, giving way to an increase in the number of combined bundles (voice + Internet) and courier bundles.

Kölbi presented a similar situation to Claro in relation to the composition, because despite the fact that its offer decreased by 17 % for 2020, it allocated its bundles by 60 % to the Internet and 40 % to combined bundles between Internet and minutes against 83 % and 17 %, respectively, for 2019.

Movistar increased its offer by 15 % in relation to 2019, and practically maintained the composition of bundles 73 % for Internet and 27 % for combined bundles (Internet + minutes).

In conclusion, the prepaid commercial offer increased in number of bundles by 36.36 % in relation to 2020, and the composition of the offer leaned more towards combined bundles (minutes + Internet) than to bundles with single uses such as data, minutes and messaging. It is also noteworthy that there is a resurgence of bundles intended for messaging only.

FIXED TELECOMMUNICATIONS COMMERCIAL OFFERS

Through a single converged network, telecommunications services such as fixed Internet, fixed telephony, and even subscription TV, can be provided in homes; hence, the possibility of telecommunications market operators to offer the user bundled services[39]. In recent years, it has become normal at the household level (from a commercial point of view), without excluding the possibility of the household of contracting individual services.

Given the above, the bundled commercial offers correspond to the different combinations of the above services, namely: Fixed Internet + subscription TV, fixed Internet + fixed telephony, subscription TV + fixed telephony, fixed Internet + subscription TV + fixed telephony. In addition, each bundle offers a wide range of added values (high speeds, unlimited social networks, favorite numbers with unlimited consumption, HD channels, among others), which seek to capture the user in the face of competition from operators in the market. This situation is beneficial for consumers as a result of an environment of greater competition.

The following analysis identifies the evolution of the characteristics of commercial fixed telecommunications offers through the amount and characterization of these (see Annexes n.° 67 and n.° 68). For this, the bundles offered by the three main fixed telecommunications operators were selected in terms of their participation in the number of subscriptions (they represent around 80 % of subscriptions) for December 2019 against those of 2020.

Thus, it is possible to identify that the market experienced a significant increase in its commercial offer, since by December 2020, the user had 137 offers available to them compared to 37 in 2019 (this represents 270 % in relation to 2019). The fixed Internet + subscription TV bundle was the one that increased the most its share in the offers, as it went from 54.05 % to 77.37 % by 2020, while the triple bundle, on the contrary, lowered its participation from 45.95 % to a 12.41 %. The share of the rest of bundles (Fixed Internet + Fixed Telephony and subscription TV + Fixed Telephony) was 10.21 % as a whole.

By 2020, practically all the bundles offered have at least Internet service included (99 % of the total). The increase in average download speeds for fixed Internet + subscription TV bundles stands out, as they went from 75 Mbps in 2019 to 135 Mbps for the year of study.

By 2020, from the commercial offers that have fixed Internet service, 16 % were with speeds equal to or less than 10 Mbps (30 % for 2019), 26 % with speeds greater than 10 Mbps, but equal to or less at 30 Mbps (19 % for the year 2019), 25 % with speeds greater than 30 Mbps and less than or equal to 100 Mbps (32 % in 2019), and 33 % bundles with speeds greater than 100 Mbps (19 % in 2019). This leads to the conclusion that commercial offers provided more bundles with higher browsing speeds, which, is definitively an improvement for the user, especially due to the situation experienced in Costa Rica during 2020, given the need for high speeds due to teleworking and virtual classes, among other aspects.

Another important characteristic is that for 2020, from the total bundles, 55 % were offered through fiber, 29 % hybrid (fiber + copper), and 16 % copper. This is remarkable because the more fiber technology offers are in the market, users will have higher download speeds at their disposal. For example, the average download according to technology for 2020 were 172 Mbps fiber, 98 Mbps hybrid, and 6 Mbps cable.

[39] It is important to note that the bundle referred to here is a different concept from tied sales, which are illegal. What is important about bundled services is that they offer users the ability to take advantage of network economies. However, bidders maintain the possibility of individually accessing services, obtaining benefits also from the combination of individual plans contracted, thus diversifying providers. However, due to the importance of the supply and demand for bundled services, an analysis of these offers is carried out here.

In summary, for 2020, the number of bundles offered by the main market operators increased significantly, in addition to registering an improvement in terms of a greater supply to users of higher speeds and a majority share of fiber technology in commercial offerings (79 %). On the other hand, in 2020 the operators expanded the offer of the fixed Internet + subscription TV bundle compared to 2019, instead of the triple bundle that lost share for the year under study.

PRICES

Next, we will proceed with the quantitative analysis based on the analysis of market prices. For this, the average prices of bundled services will be addressed, in the first place, in such a way that the changes in prices experienced by users when making the purchase at two points in time will be compared: December 2019 and December 2020.

And in the second place and in order to monitor the evolution of the prices of mobile telecommunications services and fixed Internet, they will be approached with the price index methodology[40] (see methodology section).

Average prices of commercial offers of bundled services

Fixed Internet + subscription TV bundles are taken as a starting point since they represent 77.37 % of commercial offers (see Table n.° 19 and n.° 20). It is important to note that compared to 2019, this year (2020) bundles expanded the download internet speed options from 1 Mbps to 500 Mbps (3 Mbps to 300 for 2019).

[40] A retail price index measures the evolution (trend) of consumer prices in a specific market starting from a base month based on a specific configuration of product, users, and consumption levels. Thus, SUTEL has two methodologies that allow monitoring this behavior, particularly in the mobile telecommunications and fixed Internet markets.

Now, for the purposes of the analysis, four divisions were made, bundles less than or equal to 10 Mbps with an average price of ¢26 396 for 2020, and ¢25 403.75 for 2019 (+3.90 %), then speeds greater than 10 Mbps and less than or equal to 30 Mbps, which resulted in an average price in the year under study of ¢33 143 against ¢31 998 in 2019 (+3.6 %); speeds greater than 30 Mbps and less than or equal to 100 Mbps with an average price of ¢42 744 for 2020 compared to ¢45 379 for the previous year (-5.80 %) and finally, speeds greater than 100 Mbps and less than 500 Mbps with average prices of ¢81 731 and ¢72 545 (year 2020 and 2019, respectively, +12.66 %).

On the other hand, in the case of fixed Internet + subscription TV and fixed telephony bundles, bundles with speeds less than or equal to 10 Mbps had an average price of ¢29 642 for 2020 versus ¢29 400 for 2019 (- 0.8 %); those with speeds greater than 10 and less than or equal to 30 Mbps registered an average price of ¢36 611 in 2020 and ¢34 822 in 2019 (+5.13 %); for speeds greater than 30 and less than or equal to 100 Mbps ¢45 548 in 2020 and ¢45 299 (+0.54 %) and finally bundles with Internet speeds greater than 100 and less than 500 Mbps ¢122 673 for the year 2020 and ¢122 249 in 2019 (+0.34 %). It is also important to note (see Table n.° 19 and n.° 20), that for bundles with speeds lower than 100 Mbps, the average additional cost for including the fixed telephone service against the fixed Internet + subscription TV bundle is around ¢2758 in 2020, while in 2019 it was ¢4298 (-35.83 %). This situation benefits consumers since the difference in prices of double and triple bundles is reduced, motivating the business to lean towards acquiring the three services at a reduced differential cost.

In summary, the prices of Fixed Internet bundles + subscription TV had a slight increase of 3.59 % as a simple average, while for the triple one (Fixed Internet + TV by subscription + Fixed Telephony) the increase was of 1.30 %, thus reducing the price gap between these two types of bundles. This motivates the consumer to the acquisition of three services for a reduced differential amount. It is also important to note that the operators offer in these bundles a series of additional benefits such as subscriptions to popular channels included in the price, HD channels, free content apps, unlimited on-net minutes, among others, which are not considered in the average price analysis, but positively affect the benefit of the consumer.

Mobile Telecommunications Price Index (MTPI)

The Mobile Telecommunications Price Index, IPTM, includes voice, messaging, and mobile data, and aims to monitor the user average prices by payment method since July 2017 (base month), based on the relative information to the current plans in the market for each modality. Specifically, in the case of the calculation for the postpaid modality, the plans that have the highest market share for each operator in each month are taken (at least 80 % of subscriptions, that is, current and non-current plans can enter); and in the case of the prepaid mode, it is calculated from the bundles and prices offered each month by operator.

From the results (see Graph n.° 193), in 2020, for postpaid at the end of the first semester, the index closed at 86.43 % (-6.98 percentage points in relation to its 2019 counterpart), while at 2020 year-end closing, 86.06 % (- 0.62 pp compared to 2019), maintaining its downward trend, but at a slower pace.

In the case of the IPTM for the prepaid mode (see Graph n.° 194), for the first semester of 2020, it reached 92.23 %, which represents a decrease of 3.1 percentage points compared to the first semester of 2019. In the case of the end of 2020, the index reached 92.49 %, a slight increase of 0.48 % compared to the end of 2019.

The above results in the IPTM at the national level in the first semester of 2020 closing at 87.60 % (-6.3 pp in relation to its counterpart in 2019), and at the end of 2020 at 87.39 % (-0.6 pp compared to 2019). In conclusion, in 2020, the IPTM maintains its decreasing trend, compared to 2019 data, prices decreased to a greater extent in the first semester than at year-end closing.

Fixed Internet Price Index (FIPI)

The Fixed Internet Price Index measures the price behavior of the Mbps offered by operators in their commercial offer compared to July 2018 (base month). The results of the last FIPI measurement continue to show a significant decrease (see Graph n.° 195). For the first semester, a 61.1 % index was recorded, with a decrease of 7.6 percentage points compared to the first semester of 2019, and at the end of 2020, a value of 58.0 % was recorded, also with a decrease of 6.6 percentage points compared to the end of 2019.

Table n° 19. Costa Rica: Average fixed telecommunications bundle prices per download speed, December 2020

Download speed (Mbps)	Internet +TV	Internet + TV + Fixed telephony	TV + Fixed telephony
1	-	₡ 27 400.00	-
2	-	₡ 28 400.00	-
3	₡ 23 975.00	₡ 29 400.00	-
4	-	₡ 30 400.00	-
5	₡ 25 375.00	-	-
6	₡ 23 525.00	₡ 30 400.00	-
10	₡ 28 740.00	₡ 30 400.00	-
15	₡ 33 016.00	-	-
20	-	₡ 33 400.00	-
30	₡ 30 980.00	₡ 36 244.50	-
50	₡ 38 133.33	₡ 40 400.00	-
75	₡ 50 030.00	-	-
100	₡ 48 000.00	₡ 50 199.50	-
200	₡ 51 095.00	₡ 78 099.50	-
300	₡ 93 990.00	₡ 166 400.00	-
500	-	₡ 226 400.00	-
N/A	-	-	₡ 19 445.00

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

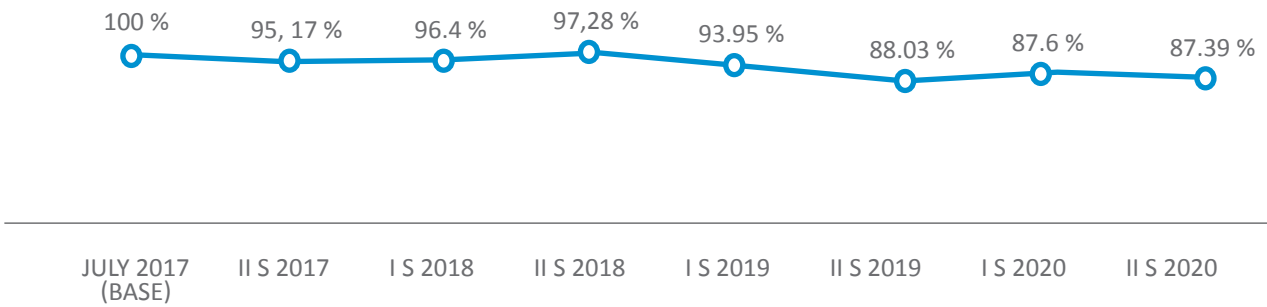
Table n° 20. Costa Rica: Average fixed telecommunications bundle prices per download speed, December 2020

Download speed (Mbps)	Internet +TV	Internet + TV + Fixed telephony	Internet + Fixed telephony	TV + Fixed telephony
1	₡ 24 400	₡ 27 400	₡ 11 900	-
2	₡ 25 400	₡ 28 400	₡ 14 900	-
3	₡ 25 500	₡ 28 967	₡ 16 900	-
4	₡ 27 400	₡ 30 400	₡ 17 900	-
5	₡ 26 450	₡ 30 150	-	-
6	₡ 27 400	₡ 30 400	₡ 19 900	-
10	₡ 28 220	₡ 31 775	₡ 19 900	-
15	₡ 31 638	-	-	-
20	₡ 30 400	₡ 33 400	₡ 24 900	-
30	₡ 37 390	₡ 39 823	₡ 28 900	-
50	₡ 40 976	₡ 40 400	₡ 30 900	-
100	₡ 44 512	₡ 50 695	₡ 42 900	-
200	₡ 63 584	₡ 78 945	₡ 82 900	-
300	₡ 99 878	₡ 166 400	₡ 147 900	-
500	₡ 208 172	₡ 226 400	₡ 207 900	-
N/A	-	-		₡ 24 750

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 192. Costa Rica: National mobile telecommunications price index evolution per semester, July 2017 (base), 2017 - 2020

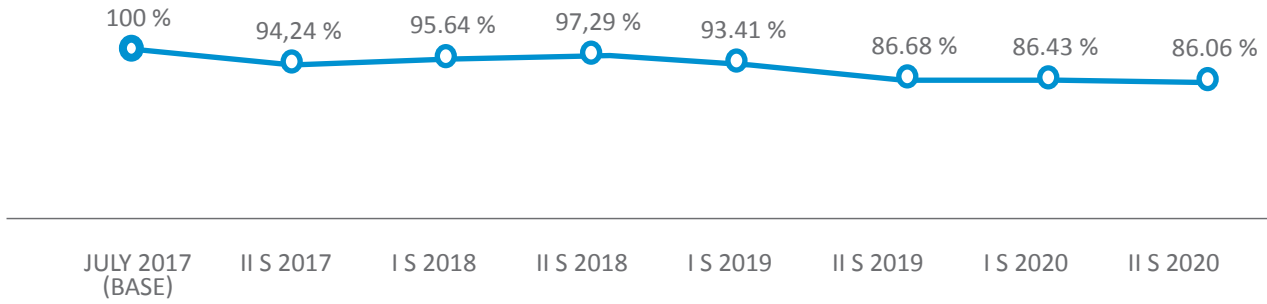
(figures per semester in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 193. Costa Rica: Postpaid mobile telephony price index evolution per semester, July 2017 (base), 2017 - 2020

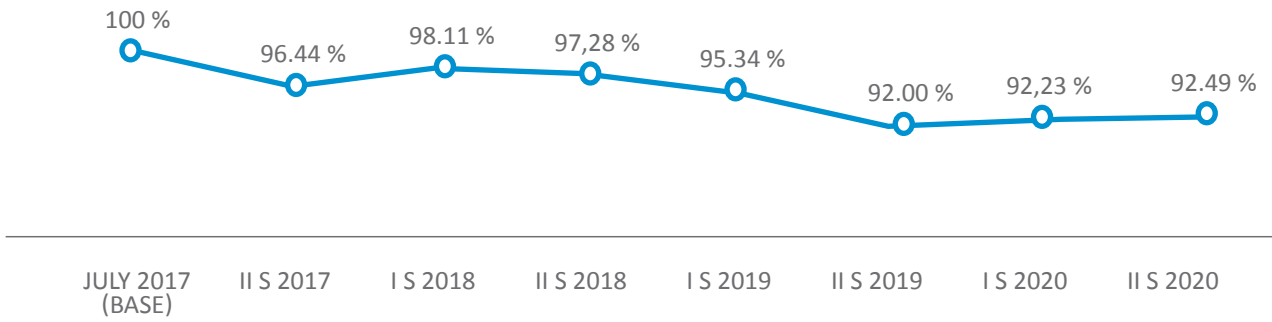
(figures per semester in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 194. Costa Rica: Prepaid mobile telephony price index evolution per semester, Jul 2017 (base), 2017 – 2020

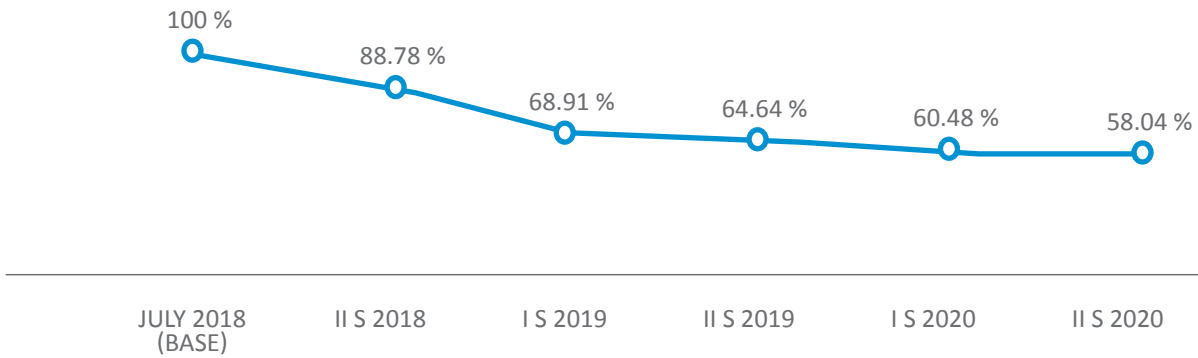
(figures per semester in percentages)



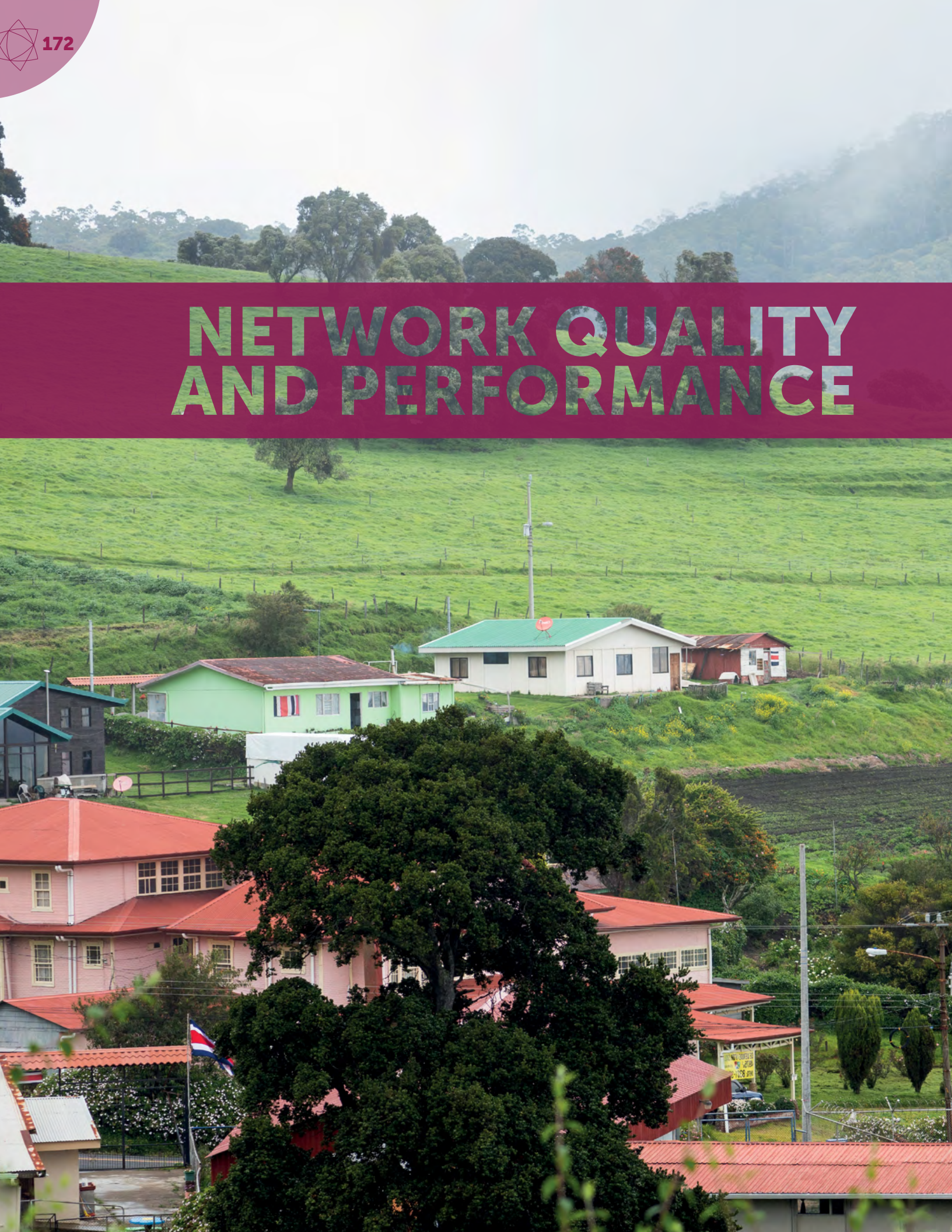
Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 195. Costa Rica: Fixed Internet price index evolution, July 2018 (base), 2018 - 2020

(figures per semester in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.



NETWORK QUALITY AND PERFORMANCE

DURING PEAK HOURS, IN THE FIXED INTERNET SERVICE, THE PERFORMANCE OF THE DOWNLOAD SPEED EXCEEDED 80 % AND THE UPLOAD SPEED, 85 %.

1. QUALITY OF FIXED INTERNET ACCESS SERVICES

During 2020, the average performance of the data transfer speed of fixed Internet service providers exceeded the regulatory threshold of 80 %[41] throughout the 24 hours of the day, both for downloading and for uploading.

This chapter describes the results of the quality evaluations of the access to fixed Internet service carried out in 2018, 2019, and 2020. The results of measurements carried out in the field are shown through the specialized measurement equipment system (probes) that incorporate a total of 249 Internet access services evaluated at the national level[42] and its respective comparison against the threshold (goal value to be achieved) established by Sutel[43] and pursuant to the provisions of the current Regulation on Service Provision and Quality[44].

Measurements are made as indicated in the methodology section described in the document and in achievement of the provisions of Sutel Council Resolution RCS-019-2018 "Resolution on Measurement Methodologies applicable to the Regulation of provision and quality of services".

The following sections describe the results obtained for each of the evaluated service quality indicators.

1.1. International Delay Indicator

Graph n.° 196 shows the results of the measurements carried out during 2018, 2019, and 2020, considering all the services evaluated throughout the country. The international delay indicator corresponds to an informative parameter, which evaluates the response time of the networks. This means that it is a measure of how fast information bundles travel through the network, so the results are better the lower their numerical value.

The threshold established by regulation by Sutel is 150 ms (milliseconds) for this indicator, which is exceeded by all operators included in this study. In this indicator, all operators showed a slight increase (deterioration) compared to the previous year: Cabletica went from 59.7 ms to 66.0 ms; ICE went from 68.2 ms to 72.9 ms; Telecable went from 78.0 ms to 79.6 ms; and Tigo went from 68.4 ms to 78.5 ms. For 2020, the simple average of the four annual results of these operators was 74.3 ms, a value that corresponds to 49.53 % of the regulatory threshold established by this Superintendency. Thus, the results by operator and aggregates turn out to be positive in terms of compliance, although there has been an increase in the international delay equivalent to 6.12 % (4.2 ms) compared to the result for 2019.

Results shown in Graph n.° 196 reflect an almost constant behavior for this quality indicator. Note that the lowest value recorded in the last 3 years was 59.7 ms, while the highest was 79.6 ms; a difference of 19.9 ms in an indicator with a threshold of 150 ms, which represents about 13 % of said threshold.

Graph n.° 197 shows the result of the international delay broken down by province for 2018 and 2019. Cabletica showed an increase in all its international delay values, particularly noticeable in the province of Cartago, where

[41] Regulation of provision and quality of services, article 46, and resolution of thresholds RCS-152-2017 Recital 1, paragraph 18.
[42] Sutel makes available to users the results of the verifications carried out with the measurement probe system, which allows the simultaneous and continuous evaluation of the main telecommunications service providers in the country, in a 24-hour, 7-day scheme, with 249 measurement probes distributed in the main points of traffic nationwide.
[43] The thresholds were established by Resolution RCS-152-2017 of the Sutel Council.
[44] The Regulation on Service Provision and Quality (RSPC) was published on February 17, 2017, in Scope n.° 36 of the Official Gazette and entered into force as of February 17, 2018.

it went from 58.7 ms to 79.3 ms. Regarding the three-year history shown in Graph n.° 197, there is no specific trend, since in most provinces, there is a decrease in 2019 compared to 2018, and an increase in 2020 compared to 2019, with the exception of Guanacaste, which shows an increasing trend for the three periods.

In this same Graph n.° 197, the 2020 results for ICE show increases in the international delay for all the country's provinces when compared to the previous year, with the exception of Cartago, where it registered an improvement from 78.5 ms to 76.5 ms. When reviewing the history of the last 3 years, a growing trend is evident for Limón, Puntarenas, Guanacaste, Alajuela, and San José for this operator.

Telecable showed increases in its international delay values in San José, Alajuela, Heredia, and Guanacaste. The latter stands out in Graph n.° 197 due to its value of 103.4 ms, the only one with 3 figures, and therefore, the closest one to the threshold of 150 ms. In the case of the provinces of Cartago and Puntarenas, there is a decrease in the 2020 data compared to 2019. For the data set from 2018 to 2020, the only trends with a rate of change correspond to the province of Heredia with constant growth and the province of Cartago with an almost constant reduction. In the particular case of the province of Limón, there is no data because the operator did not market its services in said province during the 2018-2020 study period.

In the case of Tigo, there is coverage for all the country's provinces, and the data history shown in Graph n.° 197 shows an increase in international delay values for all the country's provinces when comparing the 2020 data with respect to 2019. This trend is contrary to the history presented by the operator since 2018, as the previous behavior was rather towards a decrease in the international delay values, with the exception of the provinces of Puntarenas and San José, which show sustained increases from 2018 to 2020. In the case of Tigo, the most notable change occurred in the province of Guanacaste, where it passed from 64.5 ms to 93.4 ms.

Graph n.° 198 shows the behavior of the International Delay Indicator throughout the 24 hours of the day, from 00:00 to 23:00, for the four operators included in this study. Graph n.° 198 is specific to 2020, where the slight increase in this quality indicator is highlighted. In other words, a deterioration in the indicator, in the ranges traditionally considered as peak hours (or period of maximum traffic) stands out. The increase starts at around 7:00 p.m. and decreases at around 10:00 p.m., for Cabletica, ICE, and Telecable. In the particular case of Tigo, this increase is evident around noon. It should be noted that despite the variations registered throughout the 24 hours of the day, the delay values registered by operators comply with the threshold established for the indicator corresponding to 150 ms.

The following four graphs show the detailed behavior throughout the 24 hours of the day for each of the included operators, comparing their evolution from 2018 to 2020.

Graph n.° 199 shows the behavior over 24 hours of the International Delay Indicator for Cabletica, where 2019 stands out with a curve of lower delay at a general level and a similarity between the results of 2018 and those of 2020, but with a less pronounced peak in this last year, which shows an improvement in that particular aspect.

In the case of ICE, in Graph n.° 200, data for 2020 stand out and distinguish themselves from previous years, as they show for the first time a behavior similar to that of the other operators around the time slot of maximum traffic, which in the case of ICE is most notably between 6 pm and 10 pm.

Graph n.° 201, for Telecable, shows for 2020 a curve with a similar trend to that of previous years, including the slightly increasing behavior in the hours of higher traffic, which for 2020 is better than for 2018 but does not reach the low levels it obtained in 2019.

Tigo presents in 2020 an atypical 24-hour curve in comparison with the curves of previous years and even different from those of the other operators

included in this study, since it shows a range of maximum international delay around noon, extending approximately from the 9 am to 3 pm, as evidenced in Graph n.° 202.

1.2. Download Speed Performance Indicator

The Download Speed Performance Indicator corresponds to the percentage relationship between the download speed measured in the field and the download speed provided by the operator.

Graph n.° 203 shows the results of the measurements carried out during 2018, 2019, and 2020, considering all the services evaluated throughout the country. The download speed performance indicator evaluates the ability to transfer data from the network to the user and compares it against the configured speed (contracted bandwidth for data download) for that particular service. Thus, the download speed performance indicator is a measure of how much is obtained in relation to what is contracted, so the results are better the higher its numerical value, establishing a 100 % limit.

In this indicator, Cabletica shows a progressive decrease throughout 2018, 2019, and 2020, going from 100 % to 97.2 %, and then to 92.7 %, remaining above the regulatory threshold corresponding to 80 %. ICE showed a decrease compared to 2019, going from 85.3 % to 83.3 % in 2020, remaining above the 80 % threshold. In the case of Telecable, the result shows an improvement over the previous two years, achieving 93.8 % in 2020, a result above the regulatory threshold of 80 %. Tigo remained in 2020 with the maximum possible value of 100 % for the second consecutive year, being the only operator to achieve this milestone.

It should be noted, as mentioned in the previous paragraph, that in 2020 all the evaluated operators exceeded the threshold established by regulation by Sutel, at a value of 80 %.

Graph n.° 204 shows the result of the download speed performance disaggregated by province for 2018, 2019 and 2020. Cabletica showed a decrease in 6 of the 7 provinces, presenting an improvement only in Limón with a result of 90.5 %, which is 10 percentage points higher than the previous year for that area of the country; for the remaining provinces, the trend is decreasing.

In this same Graph n.° 204, ICE registers increase in the performance of the download speed for the provinces of San José and Limón, achieving in 2020 values of 82.9 % and 84.7 %, respectively, and these are also provinces where the trend towards improvement has been maintained since 2018. For the remaining provinces, there were improvement trends in 2019 compared to 2018, and a decrease in 2020 compared to 2019.

In 2020, Telecable showed a remarkable improvement in download speed performance values in all the provinces in which it was evaluated, showing in most cases an increase when compared to 2018 and 2019, according to data in Graph n.° 204. The particular case of Cartago should be highlighted, where it obtained a performance of 100 %. In the case of the province of Limón, there is no data given that the operator did not provide services in this province in 2020; so, it is not possible to provide the historical comparison.

In the case of Tigo, there is coverage for all the country's provinces and the data history shown in Graph n.° 204 shows an exceptional result for 2020, as it achieved the highest possible score, 100 %, for the 7 provinces of the country, consolidating a trend of sustained improvement shown by the history of results from 2018 to 2020.

Graph n.° 205 shows the behavior of the download speed performance indicator throughout the 24 hours of the day, from 00:00 to 23:00, for the four operators included in this study. Graph n.° 205 is specific for 2018 in which a decrease in this quality indicator stands out in the ranges traditionally considered as peak hours (period of maximum traffic), starting the increase at around 7 pm and decreasing at around 11 pm, for Tigo and Telecable, while ICE and Cabletica are stable in said time range.

The following four graphs show the detailed behavior throughout the 24 hours of the day for each of the included operators, comparing their evolution from 2018 to 2020.

Graph n.° 206 shows the behavior over 24 hours of the performance indicator of the download speed of Cabletica. 2020 stands out with a trend very similar to 2019, with values close to 100 % very early in the morning and until approximately 7:00 am, decreasing progressively until reaching a minimum around 8:00 pm, with a result of 84.8 %, and then increasing until reaching values higher than 96 % in the middle of the night and remaining stable during the very early morning. Both years, 2019 and 2020, did not achieve the high and consistent results of 2018.

In the case of ICE, in Graph n.° 207, 2020 data shows an intermediate result between previous 2018 and 2019 results, highlighted by a trend of high stability throughout the 24 hours of the day with an average value of 83.3 % (see also Graph n.° 209).

Graph n.° 208, corresponding to Telecable, shows for 2020 a curve similar to that of 2018, but with better results for hours of low traffic. This represents an improvement with respect to the 2019 curve, since for 2020, the lowest point occurred at 9:00 p.m. for a performance of 80.3 %, which is higher than the regulatory threshold established by this Superintendency.

Tigo presented an exceptional 24-hour curve in 2020 compared to the two previous years, as it remained at the maximum possible value of 100 % in a stable way throughout the day, certifying that this high performance is not only generalized at the national level (see Graph n.° 204) but is also constant at any time, as shown in Graph n.° 209.

1.3. Upload Speed Performance Indicator

The Upload Speed Performance Indicator corresponds to the percentage relationship between the upload speed measured in the field and the upload speed provided by the operator. It should be noted that the threshold established by regulation by Sutel is 80 %, which is exceeded by all operators included in this study.

Graph n.° 210 shows the results of the measurements carried out during 2018 and 2019, considering all the services evaluated throughout the country. The upload speed performance indicator evaluates the ability to transfer data from the user to the network and compares it with the configured speed (bandwidth contracted to send data) for that particular service. It is a measure of how much is obtained in relation to what is contracted; hence, results are better the higher the numerical value, establishing a limit of 100 %.

This indicator, according to the results of Graph n.° 210, shows that for 2020, Cabletica, ICE, and Tigo presented a decrease in their performance compared to the two previous years, with decreases of approximately 10 percentage points for Tigo and Cabletica and around 5 percentage points for ICE. For its part, Telecable maintained a very similar performance to the previous year with 94.3 % for 2020.

Graph n.° 211 shows the result of upload speed performance disaggregated by province for 2018 and 2019. The Cabletica operator presents a generalized decrease for all the country's provinces, since in 2018 and 2019, it maintained values of 100 %, while in 2020, it showed lower performances, from the most favorable scenario in Heredia with 97.8 %, up to the most critical case of San José with 86.7 %, but in all cases above the regulatory threshold of 80 %.

In this same Graph n.° 211, ICE also decreased in its performance in 5 of the 7 provinces of the country. The most significant change occurred in Cartago, which went from 100 % in 2018 and 2019, to 79.2 % in 2020. For the provinces of Limón and San José, it remained at 100 % for the third consecutive year.

Telecable showed decreases in its performance values of upload speed in three provinces: Alajuela, Heredia, and Guanacaste, and also increased them in three provinces: San José, Cartago, and Puntarenas, the average change for the 6 evaluated provinces was

2.8 percentage points compared to the previous year. The most significant is Guanacaste, with a decrease of 5.8 percentage points, and Cartago with an increase of 4.7 percentage points, according to the data in Graph n.° 211. In the case of the province of Limón, there is no data, since the operator did not provide services in this province in 2020; so, it is not possible to provide the historical comparison.

In the case of Tigo, there is coverage for all the country's provinces, and the data history in Graph n.° 211 shows a decrease in all provinces except for Limón, which remains practically the same as in 2019,

at around 90 %. The most notable decrease occurred in Cartago, which went from 100 % in 2018, to 95.4 % in 2019, and 80.6 % in 2020.

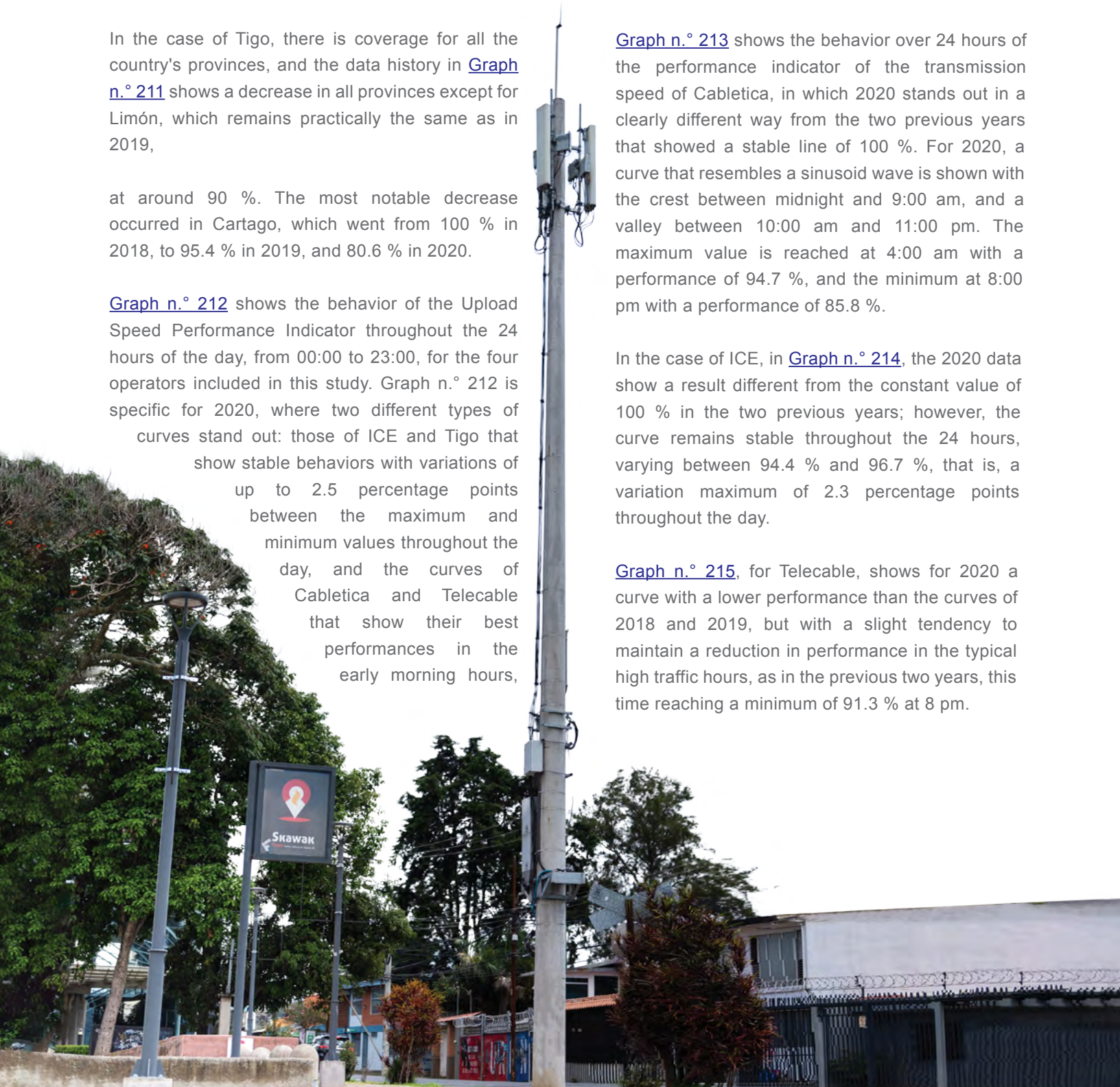
Graph n.° 212 shows the behavior of the Upload Speed Performance Indicator throughout the 24 hours of the day, from 00:00 to 23:00, for the four operators included in this study. Graph n.° 212 is specific for 2020, where two different types of curves stand out: those of ICE and Tigo that show stable behaviors with variations of up to 2.5 percentage points between the maximum and minimum values throughout the day, and the curves of Cabletica and Telecable that show their best performances in the early morning hours, decreasing from 7:00 am on, and finding their lowest value at 8:00 pm); in the case of Telecable, its lowest performance is 91.3 %, and in the case of Cabletica, it is 85.8 %.

The following four graphs show the detailed behavior throughout the 24 hours of the day for each of the included operators, comparing their evolution from 2018 to 2020.

Graph n.° 213 shows the behavior over 24 hours of the performance indicator of the transmission speed of Cabletica, in which 2020 stands out in a clearly different way from the two previous years that showed a stable line of 100 %. For 2020, a curve that resembles a sinusoid wave is shown with the crest between midnight and 9:00 am, and a valley between 10:00 am and 11:00 pm. The maximum value is reached at 4:00 am with a performance of 94.7 %, and the minimum at 8:00 pm with a performance of 85.8 %.

In the case of ICE, in Graph n.° 214, the 2020 data show a result different from the constant value of 100 % in the two previous years; however, the curve remains stable throughout the 24 hours, varying between 94.4 % and 96.7 %, that is, a variation maximum of 2.3 percentage points throughout the day.

Graph n.° 215, for Telecable, shows for 2020 a curve with a lower performance than the curves of 2018 and 2019, but with a slight tendency to maintain a reduction in performance in the typical high traffic hours, as in the previous two years, this time reaching a minimum of 91.3 % at 8 pm.



Results on Graph n.° 216 correspond to Tigo, which in 2020 presented a 24-hour curve with a lower performance than in 2018 and 2019, but equally stable with a maximum variation of 2.5 percentage points between its maximum and minimum values, remaining stable around a national average of 94.3 % (see Graph n.° 210).

2. QUALITY OF MOBILE SERVICES

During 2019, the percentage of interrupted calls in the mobile service exceeded the regulatory minimum of 2 % for all operators, both in 2G and 3G.

As part of the continuous process of national evaluation of the quality of the service of the 2G, 3G, and 4G mobile networks of ICE, Claro, and Telefónica, Sutel carried out the measurements corresponding to 2019 in the period between 20 June and 31 December 2019 (with measurement times allowed between 6:00 am and 11:00 pm, in accordance with the resolution of measurement methodologies RCS-019-2018), as detailed in the methodology for the evaluation of mobile services.

The following sections describe the specific results by operator and technology obtained for the following quality indicators:

- Percentage of unsuccessful calls (Article 35 of the RPCS).
- Percentage of dropped calls (Article 40 of the RPCS).
- Mobile service coverage areas (Article 41 of the RPCS).
- Local delay (Article 44 of the RPCS).
- Relationship between the local or international data transfer speed with respect to the provided speed (Article 46 of the RPCS).

In this section, the results of the evaluation of the indicators perceptible by end users are shown percentage of unsuccessful calls[45], percentage of dropped calls[46] and coverage area (coverage accuracy).

2.1. Percentage indicator of unsuccessful calls

From the analysis of the results obtained (see Graph n.° 217), for the 2G network for 2019, Claro registers a percentage of unsuccessful calls of 7.8 %, ICE 6.8 %, and Telefónica 17.7 %.

Regarding the 3G network (see Graph n.° 218) for 2018, Claro registers a percentage of unsuccessful calls of 1.2 %, ICE 4.6 %, and Telefónica 0.5 %.

Taking into consideration that the maximum quality threshold for both 2G and 3G networks corresponds to 3.5 %, it is possible to conclude that Claro and ICE exceed the maximum quality threshold for the 2G network, and that ICE exceeds the maximum quality threshold for the 3G network.

[45]This indicator makes it possible to evaluate the accessibility of the telephone service
[46]This indicator allows evaluating the retention of telephony service

2.2. Percentage indicator of dropped calls

According to the figures derived from the information processing on this indicator (see Graph n.° 219), for the 2G network for 2019, Claro registers a percentage of interrupted calls of 2.9 %, ICE 3 %, and Telefónica 4.1 %.

Regarding the 3G network for 2019, Claro registers a percentage of dropped calls of 4.4 %, ICE 2.1 %, and Telefónica 7.3 % (see Graph n.° 220).

The maximum quality threshold for both 2G and 3G networks corresponds to 2 %. Therefore, it is possible to conclude that Claro, ICE, and Telefónica fail to meet the maximum quality threshold for 2G and 3G networks.

2.3. Coverage Area Indicator (Coverage Accuracy)

The evaluation of this quality indicator included the analysis of the four types of coverage, in accordance with the respective areas covered by the operators and published on their websites, namely: inside buildings, inside vehicles, only outdoors, and outside of the coverage area. Compliance by type of coverage required as input the coverage layers provided by Claro, ICE, and Telefónica for February 2019.

Through the GeoGraph Information System (GIS) held by Sutel, the data filtering procedure was carried out, which consists of checking the level of intensity of the signal obtained in the field regarding the delimitation of each type of coverage reported by the operators, which in turn they publish on their respective websites[47].

For the 2G network and for 2019, Claro registers a percentage of coverage area (coverage accuracy) of 89.6 %, ICE 93.4 %, and Telefónica registers 85.2 % (see Graph n.° 221).

In the case of the 3G network for 2019, Claro registers a percentage of coverage area (coverage accuracy) of 80.4 %, ICE registers 91.5 % for that same indicator, and Telefónica 98.3 % (see Graph n.° 222).

Finally, regarding the 4G network (see Graph n.° 223), for 2019 Claro registers a percentage of coverage area (coverage accuracy) of 64.6 %, ICE 89.5 %, and Telefónica 99 %.

The minimum quality threshold for 2G, 3G, and 4G networks corresponds to 90 %. Thus, for 2019, Claro does not exceed the regulatory threshold for 2G, 3G, and 4G networks, ICE does not reach the regulatory threshold for the 4G network, and Telefónica does not exceed the regulatory threshold for its 2G network.

2.4. Local delay indicator

The delay indicator is evaluated by performing ping tests. In each of these, 100 ICMP Eco Request packets are sent, and the time it takes to receive each of the ICMP Echo Reply responses is counted. The average value of the 100 responses corresponds to the result of a ping test.

The evaluation of the local delay indicator is carried out by carrying out ping tests against a server dedicated for said purpose and located within the Costa Rican territory, specifically at the Neutral Traffic Exchange Point (IXP), administered by NIC Costa Rica, called CRIX, in accordance with the provisions of article 44 of the RPCS.

For the 3G network and for 2019, Claro registers a local delay compliance percentage of 41.1 %, ICE 93.8 %, and Telefónica registers 89 % (see Graph n.° 224).

In the case of the 4G network for 2019, Claro registers a percentage of local delay compliance of 95 %, ICE registers 96.3 %, and Telefónica 96.5 % (see Graph n.° 225).

[47]Claro: http://mapas-claro.addax.cc/map.php?sucursales, ICE: http://mapas.ice.go.cr/MapasCobertura/ y Telefónica: http://movistar.cr/cobertura-movil.

The minimum quality threshold for local delay in 3G and 4G networks corresponds to 95 %. In accordance with the above, for 2019, in the 3G network no operator met the regulatory threshold, while for the 4G network, ICE and Telefónica exceeded the established threshold.

2.5. Average Download Speed Performance Indicator (Speed measured vs provided-contracted)

The evaluation of the indicator called the relationship between the speed of local or international data transfer with respect to the speed provided is made from the application of the "Measurement methodology applicable to Internet access services of the regulation of provision and quality of services"[48]. Measurements were made while moving along the routes (at outdoor level), thus collecting samples of instant data packet download speed for each operator.

For the calculation procedure of this quality indicator, the totality of instant velocity samples collected within the coverage layers of each operator and corresponding to two types of coverage are taken into consideration; indoors and inside vehicles[49]. Results presented in Graphs n.° 226 and n.° 227 correspond to the average performance of the download speed measured with respect to the provided (contracted) download speed, for the 3G and 4G networks of Claro, ICE and Telefónica, as well as their evolution between 2015 and 2019.

Results obtained at the national level for the 3G network, with a threshold of 50 %, show that Claro registers a performance percentage of download speed of 71.8 %, ICE registers a performance percentage of 69.6 %, and Telefónica of 77.4 % (see Graph n.° 226).

As mentioned, in Graph n.° 227, the results obtained at the national level for the 4G network are detailed, with a 60 % threshold for 2019. In this regard, it should be noted that this indicator is estimated based on the contracted speed according to the information provided by the operators regarding the speed measured in the field and its evolution from 2015 to 2019. Data for 2019 are: Claro with 72.7 %, registers an increase of 26.5 percentage points with respect to the result of 2018; ICE, with 100 %, registers an increase of 27.6 percentage points with respect to the result of 2018; and Telefónica, with 100 %, registers an increase of 35.3 percentage points with respect to the result of 2018.

2.6. Quality Adjustment Factor (QAF - Quality Note)

The Quality Adjustment Factor (QAF) allows obtaining a qualification of compliance with the quality conditions by the operators under study, Claro, ICE and Telefónica, in particular for mobile telephony and Internet services.

To estimate the QAF, the relative weights assigned by indicator and service are taken into consideration, which are detailed in Article 51 of the Regulation on provision and quality of service. Given this, based on the quality indicators where information was collected, a reallocation of the relative weights was made, that is, an adjustment to the relative weights of the quality indicators, so that in the calculation of the QAF, only the indicators evaluated are considered.

Based on the aforementioned reallocation, in Table n.° 21, the national FAC result by operator is detailed for 2G, 3G, and 4G networks, for mobile telephony and Internet services.

[48]According to resolution RCS-019-2018.
[49]In accordance with point 4 of Article 46 of the current Regulation for the provision and quality of services.

Table n.° 21. Costa Rica: QAF result for Claro, ICE, and Telefónica, for 2G, 3G, and 4G networks, for mobile telephony and Internet services, 2019.

		QAF (quality score) (%)		
Network	Service	Claro	ICE	Telefónica
2G	Mobile telephony	92.7	92.9	88.9
3G		90.4	95.9	98.0
4G		64.6	89.5	100.0
3G	Mobile Internet	81.7	98.0	96.6
4G		64.4	100.0	100.0

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

3. QUALITY OF EXPERIENCE FOR MOBILE INTERNET ACCESS SERVICES

During 2020, mobile service users in Costa Rica were connected to an LTE (4G) network more than 65 % of the time.

This section presents results corresponding to evaluations of quality-of-service experience from the user's perspective, which are collected through the Opensignal mobile application, which records data on the quality of service for users who install the application voluntarily and for free on their mobile phones. Data therefore comes from a wide variety of terminal devices and plans, depending on the variety of services subscribed by users.

Since 2016, OpenSignal has provided Sutel with reports on the quality of the service taking advantage of data collected through the collaborative tool of said company, which allows evaluating the quality of the service from the perspective of user experience (QoSE). This collaborative tool allows collecting data from the users´ terminal (cell phone).

Data used for the preparation of the reports is collected regardless of the place and conditions of the user at a given time, whether indoors or outdoors, in rural or urban areas, statically or in motion, in population centers or along routes or highways, capturing the performance variables of the network in a wide variety of situations, as experienced by the user when using mobile services.

Results for 2020 were obtained from a total of 73 272 mobile phones, of which more than 250 million data were collected[50].

Graph n° 228 shows how the speeds of 3G technology have evolved in Costa Rica from 2016 to 2020 for each mobile operator in the country. In this Graph, the names of the trademarks of the mobile services have been used instead of the names of the operators. In the case of Movistar, the average 3G download speed has gone from 2.2 Mbps at the beginning of 2016, to 3.0 Mbps at the end of 2020, its highest value is from the first half of 2020, with 3.2 Mbps. Claro exhibits a similar behavior, going from 1.8 Mbps to 3.5 Mbps in the same period. Kölbi, in the meantime, showed an increase of almost 3 times going from 1.3 Mbps to 3.7 Mbps.

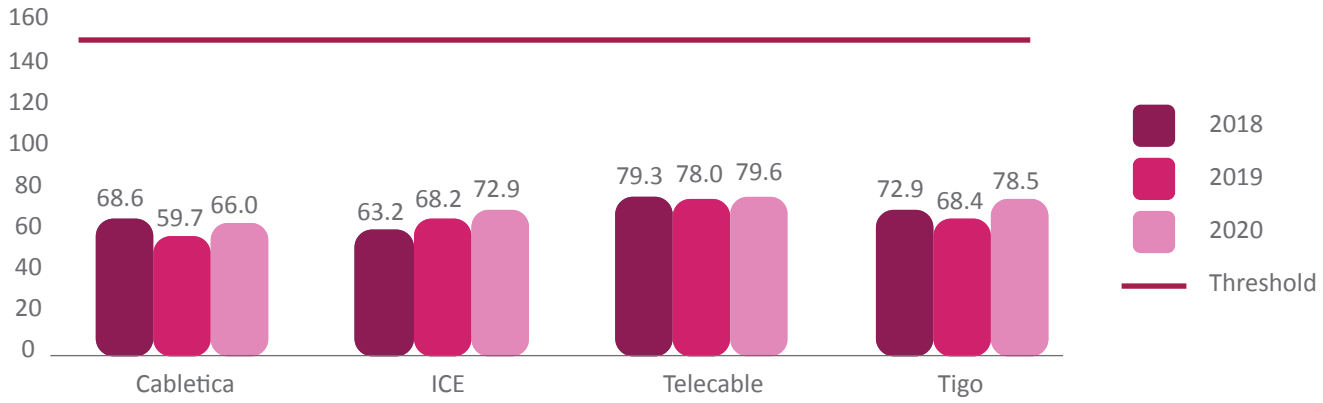
[50]The exact value is 251 036 394 data.

Graph n° 229 also shows the evolution of download speeds, but for 4G technology, showing significant increases when compared to its 3G equivalent. In this Graph, the names of the trademarks of mobile services have been used instead of the names of the operators. From 2016 to 2020, Movistar went from 7.1 Mbps to 10.3 Mbps, maintaining values of 10 Mbps or steadier since the second half of 2019. Claro has doubled its speed in the last 4 years, starting in 2017 with 6.5 Mbps and ending 2020 with 15.8 Mbps; the latter is the highest data recorded for this operator. ICE with its Kölbi brand has shown a significant evolution, going from 4.9 Mbps at the beginning of 2016 to 33.0 Mbps at the end of 2020, which represents an increase of more than 6 times in the last 5 years.

The availability of the 4G network shown in Graph n° 230 provides a measure of the percentage of time that users of a specific operator stay connected to the network with 4G technology. In this Graph, trademark brand names have been used in mobile services instead of the operators´ names. In the case of Movistar, the increase has been 13 percentage points from the first half of 2016 to the second half of 2020, going from 63.8 % to 76.6 %. In the case of Claro, the increase is denoted by the change between 41.8 % in 2017 to 78.1 % in 2020, that is, an increase of more than 36 percentage points in the last 5 years and placing it with the highest 4G availability in the country. On the other hand, in the case of Kölbi, from 2016 to 2020, an evolution is shown from 44.4 % to 66.8 %, presenting an increasing trend, but with a decrease of around 7 percentage points compared to the immediate previous periods.

Gráfico n.° 196. Costa Rica: Evolution of the International Delay Indicator for the whole country, 2018-2020

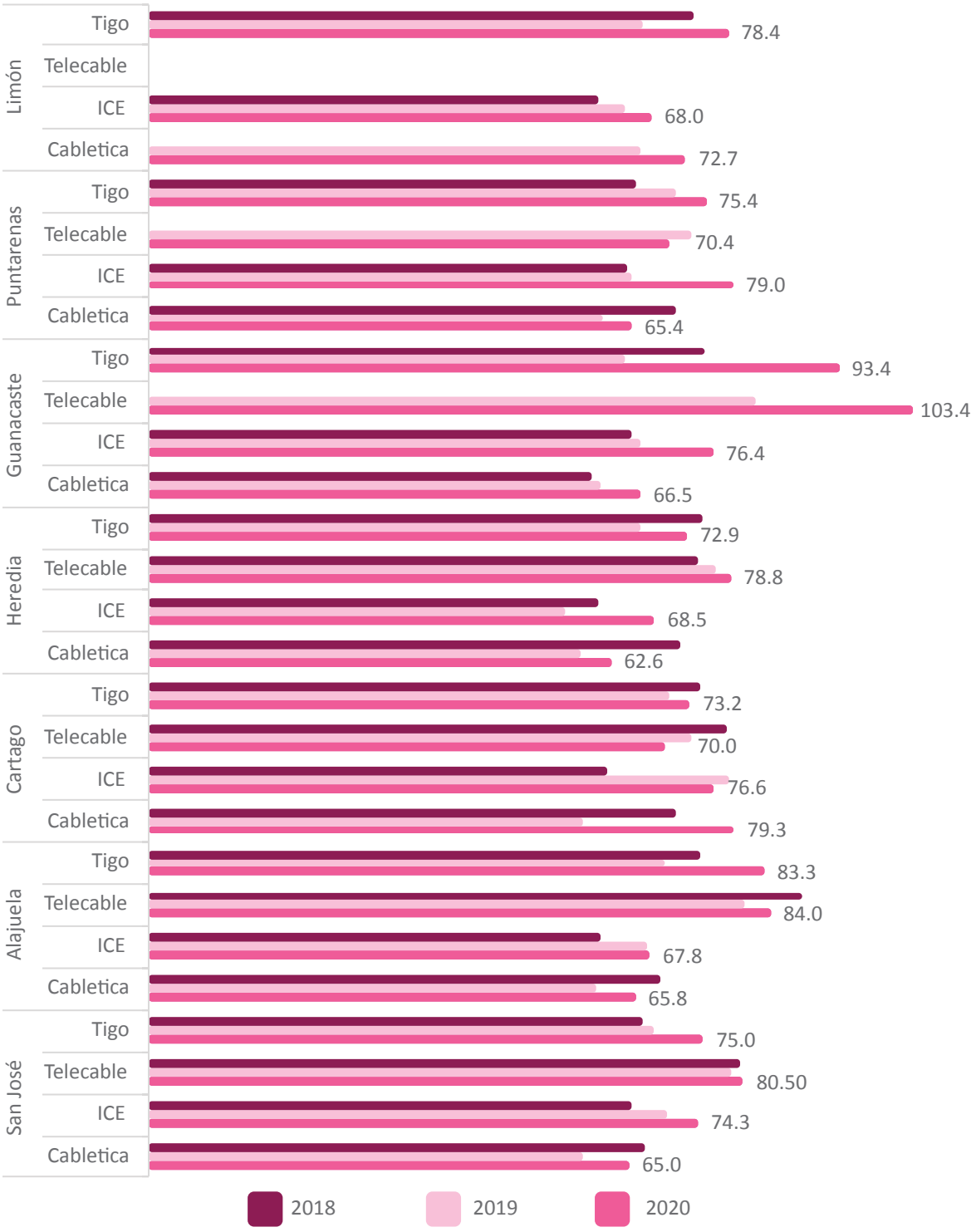
(figures in milliseconds)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 197. Costa Rica: Evolution of the International Delay Indicator per province, 2018-2020

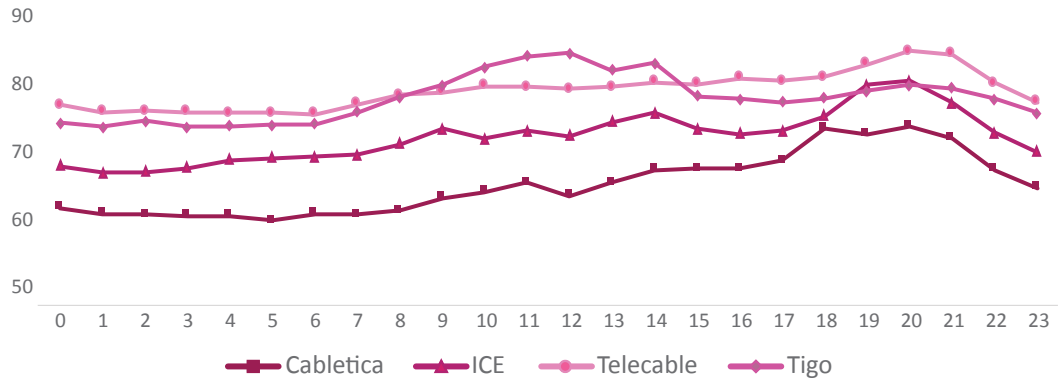
(figures in milliseconds)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 198. Costa Rica: 24-hour behavior of the International Delay Indicator for the whole country, 2020

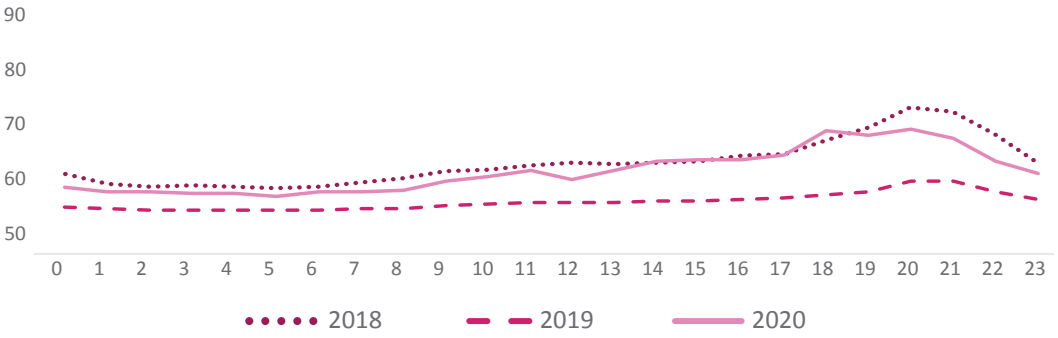
(figures in milliseconds)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 199. Costa Rica: Evolution of the 24-hour behavior of the International Delay Indicator of Cabletica, 2018-2020

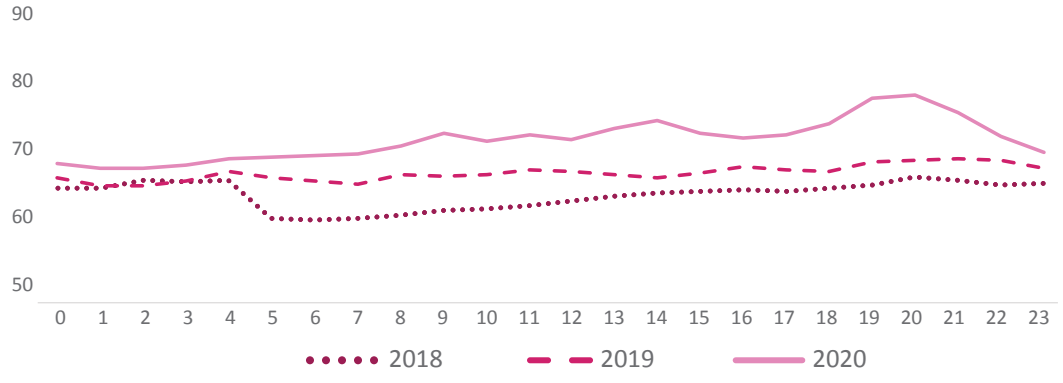
(figures in milliseconds)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 200. Costa Rica: Evolution of the 24-hour behavior of the International Delay Indicator of ICE, 2018-2020

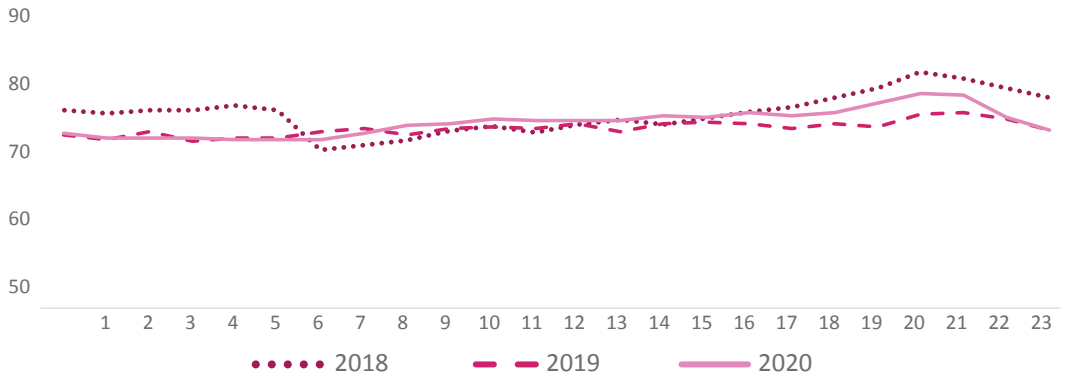
(figures in milliseconds)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 201. Costa Rica: Evolution of the 24-hour behavior of the International Delay Indicator of Telecable, 2018-2020

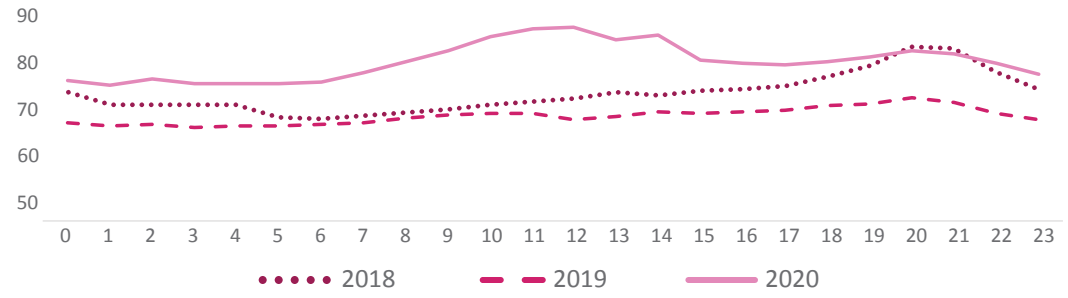
(figures in milliseconds)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 202. Costa Rica: Evolution of the 24-hour behavior of the International Delay Indicator of Tigo, 2018-2020

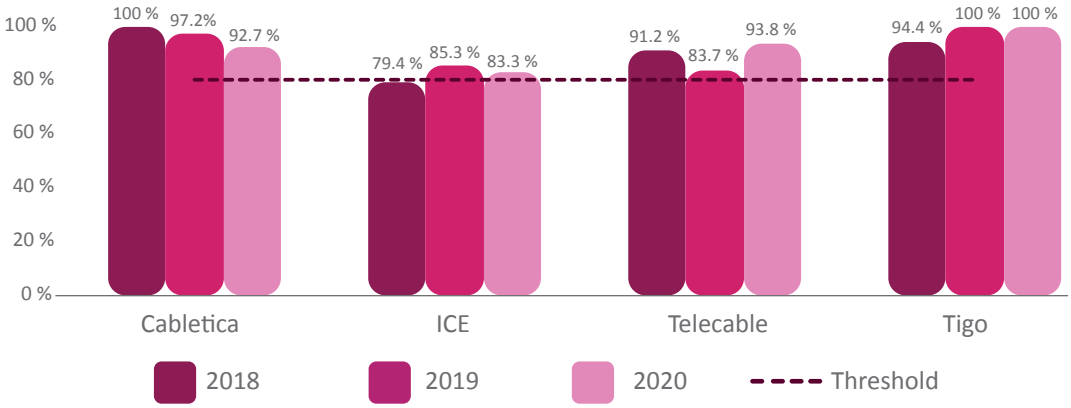
(figures in milliseconds)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 203. Costa Rica: Evolution of the Download Speed Performance Indicator for the whole country, 2018-2020

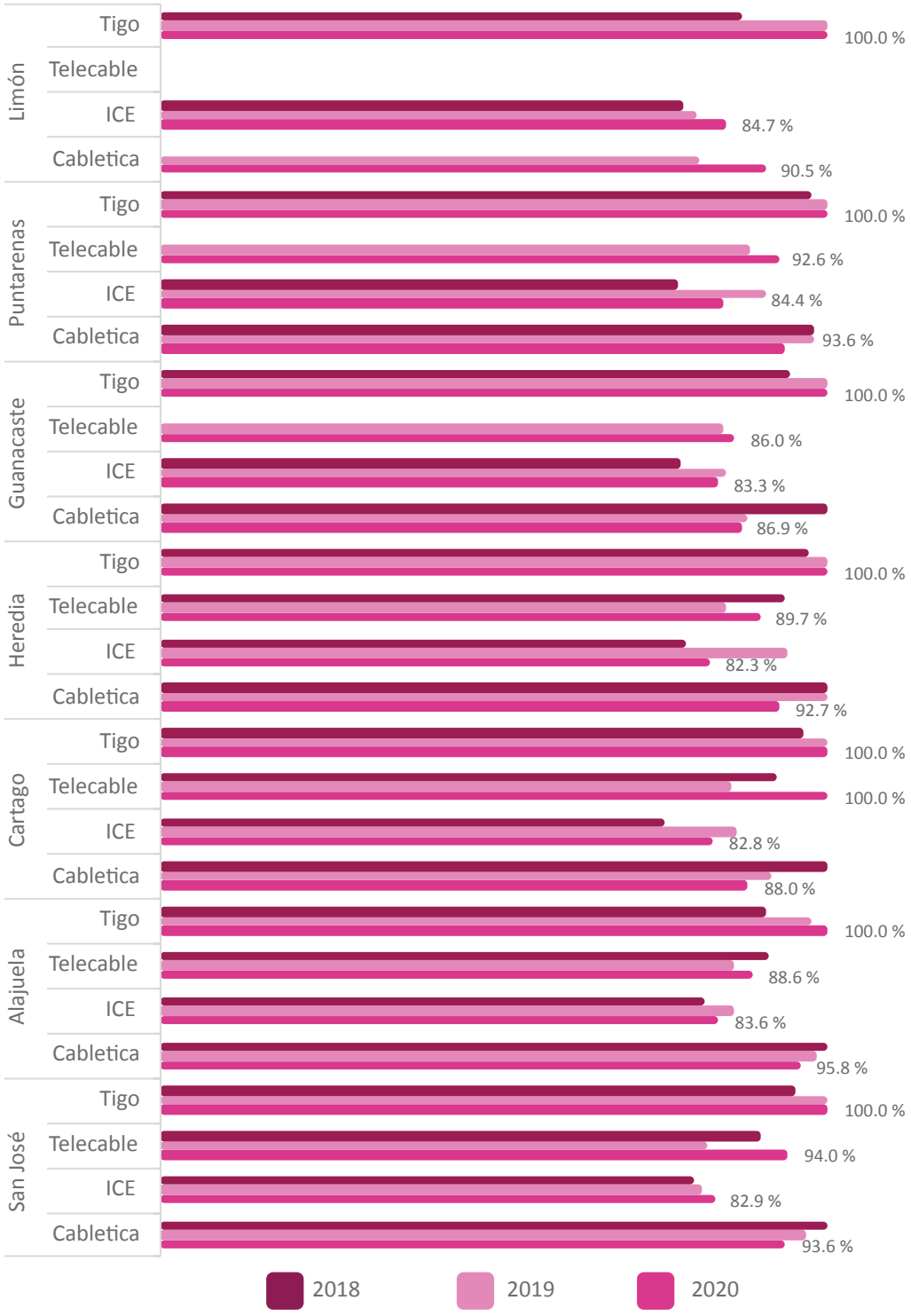
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 204. Costa Rica: Evolution of the Download Speed Performance Indicator per province, 2018-2020

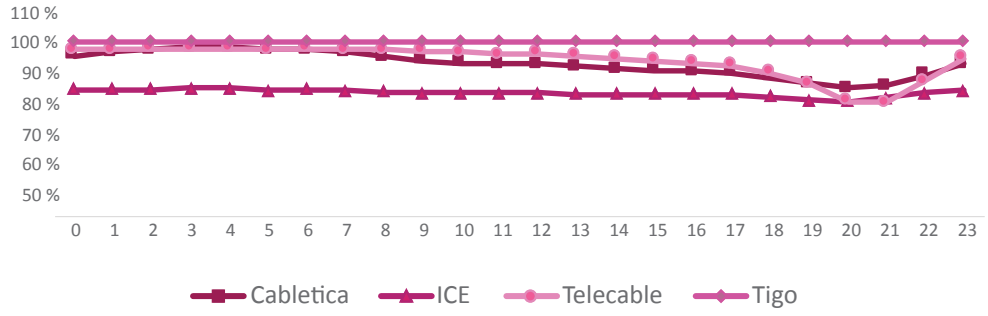
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 205. Costa Rica: 24-hour behavior of the Download Speed Performance Indicator for the whole country, 2020

(figures in percentages)

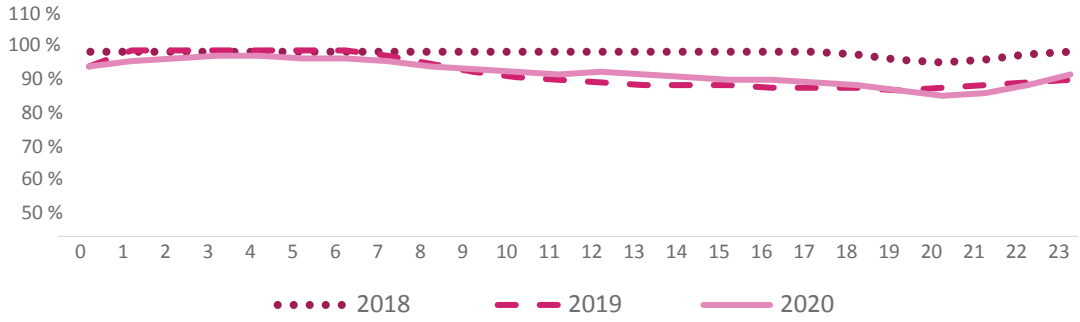


Results always higher than the 80 % threshold

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 206. Costa Rica: Evolution of the 24-hour behavior of the Download Speed Performance Indicator of Cabletica, 2018-2020

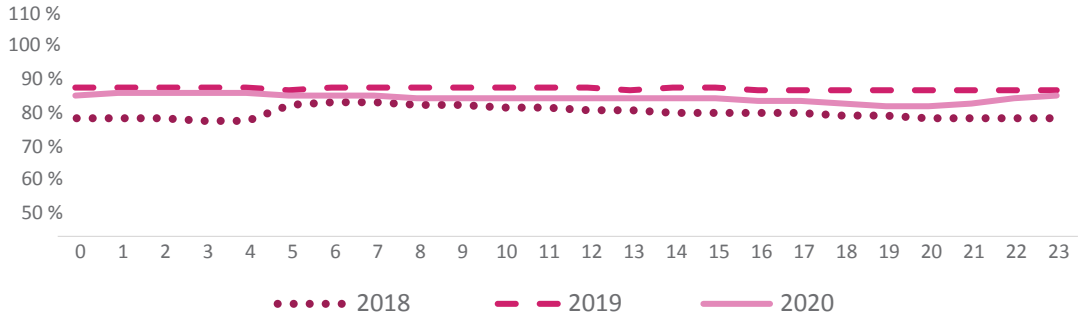
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 207. Costa Rica: Evolution of the 24-hour behavior of the Download Speed Performance Indicator of ICE, 2018-2020

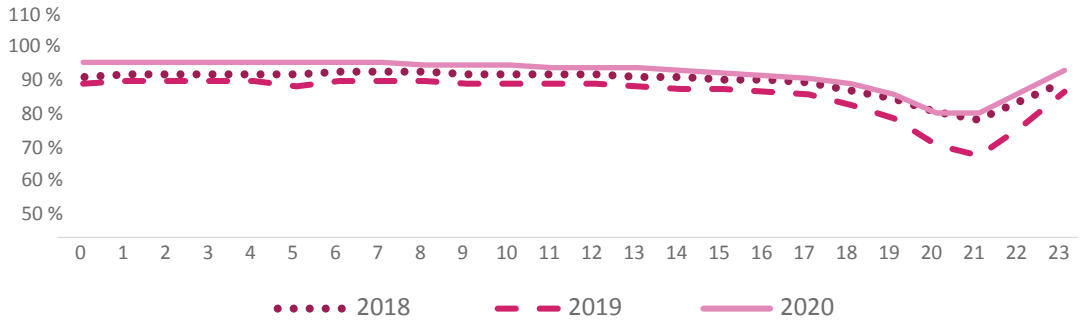
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 208. Costa Rica: Evolution of the 24-hour behavior of the Download Speed Performance Indicator of Telecable, 2018-2020

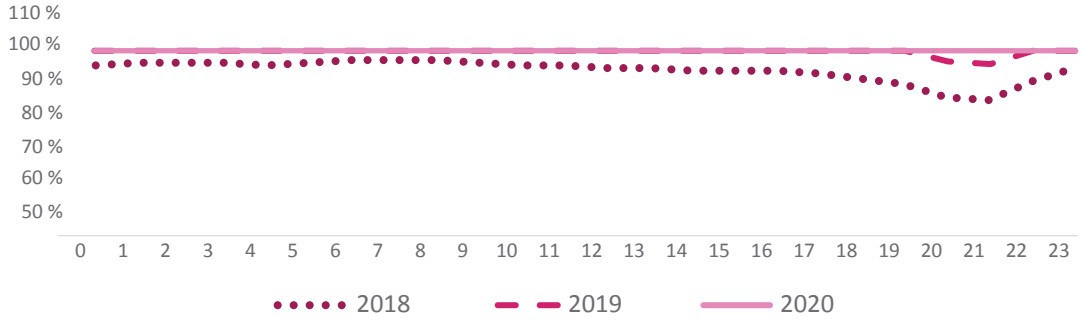
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 209. Costa Rica: Evolution of the 24-hour behavior of the Download Speed Performance Indicator of Tigo, 2018-2020

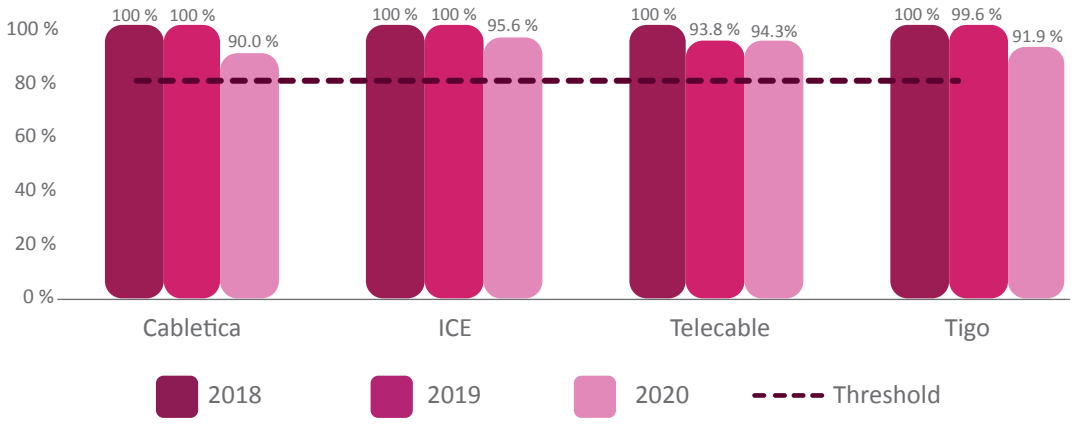
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 210. Costa Rica: Evolution of the Upload Speed Performance Indicator for the whole country, 2018-2020

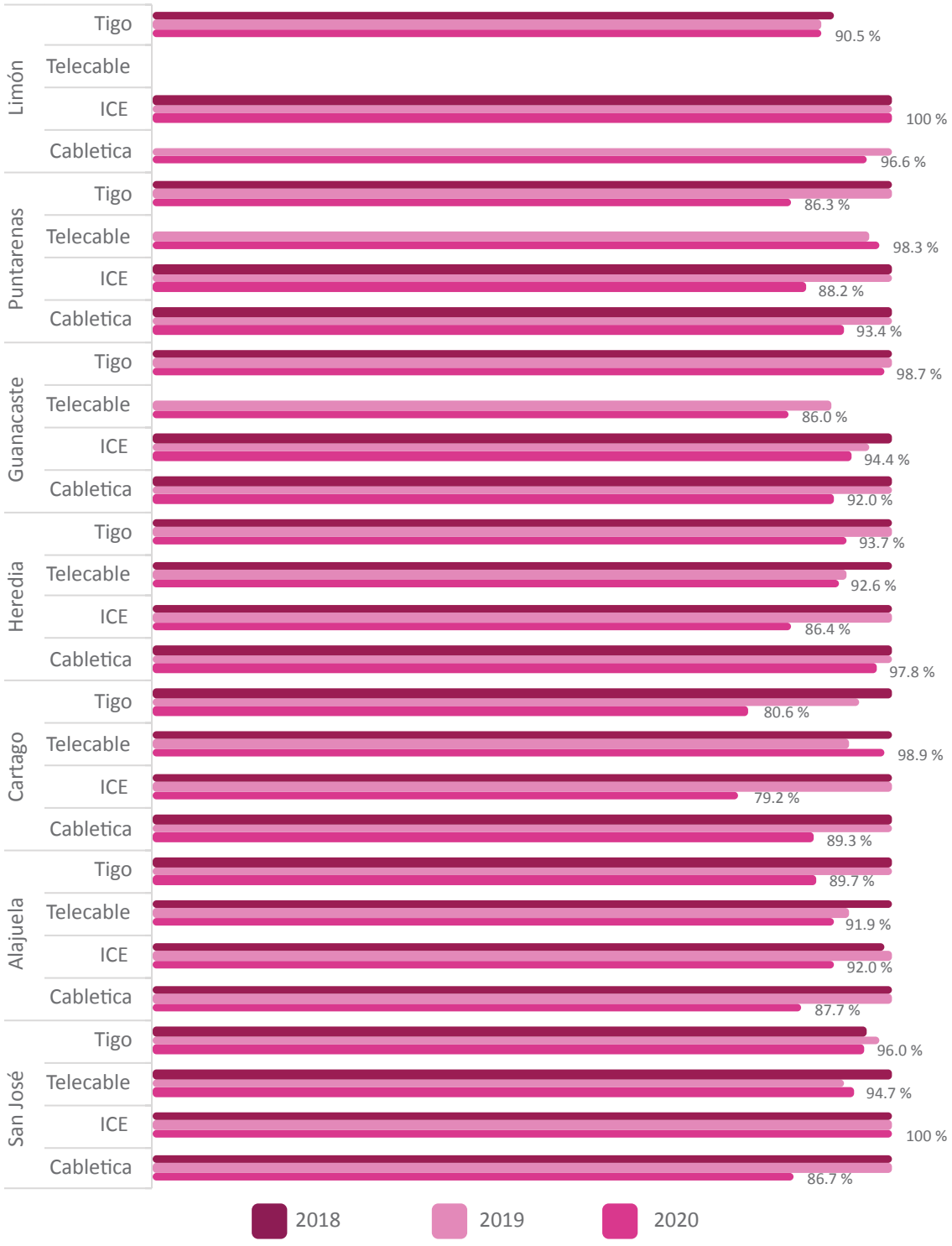
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 211. Costa Rica: Evolution of the Upload Speed Performance Indicator per province, 2018-2020

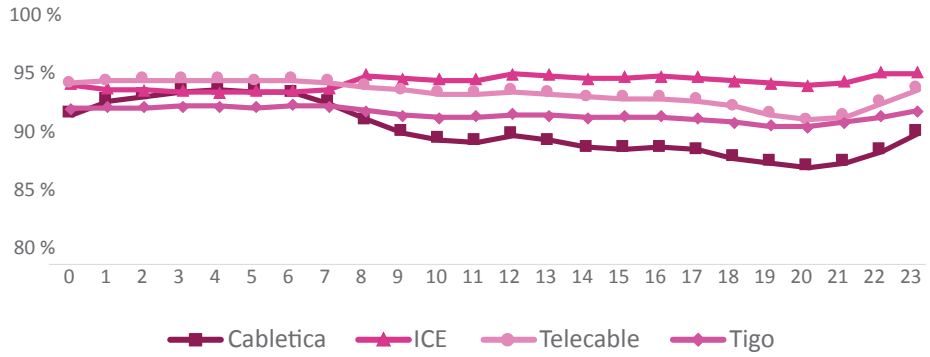
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 212. Costa Rica: 24-hour behavior of the Upload Speed Performance Indicator for the whole country, 2020

(figures in percentages)

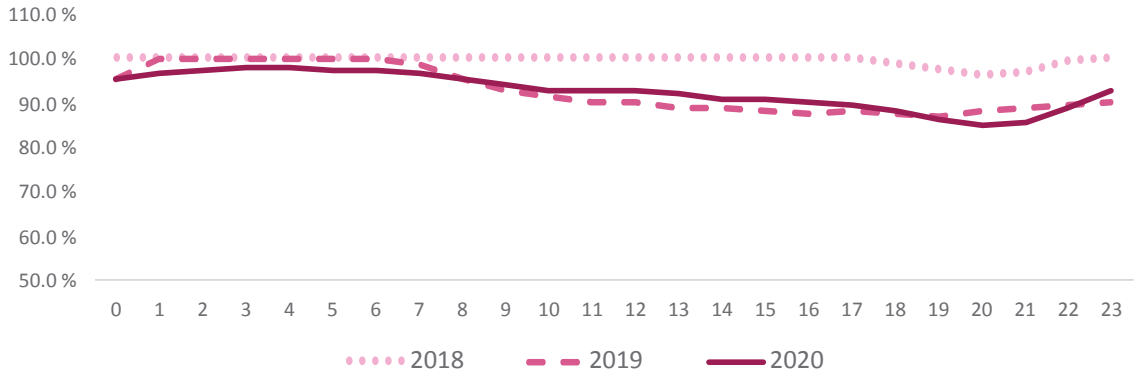


Results are always higher than the 80 % threshold

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 213. Costa Rica: Evolution of the 24-hour behavior of the Upload Speed Performance Indicator for Cabletica, 2018-2020

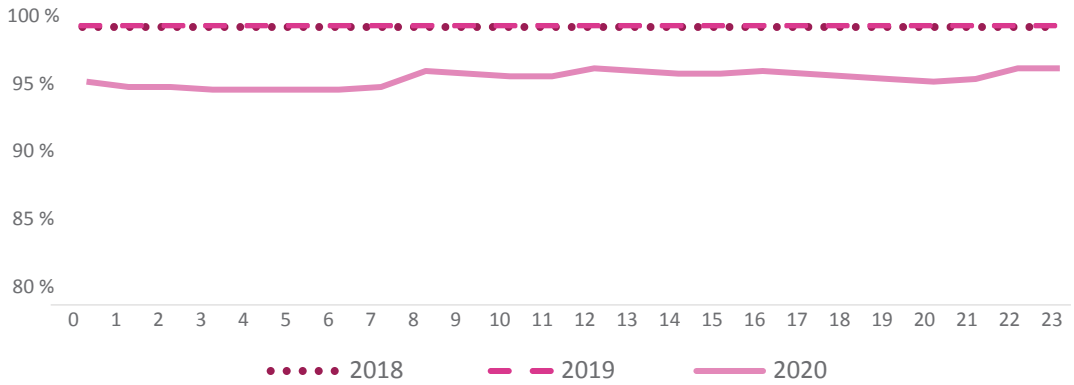
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 214. Costa Rica: Evolution of the 24-hour behavior of the Upload Speed Performance Indicator for ICE, 2018-2020

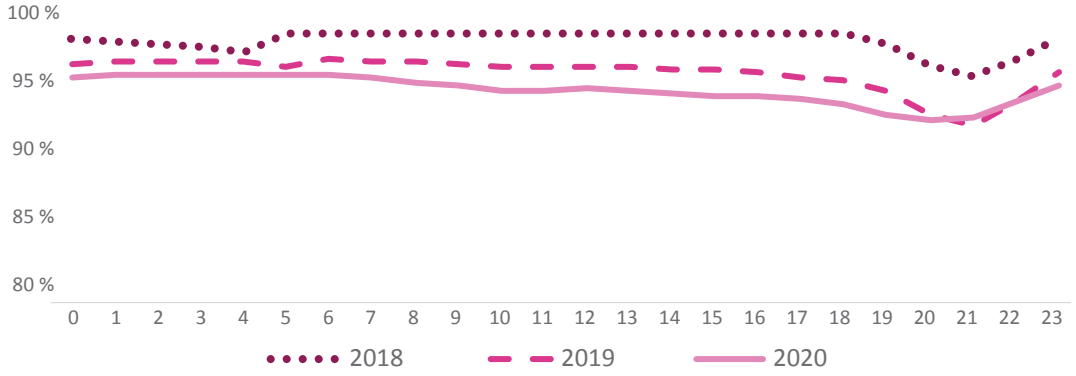
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 215. Costa Rica: Evolution of the 24-hour behavior of the Upload Speed Performance Indicator for Telecable, 2018-2020

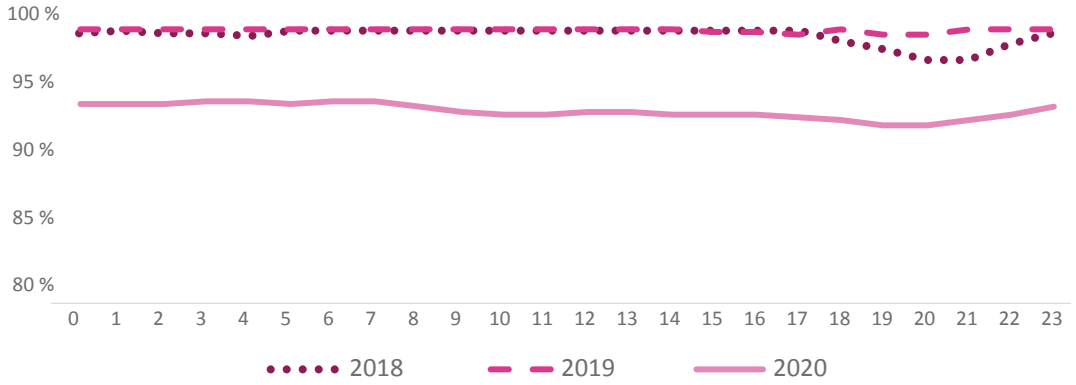
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 216. Costa Rica: Evolution of the 24-hour behavior of the Upload Speed Performance Indicator for Tigo, 2018-2020

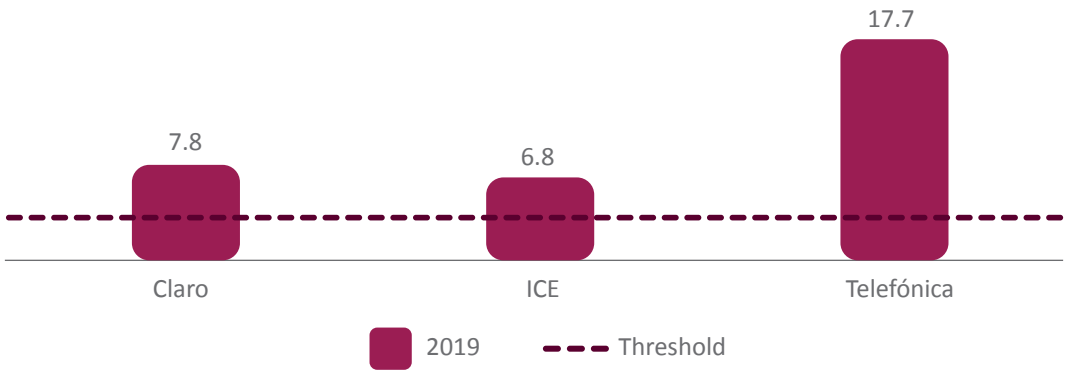
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 217. Costa Rica: Percentage of unsuccessful calls per operator for the mobile telephony service through the 2G network, 2019

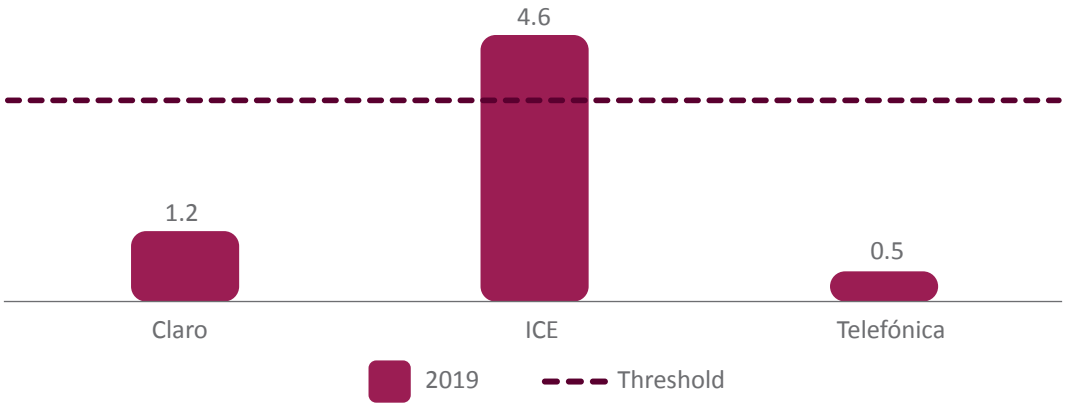
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 218. Costa Rica: Percentage of unsuccessful calls per operator for the mobile telephony service through the 3G network, 2019

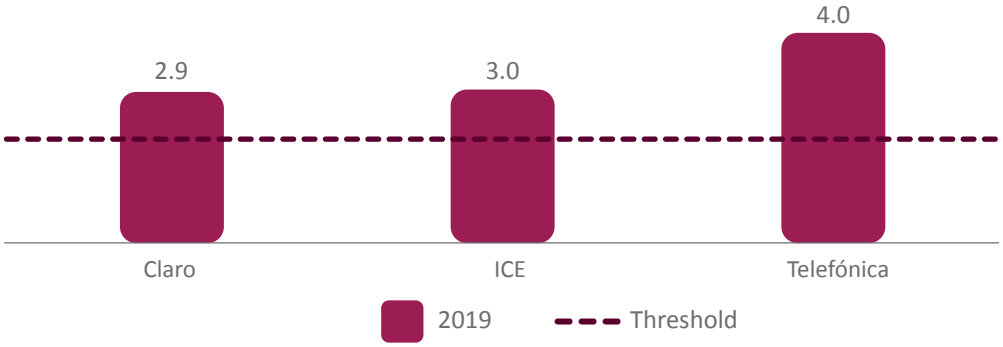
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 219. Costa Rica: Percentage of dropped calls per operator for the mobile telephony service through the 2G network, 2019

(figures in percentages)

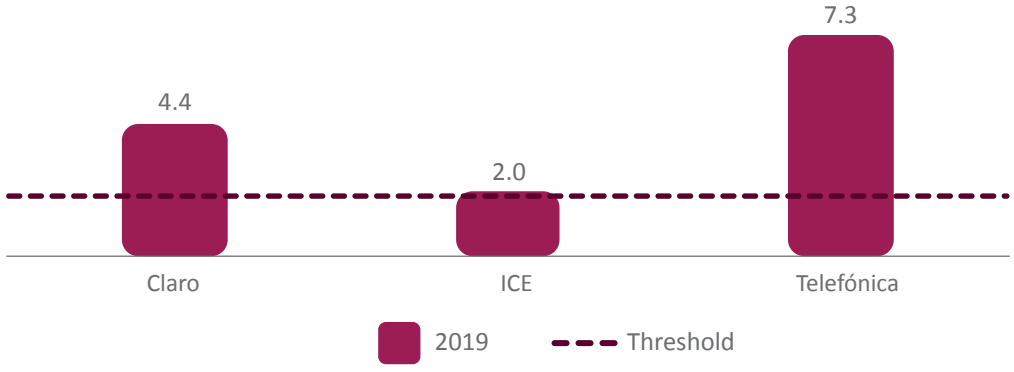


Results surpass the minimum regulatory 2 %

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 220. Costa Rica: Percentage of dropped calls per operator for the mobile telephony service through the 3G network, 2019

(figures in percentages)

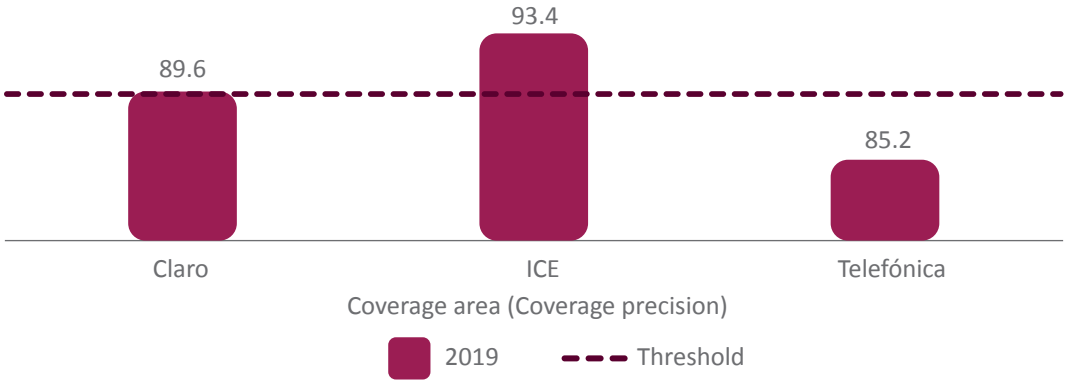


Results surpass the minimum regulatory 2 %

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 221. Costa Rica: Percentage of samples per each operator that complies with the coverage area (coverage precision) of the 2G network, 2019

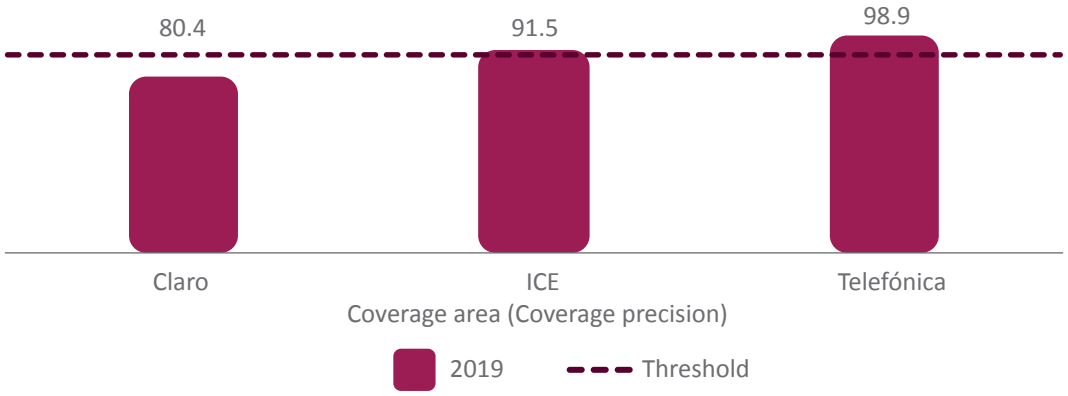
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 222. Costa Rica: Percentage of samples per each operator that complies with the coverage area (coverage precision) of the 3G network, 2019

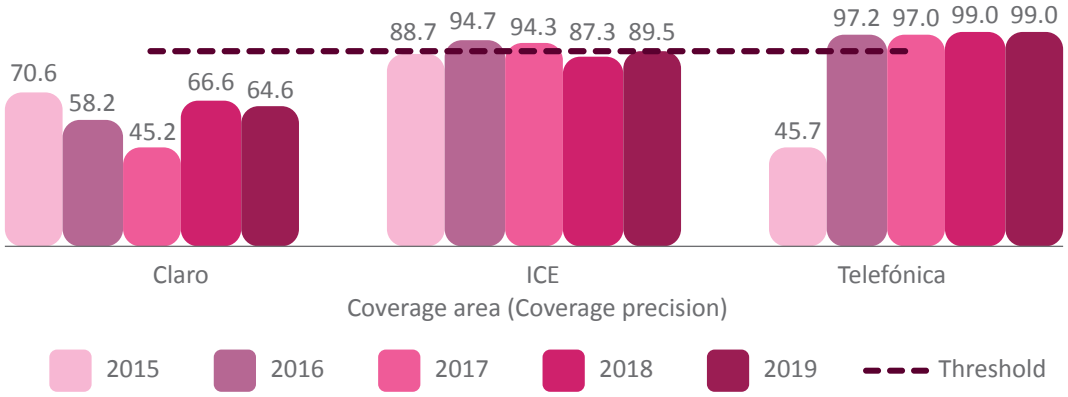
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 223. Costa Rica: Percentage of samples per each operator that complies with the coverage area (coverage precision) of the 3G network, 2019

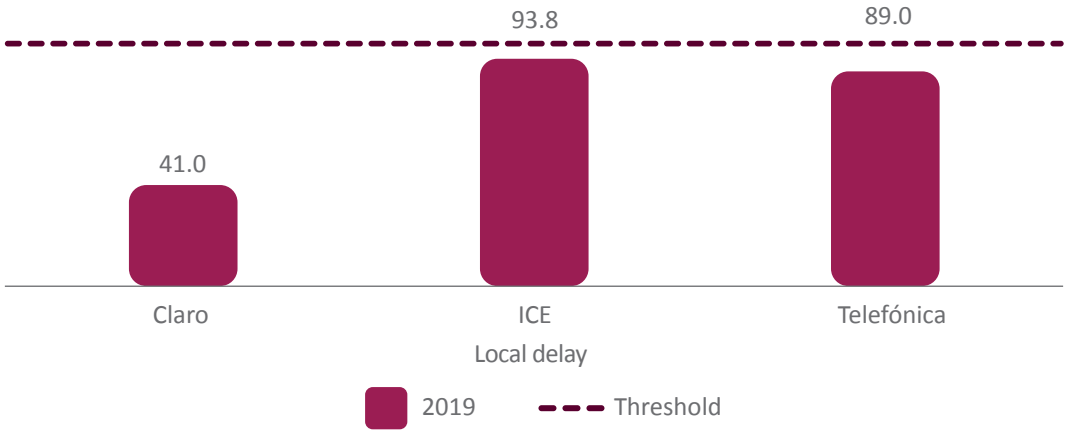
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 224. Costa Rica: Percentage of collected samples that comply with the local delay threshold established for the 3G network per operator, 2019

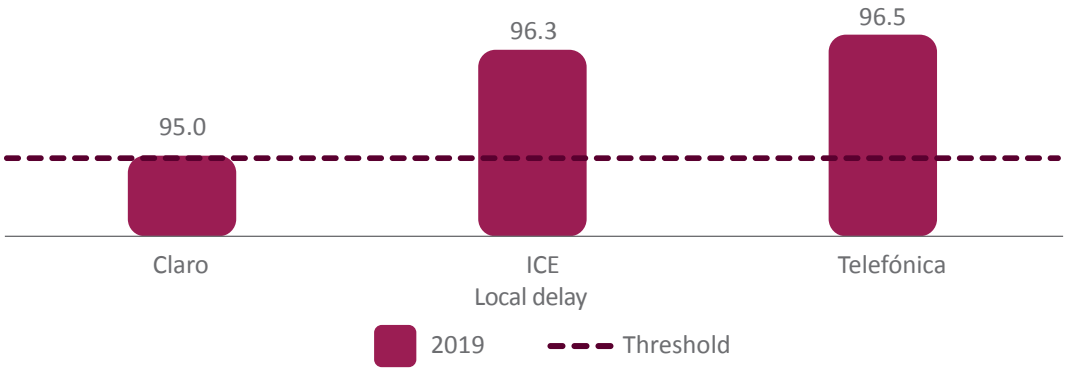
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 225. Costa Rica: Percentage of collected samples that comply with the local delay threshold established for the 4G network per operator, 2019

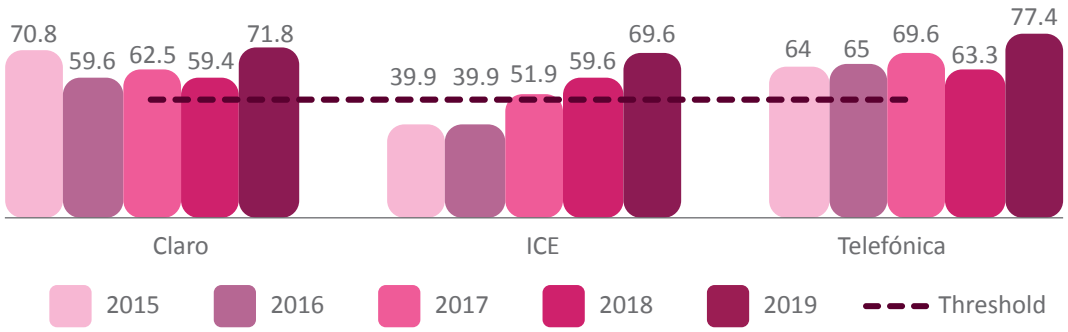
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 226. Costa Rica: Evolution of average performance of measured download speed in relation to the speed provided (contracted) for the 3G network per operator, 2015-2019

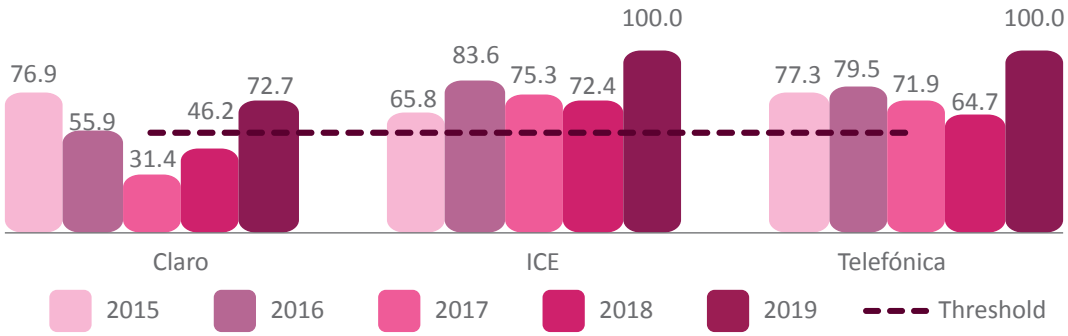
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 227. Costa Rica: Evolution of average performance of measured download speed in relation to the speed provided (contracted) for the 4G network per operator, 2015-2019

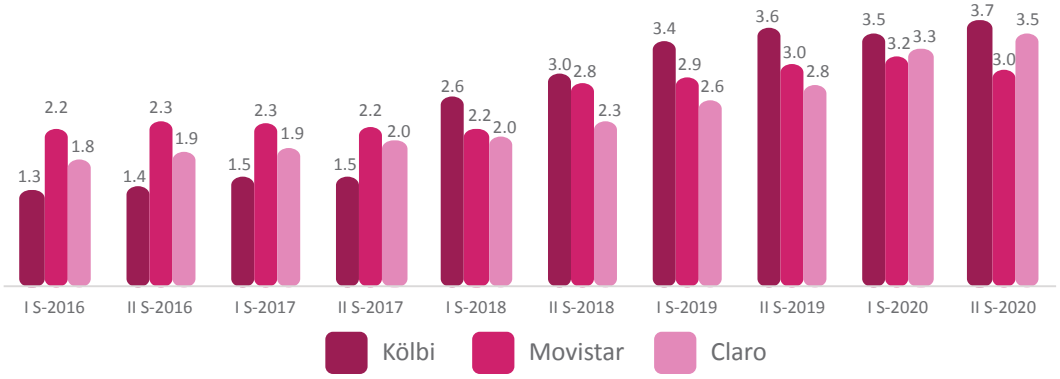
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 228. Costa Rica: Evolution of 3G download speed, 2016-2020

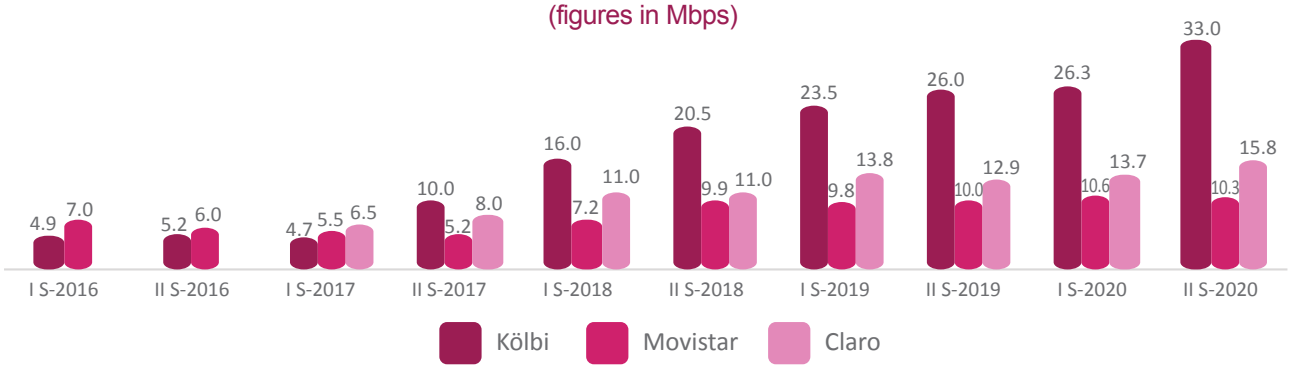
(figures in Mbps)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Gráfico n.° 229. Costa Rica: Evolution of the 4G download speed, 2016-2020

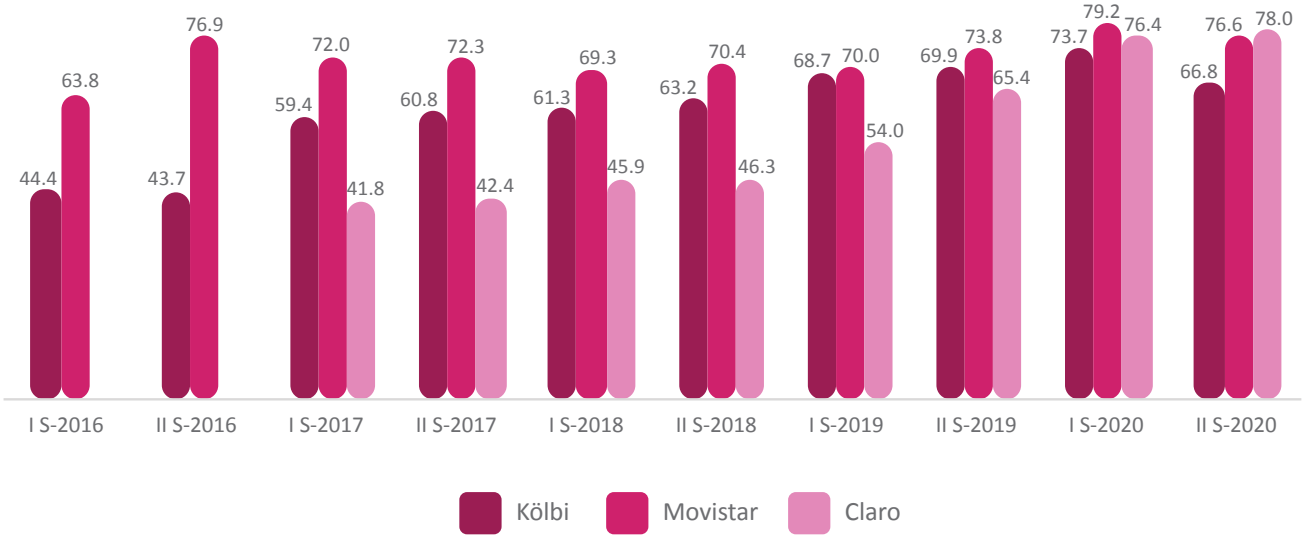
(figures in Mbps)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

Graph n° 230. Costa Rica: Evolution of availability of access to 4G, 2016-2020

(figures in percentages)

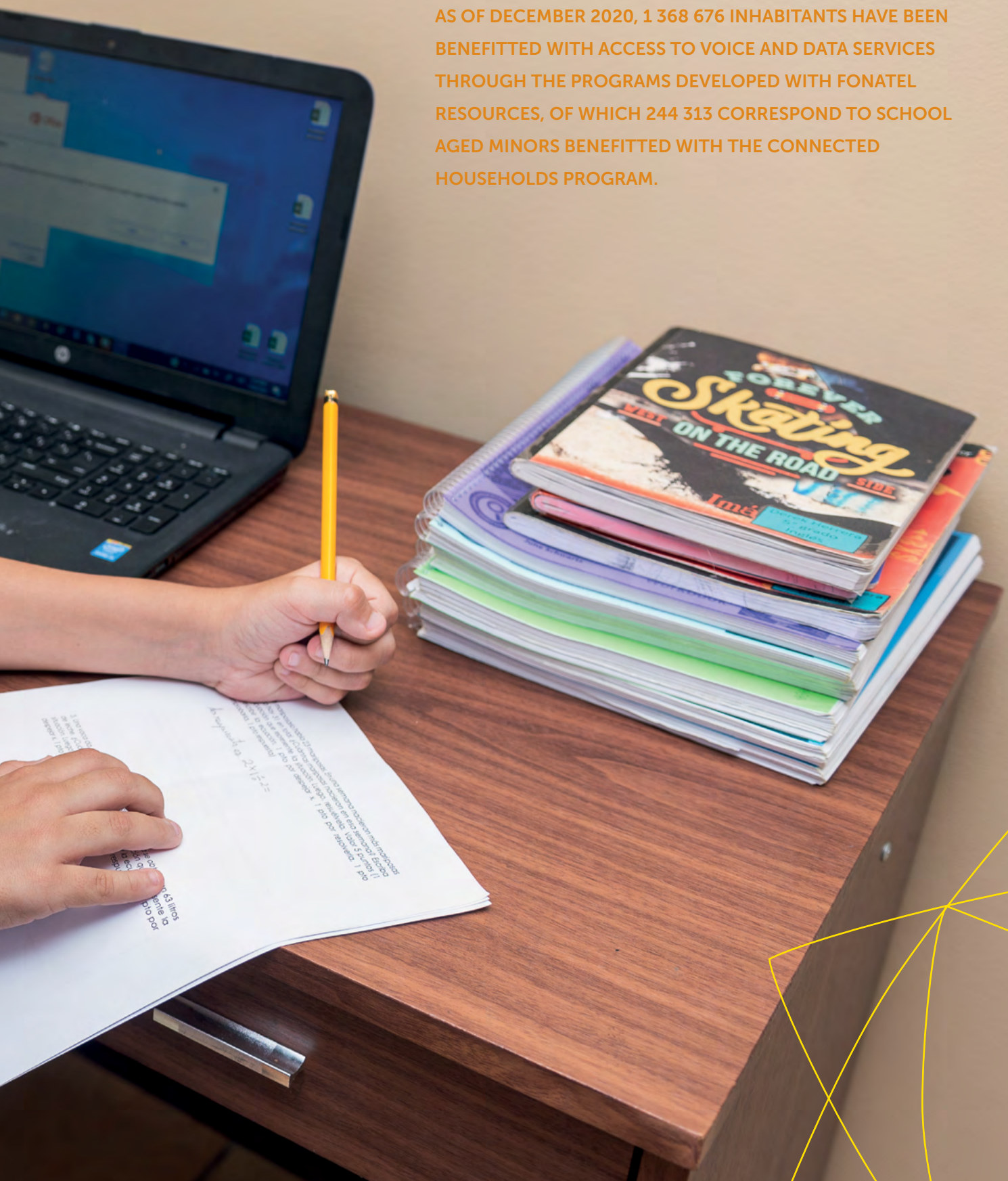


Users were connected to LTE (4G) more than 65 % of the time during 2020

Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

FONATEL

AS OF DECEMBER 2020, 1 368 676 INHABITANTS HAVE BEEN BENEFITTED WITH ACCESS TO VOICE AND DATA SERVICES THROUGH THE PROGRAMS DEVELOPED WITH FONATEL RESOURCES, OF WHICH 244 313 CORRESPOND TO SCHOOL AGED MINORS BENEFITTED WITH THE CONNECTED HOUSEHOLDS PROGRAM.



ACHIEVEMENT OF THE GOALS OF THE NATIONAL PLAN FOR THE DEVELOPMENT OF TELECOMMUNICATIONS AND EXECUTION OF FONATEL RESOURCES - AGGREGATED RESULTS

AGGREGATED RESULTS

The following are the main aggregate results of the joint execution of the programs financed and developed within the framework of the National Telecommunications Development Plan (NTDP) with Fonatel resources during 2015-2020[51], according to type of indicator[52]. These programs seek to meet the goals defined in public policy in terms of universal access, universal service, and solidarity assigned to Sutel as administrator of Fonatel. At the end of 2020, the Fonatel Trust[53] has a portfolio made up of five programs: Connected Communities, Connected Households and Connected Public Spaces, in the execution phase; the Equipped Public Centers Program in the planning phase[54]; and the Bicentennial Educational Network Program, which as of December 2020 was awaiting the definition and publication of the goal assigned to Sutel/Fonatel, by the Ministry of Science, Technology, and Telecommunications (MICITT), which will enable its execution[55].

Indicators of achievement of the goals of the National Telecommunications Development Plan

The following is the progress made during 2020 in meeting the public policy goals established in the NTDP 2015-2021 updated to 202056, associated with the programs in execution with Fonatel resources[57]. 2020 was characterized by the update of the NTDP 2015-2021, specifically, the expansion of goals 5[58] and 9[59] associated with the Connected Households and Equipped Public Centers programs respectively, as well as the incorporation of goal 43 associated with the Connected Households Program[60, 61].

[51]This report presents the results from 2015 to 2020 corresponding to the current NTDP 2015-2021.
[52]To see more details on the formulation of the Fonatel indicators, refer to the section “Methodology and scope of the report”, section “Methodology applied in the monitoring and evaluation system of programs and projects financed with Fonatel resources and achievement of Goals of the National Telecommunications Development Plan”.
[53]Contract of "Sutel - BNCR Project and Program Management Trust",
[54]The Equipped Public Centers Program is in the planning phase, specifically, in the bidding process, after MICITT expanded goal 9 of the NTDP 2015-2021, associated to this program, in September 2020, thus enabling the development of another project.
[55]The fifth program, initially called Solidarity Broadband Network, was pending execution because the definition and publication of a specific public policy goal for Fonatel within the NTDP 2015-2021 was in process, so that its execution could be enabled this way. During 2020, Sutel worked together with MICITT and MEP to modify goal 14 of the NTDP 2015-2021, associated with this program. It is clarified that, although it exceeds the time horizon considered in this report, the goal that should be tended to with Fonatel resources was defined and published by Micitt in the first quarter of February 2021, within the framework of the Bicentennial Education Network Project, modifying the name of program 5, Solidarity Broadband Network, to Bicentennial Education Network.
[56] According to the matrix of goals of the NTDP 2015-2021, updated to September 2020.
[57]This Report includes only the results of the goals of the NTDP 2015-2021 assigned to Sutel/Fonatel for which data are available for monitoring under the responsibility of Sutel/Fonatel. The report on goals no. 3, no. 6, no. 7, and no. 8 are excluded from this report because the responsibility for their compliance exceeds Sutel/Fonatel and is shared with other institutions (MICITT, IMAS, MIVAH, MEIC) that are in charge of reporting the respective information and that have not delivered it; so, its progress cannot be calculated. In this regard, refer to agreement of Sutel Council 028-058-2020, notified through official letter 07532-SUTEL-SCS-2020 of August 24, 2020. Regarding goals n.° 7 and n.° 8, in the Second Biennial Evaluation Report of the Goals of the NTDP 2015-2021 (Technical Report n.° MICITT-DEMT-DPPT-005-2020) published by the Ministry of Science, Technology, and Telecommunications in June 2020 (available at the electronic address:
https://www.micit.go.cr/sites/default/files/ii_informe_de_evaluacion_bienal_del_pndt_2015-2021_final_web_1.pdf), it is stated that these goals have been met.
[58]Goal 5 of the NTDP 2015-2021 was updated in July 2020, increasing the number of households to benefit by 46 492, from 140 496 to 186 958 households per year.
2021. The update also led to an increase in the goal set for 2020, from 126 810 to 154 496 households.
[59]Goal 9 NTDP 2015-2021 was updated in September 2020, increasing the scope of the Equipped Public Centers Program, which went from 40 000 devices and support products by 2020 to 123 643 devices and support products by 2021. The update also led to a reduction in the goal set for 2020, from 40 000 to 36 831 devices and support products.
[60]In September 2020, MICITT incorporated goal 43 into the NTDP 2015-2021, within the framework of the Connected Households Program: "100 684 households in a condition of socioeconomic vulnerability and with students in the Costa Rican public educational system, with a subsidy for Internet connectivity, by 2021." For 2020, the goal was set at 10 684 beneficiary households.
[61]These updates of the goals associated with the Connected Households Program are the result of the efforts of SUTEL, which through agreement 002-027-2020 of 2 April 2020, the Sutel Council sent MICITT the proposal to increase goal 5 and through agreement 003-053-2020 of 24 July 2020, it approved the incorporation of the second project to the Connected Households Program. In total, 10 joint work sessions were held between the Presidency of the Republic, MICITT, MEP, IMAS, and Sutel for the incorporation of goal 43 in the NTDP.

At the end of 2020, an average of 84 % was recorded in the annual achievement of the NTDP 2020-2021 goals defined for this period and associated with the programs financed with Fonatel resources, even considering that goal 5 was increased by July 2020 and that goal 9 was also increased, along with the incorporation of a new goal 43 in the month of September. Likewise, it should be noted that in 2020, it was possible to exceed the goal defined for the period for the Connected Communities (goal 1) and Connected Public Spaces (goal 13) programs. It was also possible to meet the goals associated with the Connected Households (goal 5) and Equipped Public Centers (goal 9) programs, obtaining compliance above 95 % (see Table n.° 22).

Management indicators

Regarding the progress of the management of FONATEL´s projects and programs, the following results stand out regarding the coverage of services, infrastructure development, and provision of devices and support products[62], as of the intervention of these projects.

During 2020, a new project was added to the portfolio of programs and projects developed and financed with Fonatel resources[63], based on the inclusion of goal 43 associated with the Connected Households Program. At the end of 2020, a total of 37 projects were reported in the different phases of the life cycle of each one.[64] Most of these projects (86 %) belong to the Connected Communities Program, in charge of bringing connectivity to rural areas with low profitability (see Graph n.° 231). This has led to a cumulative execution as of December 2020 of 102 935 million colones.

Another relevant aspect of 2020 is that, as of December 2020, the Connected Public Spaces Program met the goal of installing 513 free Internet access zones, one year before the deadline set for meeting the goal, a program that also received the award in the category "Award for the Best Wi-Fi for Social Impact", awarded by the organization "Alianza de Banda Ancha Inalámbrica 2020" (Wireless Broadband Alliance).

The four programs in execution with Fonatel resources, together, had a presence in 481 districts[65], which represented 99 % of the total districts of the country (see Graph n.° 232). For districts with presence of Fonatel programs, 14 % have the presence of a single program in execution, which implies that 8.6 out of 10 of the total districts have 2 or more programs. 37 % of districts benefit from 2 programs, 38 % from 3 programs and 11 % can access the benefits of the 4 programs in execution.

As of 2020, the Connected Households and Equipped Public Centers programs jointly delivered 185 257 devices for accessing and using ICTs, which meant an increase of 11 % compared to 2019[66] (see Graph n.° 233), generating greater broadband technological solutions to comprehensively reduce the Digital Divide. Likewise, at the end of 2020, it was possible to bring the benefits of the Connected Communities and Equipped Public Centers programs to a total of 5255 Public Service Provision Centers (PSPC).

Beneficiary indicators

The Connected Communities and Connected Households programs have contributed to increasingconnectivity in areas of low profitability for

[62] Devices and support products are defined as: devices, equipment, and instruments, that allow access and use of Information and Communication Technologies (ICT), as well as technologies, software, and products designed to promote the personal autonomy of people with disabilities.
[63] During 2020, Sutel made the following goal adjustments proposals to the 2015-2021 NTDP, for which no position has yet been received from MICITT: Temporary subsidy for SMEs and small and medium farmers (02959-Sutel-SCS-2020, agreement 002-027-2020 of 02 April 2020)), increase of goal 9 to meet the needs of MICITT, CCSS, CENCINAI, CONAPDIS, CONAPAM (08971 -Sutel-SCS-2019 (agreement 005-061-2019), 09019-Sutel-CS-2019 (02 October 2019) and 10902-Sutel-SCS-2020 (01 December 2020)), increase of goal 13 to serve 172 Zii zones (10721-Sutel-CS-2019, 28 November 2019)).
[64] To see more details of the phases of the programs and projects, refer to the section “Methodology and scope of the report”, section “Methodology applied in the monitoring and evaluation system of programs and projects financed with Fonatel resources and achievement of Goals of the National Plan for the Development of Telecommunications”.
[65] Districts with the presence of at least one program developed by Fonatel resources, with connectivity (total or partial) with access to voice and data services or with at least one household benefitting from a subsidy for Internet service and a device for its use or a PSPC with devices for access and use of ICTs or an Internet digital free access zone.
[66] Devices delivered in 2020 correspond only to the Connected Households Program.

the provision of telecommunications services and with populations in a vulnerable condition, covering in 2020, 413 543 households and 419 584 housing units approximately[67], which translates to 1 368 676 inhabitants[68] benefitted with access to voice and data services in districts with presence of the programs developed by Fonatel (see Graph n.° 234).

The FONATEL resources assigned to the programs in execution have been invested in universalizing telecommunications services, expanding access to said services throughout the national territory. With the resources invested since the beginning of the projects and until 2020, it has been possible to reach 3351 subscriptions to the fixed telephony service and 175 402 subscriptions to the fixed Internet service. These results mean a 2 % reduction in fixed telephony subscriptions and a 24 % increase in fixed Internet subscriptions, compared to 2019 (see Graph n.° 235). In total, by the closing of 2020, 628 571 people were benefitted with the use of voice and fixed data services provided through programs executed with Fonatel resources.

Financial indicators

The value of the total equity of the Fund as of December 2020 was 211 188 million colones (see Graph n.° 236). The Fund's commitments for the execution of the portfolio of programs and projects reached 383 966 million colones (with an exchange rate of 617.30 colones per dollar), in accordance with certification FID-791-2021, of 1 March 2021 issued by the National Bank of Costa Rica, as Trustee of the Fonatel Trust.

In this regard, it is important to note that CEPF grew 1.5 % compared to 2019, reaching 14 297 million colones in 2020 (see Graph n.° 237). On the other hand, the investment made by the programs under execution was 31 965 million colones in 2020, which meant a difference of 6380 million colones more with respect to the investment executed in 2019. 2020 is the year with more investment executed in the analyzed period (see Graph n.° 238).

The cumulative execution of the investment made during the last 8 years (2013-2020) in the management of programs and projects developed with Fonatel resources reached a total of 102 935 million colones. In the last 3 years, the investment made to maintain the programs has increased by 415 %. These 3 years (2018, 2019, and 2020) are the ones with the highest disbursements made, adding up to 81 % of the total investment made throughout the entire period of the programs (see Graph n.° 238). If the investment by program is analyzed, the Connected Households Program is the one that has executed the largest amount of resources annually since its inception in 2016, accumulating 62 663 million colones invested in its execution.

When analyzing the information for 2020, the investment made by this program corresponds to 54 % of the total Fund resources executed in that year, 18 % less than the investment executed in 2019. On the other hand, the Connected Communities Program presented the highest growth in investment executed, increasing 461 % (8924 million colones) compared to the execution carried out in 2019. The investment made in the Connected Communities and Connected

[67] The number of households and housing units per district with access to voice and data services from the Connected Communities Program is estimated by dividing the population of the districts with connectivity (total or partial) with access to voice and data services provided by this program, obtained from the district population projections published by the National Institute of Statistics and Census (INEC), among the number of people per housing unit or household estimated in the National Household Survey (ENAHO), namely: persons per dwelling: 3.41 (2014), 3.37 (2015), 3.34 (2016), 3.31 (2017), 3.25 (2018), 3.21 (2019), and 3.23 (2020), and people per household: 3.35 (2014), 3.31 (2015), 3.27 (2016), 3.24 (2017), 3.20 (2018), 3.16 (2019), and 3.19 (2020). The number of households benefiting from the Connected Households Program is estimated by dividing the number of households benefiting from the program by the number of households per housing unit estimated in the National Household Survey (ENAHO), namely: 1.022 (2016), 1.019 (2017), 1.014 (2018), 1.014 (2019), and 1.015 (2020). In districts with the presence of both programs, the Connected Communities Program criterion is applied (only the total number of housing units and households in the district is considered)

[68] The population with access to voice and data services in districts with connectivity (total or partial) provided through the Connected Communities Program corresponds to the total population of said districts, obtained from the district population projections published by the National Institute of Statistics and Census (INEC). The number of people benefiting from the Connected Households Program is estimated by multiplying the number of households benefiting from this program by the number of people per household estimated in the National Household Survey (ENAHO). In districts with the presence of both programs, the Connected Communities Program criterion is applied (only the total inhabitants of the district are considered).

[69] It refers to the CEPF for the fiscal period of 2019, payable during 2020. It corresponds to 1.5 % of the gross income reported by the operators and providers of telecommunications services available to the public and that have an enabling title to operate.

Public Spaces programs is equivalent to 34 % and 12 % respectively, of the total executed in 2020 (see Graph n.° 239). In 2020, no resources were executed for the Equipped Public Centers Program due to the fact that the first project of this program ended its execution in 2019, and the execution of the second project is in bidding process[70].

The executed resources of the Fund corresponding to 2020 were distributed among the 11[71] operators and service providers awarded through public tenders who are in charge of the execution of the projects (see Graph n.° 240).

RESULTS BY PROGRAM

The main results on performance in the execution of each of the programs in which the portfolio of projects financed and developed within the framework of Fonatel are distributed are set out below. These results reflect the status and progress of each intervention or program in execution, during 2015-2019, according to the current period of the NTDP in effect.

CONNECTED COMMUNITIES PROGRAM (CCP)

Indicators of achievement of the NTDP goals

The current NTDP 2015-2021[72] establishes as total goals for this program: 183 districts and 20 indigenous territories in geographic areas without connectivity or with partial connectivity, or partially expanded with access to voice and data services, by 2021. For 2020, the established goals correspond to 125 districts and 4 indigenous territories. During 2020, the progress of the Connected Communities Program allowed connectivity to 127 districts (2 more districts than required in the goal established for 2020) located in 5 regions on the periphery of the country, covering the 7 provinces (see Map n.° 1). In the last year, there was an increase of 23 % in the number of districts with connectivity (partial or total) with access to voice and data services compared to 2019.

The planning regions with the largest number of districts with the presence of this program correspond to Chorotega (31 %), Brunca (24 %), and Huetar Norte (20 %) regions, adding up to 94 districts (see Graph n.° 241).

In this way, 102 % achievement of goal 1 established for 2020 in the current NTDP 2015-2021 was achieved[73], associated with the Connected Communities Program. This means a 69 % compliance with respect to the final goal of 183 districts with connectivity (partial or total) with access to voice and data services, defined for 2021 (see Graph n.° 242). This result implies an increase of 13 percent with respect to the compliance achieved in 2019, translated into 24 more districts.

Regarding goal 2 of the NTDP 2015-2021, in 2020 there are 3 indigenous territories[74] with connectivity (partial or total) with access to voice and data services provided, corresponding to the territories of Matambú (included in tender No. 004-2016), Maleku (included in tender No. 005-2013), and Quitirrisí, which meant achievement of 75 % of the goal defined for 2020 and 15 % of the goal established for 2021[75].

[70] During 2020, work was carried out on the formulation of the second project of this program and on the expansion of goal 9 associated with the first project. In 2020, no device deliveries were made, maintaining the progress achieved in 2019.
[71] In 2019, Cable Vision's operation within the Connected Households Program was absorbed by ICE, as part of its corporate group. This is why, as of 2020, no disbursements have been made to this operator.
[72] According to the matrix of goals of the NTDP 2015-2021, updated to September 2020.
[73] According to the matrix of goals of the NTDP 2015-2021, updated to September 2020.
[74] Through agreement 013-086-2020, the Sutel Council approved and sent to MICITT official letter 10858-Sutel-DGF-2020, dated 27 November 2020 "Report on the status of connectivity of the Indigenous Territories Matambú, Quitirrisí, and Maleku for the achievement of the goals of the National Telecommunications Development Plan 2015-2021 (NTDP) ", with the objective of having the Rectory update the achievement of the goal of the indigenous territories and certify said achievement.
[75] In October 2019, tenders 001-2018 and 002-2018 were awarded, which contemplate the coverage of 14 indigenous territories. A tender for the attention of 6 additional territories is currently in the process of being analyzed.

Management indicators

The Connected Communities Program is made up of a portfolio of 32 projects. In 2020, the number of projects in formulation/award status was reduced by 33 % compared to 2019, passing 2 projects[76] from this state to the execution/reception state. At the same time, the 3 projects[77] that in 2019 were in the execution/reception state, went on to production in 2020, and finally, 3 projects[78] that in 2019 were in production, went to a state of closure. This way, the number of projects in execution/reception status decreased by 33 %, projects in production status remained unchanged, and projects in closure status quadrupled between 2019 and 2020 (see Graph n.° 243). Projects in production status continue to be the majority (69 % of the total portfolio of projects in this program).

During 2020, within the framework of the Connected Communities Program, 156 telecommunications towers were put into operation, reaching a total of 587[79], with which connectivity is carried to 127 districts of the country. The 2020 infrastructure deployment meant an increase of 36 % in relation to the towers put into operation in 2019. This increase was mainly due to the progress of the projects located in the Chorotega region and the entry into production of the projects located in the Pacífico Central region, which produced the installation of 125 towers (80 % of the total towers put into operation in 2020), and to a lesser extent, the progress of the projects in Huetar Norte (25 additional towers), Huetar Caribe (5 additional towers), and Brunca (1 additional tower) (see Graph n.° 244).

The scope of the projects of this program also includes the connectivity of Public Service Provision Centers (PSPC), which increased by 45 % from 2019 to 2020, which means 450 additional PSPCs with connectivity, reaching a total of 1446[80] PSPC with access to fixed telephone and Internet services. These PSPCs correspond mostly (93 %) to educational centers of the Ministry of Public Education (MEP), but also include Centers for Education and Nutrition and Children's Centers for Comprehensive Care (CEN-CINAI) administered by the Ministry of Health (5 %), as well as the Smart Community Centers (CECI) managed by the Ministry of Science, Technology and Telecommunications (MICITT) and the Periodic Visit Posts (PVP) belonging to the Costa Rican Social Security Fund (CCSS), which represent 1 % each of the total PSPC with access to fixed telephony and Internet services (see Graph n.° 245).

During 2020, two projects entered the execution phase to serve 14 indigenous territories in the Brunca and Caribbean areas of the country. With these projects, fixed and mobile telecommunications services will be brought to the inhabitants of 124 towns, and 119 Public Service Provision Centers will be connected through the fund.

Beneficiary indicators

The infrastructure deployed within the framework of the Connected Communities Program has allowed increasing universal access to telecommunications services, thus increasing the number of inhabitants with access to voice and data services in districts where the cost of installation and maintenance of telecommunications infrastructure makes the provision of these services not profitable. By 2020, it was possible to cover 932 564 inhabitants of 127 districts with connectivity (total or partial) provided through this program, which represents an increase of 16 % compared to last year, in other words, 129 297 inhabitants more with access to these services (see Graph n.° 246).

In 2020, the beneficiary population of this program amounted to 118 122 people who are direct users of

[76] Indigenous territories of the Atlantic Zone (tender No. 001-2018) and Indigenous territories of the South Zone (tender No. 002-2018).
[77] Upper Pacífico Central (tender No. 001-2016), Aguirre (tender No. 002-2016), and Chorotega Inferior (tender No. 004-2016).
[78] Roxana (tender No. 004-2013), Guatuso (tender No. 005-2013), and Los Chiles (tender No. 006-2013).
[79] This value includes new built towers and suitable existing towers with new equipment.
[80] This figure includes the 146 PSPCs of the projects that are in a state of closure, located in the cantons of Siquirres, Pococí, Guatuso, and Los Chiles, which maintain active services. Additionally, 2 PSPCs are included, to which fixed telephone and Internet services were installed, but were later disconnected at the request of the institutions, located in Sarapiquí and Pérez Zeledón.

the benefits of this program. At the end of 2020, there were 3351 and 26 976 subscriptions to fixed telephony and Internet services, respectively, which implies a 2 % reduction in the number of subscriptions to the fixed telephony service reported in 2019. Access to fixed Internet service increased the number of subscriptions by 157 % between 2019 and 2020 (see Graph n.° 247). This increase is mainly due to progress in the deployment of infrastructure in all projects in production.

When analyzing the distribution of subscriptions to fixed services by planning region, it is observed that in 2020, half (50 %) of the subscriptions to fixed Internet access of the Connected Communities Program were registered in the Huetar Norte region, which is supplied by Telefónica and Claro. This region experienced an increase of 7795 subscriptions between 2019 and 2020. It is the region with the highest increase. Also, in 2020, an increase in the number of subscriptions was reported in the Huetar Caribe (4486) and Brunca (1658) regions compared to 2019. In 2020, the registration of subscriptions begins in the Pacífico Central and Chorotega regions, which together represent 2 % of the total subscriptions to the access to fixed Internet service (see Graph n.° 248).

Regarding the subscriptions to the fixed telephony service of this program, they were concentrated in the Brunca region (42 %), followed by the Huetar Caribe region (32 %), which means that 3 out of every 4 subscriptions to the fixed telephony service were carried out in these two regions during 2020. The Brunca region also experienced the highest growth, increasing 411 subscriptions between 2019 and 2020. In 2020, the subscriptions of the Pacífico Central and Chorotega regions are added, which together represent 16 % of the total subscriptions to the fixed telephony service (see Graph n.° 249).

It is important to clarify that the projects tendered within the framework of the Connected Communities Program include the extension of the coverage of fixed voice and Internet services as an object. However, in some areas, the participating operators have deployed convergent solutions that allow the provision of mobile services, marketed at the expense and cost of said operators; therefore, this is considered a positive externality of this program. In this regard, for 2020, there is a 23 % decrease in the number of subscriptions to mobile services compared to 2019 (see Graph n.° 250).

In 2020, subscriptions to mobile services were concentrated in the Huetar Norte region, presenting 56 % of subscriptions, despite a decrease in the number of subscriptions of 12 512 between 2019 and 2020 of the projects charged to the fund in the region. The Huetar Caribe and Brunca regions showed growth in the number of subscriptions, 2452 and 865, respectively, compared to the previous year (see Graph n.° 251). According to the modification made by MICITT to the NTDP, in compliance with provision 4.5 of the DFOE-IFR-IF-0001-2020 Report, the Sutel Council instructed the Trust to include mobile services as part of the universal service and access projects, a process that is currently being implemented.

Financial indicators

In 2020, an investment of 10 860 million colones from the Fund is reported, attributable to the execution of the Connected Communities Program projects. This amount is 461 % higher than the investment executed in 2019, which implies an increase of 8924 million colones, mainly due to investment advances (CAPEX)[82] made during 2020, which represented 67 % of the total investment executed in 2020 (see Graph n° 252). The accumulated investment made in the program since its inception in 2013 amounts to a total of 25 978 million colones.

In this program three operators participate in its execution (see Graph n° 253).

[81]Guatuso (tender No. 005-2013) and Los Chiles (tender No. 006-2013), both awarded to Telefónica.
[82]In 2020, the respective payment to CAPEX for the projects of indigenous territories was made to ICE, which are in a state of execution.

CONNECTED HOUSEHOLDS PROGRAM (CHP)

Indicators of achievement of the NTDP goals

Goal 5 of the NTDP 2015-2021 associated with this program was updated in July 2020, establishing a total goal of 186 958 households distributed throughout the national territory with a subsidy for Internet service and a device for its use, by 2021. The original goal of 140 496 households was met in September 2020. The goal to 2020 was also updated, targeting 154 496 beneficiary households[83]. In 2020, the first project of the Connected Households Program reached the number of 155 846 contacted households[84], which represented a variation of 12 % more than the households contacted in 2019. Of these households, 5 % are in assigned status, that is, they have accepted to be part of the program, but their inclusion in it has not been formalized (see Graph n.° 254). The remaining 95 %, that is, 148 426 households were registered as beneficiaries of the program, receiving a subsidy for the acquisition of the service to access fixed Internet and a computer, which implies 6070 households below the updated goal[85] and fixed for 2020. 85 % of the households benefitted[86] in 2020 remained with an active Internet service (see Graph n.° 255).

The number of benefitted households had a positive variation of 14 % compared to that reported in 2019, equivalent to 17 847 more households. The increase in the number of beneficiary households registered in 2020 had a compliance of 96 % of goal 5 associated with the Connected Households Program, established in the current NTDP 2015-2021[87], set at 154 496 benefitted households for 2020. This, in turn, meant 79 % compliance with the final goal updated in July 2020, corresponding to 186 958 households with a subsidy for Internet access and a device for its use, provided by the program, defined to be met in 2021. This result implied a 14 % reduction compared to the total compliance achieved in 2019[88] (see Graph n.° 256).

Regarding goal 43, included in September 2020 in the current NTDP 2015-2021, corresponding to the second project[89] of the Connected Households Program, it began to be executed in December 2020, with a first upload of information provided by IMAS on 28 December 2020.

The distribution of households benefitted by income quintile, a variable used as a criterion for defining the program's target population, reflects that since the second semester of 2017, there has not been a significant variation in the composition of the group of households benefitted with respect to the income quintile. It is observed that the same trend has been maintained throughout the life of the program, where the lower the income quintile, the higher the proportion of households benefitted. Households benefiting from income quintile 1[90] represented 84 % of the total beneficiary households in 2020 (see Graph n.° 257). This reflects the majority of households in the lowest income quintile, that is, households in poverty and extreme poverty. Compared to 2019, households in income quintile 1 showed the greatest increase, corresponding to 14 961 more households.

[83]The update of the goal means a total increase of 46 462 households to benefit, from 140 496 to 186 958 households by 2021 and an increase of 27 686 households by 2020, from 126 810 to 154 496.
[84]Corresponds to the total number of households that have been offered to join the program and includes households with active Internet service, households withdrawn from the program, households in transition due to administrative procedures, and households assigned, those for which inclusion in the program has not been formalized.
[85]According to the matrix of goals of the NTDP 2015-2021, updated to September 2020.
[86]Includes active households (with active Internet service) and non-active households (withdrawn from the program and in transition due to administrative procedures).
[87]According to the matrix of goals of the NTDP 2015-2021, updated to September 2020.
[88]The reduction in meeting goal 5 is due to: 1) the technical closure of the Connected Households Program from January to July 2020 due to the achievement of the global goal established in the NTDP 2015-2021 in force until June 2020, corresponding to 140 496 households, 2) the increase in the goal defined for 2020 and 2021, published in July 2020 by MICITT, 3) problems in the data that feed the base of potential beneficiaries of the program, which leads to investing time in cleaning the information and correcting inconsistencies, and 4) establishing the prioritization criteria of beneficiary households in coastal and border areas for the increase in the goal (46 462 additional households).
[89]It consists of benefiting households in a condition of socioeconomic vulnerability and with students from the Costa Rican public educational system with a tiered subsidy according to the income quintile for the acquisition of Internet service.
[90]Income quintile 1 contains 20 % of households with the lowest income (National Household Survey July 2019 - General Results, National Institute of Statistics and Census, 2019, p. 20).

The Connected Households Program has the participation of 8[91] operators and service providers that participate in the recruitment of beneficiaries (see Graph 258).

The provinces that benefitted the most in 2020 with the first project of the Connected Households Program were Guanacaste and Puntarenas, which presented the highest percentage of beneficiary households (14 % and 13 % respectively). This means a positive variation of 2 % for the province of Guanacaste and 1 % for the province of Puntarenas, compared to 2019 (see Graph n.° 259).

Management indicators

The increase in the number of beneficiary households allowed the expansion of the only Connected Household Program project in the national territory, reaching 475 districts with at least one beneficiary household with a subsidy for Internet service and a device for its use, which meant a positive variation of 1 % (4 more districts) compared to 2019 (see Graph n.° 260). In turn, the number of districts with the program's presence reaches 98 % of the total number of districts in the country, increasing by 1 percentage point compared to last year (see Map n.° 2).

Beneficiary indicators

In 2020, 126 095 total active subsidized subscriptions were reported[92] at the service of access to fixed Internet, provided by the first project of the Connected Households Program. In this regard, an increase of 7 % (8376) was perceived in active subsidized subscriptions between 2019 and 2020 (see Graph n.° 261). Also, the number of net active subsidized subscriptions[93] for 2020 was estimated at 72 126[94].

The net penetration of the service to access fixed Internet of the Connected Households Program was 4.6 %[95], which represented an increase of 0.3 percentage points in relation to 2019 (see Graph n.° 262). If the total active subsidized subscriptions to 2020 are considered, the total penetration of the access to fixed Internet service of the first project rises to 8.0 %. This result is relevant considering that in 2020, the penetration per 100 housing units to access the fixed Internet service in the market was 62.8 %[96]. From the above, it can be deduced that in 2020, the Connected Households Program contributed to the penetration of fixed Internet access by up to 12.7 %[97]. Likewise, 9.2 %[98] of all households in the country benefitted from this program.

In total, at the end of 2020, 510 449 people were benefitted with subsidies for the acquisition of Internet service and a computer for their use. Of the total households benefitted by this program in 2020, 68 % (100 207) correspond to households with female heads of household and 84 % (124 306) to households with minors, accumulating 244 313 school age children and adolescents benefitted since the beginning of the program in July 2016.

[91] In 2019, Cable Vision's operation within this program was absorbed by ICE as part of the acquisition of the former by the latter. For more details, refer to Resolution of SUTEL Council RCS-291-2012 "Application for authorization of concentration of the Costa Rican Electricity Institute (Grupo ICE) for the acquisition of Cable Vision de Costa Rica CVCR S.A."

[92] Corresponds to households benefitted by active Internet access service.

[93] Households benefitted from active Internet access service that subscribed to Internet access service for the first time thanks to the program. Before entering the program, they did not have the service.

[94] Estimated data from the perception survey applied in 2019 by SUTEL to a probabilistic sample of 2000 beneficiaries of the Connected Households Program and is equivalent to 57.2 % of all households benefitted with the active Internet access service.

[95] It is calculated by dividing the net active subsidized subscriptions (72 126) by the total number of housing units in the country (1 581 519) obtained from the projections for district population and from the National Household Survey (ENAHO), published by the National Institute of Statistics and Census (INEC). For calculating this indicator, it is divided among the housing units in order to be consistent with the penetration indicator calculated in the market, following the definition of the International Telecommunications Union (ITU), where the penetration corresponds to the proportion of the total of the market in which the services have been introduced. In this sense, a housing unit corresponds to the physical infrastructure in which the services are installed, and which may include one or more households that have access to the installed services. Additionally, within the surveys applied by INEC, the ownership of telecommunications services is measured by housing unit.

[96] Data extracted from the Data Transfer section of the present Telecommunications Sector Statistics publication, Sutel, 2020.

[97] It is calculated by dividing the total fixed Internet penetration through the Connected Households Program by the total penetration (subscriptions per 100 housing units) of the fixed Internet access service in the market.

[98] It is calculated by dividing the total number of households benefitted by the program (148 426) by the total number of households in the country (1 604 649), obtained from the projections of district population and the National Household Survey (ENAHO), published by the National Institute of Statistics and Census (INEC).

Financial indicators

During 2020, 17 366 million colones were executed from the Fund through this program, which represents an investment 18 % lower than that executed in 2019, a difference that translates into an investment of 3840 million colones less between one year and the other99 (see Graph n.° 263). Cumulatively, at the closing of 2020, 62 663 million colones assigned to this program were executed, which represents 61 % of all the amounts disbursed by the Fonatel since 2013, for the execution and maintenance of programs and projects.

The amounts executed through the Connected Households Program were distributed among the 8 operators and service providers that are in charge of the benefits of this program for the target population (see Graph n.° 264).

EQUIPPED PUBLIC CENTERS PROGRAM (EPCP)

Indicators of achievement of the goals of the National Telecommunications Development Plan

Goal 9 established in the National Telecommunications Development Plan (NTDP) 2015-2021, associated with the first project of this program, was updated in September 2020[100], establishing a total goal of 123 643 connectivity devices delivered to Public Service Provision Centers (PSPC) by 2021[101], with 86 812 of them corresponding to the expansion of the goal, will be delivered to MEP in 2021. In the same act, the 2020 goal was updated, focusing on 36 831 connectivity devices delivered to PSPC. Thus, there was a cumulative achievement of the goal originally established in 40 000 devices of 92 %.

In this regard, it is important to indicate that in 2020, work was carried out jointly with MICITT and MEP, to expand goal 9. During 2020 and pending the new goal, no device deliveries were made, maintaining the progress achieved in 2019 (see Graph n.° 265). In 2019, the execution of the first project of the Equipped Public Spaces Program and its expansion were concluded. Thus, it was possible to deliver a total of 36 831 devices and support products for the access and use of ICTs in Public Service Provision Centers (PSPC). With the delivery of devices from the first project, 100 % compliance with goal 9 was achieved by 2020[102] (see Graph n.° 266).

Management Indicators and Financial Indicators

In September 2020, MICITT approved the adjustment of goal 9, which enabled the development of the formulation and began the tender process for 86 812 laptops and tablets for the Ministry of Public Education. These devices will be delivered during 2021. The delivery of equipment and the budget execution associated with this new project will be reflected in the 2021 indicators. As of 2020, the cumulative execution of the previous years for this program is maintained.

[99] The decrease in the investment carried out is due to the impact shown on the number of households benefitted, with 2020 being the year with the lowest growth, due to the technical closure of the program in the first half of 2020, to information problems presented in the database of potential program beneficiaries, and to the establishment of criteria for prioritizing beneficiary households in coastal and border areas, applicable to the increase in goal 5 (46 462 additional households).

[100] By means of official letter MICITT-DM-OF-898-2020 of 24 September 2020, MICITT approved the expansion of goal 9 of NTDP 2015-2021, updated jointly by MICITT, MEP, IMAS, and Sutel, with the objective of serving students of the Costa Rican educational system identified among income deciles from 1 to 5, and in a condition of socioeconomic vulnerability.

[101] The update of the goal means a total increase of 83 643 connectivity devices to be delivered to PSPC and an increase of 1 year in its effective term, from 40 000 devices by 2020, to 123.643 devices by 2021.

[102] According to the NTDP 2015-2021 goal matrix, updated to September 2020.

CONNECTED PUBLIC SPACES PROGRAM (CPSP)

Indicators of achievement of the goals of the National Telecommunications Development Plan

The NTDP 2015-2021, in force[103], establishes, as a total goal for this program, 513 digital zones with free Internet access for the population, in public spaces, by 2021. For 2020, the established goal corresponds to 400 digital zones in operation. By December 2020, 510 digital zones put into service and 513 installed zones were counted, 209 zones (69 %) more than in 2019, for an average of 128 zones put into service per semester (see Graph n.° 267).

With the progress of the program shown in 2020, the goal established for 2020 was exceeded in 110 zones, which implies 128 % compliance with goal 13 of the current NTDP 2015-2021, associated with the Connected Public Spaces Program. This means a 99 % achievement of the final goal of 513 digital zones of free Internet access in public spaces, planned for 2021 (see Graph n.° 268).

Public spaces in which the digital zones of free Internet access were enabled correspond to libraries of the National Library System (SINABI), Civic Centers for Peace administered by the Ministry of Justice and Peace, train stations run by the Costa Rican Train Institute (INCOFER), and public free access areas managed by the municipalities, among which are parks, squares, and community centers, among others.

[103]According to the NTDP 2015-2021 goal matrix, updated to September 2020.

In 2020, all the digital zones located in libraries and train stations were put into service, as established in tender No. 002-2017, only the commissioning of three[104] digital zones that were fully installed during 2020 is pending: two public spaces and a Civic Center for Peace, which implies an advance of 99.5 % and 85.7 % respectively (see Graph n.° 269). Of the total number of digital zones put into service, 8 out of 10 correspond to public spaces administered by municipalities, followed by libraries, train stations, and to a lesser extent, Civic Centers for Peace. This behavior was maintained between 2019 and 2020, despite the fact that the proportion of libraries and train stations was reduced by 3 percentage points compared to 2019 (see Graph n.° 270). It should be clarified that the list of 513 digital zones established in the goal of this Program includes two zones that are at the same time a library and a Civic Center for Peace, located in Guararí (Heredia) and Aguas Zarcas (San Carlos)[105].

Management indicators

The only project in this program is being executed by three service operators awarded with it. The distribution of digital zones put into service by operator indicates that the majority (174 zones) have been put into service in areas covered by Coopeguanacaste, followed by Telecable, an operator that put 170 digital zones into operation. ICE-RACSA-PC Central consortium put 166 digital zones into service. In relative terms, each operator has enabled 1/3 of the awarded digital zones (see Graph n.° 271).

These digital zones are distributed in the 7 provinces of the country (see Graph n.° 272). At the district level, with the advance of the areas put into service, the presence of the program has been expanded by 76 % from 2019 to 2020, covering 313 districts at the end of 2020, 135 districts more than in 2019 (see Graph n.° 273). The program is present in 64 % of the total districts of the country, covering the 6 planning regions (see Map n.° 3).

The 510 digital zones put into service in 2020 involved the installation of 692 access points. By the end of 2020, the cumulative figure of 1 100 826 users was reached, counted as the number of single devices that connected to the free wireless Internet network at least once in the digital zones put into service. These users initiated a total of 4 227 561 sessions on the Zii network with a cumulative duration of 2 149 638 hours of use, which implied a total data traffic of 328 798 Gigabytes (GB). As part of the execution of this program, it was possible to install 2176 km of fiber optics to bring connectivity to the digital zones put into service.

Financial indicators

The execution of this program in 2020 meant an investment of 3740 million colones, which implies a positive variation of 281 % (2759 million colones more) compared to 2019 (see Graph n.° 274).

[104]These zones were installed in December 2020 but were received by the Fonatel Trust Trustee on 4 January 2021.
[105]When adding the number of digital zones commissioned per institution, the result is 512, since these zones are counted twice.

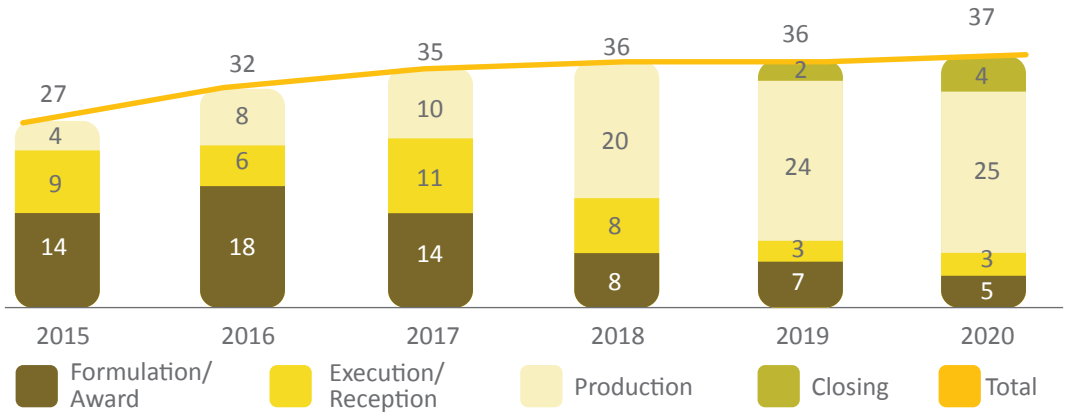
Table n.° 22. Costa Rica: Achievement of goals established in the NTDP 2015-2021 assigned to Fonatel programs under execution, 2015-2020

Goal description*	Current goal (September 2020)[1]	Progress 2020[2]	Annual achievement	Total goal achievement
GOAL 1: 183 districts with access to voice and data services, as of 2021 (partial or total)	2015: 12 2016: 32 2017: 72 2018: 72 2019: 125 2020: 125 2021: 183	2015: 0 2016: 32 2017: 72 2018: 72 2019: 103 2020: 127 2021:	2015: 0 % 2016: 100 % 2017: 100 % 2018: 100 % 2019: 82 % 2020: 102 % 2021:	2015: 0 % 2016: 17 % 2017: 39 % 2018: 39 % 2019: 56 % 2020: 69 % 2021:
GOAL 2: 20 of indigenous territories without connectivity, with partial coverage or with expanded partial coverage in the country with access to voice and Internet services, as of 2021	2016: 0 2017: 0 2018: 0 2019: 4 2020: 4 2021: 20	2016: NA 2017: NA 2018: NA 2019: 1 2020: 3 2021:	2016: NA 2017: NA 2018: NA 2019: 25 % 2020: 75 % 2021:	2016: NA 2017: NA 2018: NA 2019: 5 % 2020: 15 % 2021:
GOAL 5: 186 958 households distributed in the national territory with subsidy for Internet service and a device for its use, as of 2021[3]	2016: 10 089 2017: 30 418 2018: 63 582 2019: 95 196 2020: 154 496 2021: 186 958	2016: 10 089 2017: 30 418 2018: 84 268 2019: 130 579 2020: 148 426 2021:	2016: 100 % 2017: 100 % 2018: 132 % 2019: 137 % 2020: 96 % 2021:	2016: 7 % 2017: 22 % 2018: 60 % 2019: 93 % 2020: 79 % 2021:
GOAL 43: 100 684 households in conditions of socioeconomic vulnerability and with students in the Costa Rican public system, with subsidy for connectivity to the Internet, as of 2021[4]	2020: 10 684 2021: 100 684	2020: 0 2021:	2020: 0 % 2021:	2020: 0 % 2021:
GOAL 9: 123 643 connectivity devices delivered to CPSP, as of 2021[5]	2016: 0 2017: 6 407 2018: 18 533 2019: 36 000 2020: 36 831 2020: 123 643	2016: NA 2017: 0 2018: 18 533 2019: 36 831 2020: 36 831 2020:	2016: NA 2017: 0 % 2018: 100 % 2019: 102 % 2020: 100 % 2020:	2016: NA 2017: 0 % 2018: 46 % 2019: 92 % 2020: 30 % 2020:
GOAL 13: 513 Digital zones of free access to Internet for the population, as of 2021	2017: 0 2018: 15 2019: 200 2020: 400 2021: 513	2017: NA 2018: 0 2019: 301 2020: 510 2021:	2017: NA 2018: 0 % 2019: 151 % 2020: 128 % 2021:	2017: NA 2018: 0 % 2019: 59 % 2020: 99 % 2021:

[1] Goals established in the NTDP 2015-2021 goal matrix, updated as of September 2020
[2] Progress data according to the latest reports issued by the Trust
[3] Goal expanded by MICITT in July 2020
[4] Goal added by MICITT to NTDP 201-2021 in September 2020
[5] Goal expanded by MICITT in September 2020

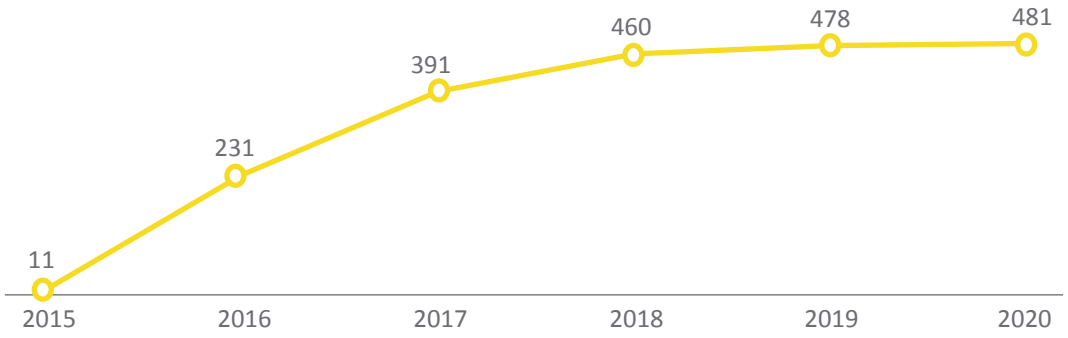
Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 231. Costa Rica: Total annual projects developed with FONATEL resources according to the status of each project, 2015-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

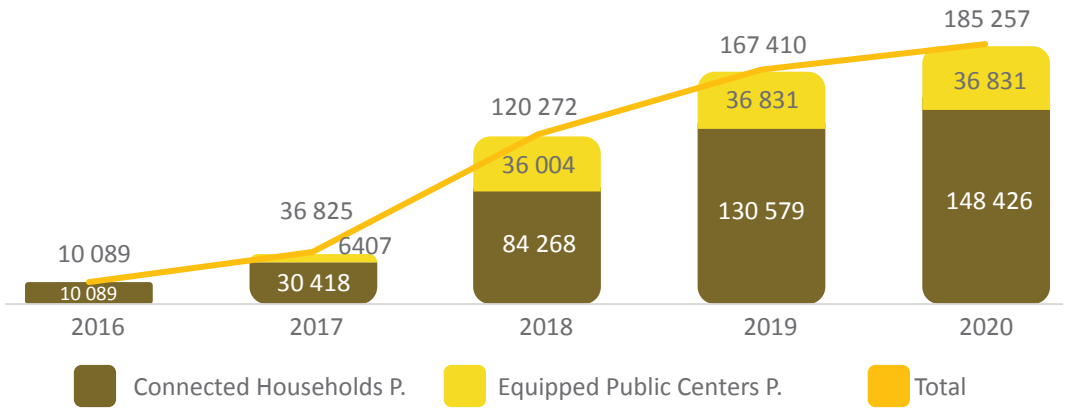
Graph n.° 232. Costa Rica: Districts with at least one program developed with FONATEL resources, 2015-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 233. Costa Rica: Devices delivered through the programs developed with FONATEL resources for access and use of ICTs per program, 2016-2020

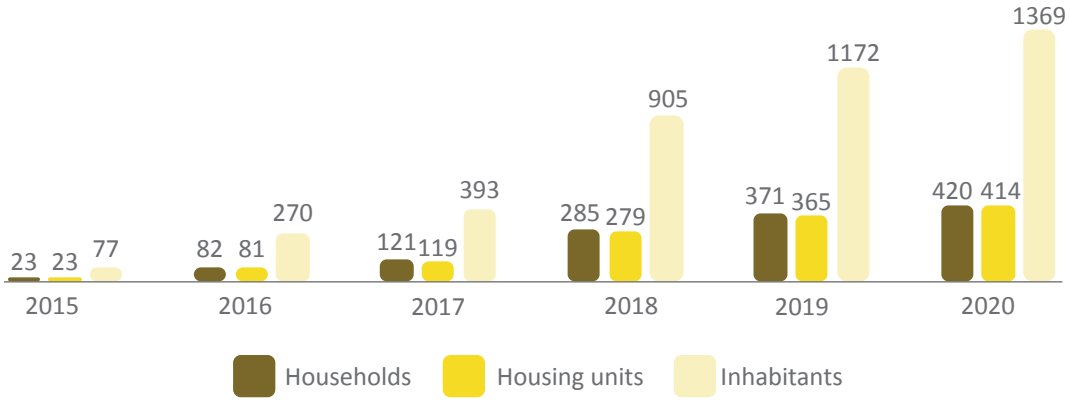
(annual cumulative figures)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

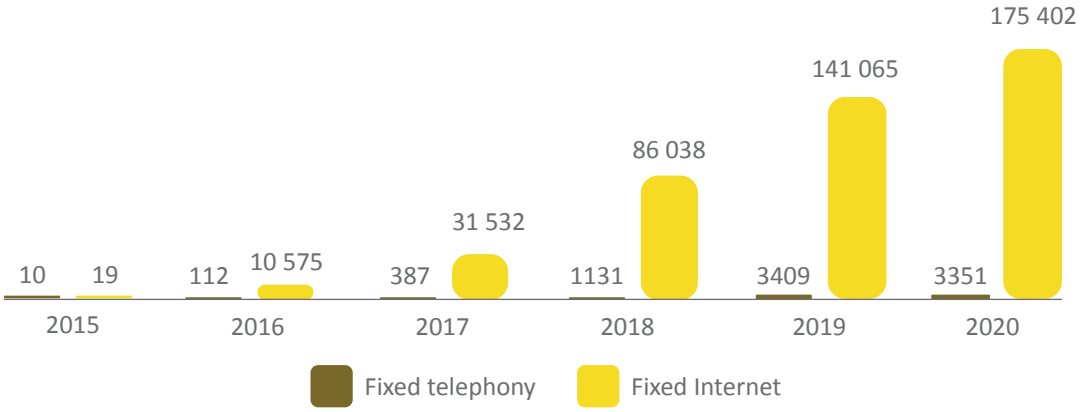
Graph n.° 234. Costa Rica: Inhabitants, households, and housing units with access to voice and data services in districts with presence of programs developed with FONATEL resources, 2015-2020

(figures in thousands)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

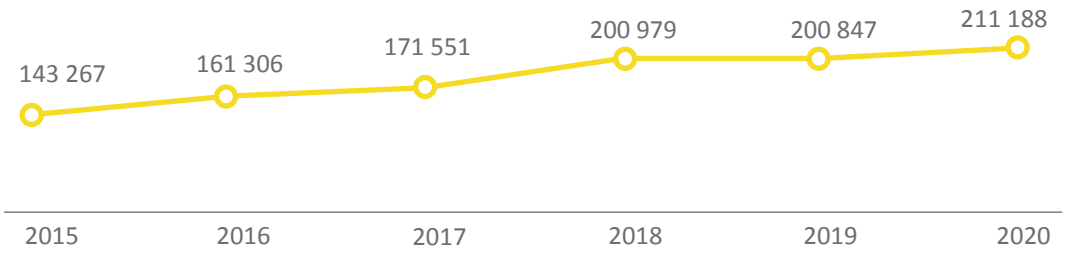
Graph n.° 235. Costa Rica: Subscriptions to fixed telephony services and access to fixed Internet provided through the programs developed with FONATEL resources, 2015-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 236. Costa Rica: FONATEL equity, 2015-2020

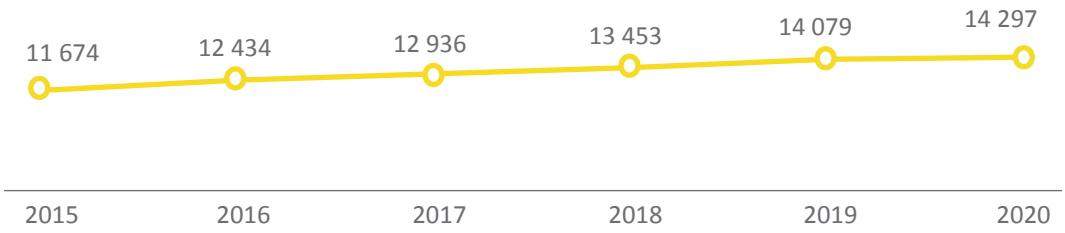
(annual figures in millions of colones)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 237. Costa Rica: Collection of the special parafiscal contribution, 2015-2020

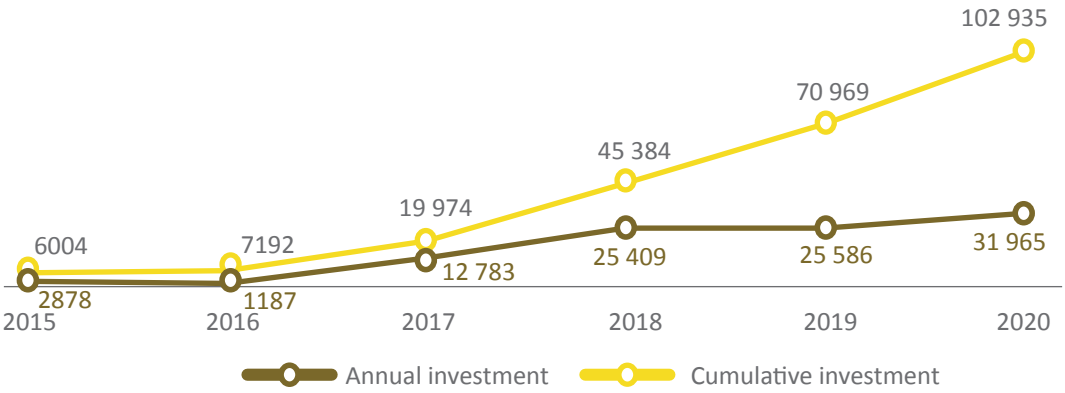
(annual figures in millions of colones)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 238. Costa Rica: Annual and cumulative investment executed through FONATEL, 2015-2020

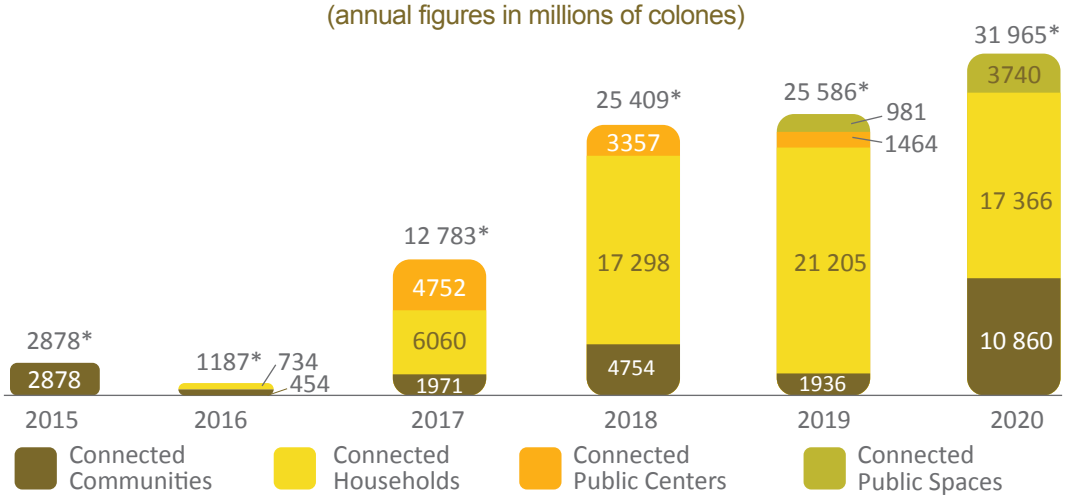
(annual figures in millions of colones)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 239. Costa Rica: Investment executed through FONATEL according to program, 2015-2020

(annual figures in millions of colones)

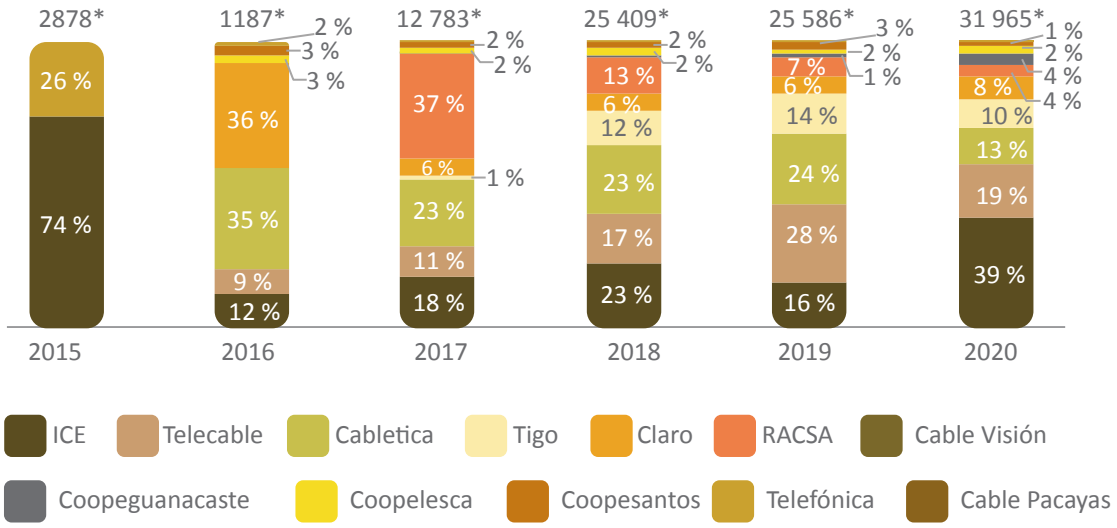


Note: *Figures correspond to the annual total in millions of colones.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 240. Costa Rica: Distribution of investment executed through FONATEL, per operator, 2015-2020

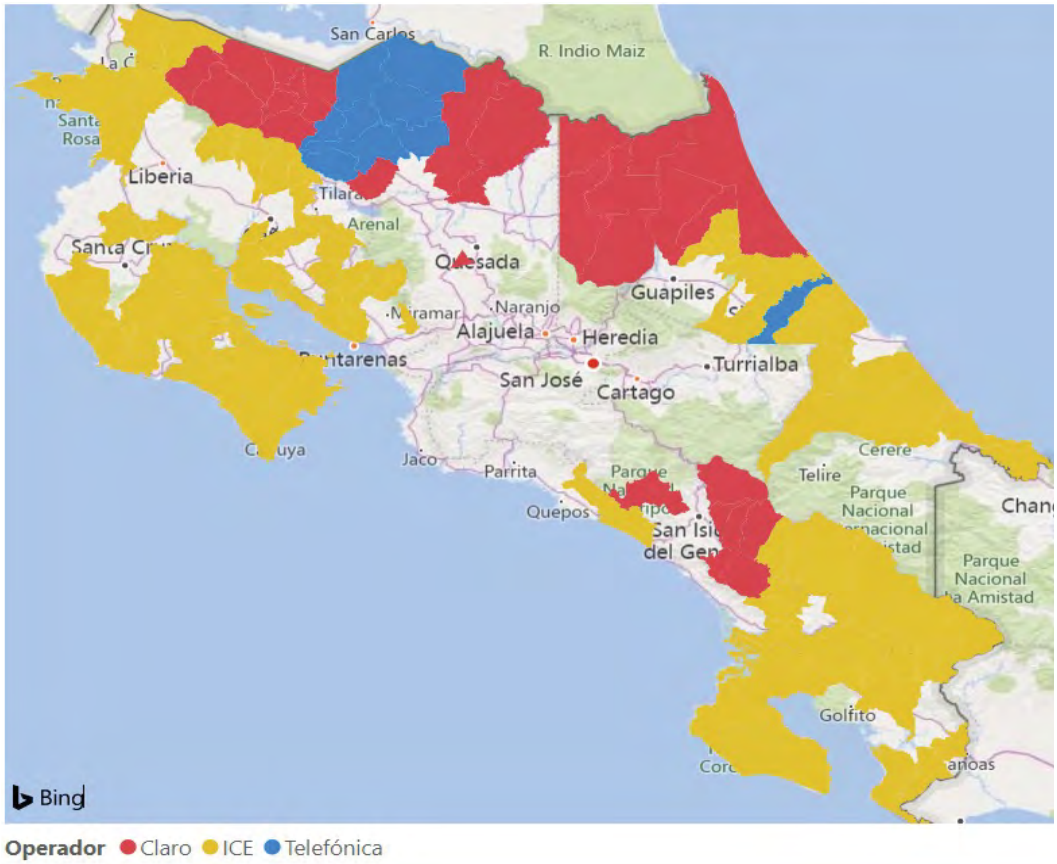
(annual figures in percentages)



Note: *Figures correspond to the annual total in millions of colones.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

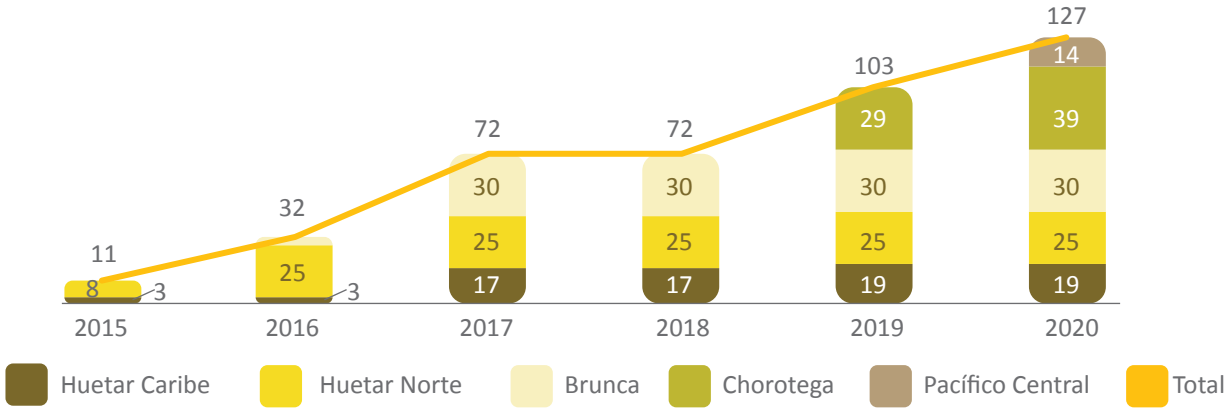
Map n.° 1. Costa Rica: Districts with connectivity (total or partial) with access to voice and data services and provided through the Connected Communities Program, per operator, 2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 241. Costa Rica: Distribution of districts with connectivity (total or partial) with access to voiceand data services provided through the Connected Communities Program, per region, 2015-2020

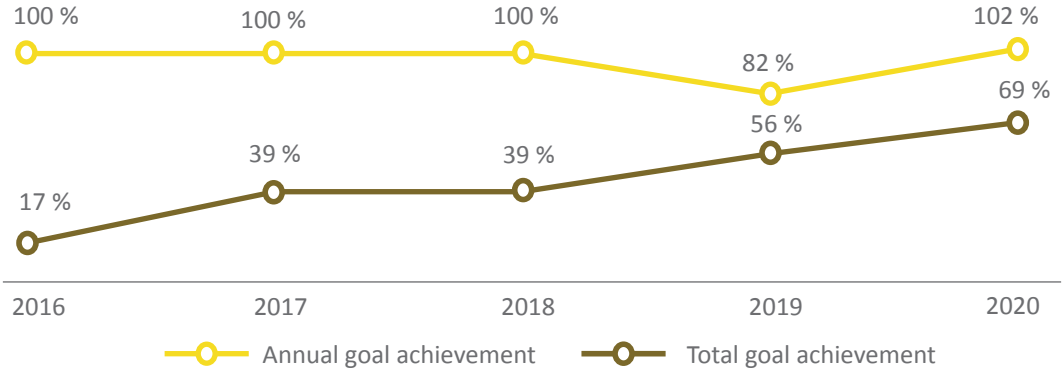
(annual cumulative figures)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

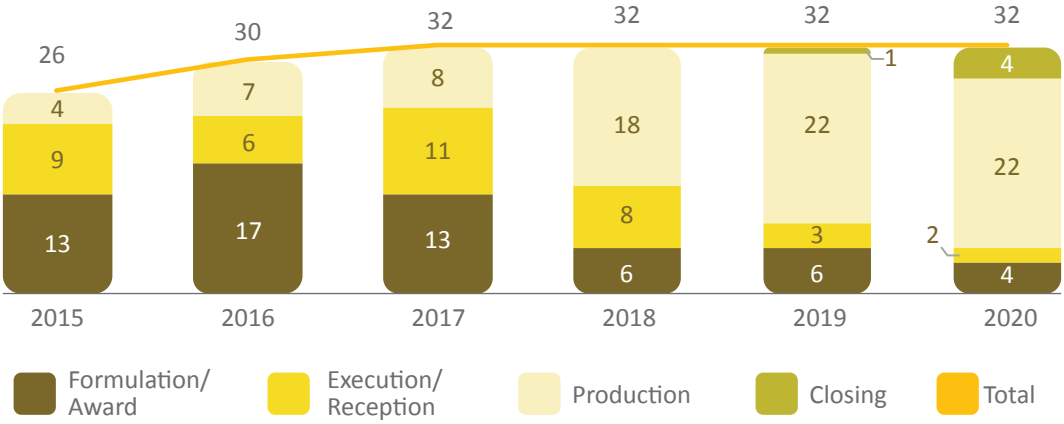
Graph n.°242. Costa Rica: Compliance of the NTDP goal of districts with connectivity of the Connected Communities Program, 2016-2020

(annual figures in millions of colones)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

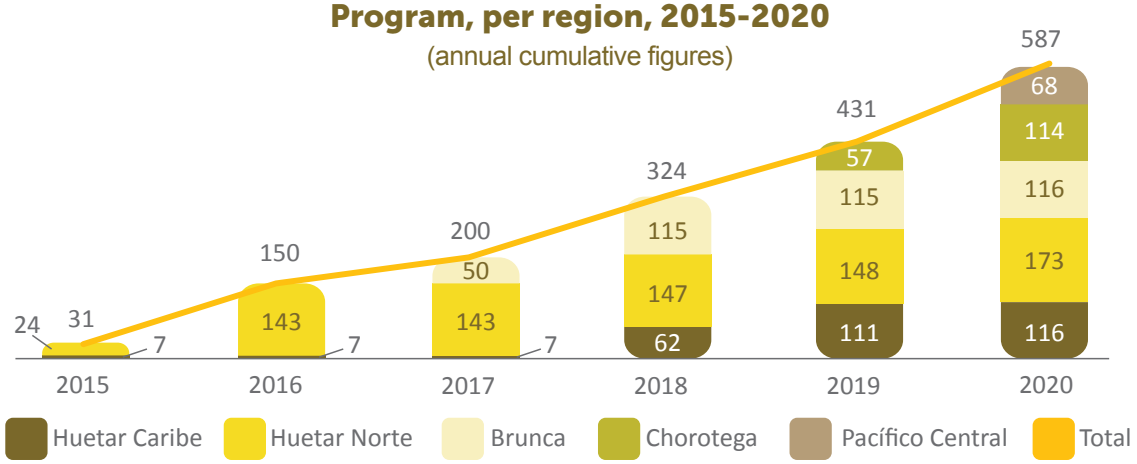
Graph n.° 243. Costa Rica: Total annual projects of the Connected Communities program according to the status of each project, 2015 - 2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 244. Costa Rica: Distribution of towers with telecommunications infrastructure in operation with the Connected Communities Program, per region, 2015-2020

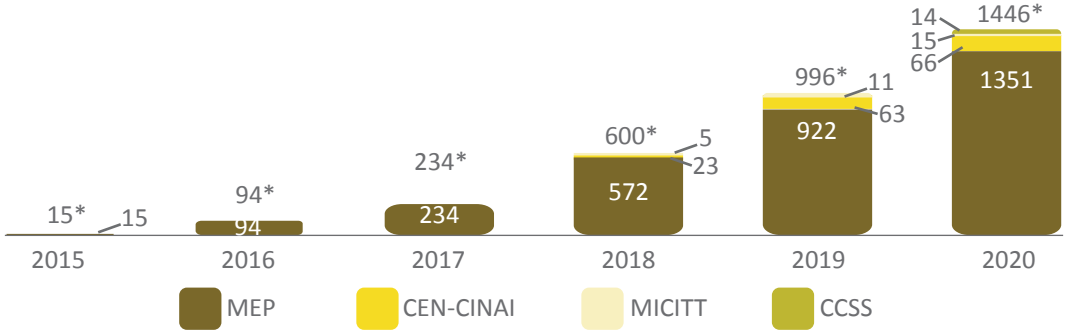
(annual cumulative figures)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 245. Costa Rica: Public Centers for Services Provision with Internet access enabled through the Connected Communities Program per institution, 2015-2020

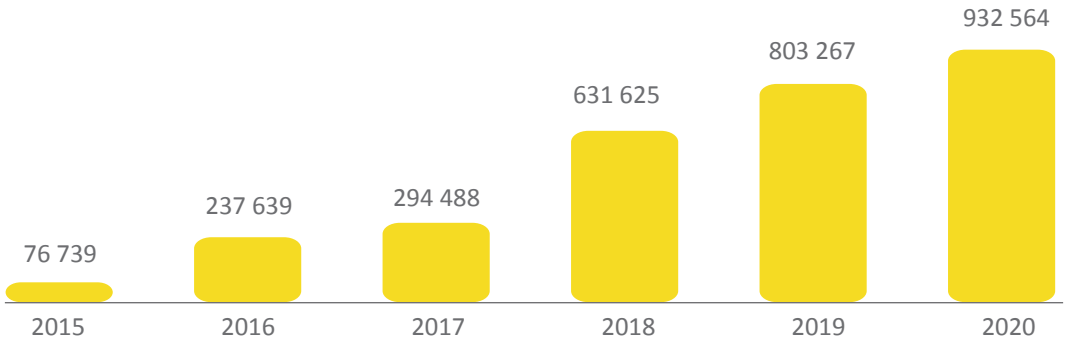
(annual cumulative figures)



Note: *Figures correspond to the annual total.

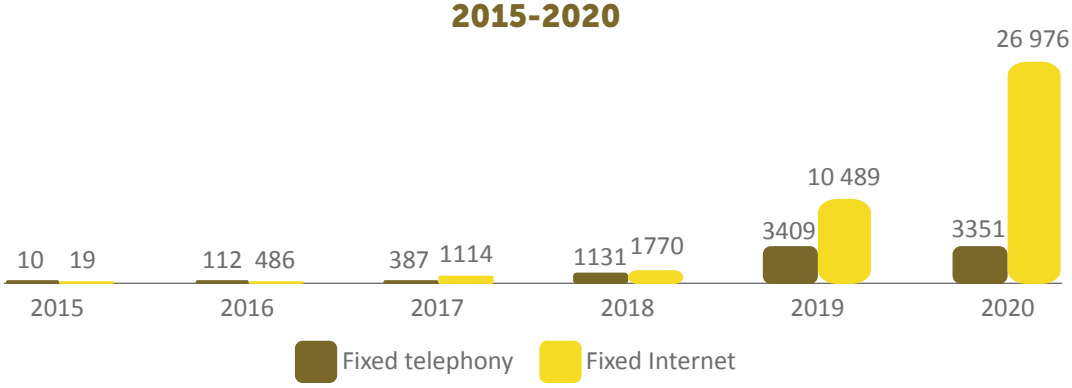
Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 246. Costa Rica: Population with potential access to voice and data services in districts with connectivity (total or partial) provided through the Connected Communities Program, 2015-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

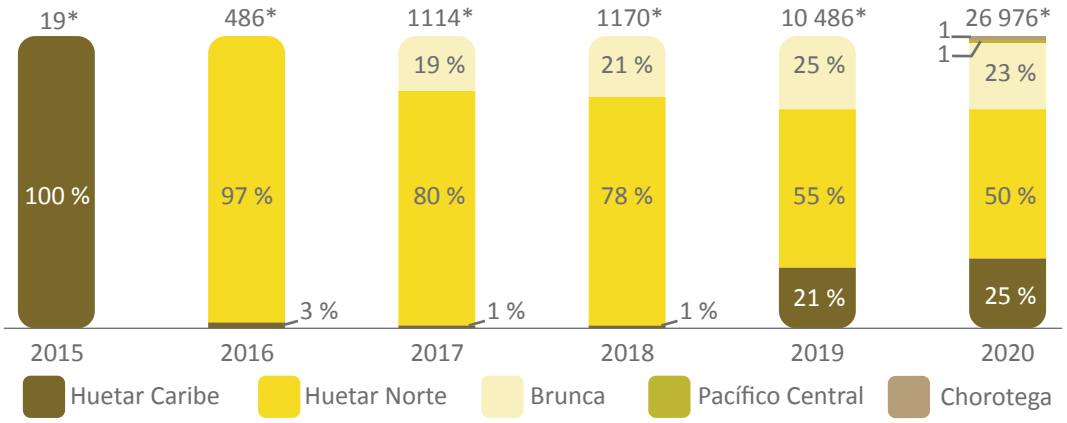
Graph n.° 247. Costa Rica: Subscriptions to fixed telephony and access to fixed Internet provided through the Connected Communities Program 2015-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 248. Costa Rica: Distribution of subscriptions to the fixed Internet access service provided through the Connected Communities Program, per region, 2015-2020

(annual figures in percentages)

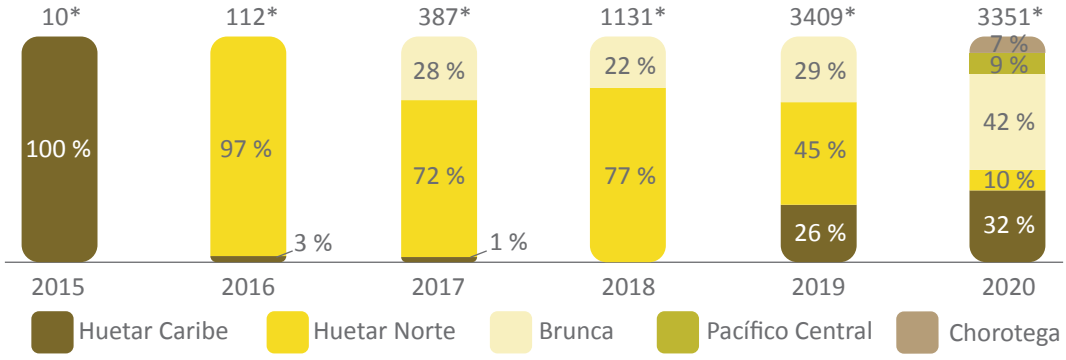


Note: *Figures correspond to the annual total.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 249. Costa Rica: Distribution of subscriptions to fixed telephony service provided through the Connected Communities Program per region, 2015-2020

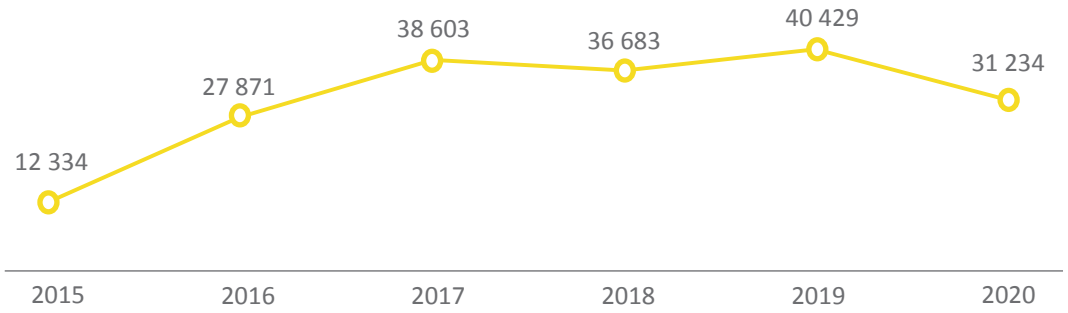
(annual figures in percentages)



Note: *Figures correspond to the annual total.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

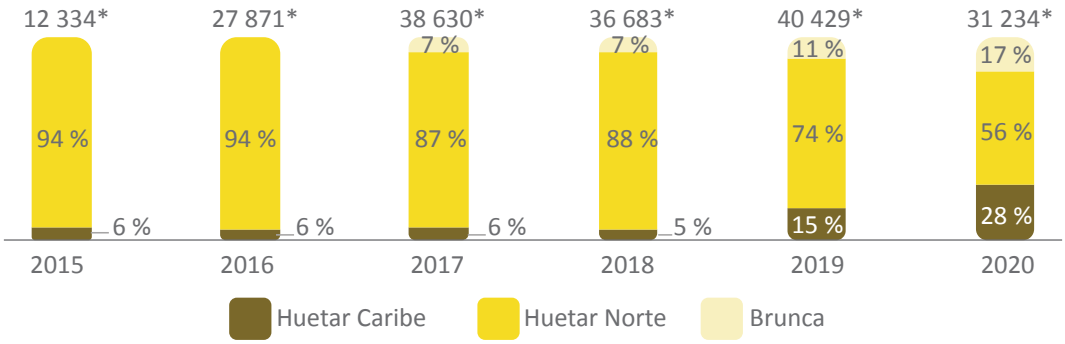
Graph n.° 250. Costa Rica: Subscriptions to the mobile telephony service provided through the infrastructure facilitated by the Connected Communities Program, 2015-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 251. Costa Rica: Distribution of subscriptions to the mobile telephony service provided through the infrastructure facilitated by the Connected Communities Program per region, 2015-2020

(annual figures in percentages)

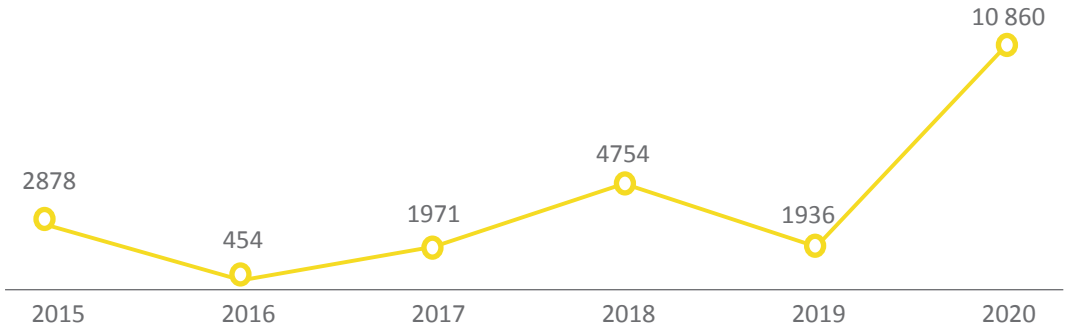


Note: *Figures correspond to the annual total.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 252. Costa Rica: Investment executed through the Connected Communities Program, 2015-2020

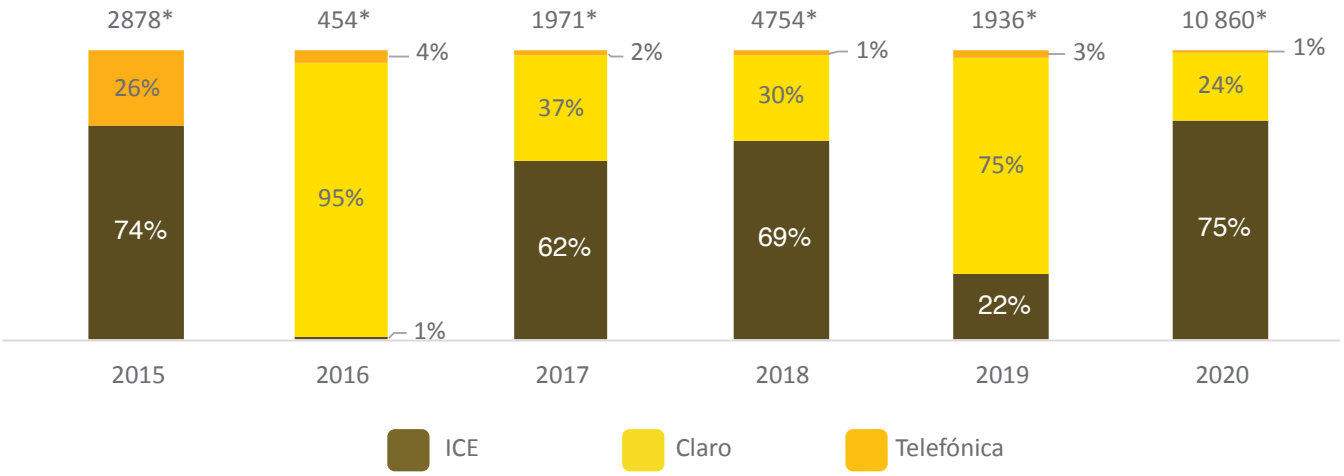
(annual figures in millions of colones)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 253. Costa Rica: Distribution of investment executed through the Connected Communities Program per operator, 2015-2020

(annual figures in percentages)

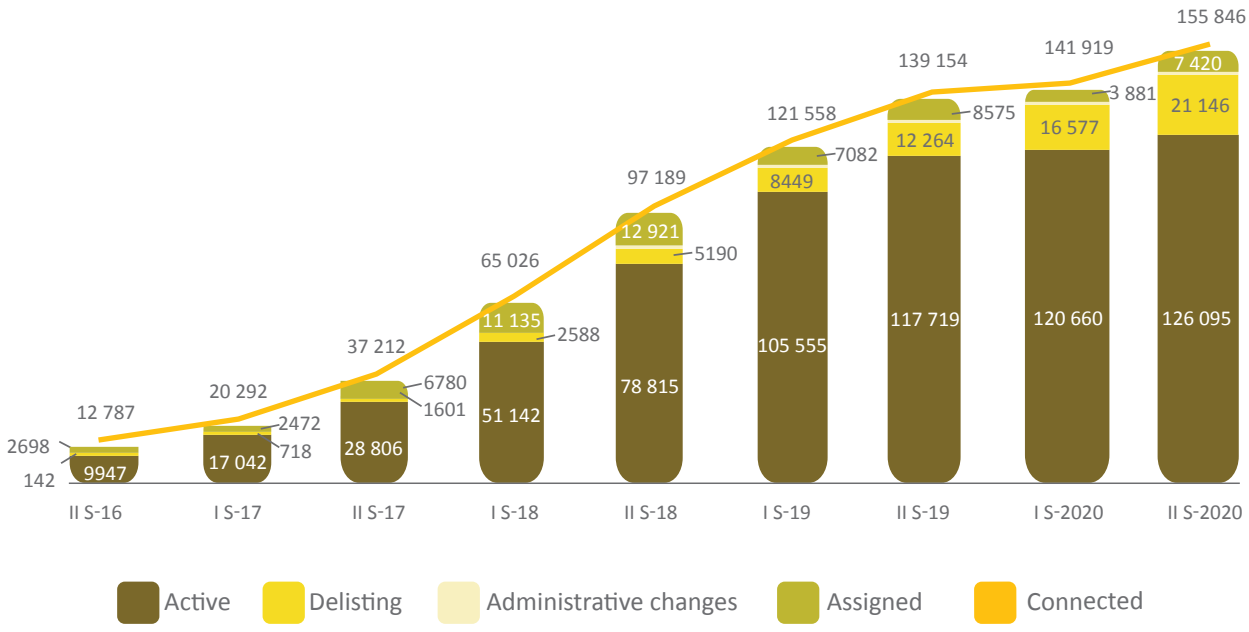


Note: *Figures correspond to the annual total in millions of colones.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 254. Costa Rica: Households contacted by the Connected Households Program per detailed status, 2016-2020

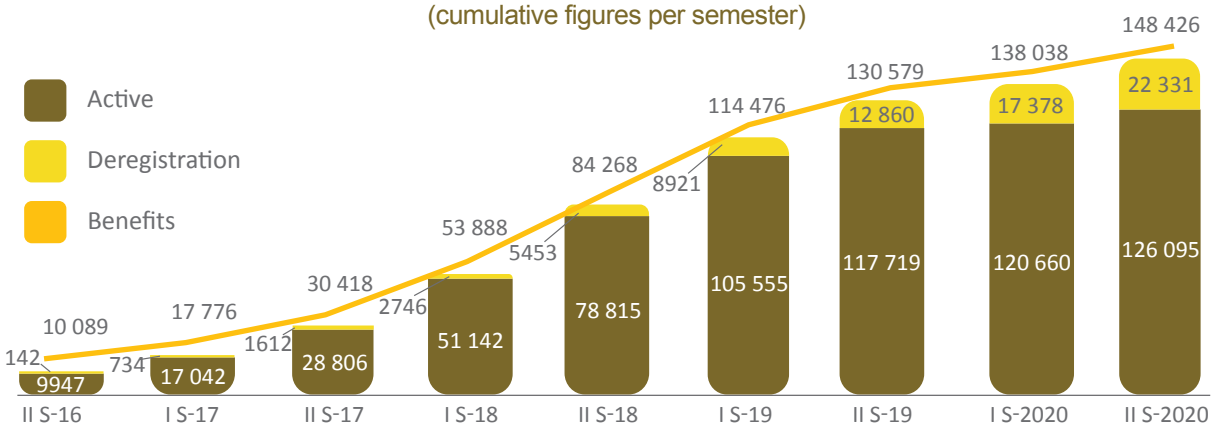
(cumulative figures per semester)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

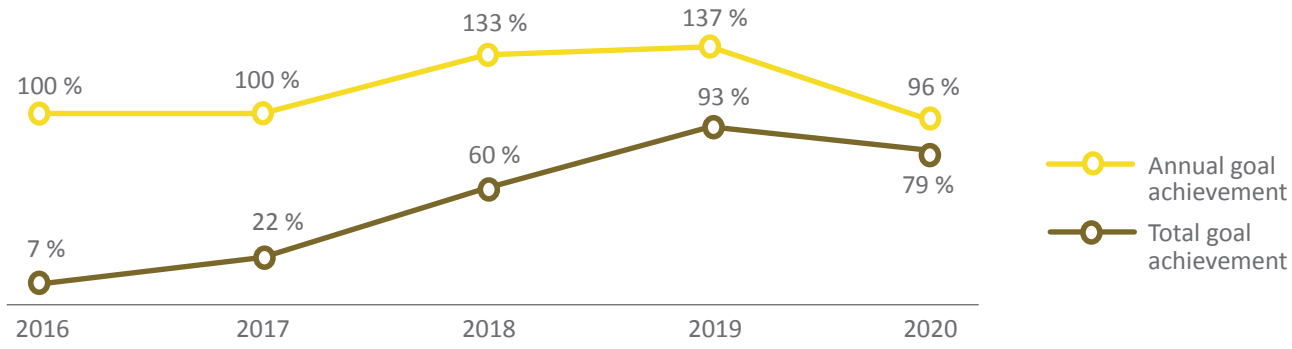
Graph n.° 255. Costa Rica: Households benefitted by the Connected Households Program according to status, 2016-2020

(cumulative figures per semester)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

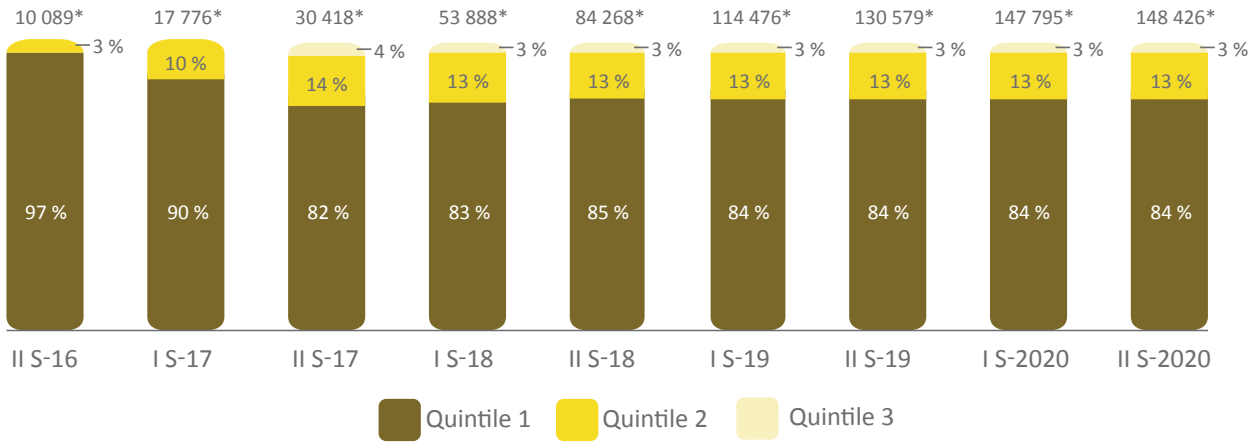
Graph n.° 256. Costa Rica: Achievement of the NTDP goal for benefitted households of the Connected Households Program, 2016-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 257. Costa Rica: Distribution of benefitted households of the Connected Households Program per income quintile

(figures per semester in percentages)

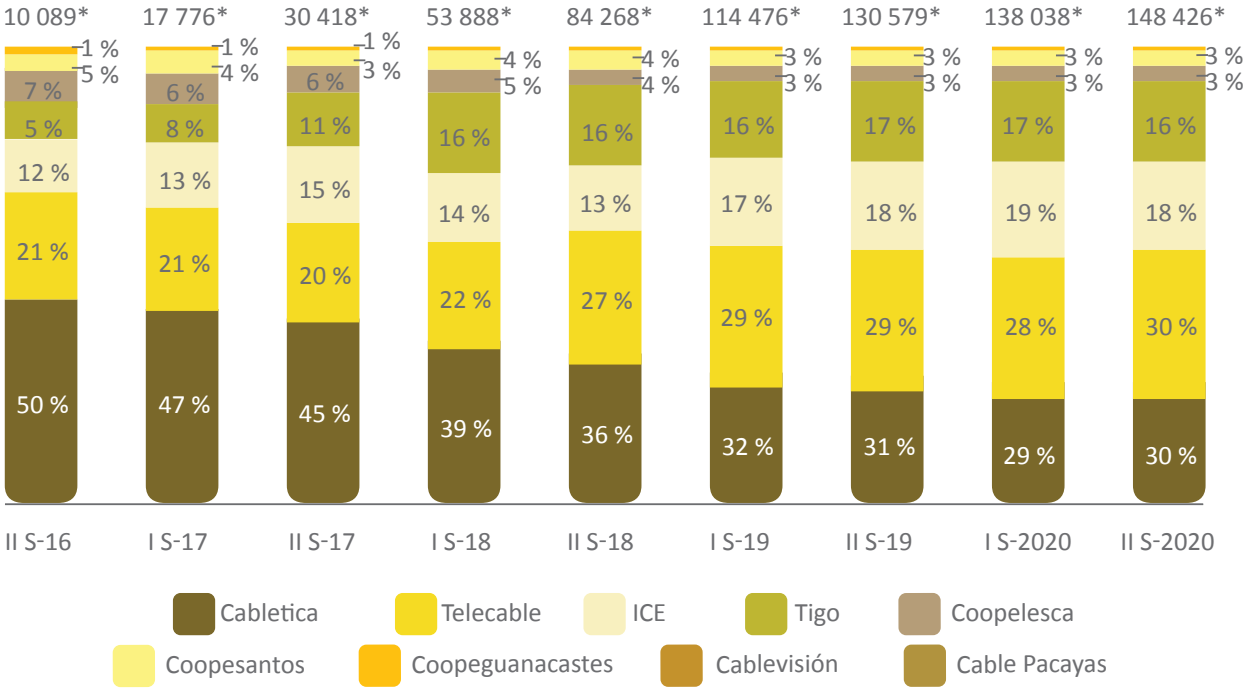


Note: *Figures correspond to the total per semester for benefitted households .

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 258. Costa Rica: Distribution of benefitted households of the Connected Households Program per operator, 2016-2020

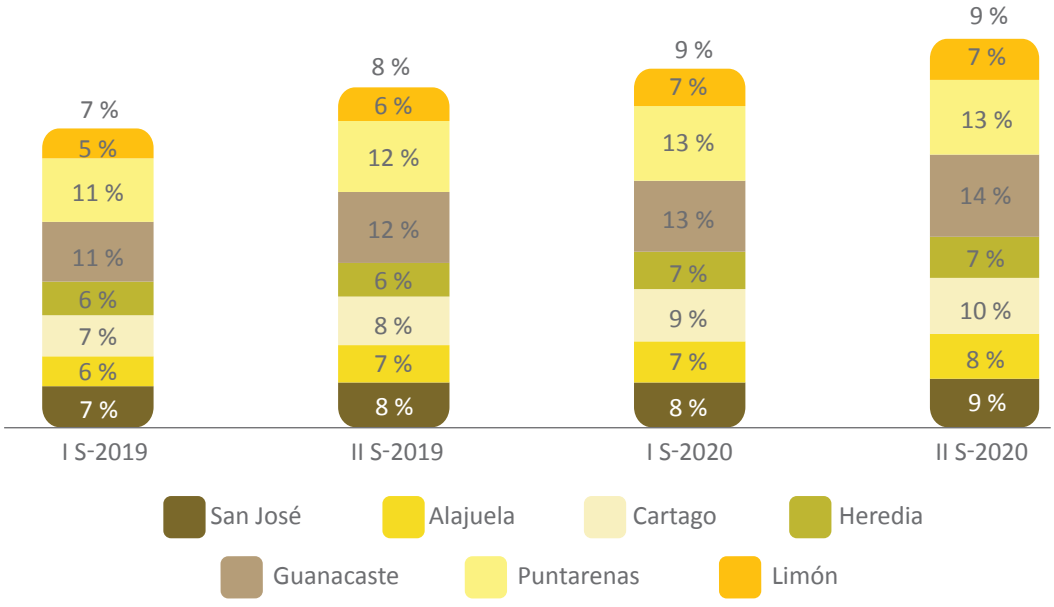
(figures per semester in percentages)



Note: *Figures correspond to the total per semester for benefitted households.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

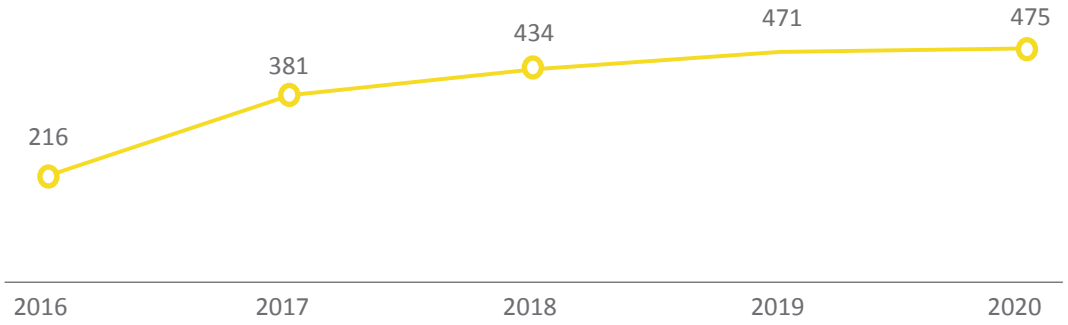
Graph n.° 259. Costa Rica: Total percentage of benefitted households of the Connected Households Program per province, 2019-2020



Note: *Figures correspond to the total percentage per semester for benefitted households in the country.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 260. Costa Rica: Districts with presence of the Connected Households Program, 2016-2020

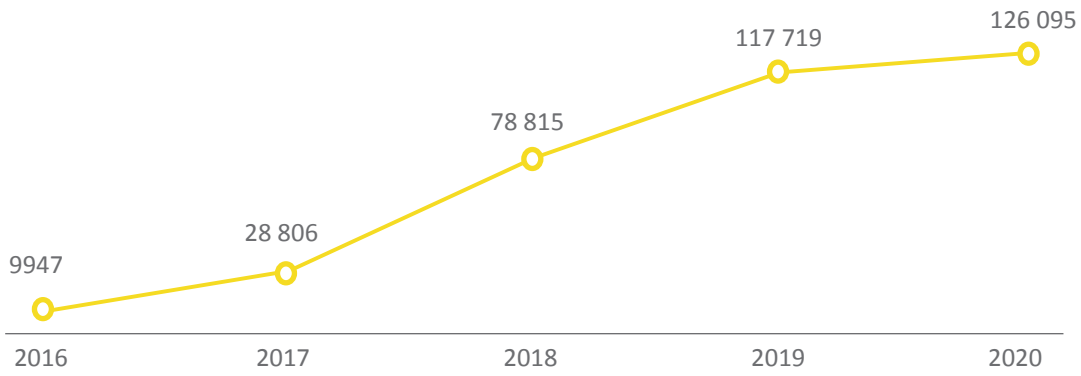


Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Map n.°2. Costa Rica: Districts with presence of the Connected Households Program, 2020

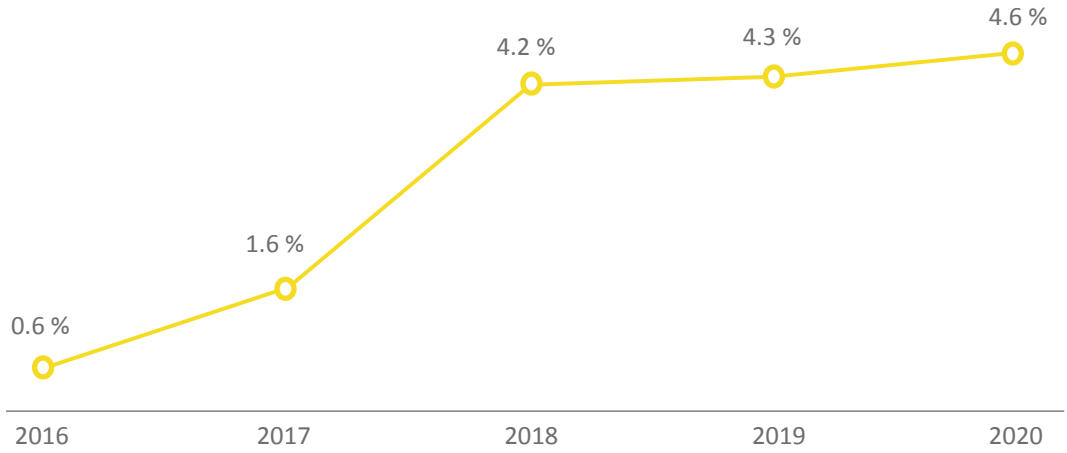
Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 261. Costa Rica: Total active subsidized subscriptions to the Internet access service of the Connected Households Program, 2016-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

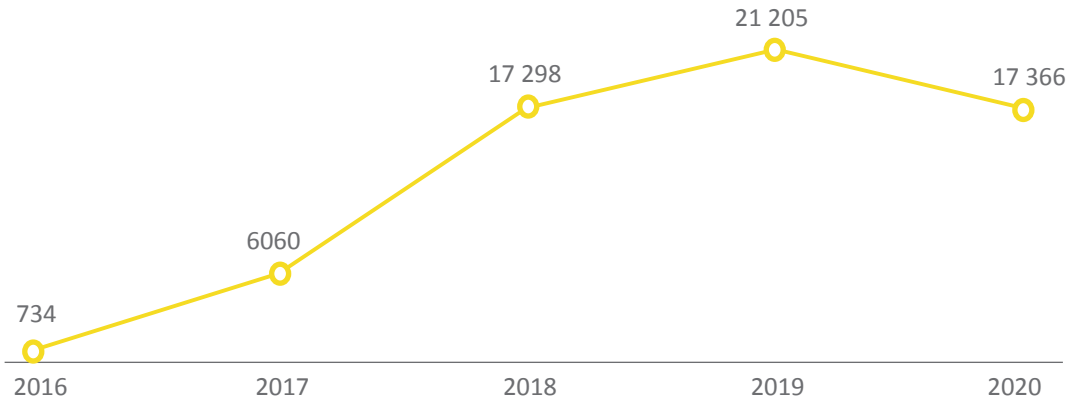
Graph n.° 262. Costa Rica: Net penetration of residential fixed Internet of the Connected Households Program, 2016-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 263. Costa Rica: Investment executed through the Connected Households Program, 2016-2020

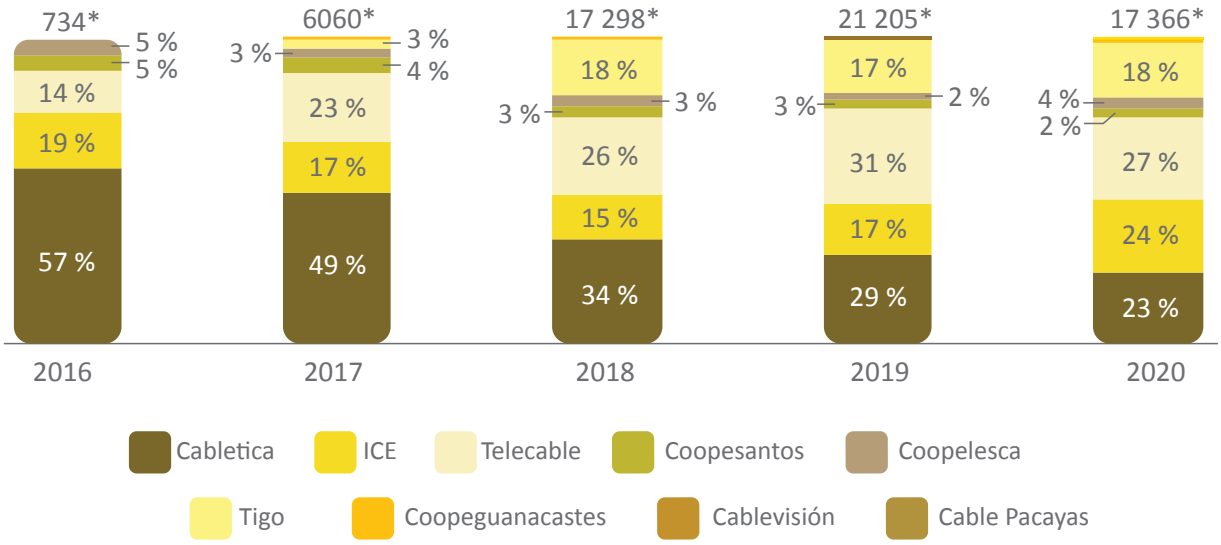
(annual figures in millions of colones)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 264. Costa Rica: Distribution of the investment executed through the Connected Households Program per operator, 2016-2020

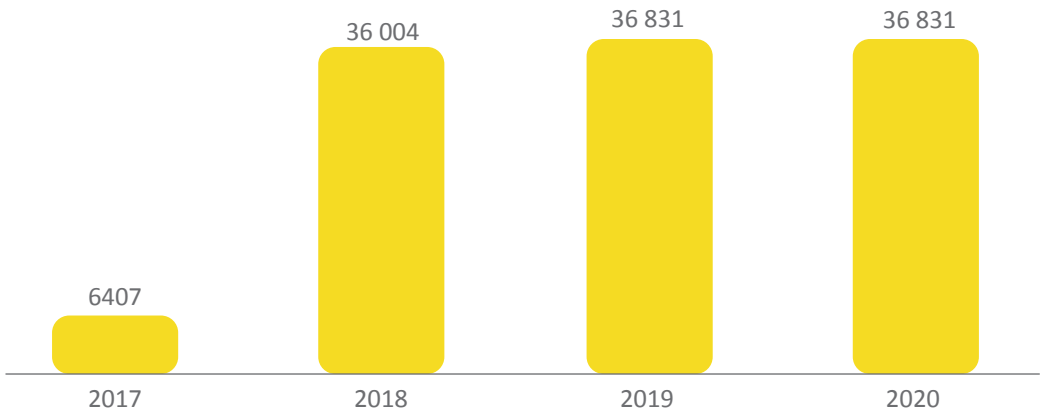
(annual figures in percentages)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

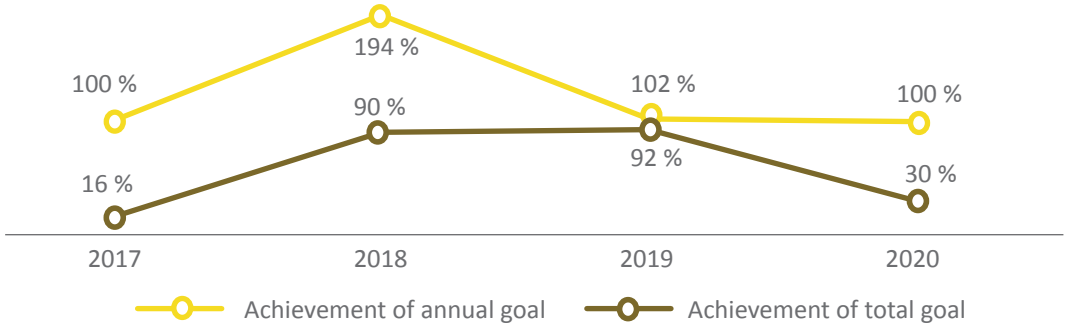
Graph n.° 265. Costa Rica: Devices delivered by the Equipped Public Centers Program to PSPC for accessing and using ICTs, 2017-2020

(annual cumulative figures)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

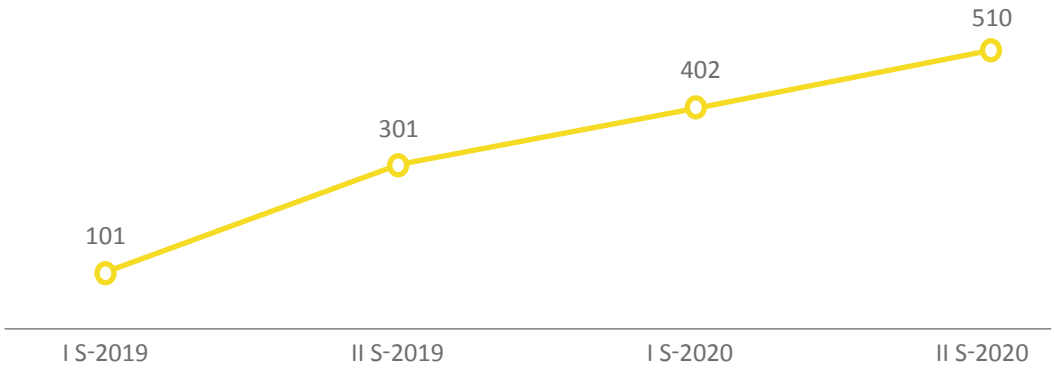
Graph n.° 266. Costa Rica: Achievement of the goal established in the NTDP devices delivered by the Equipped Public Centers Program to PSPC, 2017-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

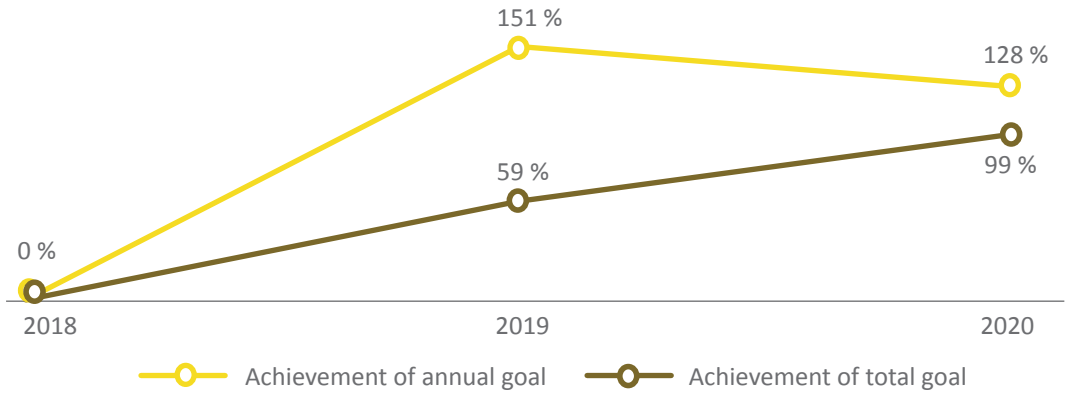
Graph n.° 267. Costa Rica: Free Internet access digital zones in service through the Connected Public Spaces Program, 2019-2020

(cumulative figures per semester)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 268. Costa Rica: Achievement of the NTDP goal of free Internet access digital zones in service through the Connected Public Spaces Program, 2018-2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

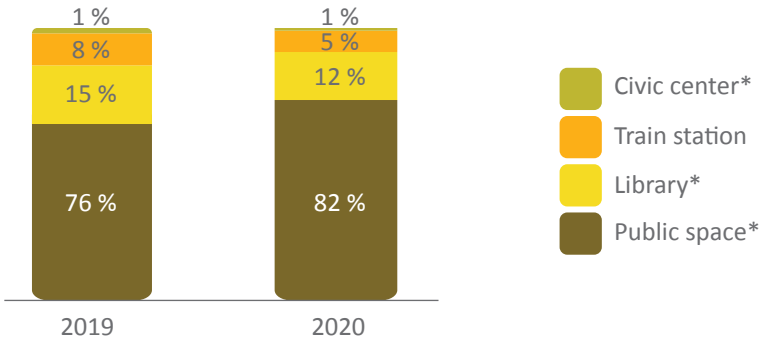
Graph n.° 269. Costa Rica: Percentage of progress of free Internet access digital zones in service through the Connected Public Spaces Program, per type of zone, 2020

Note: *There are two zones that are library and civic center at the same time, corresponding to Guararí and Aguas Zarcas.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 270. Costa Rica: Distribution of free Internet access digital zones in service through the Connected Public Spaces Program, per type of zone, 2019-2020

(figures in percentages)

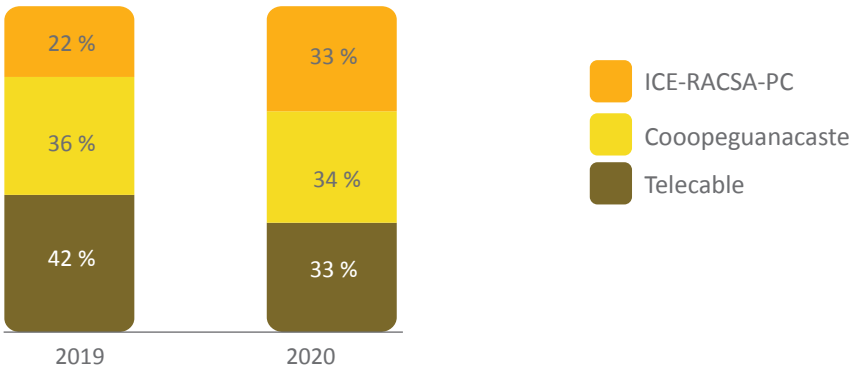


Note: *There are two zones that are library and civic center at the same time, corresponding to Guararí and Aguas Zarcas.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 271. Costa Rica: Distribution of free Internet access digital zones in service through the Connected Public Spaces Program per operator, 2019-2020

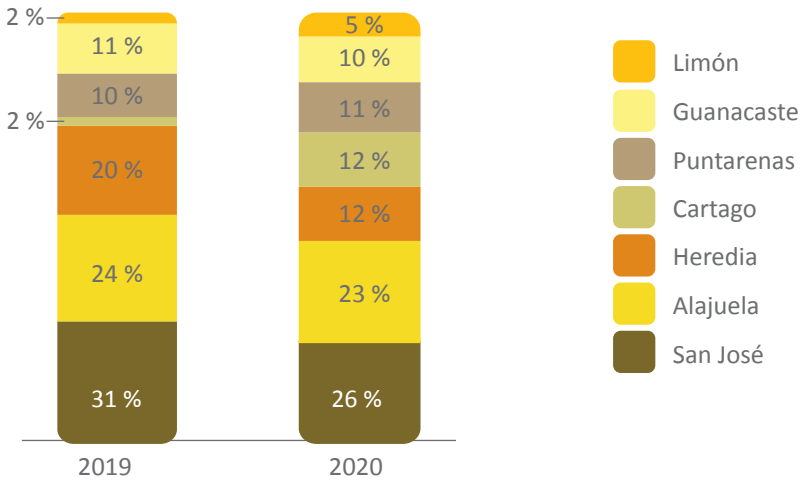
(figures in percentages)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 272. Costa Rica: Distribution of free Internet access digital zones in service through the Connected Public Spaces Program, per province, 2019-2020

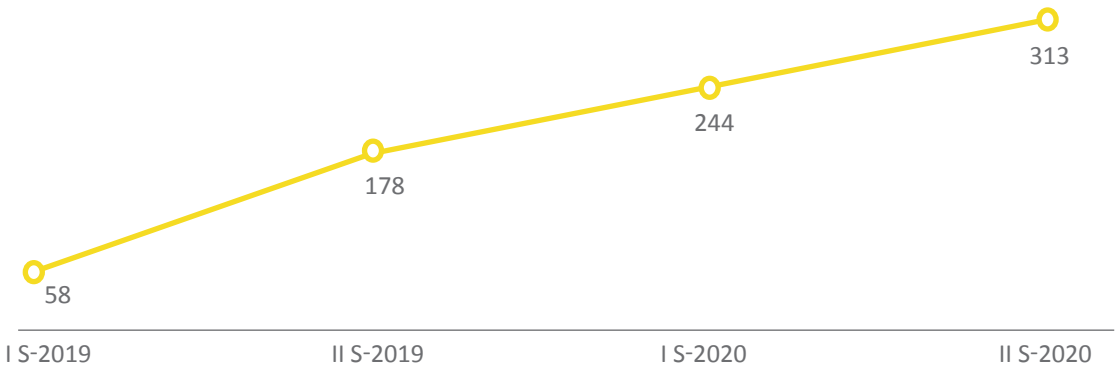
(figures in percentages)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

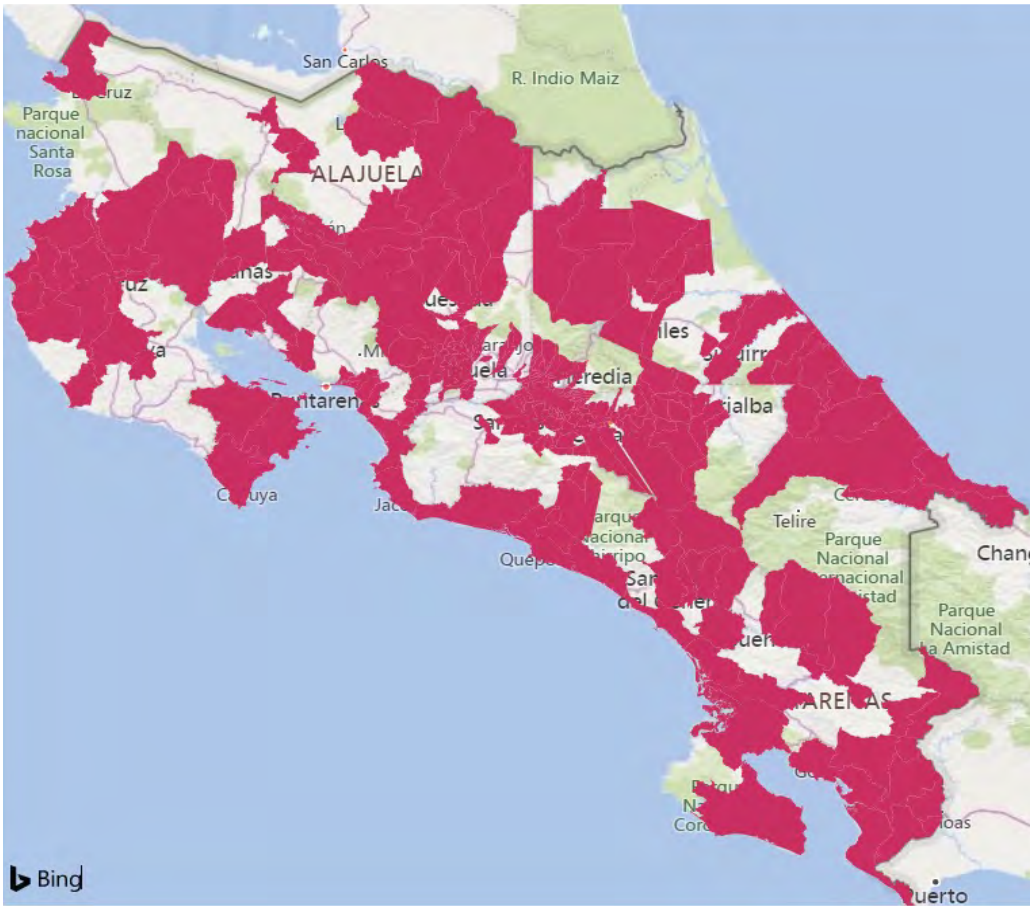
Graph n.° 273. Costa Rica: Districts with presence of the Connected Public Spaces Program, 2019-2020

(cumulative figures per semester)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

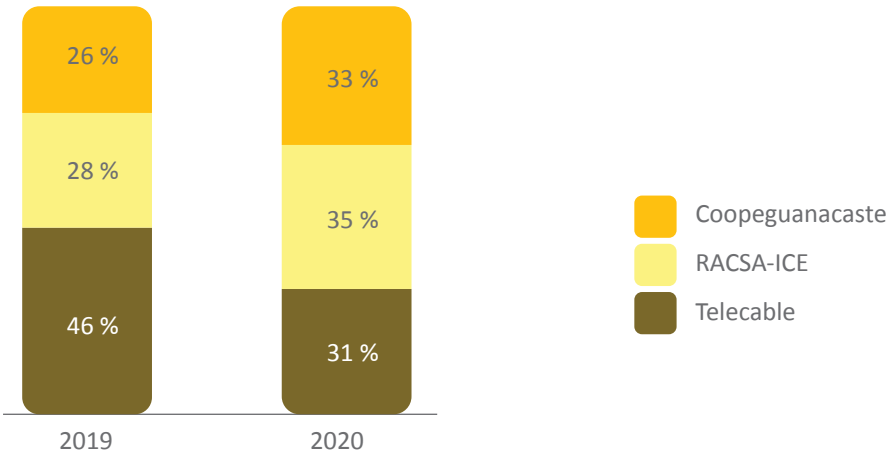
Map n.° 3. Costa Rica: Districts with presence of the Connected Public Spaces Program, 2020



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

Graph n.° 274. Costa Rica: Distribution of investment executed through the Connected Public Spaces Program, per operator, 2019-2020

(figures in percentages)



Source: Sutel, Directorate General of FONATEL, Costa Rica, 2019.

INTERNATIONAL

COSTA RICA TAKES THE FIRST PLACE IN MOBILE TELEPHONY PENETRATION WORLDWIDE DURING 2019.

This section aims to analyze the position of Costa Rica in the international context, measure how the telecommunications sector provides important contributions to the development of nations, as well as analyze the behavior of different services in international markets and possible future trends.

For this analysis, the following sections will be developed:

- Analysis of general international indicators
- Affordability Drivers Index Analysis

When this report was written, the International Telecommunications Union (ITU) did not yet have public information for 2020; so, it was not possible to include information for that year in this edition. Instead, 2019 figures are used, taking ITU data as a source of information. In previous editions, the Global Competitiveness index, calculated by the World Bank, was analyzed, but for 2020, this index was not calculated, for this reason, the analysis of the Affordability Drivers Index was used.[106]

ANALYSIS OF INTERNATIONAL GENERAL INDICATORS

This analysis allows knowing the position that Costa Rica has with respect to the leading countries in telecommunications matters and with respect to Latin American countries, regarding the most prominent general indicators for measuring the sector. The countries used for comparison are the most developed in ICTs, including European and Asian countries. In the case of Latin America, the countries that had information available for the years under analysis were used.

Fixed and mobile telephony and fixed and mobile Internet access services are analyzed in relation to the evolution of the number of subscribers and their total penetration (it is measured through subscriptions and not at a geographical level), which allows the comparability with countries.

The penetration of fixed telephony (traditional basic telephony and VoIP telephony), measured as the percentage of total users with respect to the total population of the country, has shown, in general, a decrease in recent years. This situation is not exclusive to Costa Rica, as the number of subscriptions to this service continues to decrease also in countries such as Korea, Switzerland, the Netherlands, United States, Singapore, and Sweden. This behavior is similar, but slower for the Latin American countries, in Argentina, Brazil, Chile, among others, where the penetration of this service has remained practically unchanged; only Mexico, Uruguay, and Panama have registered increases.

In 2019, according to ITU records, the countries with the highest fixed telephony penetration are Korea, United Kingdom, and Switzerland, with 48.3 %, 47.8 %, and 39.2 %, respectively. In the case of Costa Rica, penetration in 2019 was 12.7 %; while in 2020, it fell by 10 %, placing the country in the eighth position in Latin America, behind Uruguay, Mexico, Panama, Argentina, Brazil, Chile, and Colombia (see Graph n.° 275). It should be noted that Costa Rica dropped 1 place compared to 2018.

[106]It is prepared by the A4AI, which is made up of a group of international organizations where the following stand out: Google, Swede Sverige, Cisco, Facebook, Intel, GSMA, and Microsoft, among others.

In the case of mobile telephony services (prepaid and postpaid are included), Costa Rica remains among the countries with the highest penetration, reaching the first position in 2019, worldwide, with 169.4 %, surpassing countries like Singapore, Korea, and United States, among other European countries. The penetration percentage reached in 2020 (147 %) is consistent with the trend to remain in the first places of this penetration indicator, although it shows a decrease. Even so, figures for 2020 are higher than those registered in 2019 for the rest of the countries, as can be seen in Graph n.° 276.

In the case of mobile phone service according to payment method, the proportion of prepaid subscriptions decreased compared to 2018, but Costa Rica continues to be among the countries with the highest proportion of prepaid lines. For 2019, it is in position 6 in Latin America, surpassed by Nicaragua, Mexico, Panama, Colombia, and the Dominican Republic. These results contrast with those observed in European and Asian countries, in which the relationship is inverse, and the highest proportions of users use and acquire the postpaid modality, as can be seen in Graph n.° 277.

As in the previous edition of this report, Costa Rica still shows an inverse relationship between the proportion of prepaid services and per capita income, according to the ITU Report data for 2019. Mobile phone users from countries with a higher degree of development and greater purchasing power opt, for the most part, for postpaid services, while countries with lower purchasing power opt for prepaid services. The detail can be seen in Graph n.° 278.

The penetration of the fixed Internet service measured through connections per 100 inhabitants has maintained a slight growth close to 1 %, surpassing Mexico and Brazil in 2019. In the case of Chile, it showed a growth of 2 % in relation to 2018, but Uruguay continues to be the leader in this field with 29.3 % in Latin America. According to 2019 ITU data, European countries have higher values that are almost quadruple than those of Costa Rica (17.9 % for 2019 and 19 % for 2020). Switzerland, Denmark, and the Netherlands stand out with values close to 45 %.

For the mobile Internet service, Costa Rica continues to show an important position in terms of penetration of this service for 2019, remaining within the first 15 places, above more developed countries such as Switzerland and Norway, and is in the first places in Latin America, only surpassed by Uruguay and Chile. For 2020, it shows a slight decrease, but maintaining the weight to stay among the first places in Latin America. The detail can be seen in Graph n.° 280.

To finish this section on the international framework, the relative weight of telecommunications revenues is quantified in relation to the Gross Domestic Product (GDP) in dollars for each country.

The most up-to-date telecommunications revenue data that the ITU has in its records is that of 2014, so that measurement is used to ensure the comparison of the indicator at the international level; however, other sections of this same report include figures updated to 2015 for Costa Rica.

Contrary to what happens with fixed Internet access, for mobile Internet services, Costa Rica continues to show a relatively high position within the evaluated countries. Penetration for 2019 (92.4 %) is only surpassed in Latin American by Chile and Uruguay, and in Asia and Europe, it is led by Singapore (155.65 %), Finland and other Nordic countries (Sweden, Denmark, and Norway). If the data for 2020 (91 %) is considered, the position of Costa Rica decreased, but it is comparable with that of developed countries included in the sample analyzed. The detail can be seen in Graph n.° 281.

AFFORDABILITY DRIVERS INDEX FOR 2015

For this year the index changed its name from the Affordability Index to Affordability Drivers Index. In the same way as in previous ones, this Index is made up by the Alliance for Affordable Internet (A4AI), made up of a group of global institutions from the private, public-academic, and civil society sectors. It is intended to measure the development of national broadband plans to make Internet access more affordable and allow more people to connect.

The index does not directly measure the price of Internet services, but it does show a strong relationship between the Index scores and the price of broadband in the countries analyzed.

Therefore, countries with higher scores tend to have better prices for broadband services. Costa Rica shows a strong relationship between high index scores and low prices for Internet services.

The affordability drivers index is made up of two sub-indices that are internally operationalized as follows.

- **Infrastructure subindex:** it measures the degree of deployment and operations of the infrastructure, along with the policies and regulatory frameworks that encourage and allow investment for the growth of future infrastructure. Some of the variables included are number of international bandwidth available and evaluation of spectrum policy.

- **Broadband access subindex:** it measures adoption rates, policies, and regulatory frameworks to promote the growth and supply of broadband services. The variables used are Internet penetration rate and evaluation of the effectiveness of universal services funds.

The index is calculated for 72 countries divided into two groups (developing economies and underdeveloped economies) and is calculated on a scale from 0 to 100. based on penetration rates, use, and political and regulatory environment. The analysis of the index shows that high scores are correlated with low prices for broadband. This means that values close to 100 in the country index show prices for broadband services that are trending downward.

By 2020, Costa Rica remains in position 3. behind Malaysia and Colombia, in the case of developing economies. In the case of underdeveloped economies, Rwanda maintains the first place followed by Uganda. In the general classification, Colombia and Costa Rica are in the first positions in Latin America. The detail of the above can be seen in the Tables nº 25 and 26.

The three leading countries in the indices for this year and 2019 (Malaysia, Colombia, and Costa Rica) demonstrate the impact of national broadband plans on Internet affordability and the importance of iterative reviews to achieve excellence in this field. These three countries obtained the highest scores on the quality indicator of the objectives within their national broadband plans.

In all three countries, broadband plans included objectives, led the sector, and left evidence of impact. In Costa Rica, the national broadband plan details a procedure to review progress during the life of the plan, including the biennial updates published by the governing body. This activity ensures that the national broadband plan is the starting point for further activity and growth in the sector. This practice is not carried out among the other countries included in the drivers index.

Among the aspects of the National Broadband Plan, A4AI highlights the following:

Costa Rica:

- It establishes that ICTs are an important tool to reduce poverty.

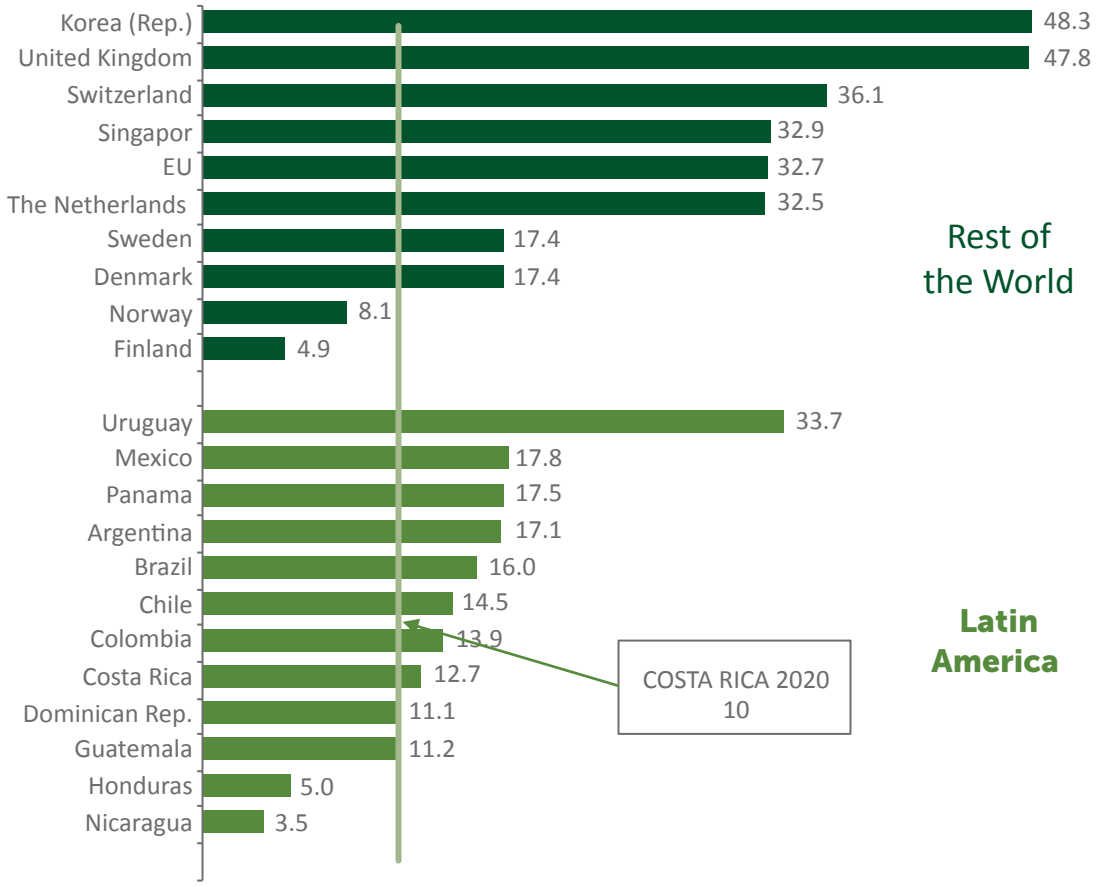
- It has one of the highest mobile broadband subscription penetration rates of any country analyzed in the index.

- Fixed and mobile broadband prices are around 1 % of GDP per capita and among the lowest in the Latin American region.

- The government has created a National Telecommunications Fund (Fonatel), which focuses on providing broadband Internet access to underserved schools, public health institutions, and other public entities.
- The Telecommunications Development Plan aims to increase Internet use and improve broadband speeds according to OECD policies.

Graph n.° 275. Costa Rica: Subscriptions to fixed telephony services* per 100 inhabitants, 2019.

(figures in percentages)

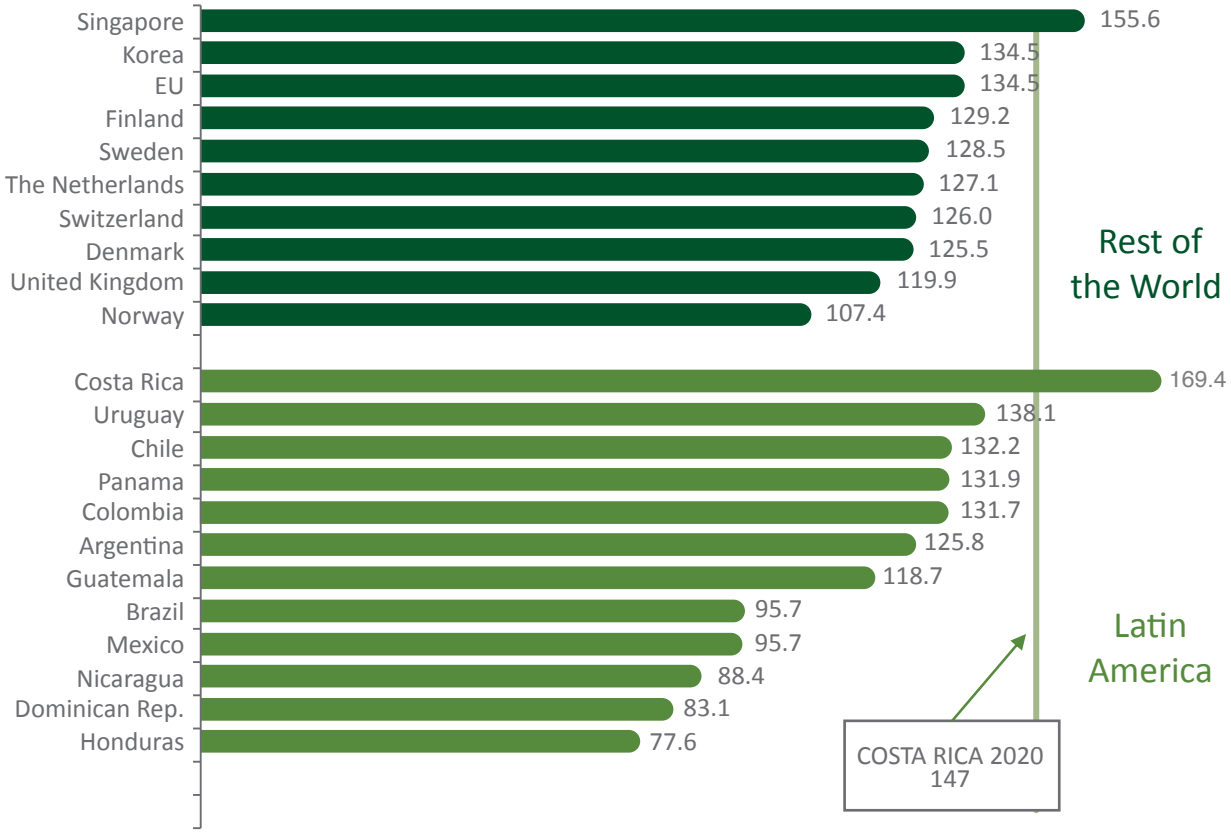


Note: *Includes traditional fixed telephony subscriptions and VoIP telephony.

Source: Sutel, Directorate General of Markets, with information from the International Telecommunications Union. Costa Rica. 2019-2020.

Graph n.° 276. Costa Rica: Subscriptions to mobile telephony services per 100 inhabitants, 2019

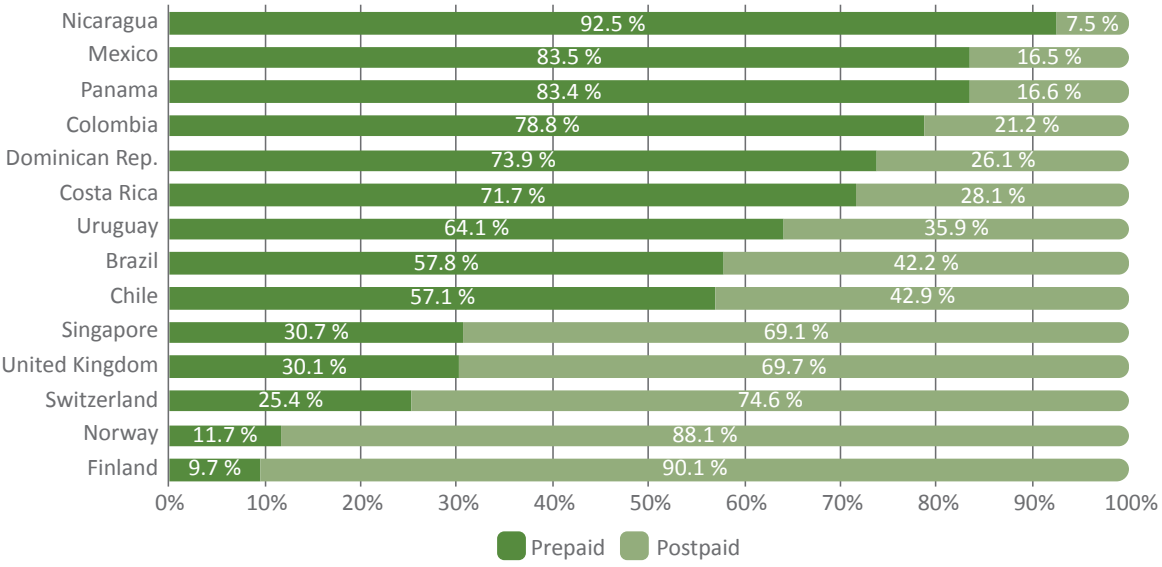
(figures in percentages)



Source: Sutel, Directorate General of Markets, with information from the International Telecommunications Union. Costa Rica. 2019-2020.

Graph n.° 277. Costa Rica: Distribution of the percentage of mobile subscriptions between postpaid and prepaid, 2019

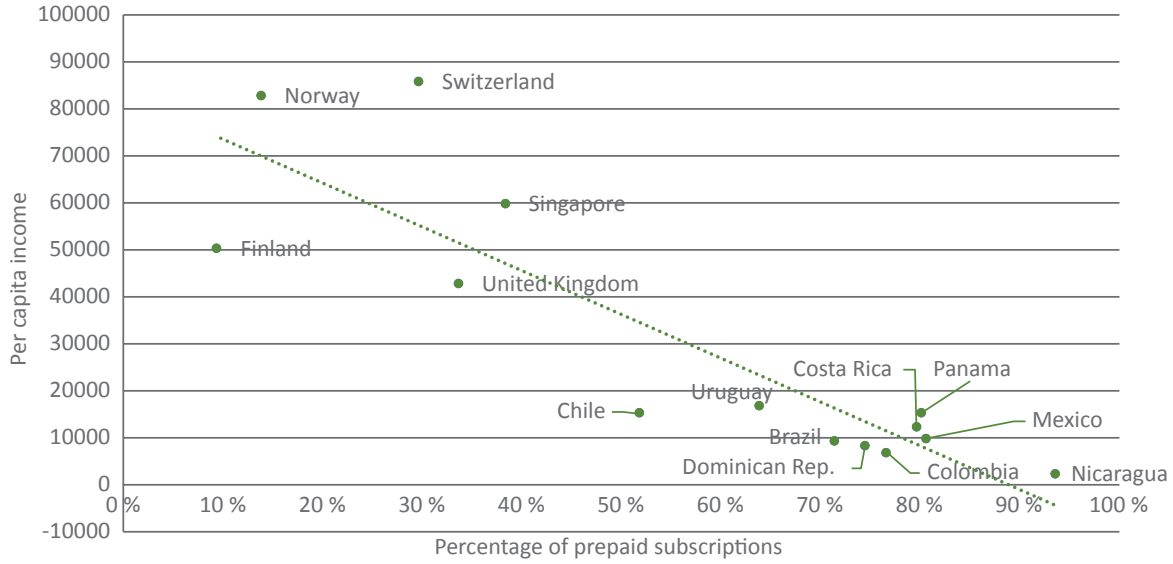
(figures in percentages)



Note: *In Costa Rica, the relation in 2020 was 67 % prepaid and 33 % postpaid.

Source: Sutel, Directorate General of Markets, with information from the International Telecommunications Union, Costa Rica, 2020.

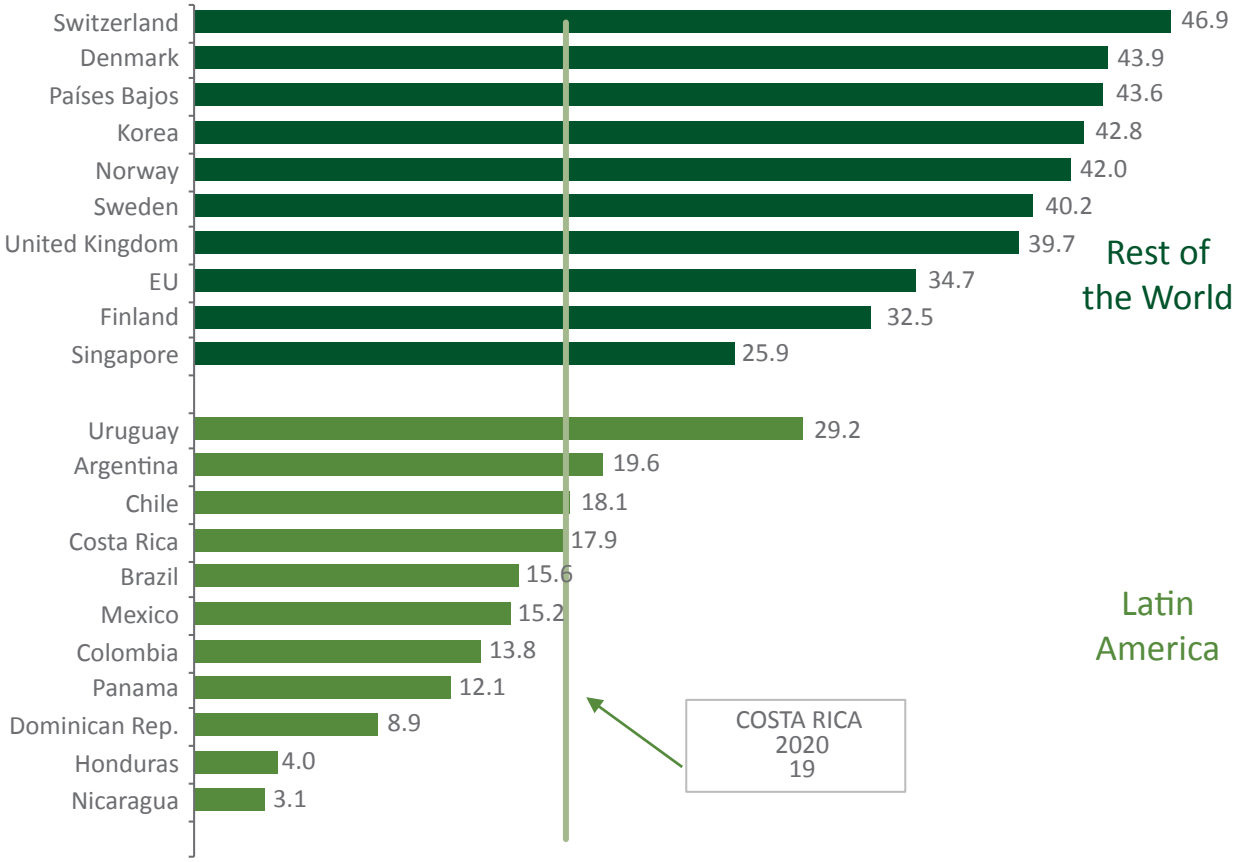
Graph n.° 278. Costa Rica: Average revenue per inhabitant and percentage of prepaid subscriptions, 2019



Source: Sutel, Directorate General of Markets, with information from the World Bank and the International Telecommunications Union, Costa Rica, 2019.

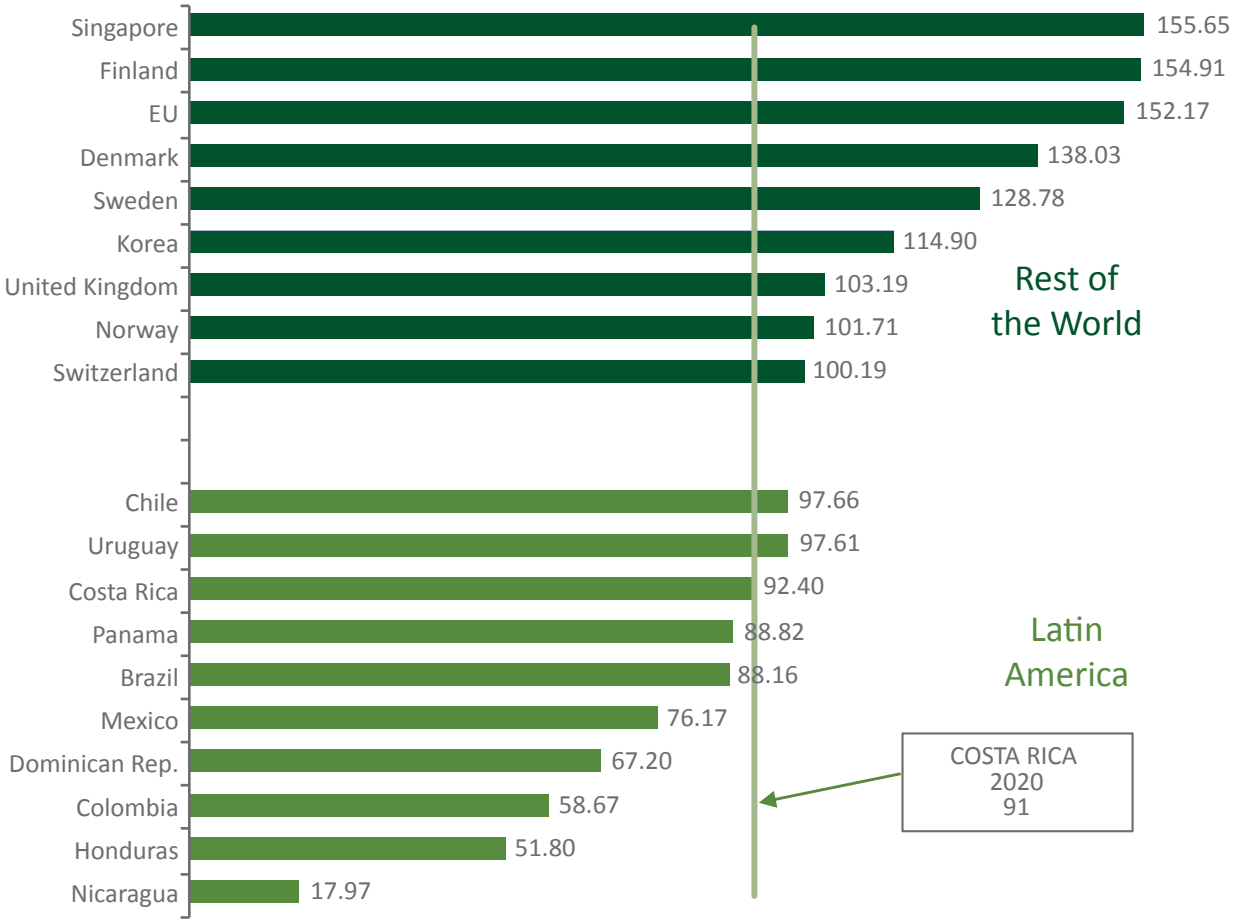
Graph n.° 279. Costa Rica: Penetration of access to fixed Internet per each 100 inhabitants, 2019.

(figures in percentages)



Source: Sutel, Directorate General of Markets, with information from the International Telecommunications Union, Costa Rica, 2019-2020.

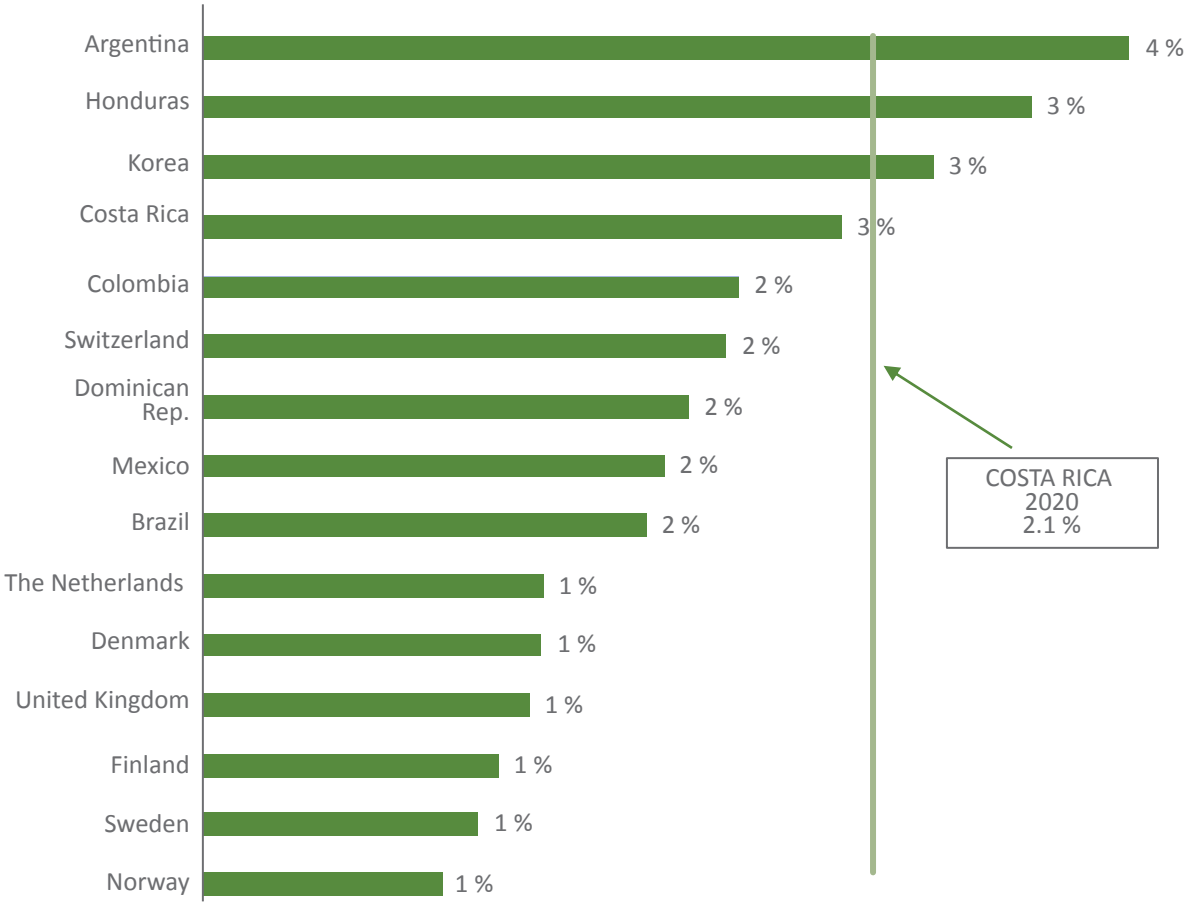
Graph n.° 280. Costa Rica: Penetration of access to mobile Internet per each 100 inhabitants, 2019
(figures in percentages)



Source: Sutel, Directorate General of Markets, with information from the International Telecommunications Union. Costa Rica, 2019-2020.

Graph n.° 281. Costa Rica: Proportion of total revenue of the telecommunications sector to the GDP, 2019

(figures in percentages)



Source: Sutel, Directorate General of Markets, with information from the International Telecommunications Union, Costa Rica, 2019- 2020.

Table n.° 23. Costa Rica: Positions of the affordability drivers index per country, according to developing economies, 2018-2020

Position	2018	2019	2020
1	Malaysia	Malaysia	Malaysia
2	Colombia	Colombia	Colombia
3	Peru	Costa Rica	Costa Rica
4	Costa Rica	Peru	Argentina
5	Mexico	Mexico	Peru

Source: Sutel, Directorate General of Markets, with information from the A4AI, Costa Rica, 2020.

Table n.° 24. Costa Rica: Scores obtained from the accessibility index per country, 2018-2020

Position	Country	2018	2019	2020
1	Malaysia	82.44	85.13	85.67
2	Colombia	79.12	83.06	85.26
3	Costa Rica	75.91	79.21	85.07
4	Argentina	68.94	72.51	80.56
5	Peru	76.21	77.98	80.49
6	Thailand	67.71	70.14	76.92
7	Mexico	73.8	76.29	76.57
8	Turkey	69.13	72.66	74.5
9	Dominican Republic	66.44	69.59	71.52
10	Morocco	62.79	63.78	71.26

Source: Sutel, Directorate General of Markets, with information from the A4AI, Costa Rica, 2020.

Table n.° 25. Costa Rica: Scores obtained from the accessibility sub-index per country, 2018-2020

Position	Country	2018	2019	2020
1	Malaysia	95.59	98.17	95.65
2	Costa Rica	86.2	88.61	94.85
3	Colombia	83.18	85.19	86.94
4	Thailand	77.5	79.19	85.85
5	Argentina	71.99	76.1	85.51
6	Peru	80.71	81.23	79.78
7	Botswana	64.62	67.64	77.49
8	Turkey	75.26	79.15	77.21
9	Dominican Republic	71.15	74.4	76.9
10	Morocco	76.66	76.25	76.7

Source: Sutel, Directorate General of Markets, with information from the A4AI, Costa Rica, 2020.

Table n.° 26. Costa Rica: Scores obtained from the infrastructure sub-index per country, 2018-2020

Position	Country	2018	2019	2020
1	Colombia	66.02	74.05	75.08
2	Peru	63.2	68.44	73.2
3	Mexico	63.1	68.21	71.02
4	Argentina	58.2	63.09	67.6
5	Malaysia	60.08	65.62	67.16
6	Costa Rica	57.14	63.44	66.83
7	Turkey	55.67	60.12	64.18
8	Morocco	48.72	48.75	61.89
9	India	56.59	61.45	61.21
10	Ecuador	53.18	59.25	60.96

Source: Sutel, Directorate General of Markets, with information from the A4AI, Costa Rica, 2020.

STATISTICS ANNEX


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Table n.° 27. Costa Rica: Total revenue of the Telecommunications Sector, 2016 - 2020

(quarterly figures in millions of colones)

Indicator	2016				2017			
	I Q 2016	II Q 2016	III Q 2016	IV Q 2016	I Q 2017	II Q 2017	III Q 2017	IV Q 2017
Millions of colones	177 248	181 514	184 169	185 441	184 337	186 314	185 664	189 266
Variation rate	5 %	3 %	-3 %	1 %	0 %	2 %	1 %	1 %

Indicator	2018				2019			
	I Q 2018	II Q 2018	III Q 2018	IV Q 2018	I Q 2019	II Q 2019	III Q 2019	IV Q 2019
Millions of colones	191 746	188 635	186 645	191 653	193 959	191 410	189 424	18 497
Variation rate	-1 %	1 %	0 %	2 %	1.64 %	1.11 %	-4.12 %	-1.12 %

Indicator	2020				2012	2013	2014	2015
	I Q 2020	II Q 2020	III Q 2020	IV Q 2020				
Millions of colones	183 967	181 146	180 693	182 391	501 648	576 742	677 142	711 585
Variation rate	5 %	-1 %	-1 %	-2 %	---	15 %	17 %	5 %

Indicator	2016	2017	2018	2019	2020
Millions of colones	728 372	745 581	758 678	760 290	728 196
Variation rate	2.36 %	2.36 %	1.64 %	0.33 %	-4.22 %

Surce: Sutel, Directorate General of Markets, Costa Rica. 2020.

Table n.° 28. Costa Rica: Total revenue of the Telecommunications Sector per service, 2016 - 2020

(quarterly figures in millions of colones)

Indicator	I Q 2016	II Q 2016	III Q 2016	IV Q 2016	I Q 2017	II Q 2017	III Q 2017	IV Q 2017
Traditional basic telephony and VoIP telephony	22 445	22 427	21 546	21 093	20 422	20 120	19 781	19 460
Mobile telephony (Voice and messaging)	75 742	76 117	74 801	74 558	71 796	70 854	70 837	72 201
Internet access (includes mobile Internet access)	71 449	74 586	78 516	80 659	80 759	84 746	84 018	85 613
Dedicated lines	7 611	8 384	9 306	9 132	11 360	10 595	11 028	11 992
Total	177 248	181 514	184 169	185 441	184 337	186 314	185 664	189 266

Indicator	I Q 2018	II Q 2018	III Q 2018	IV Q 2018	I Q 2019	II Q 2019	III Q 2019	IV Q 2019
Traditional basic telephony and VoIP telephony	19 031	18 834	18 288	17 872	16 357	15 590	14 555	13 328
Mobile telephony (Voice and messaging)	67 550	64 811	62 622	62 293	60 119	57 641	54 632	53 480
Internet access (includes mobile Internet access)	93 943	94 197	94 961	99 957	104 674	106 358	107 565	106 499
Dedicated lines	11 222	10 793	10 774	11 531	12 809	11 821	12 672	12 190
Total	191 746	188 635	186 645	191 653	193 959	191 410	189 424	185 497

Indicator	I Q 2020	II Q 2020	III Q 2020	IV Q 2020
Traditional basic telephony and VoIP telephony	12 440	12 162	11 824	11 268
Mobile telephony (Voice and messaging)	53 445	51 045	50 519	49 653
Internet access (includes mobile Internet access)	106 417	105 828	105 634	108 635
Dedicated lines	11 664	12 110	12 716	12 835
Total	183 967	181 146	180 693	182 391

Surce: Sutel, Directorate General of Markets, Costa Rica. 2020.

Table n.° 29. Costa Rica: Total revenue of the Telecommunications Sector per service, 2016 - 2020

(annual figures in millions of colones)

Indicator	2016	2017	2018	2019	2020
Mobile telephony (voice only)	301 218	285 688	257 275	225 872	204 662
Traditional basic telephony and VoIP telephony	87 511	79 783	74 025	59 830	47 695
Internet access (includes mobile Internet access)	305 210	335 136	383 058	425 095	426 514
Dedicated lines	34 433	44 974	44 319	49 492	49 326
Total	728 372	745 581	758 678	760 290	728 196

Surce: Sutel, Directorate General of Markets, Costa Rica. 2020.

Table n° 30. Costa Rica: Total revenue of the Telecommunications Sector per service, 2016 - 2020

(annual figures in percentages)

Indicator	2016	2017	2018	2019	2020
Mobile telephony (voice only)	41 %	38 %	34 %	30 %	28 %
Traditional basic telephony and VoIP telephony	12 %	11 %	10 %	8 %	7 %
Internet access (includes mobile Internet access)	42 %	44 %	51 %	56 %	59 %
Dedicated lines	5 %	7 %	5 %	6 %	7 %
Total	100 %	100 %	100 %	100 %	101 %

Surce: Sutel, Directorate General of Markets, Costa Rica. 2020.

Table n.° 31. Costa Rica: Total revenue of the Telecommunications Sector per service, 2016 - 2020

(Annual figures in millions of colones)

Indicator	2016	2017	2018	2019	2020
Mobile telephony and mobile Internet access	495 721	493 352	492 810	490 450	460 296
Traditional basic telephony and VoIP telephony	87 511	79 783	74 025	59 830	47 695
Fixed Internet access	110 707	127 472	147 524	160 518	170 879
Dedicated lines	34 433	44 974	44 319	49 492	49 326
Total	728 372	745 581	757 827	760 290	728 196

Surce: Sutel, Directorate General of Markets, Costa Rica. 2020.

Table n.° 32. Costa Rica: Total revenue of the Telecommunications Sector per service, 2016 - 2020

(annual figures in percentages)

Indicator	2016	2017	2018	2019	2020
Mobile telephony and mobile Internet access	68 %	66 %	65 %	65 %	63 %
Traditional basic telephony and VoIP telephony	12 %	11 %	10 %	8 %	7 %
Fixed Internet access	15 %	17 %	20 %	21 %	23 %
Dedicated lines	5 %	6 %	5 %	6 %	7 %
Total	100 %	100 %	100 %	100 %	100 %

Surce: Sutel, Directorate General of Markets, Costa Rica. 2020.

Table n.° 33. Costa Rica: Telecommunications Sector workforce, 2016 - 2020

(absolute figures per semester and yearly)

Indicator	2016		2017		2018		2019		2020	
	I Sem	II Sem	I Sem	II Sem	I Sem	II Sem	I Sem	II Sem	I Sem	II Sem
Persons	11 751	11 870	11 691	12 186	10 939	11 804	9395	10 758	11 138	10 994
% of variation	3 %	1 %	-2 %	3 %	-6 %	-3 %	-14 %	-9 %	19 %	2 %

Indicator	2015	2016	2017	2018	2019	2020
Persons	11 426	11 870	12 186	11 804	10 761	10 994
% of variation	4 %	4 %	3 %	-3 %	-9 %	2 %

Surce: Sutel, Directorate General of Markets, Costa Rica. 2020.

Table n.° 34. Costa Rica: Percentage of the workforce of the Telecommunications Sector in relation to the economically active population, 2016 - 2020

(annual figures in percentages)

Indicator	2015	2016	2017	2018	2019	2020
Total Country	2 276 104	2 206 179	2 274 432	2 359 644	2 448 045	2 406 533
Telecommunications Sector	11 426	11 870	12 186	11 804	10 761	10 991
Percentage	0.50 %	0.54 %	0.54 %	0.50 %	0.44 %	0.46 %
% of variation	7 %	7 %	0 %	-7 %	-12 %	4 %

Source: Sutel, Directorate General of Markets and INEC (Continues Jobs Survey), Costa Rica. 2020

Table n.° 35. Costa Rica: Percentage of the Telecommunications Sector workforce in relation to the total population, 2016 - 2020

(annual figures in percentages)

Indicator	2015	2016	2017	2018	2019	2020
Population Total	4 832 234	4 890 379	4 947 490	5 003 402	5 058 007	5 111 238
Telecommunications Sector workforce	11 426	11 870	12 186	11 804	10 761	10 991
Percentage	0.24 %	0.24 %	0.25 %	0.24 %	0.21 %	0.22 %

Source: Sutel, Directorate General of Markets e INEC (Continues Jobs Survey), Costa Rica. 2020.

Table n.° 36. Costa Rica: Telecommunications Sector female workforce, 2016 - 2020

(absolute figures per semester)

Indicator	2015		2016		2017		2018		2019		2020	
	I Sem	II Sem	I Sem	II Sem	I Sem	II Sem	I Sem	II Sem	I Sem	II Sem	I Sem	II Sem
Persons	2963	3010	3057	3061	3178	3344	3062	3258	2504	3244	3230	3279
% of variation per semester		2 %		0 %		5 %	-8 %	6 %	-23 %	30 %	0 %	2 %
% Annual variation		3 %		2 %		9 %	-4 %	-3 %	-18 %	0 %	29 %	1 %

Surce: Sutel, Directorate General of Markets, Costa Rica. 2020.

Table n.° 37. Costa Rica: Traditional basic telephony and VoIP subscriptions, 2016 - 2020

(figures at year closing)

Indicator	2016	2017	2018	2019	2020
Total	833 590	808 967	763 254	636 504	556 617
Telefonía Básica Tradicional	779 972	747 428	695 518	571 808	504 276
VoIP	53 618	61 539	67 736	64 696	52 341

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 38. Costa Rica: Traditional basic telephony and VoIP subscriptions, 2019 - 2020

(figures at quarterly closing)

Indicator	2019				2020			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Total	741 336	712 672	686 617	636 504	604 881	593 774	577 230	556 617
Traditional basic telephony	675 922	646 090	621 959	571 808	545 468	537 214	523 853	504 276
VoIP	65 414	66 582	64 658	64 696	59 622	56 782	53 377	52 341

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n° 39. Costa Rica: Number of public telephones in operation, 2016-2020

(figures at year closing)

Indicator	2016	2017	2018	2019	2020
Public telephones	4731	4674	4581	3798	3265

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 40. Costa Rica: Fixed telephony completed traffic within the network and outbound, 2016-2020

(annual figures in millions of minutes and variation percentages)

Indicator	2016	2017	2018	2019	2020
Minutes	2966	2683	2402	1871	1647
% of variation		-9.5 %	-10.5 %	-22.1 %	-12.0 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 41. Costa Rica: Traditional basic telephony and VoIP telephony traffic completed within the network and outbound, 2019 - 2020

(quarterly figures in millions of minutes and variation percentages)

Indicator	2019				2020			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Minutes	516	465	466	424	410	423	423	391
% of variation		-9.8 %	0.2 %	-8.9 %	-3.4 %	3.3 %	-0.1 %	-7.6 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 42. Costa Rica: VoIP telephony traffic completed within the network and outbound, 2016-2020

(annual figures in thousands of minutes and variation percentages)

Indicator	2016	2017	2018	2019	2020
Minutes	336 270	393 596	395 056	241 348	183 232
% of variation		17.0 %	0.4 %	-38.9 %	-24.1 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 43. Costa Rica: VoIP telephony traffic completed within the network and outbound, 2019 - 2020

(quarterly figures in thousands of minutes and variation percentages)

Indicator	2019				2020			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Minutes	76	46	65	54	47	50	44	42
% of variation		-39.3 %	40.9 %	-17.0 %	-12.2 %	5.7 %	-12.9 %	-3.7 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 44. Costa Rica: Fixed telephony service total revenue, 2016 - 2020

(annual figures in millions of colones and variation percentages)

Indicator	2016	2017	2018	2019	2020
Minutes	87 511	79 783	73 240	58 996	46 884
% of variation		-8.8 %	-8.2 %	-19.4 %	-20.5 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 45. Costa Rica: VoIP telephony total revenue, 2016 - 2020

(annual figures in millions of colones and variation percentages)

Indicator	2014	2015	2016	2017	2018	2019	2020
Minutes	4300	4973	5445	6006	6906	6856	6261
% of variation		15.7 %	9.5 %	10.3 %	15.0 %	-0.7 %	-8.7 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 46. Costa Rica: Traditional basic telephony and VoIP telephony total revenue, 2019 - 2020

(quarterly figures in millions of colones and variation percentages)

Indicator	2019				2020			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Minutes	16 144	15 390	14 348	13 115	12 229	11 961	11 627	11 067
% of variation		-4.7 %	-6.8 %	-8.6 %	-6.8 %	-2.2 %	-2.8 %	-4.8 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 47. Costa Rica: VoIP telephony revenue, 2019 - 2020

(quarterly figures in millions of colones and variation percentages)

Indicator	2019				2020			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Minutes	1832	1771	1690	1563	1564	1526	1540	1632
% of variation	-2.7 %	-3.3 %	-4.6 %	-7.5 %	0.1 %	-2.4 %	0.9 %	6.0 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 48. Costa Rica: Traditional basic telephony and VoIP telephony average revenue per subscriber, 2016-2020

(annual figures in thousands of colones and variation percentages)

Year	Average revenue			Percentage variation		
	Trad. basic	VOIP	Fixed tele.	Trad. basic	VOIP	Fixed tele.
2016	105 217	101 551	104 981			
2017	98 708	97 602	98 624	-6 %	-4 %	-6 %
2018	95 373	101 957	95 958	-3 %	4 %	-3 %
2019	91 184	105 980	92 688	-4 %	4 %	-3 %
2020	80 556	119 624	84 230	-12 %	13 %	-9 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 49. Traditional basic telephony and VoIP telephony average revenue per minute passed, 2019-2020

(figures in colones and variation percentages)

Year	Average revenue			Percentage variation		
	VOIP	Trad. basic	Fixed tele.	VOIP	Trad. basic	Fixed tele.
2016	16	31	30			
2017	15	32	30	-6 %	3 %	1 %
2018	17	33	30	15 %	3 %	3 %
2019	28	32	32	63 %	-3 %	3 %
2020	34	28	28	20 %	-13 %	-10 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 50. Costa Rica: Total mobile telephony service subscriptions per operator, 2016-2020

(figures at quarterly closing in thousands of subscriptions and variation percentages)

TOTAL	2016				2017				2018			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
ICE	4302	4314	4391	4440	4592	4521	4596	4576	4629	4626	4617	4557
% of variation	-1 %	0 %	2 %	1 %	3 %	-2 %	2 %	0 %	1 %	0 %	0 %	-1 %
Claro	1526	1559	1551	1639	1772	1888	1891	1883	1868	1705	1577	1629
% of variation	8 %	2 %	-1 %	6 %	8 %	7 %	0 %	0 %	-1 %	-9 %	-8 %	3 %
Movistar	1790	1905	2087	2144	2181	2223	2237	2324	2347	2347	2382	2262
% of variation	7 %	6 %	10 %	3 %	2 %	2 %	1 %	4 %	1 %	0 %	2 %	-5 %
Fullmóvil	63	71	92	101	110	106	95	52	43	50	53	46
% of variation	7 %	12 %	29 %	10 %	9 %	-3 %	-11 %	-45 %	-18 %	16 %	6 %	-14 %
Tuyo Móvil	29	11	9	7	7	7	5	4	4	4	2	2
% of variation	-37 %	-60 %	-26 %	-13 %	-1 %	-1 %	-37 %	-11 %	-2 %	0 %	-44 %	-21 %
TOTAL	7711	7860	8130	8331	8663	8746	8823	8840	8891	8732	8632	8496
% of variation	2 %	2 %	3 %	2 %	4 %	1 %	1 %	0 %	1 %	-2 %	-1 %	-2 %

TOTAL	2019				2020			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
ICE	4607	4535	4735	4375	3230	3300	3131	3084
% of variation	1 %	-2 %	4 %	-8 %	-26 %	2 %	-5 %	-1 %
Claro	1704	1644	1598	1616	1581	1484	1615	1524
% of variation	5 %	-4 %	-3 %	1 %	-2 %	-6 %	9 %	-6 %
Movistar	2298	2287	2429	2552	2702	2635	2716	2897
% of variation	2 %	0 %	6 %	5 %	6 %	-2 %	3 %	7 %
Fullmóvil	22	9	7	7	7	7	7	7
% of variation	-53 %	-60 %	-22 %	0 %	0 %	0 %	0 %	0 %
Tuyo Móvil	0	0						
% of variation	-72 %	-100 %						
TOTAL	8630	8475	8769	8550	7520	7426	7468	7512
% of variation	2 %	-2 %	3 %	-2 %	-12 %	-1 %	1 %	1 %

Note: The history (2010-2019) of the prepaid subscription indicator is under revision by one of the operators of the mobile telephony market.
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 51. Costa Rica: Total mobile telephony service subscriptions per modality, 2016-2020

(figures at quarterly closing in thousands of subscriptions and variation percentages)

TOTAL	2016				2017				2018			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Prepaid	6100	6189	6379	6469	6721	6743	6841	6796	6833	6617	6468	6285
% of variation	3 %	1 %	3 %	1 %	4 %	0 %	1 %	-1 %	1 %	-3 %	-2 %	-3 %
Postpaid	1611	1672	1751	1862	1942	2002	1983	2045	2057	2115	2164	2210
% of variation	2 %	4 %	5 %	6 %	4 %	3 %	-1 %	3 %	1 %	3 %	2 %	2 %
Total	7711	7860	8130	8331	8663	8746	8823	8840	8891	8732	8632	8496
% of variation	2 %	2 %	3 %	2 %	4 %	1 %	1 %	0 %	1 %	-2 %	-1 %	-2 %

TOTAL	2019				2020			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Prepaid	6453	6173	6404	6132	5003	4866	4936	5006
% of variation	3 %	-4 %	4 %	-4 %	-18 %	-3 %	1 %	1 %
Postpaid	2178	2302	2366	2418	2517	2560	2532	2506
% of variation	-1 %	6 %	3 %	2 %	4 %	2 %	-1 %	-1 %
Total	8630	8475	8769	8550	7520	7426	7468	7512
% of variation	2 %	-2 %	3 %	-2 %	-12 %	-1 %	1 %	1 %

Note: The history (2010-2019) of the prepaid subscription indicator is under revision by one of the operators of the mobile telephony market.
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 52. Costa Rica: Penetration of the mobile telephony service for each 100 inhabitants, 2016-2020

(annual figures in percentages)

	2016	2017	2018	2019	2020
Mobile penetration	170.3 %	178.7 %	169.8 %	169.0 %	149.9 %

Note: The history (2010-2019) of the prepaid subscription indicator is under revision by one of the operators of the mobile telephony market.
Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 53. Costa Rica: Participation of the mobile telephone subscriptions per operator per payment modality, 2016-2020

(annual figures in millions of colones and variation percentages)

	2016	2017	2018	2019	2020
	Prepaid				
ICE	49 %	48 %	51 %	49 %	35 %
Claro	19 %	22 %	19 %	18 %	20 %
Movistar	30 %	30 %	29 %	33 %	45 %
Fullmóvil	1.6 %	0.8 %	0.7 %		
Tuyo Móvil	0.1 %	0.1 %	0.0 %		
	Postpaid				
ICE	68 %	64 %	61 %	57 %	53 %
Claro	21 %	20 %	20 %	22 %	21 %
Movistar	11 %	15 %	19 %	21 %	25 %
Fullmóvil[1]				0 %	0 %

[1]Fullmóvil began to market the postpaid modality of business SMS in the II semester of 2019 SMS.

Note: The history (2010-2019) of the prepaid subscription indicator is under revision by one of the operators of the mobile telephony market.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 54. Costa Rica: Total revenue associated to the telephony service and mobile network (includes Internet) per component[1], 2016-2020

(annual figures in millions of colones)

	2016	2017	2018	2019	2020
Mobile network	495 791	493 358	492 823	490 450	460 275
Mobile telephony	301 302	285 688	257 275	225 872	204 662
Voice	289 358	274 336	247 645	218 257	198 835
SMS/MMS	11 945	11 352	9631	7615	5827
Mobile data	194 489	207 670	235 548	264 578	255 613

[1]Does not include roaming revenue.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 55. Costa Rica: Total revenue associated to the mobile per payment modality[1], 2016-2020

(annual figures in millions of colones)

	2016	2017	2018	2019	2020
TOTAL	495 706	493 358	492 823	490 450	460 275
Prepaid	229 127	202 185	168 503	136 439	104 074
Postpaid	266 580	291 173	324 321	354 011	356 201

[1]Does not include roaming revenue.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 56. Costa Rica: Costa Rica: Average revenue per minute of mobile telephony (ARPM)[1]. 2016-2020

(annual figures in millions of colones)

	2016	2017	2018	2019	2020
Voice revenue	289 357 679 580	274 335 682 956	247 644 535 707	218 257 214 206	198 835 062 005
Traffic total	7 631 673 792	6 827 569 387	6 298 697 425	5 923 954 905	5 648 333 296
ARPM	38	40	39	37	35

[1]Includes only traffic and revenue per national and international voice.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 57. Costa Rica: Total traffic and participation per payment modality, per year, 2016-2020

(figures in millions of minutes and percentages)

	2016	2017	2018	2019	2020
Traffic total	7632	6828	6299	5924	5648
PREPAGO	4210	3331	2839	2239	1604
POSTPAGO	3422	3502	3459	3685	4044
Prepaid	55 %	49 %	45 %	38 %	28 %
Postpaid	45 %	51 %	55 %	62 %	72 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 58. Costa Rica: Total traffic and participation per payment modality, per year, 2016-2020

(annual figures in millions of minutes and percentages)

	2016	2017	2018	2019	2020
Traffic total	7632	6834	6299	5924	5648
Mobile-mobile (On net)	53 %	51 %	50 %	50 %	48 %
Mobile- mobile (Off net)	25 %	27 %	28 %	28 %	29 %
Mobile-fixed	18 %	18 %	17 %	18 %	19 %
Mobile-international	4 %	4 %	4 %	4 %	4 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 59 Costa Rica. Subscriptions, total revenue and traffic, fixed Internet access, 2014-2020

(quarterly figures)

	2014				2015			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Subscriptions	497 092	502 655	504 105	516 337	527 664	537 483	547 558	558 656
% of variation		1.10 %	0.30 %	2.40 %	2.20 %	1.90 %	1.90 %	2.00 %
Revenue (millions of colones)	23 052.1	24 351.4	22 631.3	22 217.1	23 556.4	24 095.6	24 314.2	25 004.2
% of variation		5.60 %	-7.10 %	-1.80 %	6.00 %	2.30 %	0.90%	2.80 %
Traffic (TB)	25 012.0	31 849.8	38 282.3	43 400.9	55 997.7	60 688.8	72 942.4	76 726.6
% of variation		27.30 %	20.20 %	13.40 %	29.00 %	8.40 %	20.20 %	5.20 %

	2016				2017			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Subscriptions	570 826	597 025	614 039	636 087	657 407	694 267	718 985	744 041
% of variation	2.20 %	4.60 %	2.80 %	3.60 %	3.40 %	5.60 %	3.60 %	3.50 %
Revenue (millions of colones)	25 471.3	26 892.2	28 531.2	29 812.7	29 206.2	31 966.6	32 265.1	34 033.7
% of variation	1.90 %	5.60 %	6.10 %	4.50 %	-2.00 %	9.50 %	0.90 %	5.50 %
Traffic (TB)	84 792.0	85 233.3	98 932.7	118 560.8	141 718.0	147 699.4	154 217.3	176 447.2
% of variation	10.50 %	0.50 %	16.10 %	19.80 %	19.50 %	4.20 %	4.40 %	14, 40 %

	2018				2019			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Subscriptions	782 654	805 477	817 390	834 784	865 914	871 494	895 056	904 734
% of variation	5.20 %	2.90 %	1.50 %	2.10 %	3.70 %	0.60 %	2.70 %	1.0 8%
Revenue (millions of colones)	36 984.7	37 194.7	35 730.5	37 614.4	40 289.0	39 842.0	40 323.0	40 064.0
% of variation	8.70 %	0.60 %	-3.90 %	5.30 %	7.10 %	-1.10 %	1.20 %	-0.60 %
Traffic (TB)	182 144.5	202 162.0	229 818.0	251 652.2	263 309.9	285 139.2	309 395.8	304 201.6
% of variation	3.20 %	11.00 %	13.70 %	9.50 %	4.60 %	8.30 %	8.50 %	-1.68 %

	2020			
	I Q	II Q	III Q	IV Q
Subscriptions	926 362	950 278	969 498	992 725
% of variation	2.40 %	2.60 %	2.00 %	2.40 %
Revenue (millions of colones)	40 781.0	42 420.0	42 823.0	44 855.0
% of variation	1.80 %	4.00%	1.00 %	4.70 %
Traffic (TB)	412 239.0	562 481.0	610 840.0	626 711.0
% of variation	35.50 %	36.40 %	8.60 %	2.60 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 60. Costa Rica. Subscriptions, total revenue and traffic, mobile Internet access, 2014-2020

(quarterly figures)

	2014				2015			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Subscriptions	3 465 856	3 536 075	3 551 430	3 796 619	3 832 819	3 829 223	3 981 967	4 154 419
% of variation		2.00 %	0.4 0 %	6.90 %	1.00 %	-0.10 %	4.00 %	4.30 %
Revenue (millions of colones)	29 050.2	31 489.7	31 713.5	34 944.2	39 569.2	42 080.1	44 499.3	44 273.0
% of variation		8.40 %	0.70 %	10.20 %	13.20 %	6.30 %	5.70 %	-0.50 %
Traffic (TB)		8 426.2	9 956.3	11 316.8	14 663.1	16 821.4	19 945.1	23 503.6
% of variation	8 268.6	1.90 %	18.20 %	13.70 %	29.60 %	14.70 %	18.60 %	17.80 %

	2016				2017			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Subscriptions	4 180 219	4 172 235	4 178 455	4 336 084	4 636 451	4 644 695	4 637 919	4 788 964
% of variation	0.60 %	-0.20 %	0.10 %	3.80 %	6.90 %	0.20 %	-0.10 %	3.30 %
Revenue (millions of colones)	45 977.6	47 693.7	49 985.3	50 846.4	51 553.1	52 779.2	51 752.9	51 578.8
% of variation	3.90 %	3.70 %	4.80 %	1.70 %	1.40 %	2.40 %	-1.90 %	-0.30 %
Traffic (TB)	24 737.1	28 953.1	31 875.2	36 623.5	37 588.7	33 458.5	31 940.4	32 015.2
% of variation	5.20 %	17.00 %	10.10 %	14.90 %	2.60 %	-11.00 %	-4.50 %	0.20 %

	2018				2019			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Subscriptions	5 251 701	4 983 176	4 953 143	5 089 506	4 630 498	4 523 109	4 577 597	4 664 073
% of variation	9.70 %	-5.10 %	-0.60 %	2.80 %	-9.02 %	-2.30 %	1.20 %	1.90 %
Revenue (millions of colones)	56 958.5	57 002.3	59 230.4	62 343.0	64 384.2	66 516.8	67 241.9	66 434.9
% of variation	10.40 %	0.10 %	3.90 %	5.30 %	3.30 %	3.30 %	1.10 %	-1.20 %
Traffic (TB)	32 545.3	34 476	35 980.7	36 362.0	36 100.0	37 201.4	42 028.9	45 349.1
% of variation	1.70 %	5.90 %	4.40 %	1.10 %	-0.70%	3.10 %	13.00 %	7.90 %

	2020			
	I Q	II Q	III Q	IV Q
Subscriptions	4 668 757	4 721 074	4 571 174	4 641 694
% of variation	0.10 %	1.10 %	-3.20 %	1.54 %
Revenue (millions of colones)	65 636.0	63 408.0	62 811.0	63 780.0
% of variation	-1.20 %	-3.40 %	-0.90 %	1.50 %
Traffic (TB)	51 003.0	57 147.0	55 326.0	59 340.0
% of variation	12.50 %	12.00 %	-3.20 %	7.26 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 61. Costa Rica: Total subscription television service subscriptions per access technology per quarter, 2016-2020

(figures in thousands at quarterly closing)

Technology	2016				2017			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Cable television	536.33	530.60	535.92	548.11	552.11	556.10	559.01	563.60
Satellite television	252.60	261.10	258.50	257.48	255.43	252.20	247.19	244.88
IP television	7 910	10.58	12.95	14.70	16.63	18.30	20.26	22.05
Local multipoint distribution television	892	903	942	1 274	1 306	1 193	1 257	1 365
Total	797.74	803.19	808.32	821.57	825.49	827.80	827.72	831.90

Technology	2018				2019			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Cable television	568.03	577.28	582.26	594.50	578.99	575.52	571.10	570.17
Satellite television	246.81	256.20	252.97	255.19	257.10	255.42	255.86	248.26
IP television	24.46	27.24	30.24	33.07	37.35	42.42	48.76	54.47
Local multipoint distribution television	1 247	1 073	1 022	1 107	1 027	1 015	1 217	1 167
Total	840.55	861.81	866.50	883.88	874.47	874.39	876.94	874.08

Technology	2020			
	I Q	II Q	III Q	IV Q
Cable television	565.77	555.72	550.75	548.05
Satellite television	245.83	232.70	227.82	224.46
IP television	61.62	74.06	84.65	94.07
Local multipoint distribution television	249	253	0	0
Total	873.48	862.74	863.23	866.59

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n° 62. Costa Rica: Total revenue for subscription television per access technology per quarter, 2016-2020

(quarterly figures in millions of colones)

Technology	2016				2017			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Cable television	26 252	25 751	25 823	26 101	25 637	25 707	25 524	26 604
Satellite television	7 377	9 034	9 117	8 691	10 076	10 149	10 521	10 123
IP television	439	522	653	721	866	996	1 084	1 171
Local multipoint distribution television	13	12	12	12	12	12	12	13
Total	34 081	35 319	35 605	35 525	36 591	36 864	37 142	37 911

Technology	2018				2019			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Cable television	26 933	26 871	26 762	27 277	27 643	27 425	27 586	27 809
Satellite television	10 244	10 419	10 115	10 412	10 425	10 163	9 949	10 466
IP television	1 287	1 421	1 592	1 745	1 945	2 168	2 417	2 725
Local multipoint distribution television	12	12	11	12	12	13	12	9
Total	38 477	38 723	38 481	39 446	40 026	39 768	39 965	41 009

Technology	2020			
	I Q	II Q	III Q	IV Q
Cable television	27 506	27 388	26 885	26 946
Satellite television	10 062	10 068	10 071	10 227
IP television	2 972	3 416	3 988	442
Local multipoint distribution television	29	20	12	0
Total	40 569	40 894	40 955	41 614

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 63. Costa Rica: Prepaid mobile telecommunications bundle features offered in December 2019

Name	Operator	Price	Included services	Minutes to all operators	Minutes to another operator	Minutes to the same operator	SMS to all operators	SMS to another operator	SMS to the same operator	Total download capacity (Gigabytes)	Other additional services
20MB + WhatsApp Gratis	Claro	₡100	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.02	
100MB + WhatsApp Gratis	Claro	₡300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.10	Free WhatsApp
250MB + WhatsApp Gratis	Claro	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.24	Free WhatsApp
400MB + Balance	Claro	₡1000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.39	Bonus: 1000 balance
600MB+balance	Claro	₡1500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.59	Bonus: 1500 balance
1GB + WhatsApp Gratis	Claro	₡2000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	1.00	Free WhatsApp
2GB+balance	Claro	₡4500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	2.00	Bonus: 4500 balance in account
3GB + WhatsApp Gratis	Claro	₡5500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	3.00	Bonus: Unlimited WhatsApp
3.5GB+balance	Claro	₡8500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	3.50	Bonus: 8500 balance
Superpacks de Internet 3	Claro	₡11 500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	4.00	Unlimited social networks WhatsApp
Plan M@s 30	Claro	₡10 000	Minutes, Internet	85	85	200	300	300	300	5.00	WhatsApp Unlimited
25 Minutes Nac todas las redes	Claro	₡700	Minutes	25	N/A	N/A	N/A	N/A	N/A	N/A	
60 Minutes Nac todas las redes	Claro	₡1500	Minutes	60	N/A	N/A	N/A	N/A	N/A	N/A	
60 Minutes	Claro	₡3000	Minutes	60	N/A	N/A	N/A	N/A	N/A	N/A	
Paquete Internet En Todas 1	Kölbi	₡200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.05	Includes WhatsApp, Instagram and Facebook with a consumption cap of 40 Mbyte
Paquete De Todo	Kölbi	₡2500	Minutes, Internet	N/A	N/A	34	N/A	N/A	200	0.15	SMS
Paquete Internet En Todas 3	Kölbi	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.20	Includes WhatsApp, Instagram and Facebook with a consumption cap of 100 Mbyte
Paquete En Todas Plus 5	Kölbi	₡1300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.29	Includes WhatsApp, Instagram, Facebook, Snapchat, Pinterest and Twitter with a consumption cap of 200 Mbyte
Paquete Internet En Todas Plus 10	Kölbi	₡2500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.49	Includes WhatsApp, Instagram, Facebook, Snapchat, Pinterest and Twitter with a consumption cap of 400 Mbyte

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Name	Operator	Price	Included services	Minutes to all operators	Minutes to another operator	Minutes to the same operator	SMS to all operators	SMS to another operator	SMS to the same operator	Total download capacity (Gigabytes)	Other additional services
En todas y más	Kölbi	₡4000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	2.00	
Paquete de Internet Básico	Movistar	₡200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.03	
Paquete internet día	Movistar	₡300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.09	
Paquete internet diario	Movistar	₡300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.10	
Paquete de internet nocturno ilimitado	Movistar	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.10	Unlimited from 23:00:00 to 7:59:59
Superbono de Internet 500MB	Movistar	₡1150	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.49	WhatsApp **Unlimited**
Paquete de Internet Semana	Movistar	₡2000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.54	
Preplan 7	Movistar	₡2000	Minutes, Internet	N/A	20	40	N/A	20	N/A	0.63	Includes 1 free hour of Movistar Play and WhatsApp Unlimited (does not apply to videocalls or calls)
Preplan 7 Plus	Movistar	₡2900	Minutes, Internet	N/A	30	60	N/A	30	N/A	1.00	Includes 1 free hour of Movistar Play and WhatsApp Unlimited (does not apply to videocalls or calls)
Preplan 15	Movistar	₡4000	Minutes, Internet	N/A	45	90	N/A	45	N/A	1.40	Includes 2 free hours de Movistar Play and WhatsApp Unlimited (does not apply to videocalls or calls)
Preplan 15 Plus	Movistar	₡5900	Minutes, Internet	N/A	70	140	N/A	70	N/A	2.30	Includes 2 free hours de Movistar Play and WhatsApp Unlimited (does not apply to videocalls or calls)
Paquete de Internet 1 día	Movistar	₡300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	Unlimited	
Paquete de Internet 2 días	Movistar	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	Unlimited	Includes a bonus of 200MB for WHATSAPP (valid for messages, not for calls or video calls)
Paquete de Internet 4 días	Movistar	₡1200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	Unlimited	Includes a bonus of 200MB for WHATSAPP (valid for messages, not for calls or video calls)

Source: Sutel Directorate General of Markets Costa Rica 2020.

Table n.° 64 Costa Rica: Prepaid mobile telecommunications bundle features offered in December 2020

Name	Operator	Price	Included services	Minutes to all operators	Minutes to another operator	Minutes to the same operator	SMS to all operators	SMS to another operator	SMS to the same operator	Total download capacity (Gigabytes)	Other additional services
Paquete SMS Básico	Kölbi	₡100	Mensajes	N/A	N/A	N/A	N/A	N/A	50	N/A	
Paquete SMS Día Plus	Kölbi	₡200	Mensajes	N/A	N/A	N/A	N/A	N/A	100	N/A	
Plan Dominio Prepago 1	Kölbi	₡5000	Minutes, Internet	35	N/A	N/A	30	N/A	N/A	2	Whatsapp free for 30 days
Plan Dominio Prepago 2	Kölbi	₡8000	Minutes, Internet	50	N/A	N/A	30	N/A	N/A	4	Whatsapp free for 30 days
Plan Dominio Prepago 3	Kölbi	₡12 000	Minutes, Internet	100	N/A	N/A	30	N/A	N/A	5	WhatsApp, Instagram, Facebook and Waze FREE for 30 days
Paquete M@s 3	Claro	₡1000	Minutes, Internet	10	N/A	50	20	N/A	N/A	0.29	-Unlimited WhatsApp -Internet capacity for social networks is 500 MB, Includes Facebook, Instagram, Pinterest, Twitter and Waze.
Paquete M@s7	Claro	₡2000	Minutes, Internet	20	N/A	200	50	N/A	N/A	1	-Unlimited WHATSAPP - Internet capacity for social networks is 500 MB, Includes Facebook, Instagram, Pinterest, Twitter and Waze.
Paquete M@s10	Claro	₡3000	Minutes, Internet	30	N/A	200	100	N/A	N/A	2	-Unlimited* WhatsApp - Internet capacity for social networks is 500 MB, Includes Facebook, Instagram, Pinterest, Twitter and Waze. -The validity of WhatsApp and social networks is the same as the bundle.
Paquete M@s 15	Claro	₡4500	Minutes, Internet	45	N/A	200	200	N/A	N/A	3	-WhatsApp es Unlimited* - Internet capacity for social networks is 700 MB, Includes Facebook, Instagram, Pinterest, Twitter and Waze.
Paquete M@s 15+	Claro	₡6000	Minutes, Internet	70	70	200	200	N/A	N/A	4	-WhatsApp es Unlimited* - Internet capacity for social networks is 700 MB, Includes Facebook, Instagram, Pinterest, Twitter and Waze.
Paquete M@s 30	Claro	₡10 000	Minutes, Internet	85	N/A	200	300	N/A	N/A	5	-WhatsApp es Unlimited* - Internet capacity for social networks is 700 MB, Includes Facebook, Instagram, Pinterest, Twitter and Waze.
M@s Navego 30MB	Claro	₡100	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.03	Internet bundle works in CR, Central America and Panama with the benefit of Sin Fronteras Prepaid.

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Name	Operator	Price	Included services	Minutes to all operators	Minutes to another operator	Minutes to the same operator	SMS to all operators	SMS to another operator	SMS to the same operator	Total download capacity (Gigabytes)	Other additional services
M@s Navego 150MB	Claro	₡300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.15	-WhatsApp is Unlimited* -Internet bundle works in CR, Central America and Panamá with the benefit of Sin Fronteras Prepaid. -The validity of WhatsApp is the same as that of the bundle.
NOCHES ILIMITADAS	Claro	₡400	Internet	N/A	N/A	N/A	N/A	N/A	N/A	Ilimitado	-Unlimited navigation from 10 pm to 6 am - Internet bundle works in CR, Central America and Panamá with the benefit of Sin Fronteras Prepaid.
M@s Navego 300MB	Claro	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.29	-WhatsApp is Unlimited* - Internet bundle works in CR, Central America and Panamá with the benefit of Sin Fronteras Prepaid -The validity of WhatsApp is the same as that of the bundle.
M@s Navego 400MB	Claro	₡1000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.39	-WhatsApp is Unlimited* - Internet bundle works in CR, Central America and Panamá with the benefit of Sin Fronteras Prepaid. -The validity of WhatsApp is the same as that of the bundle.
M@s Navego 1GB	Claro	₡2000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	1	-WhatsApp es Unlimited* - Internet bundle works in CR, Central America and Panamá with the benefit of Sin Fronteras Prepaid. -The validity of WhatsApp is the same as that of the bundle.
M@s Navego 3GB	Claro	₡4500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	3	-WhatsApp es Unlimited* - Internet bundle works in CR, Central America and Panamá with the benefit of Sin Fronteras Prepaid. -The validity of WhatsApp is the same as that of the bundle.
M@s Hablo Costa Rica60	Claro	₡1500	Minutes	60	N/A	N/A	N/A	N/A	N/A	N/A	Minutes work for calls in Costa Rica only. Available for Prepaid and Control Account
M@s Hablo Costa Rica25	Claro	₡700	Minutes	25	N/A	N/A	N/A	N/A	N/A	N/A	Minutes work for calls in Costa Rica only. Available for Prepaid and Control Account
M@s Mensajeo100	Claro	₡250	Mensajes	N/A	N/A	N/A	100	N/A	N/A	N/A	-100 Messages to all operators in Costa Rica: - Available for Prepaid and Control Account
M@s Mensajeo200	Claro	₡300	Mensajes	N/A	N/A	N/A	200	N/A	N/A	N/A	-200 Messages to all operators in Costa Rica - Available for Prepaid and Control Account
AMIGO FAVORITO	Claro	₡250	Minutes	N/A	N/A	Ilimitado	N/A	N/A	N/A	N/A	Minutes work for unlimited calls to all Claro numbers in Costa Rica. Available for Prepaid. WhatsApp Unlimited for 1 day
Ilimitado CLARO	Claro	₡500	Minutes	N/A	N/A	Ilimitado	N/A	N/A	N/A	N/A	- Minutes work for unlimited calls to all Claro numbers in Costa Rica. - Available for Prepaid
Plan Libre Prepago	Movistar	₡5900	Minutes, Internet	70	N/A	140	70	N/A	N/A	4	Recharge from ¢2 000 or more: Doubles for calls and SMS to Movistar CR Includes 5GB of free social networks (WhatsApp, Twitter, Waze).
Preplan 7	Movistar	₡2000	Minutes, Internet	20	N/A	40	20	N/A	N/A	0.63	Recharges from ¢1 000 to ¢1 999: Doubles for calls and SMS to Movistar CR Recharges from ¢2 000 and more: Doubles for calls and SMS to all operators in CR Includes 5GB of free RRSS (WhatsApp, Facebook, Instagram, Twitter, Waze)"

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Name	Operator	Price	Included services	Minutes to all operators	Minutes to another operator	Minutes to the same operator	SMS to all operators	SMS to another operator	SMS to the same operator	Total download capacity (Gigabytes)	Other additional services
Preplan 7 Plus	Movistar	₡2900	Minutes, Internet	30	N/A	60	30	N/A	N/A	1	N/A
Preplan 15	Movistar	₡4000	Minutes, Internet	45	N/A	90	45	N/A	N/A	1.40	Recharges from ¢1 000 to ¢1 999: Doubles for calls and SMS to Movistar CR Recharges from ¢2 000 and more: Doubles for calls and SMS to all operators in CR. Includes free (WhatsApp, Facebook, Instagram, Twitter, Waze)
Paquete Video Prepago	Movistar	₡3000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	25	
Paquete Semana Prepago	Movistar	₡2000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.54	Free WhatsApp during the validity of the bundle.
Paquete 4 Días Prepago	Movistar	₡1200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.44	Free WhatsApp during the validity of the bundle.
Paquete 2 Días Prepago	Movistar	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.39	Free WhatsApp during the validity of the bundle.
Paquete Diario Prepago	Movistar	₡300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.10	Free WhatsApp during the validity of the bundle.
Paquete Día Prepago	Movistar	₡300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.10	
Paquete Ilimitado Nocturno	Movistar	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.10	It is unlimited during the night, from 11 pm to 7am. During the daytime, it grants 100 MB. Free WhatsApp during the validity of the bundle.
Paquete Básico Prepago	Movistar	₡200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.03	
Súper Bono 150MB	Movistar	₡550	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.15	
Súper Bono 500MB	Movistar	₡1150	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.49	
Paquete CONECTADOS Prepago	Movistar	₡2000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	5	
Paquete Internet Prepago 1 GIGA	Kölbi	₡2500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	1	These bundles have automatic renovation. In the 4.5G network, speeds of up to 50 Mbps may be reached.
Paquete Internet Prepago 2 GIGAS	Kölbi	₡4000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	2	These bundles have automatic renovation. In the 4.5G network, speeds of up to 50 Mbps may be reached.
Paquete Internet Prepago En Todas 3	Kölbi	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.20	1- These bundles have automatic renovation. 2- Includes WhatsApp, Instagram and Facebook with a consumption cap of 100 Mbyte. 3 - In the 4.5G network, speeds of up to 50 Mbps may be reached.
Paquete Internet Prepago En Todas Plus 5	Kölbi	₡1300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.29	1- These bundles have automatic renovation. 2- Includes WhatsApp, Instagram, Facebook, Snapchat, Pinterest and Twitter with a consumption cap of 200 Mbyte. 3 - In the 4.5G network, speeds of up to 50 Mbps may be reached.
Paquete Internet Prepago En Todas Plus 10	Kölbi	₡2500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.49	1- These bundles have automatic renovation. 2-Includes WhatsApp, Instagram, Facebook, Snapchat, Pinterest and Twitter with a consumption cap of 400 Mbyte. 3 - In the 4.5G network, speeds of up to 50 Mbps may be reached.
Paquete Internet Prepago En Todas 1	Kölbi	₡200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.05	1- These bundles have automatic renovation. 2- Includes WhatsApp, Instagram and Facebook with a consumption cap of 100 Mbyte. 3 - In the 4.5G network, speeds of up to 50 Mbps may be reached.

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 65. Costa Rica: Postpaid mobile telecommunications plan features offered in December 2019

Operator	Plan name	Cost without terminal	Number of minutes with same operator	Number of minutes with other networks	Number of minutes regardless of network (on-net or off-net)	Number of on-net messages	Number of off-net messages	Number of messages regardless of network	Number of gigas at the maximum hired speed	Observations
Claro	Conexión 1	₡9800	Unlimited	140	N/A	Unlimited	140	N/A	10	-
Claro	Conexión 2	₡13 200	Unlimited	200	N/A	Unlimited	200	N/A	12	-
Claro	Conexión 3	₡18 500	Unlimited	300	N/A	Unlimited	300	N/A	14	-
Claro	Conexión 4	₡24 500	Unlimited	600	N/A	Unlimited	600	N/A	16	-
Claro	Conexión 5	₡34 900	Unlimited	1.500	N/A	Unlimited	1.500	N/A	22	-
Claro	Conexión 6	₡44 000	Unlimited	Unlimited	N/A	Unlimited	Unlimited	N/A	30	-
Kolbi	Conversón k1	₡7000	N/A	N/A	120	N/A	N/A	50	1	-
Kolbi	Nuevo Plan 4G K1	₡8000	N/A	N/A	35	N/A	N/A	30	4	-
Kolbi	Nuevo Plan 4G K2	₡12 000	N/A	N/A	150	N/A	N/A	150	5	-
Kolbi	Conversón k2	₡15 000	N/A	N/A	400	N/A	N/A	300	1	-
Kolbi	Nuevo Plan 4G K3	₡18 000	N/A	N/A	300	N/A	N/A	300	7	-
Kolbi	Nuevo Plan 4G K4	₡26 000	N/A	N/A	800	N/A	N/A	600	12	-
Kolbi	Nuevo Plan 4G K5	₡36 000	N/A	N/A	1.500	N/A	N/A	1,300	20	-
Kolbi	Nuevo Plan 4G K6	₡48 000	N/A	N/A	3.000	N/A	N/A	2.500	28	-
Telefónica	PLAN @1 LTE PRO	₡10 500	300	150	N/A	300	150	N/A	8	Roaming Sin Fronteras at no cost in USA, Canada, Mexico and Central America (Does not Include Belize) + 5GB of RRSS (WhatsApp, Twitter and Waze) + 1GB extra for early payment
Telefónica	PLAN @2 LTE PRO	₡15 500	Unlimited	200	N/A	Unlimited	200	N/A	10	Roaming Sin Fronteras at no cost in USA, Canada, Mexico and Central America (Does not Include Belize) + 5GB of RRSS (WhatsApp, Facebook, Instagram, Twitter and Waze) + 1GB extra for early payment.
Telefónica	PLAN @3 LTE PRO	₡21 500	Unlimited	300	N/A	Unlimited	300	N/A	14	Roaming Sin Fronteras at no cost in USA, Canada, Mexico and Central America (Does not Include Belize) + 5GB de RRSS (WhatsApp, Facebook, Instagram, Twitter and Waze) + 1GB extra for early payment

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Operator	Plan name	Cost without terminal	Number of minutes with same operator	Number of minutes with other networks	Number of minutes regardless of network (on-net or off-net)	Number of on-net messages	Number of off-net messages	Number of messages regardless of network	Number of gigas at the maximum hired speed	Observations
Telefónica	PLAN @4 LTE PRO	₡26 500	Unlimited	600	N/A	Unlimited	600	N/A	16	Roaming Sin Fronteras, at no cost in USA, Canada, Mexico, and Central America (Does not include Belize) + 5GB of RRSS (WhatsApp, Facebook, Instagram, Twitter and Waze) + 1GB extra for early payment
Telefónica	PLAN @5 LTE PRO	₡32 500	Unlimited	1000	N/A	Unlimited	1000	N/A	22	Roaming Sin Fronteras, at no cost in USA, Canada, Mexico, and Central America (Does not include Belize) + 5GB of RRSS (WhatsApp, Facebook, Instagram, Twitter and Waze) + 1GB extra for early payment
Telefónica	PLAN @6 LTE PRO	₡41 500	Unlimited	1500	N/A	Unlimited	1500	N/A	30	Roaming Sin Fronteras, at no cost in USA, Canada, Mexico, and Central America (Does not include Belize) + 5GB of RRSS (WhatsApp, Facebook, Instagram, Twitter and Waze) + 1GB extra for early payment

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 66. Costa Rica: Postpaid mobile telecommunications plan features offered in December 2020

Operator	Name	Price	Minutes to the same operator	Minutes to another operator	Minutes to all operators	SMS to the same operator	SMS to another operator	SMS to all operators	Number of Gigas at maximum hired speed	Observations
Claro	Conexión 1	₡9800	Unlimited	140	140	Unlimited	140	140	10	Unlimited calls from Claro to Claro (In Costa Rica only) América Sin Fronteras included. See "Terms and Conditions América Sin Fronteras" Free and unlimited WhatsApp and Waze. See "Terms and Conditions Planes Conexión"
Claro	Conexión 2	₡13 200	Unlimited	200	200	Unlimited	200	200	12	Unlimited calls from Claro to Claro (In Costa Rica only) América Sin Fronteras included. See "Terms and Conditions América Sin Fronteras" Free and unlimited WhatsApp, Waze, Facebook, Instagram and Twitter. See "Terms and Conditions Planes Conexión"
Claro	Conexión 3	₡18 500	Unlimited	300	300	Unlimited	300	300	14	Unlimited calls from Claro to Claro (In Costa Rica only) América Sin Fronteras included. See "Terms and Conditions América Sin Fronteras". Free and unlimited WhatsApp, Waze, Facebook, Instagram and Twitter See "Terms and Conditions Planes Conexión
Claro	Conexión 4	₡24 500	Unlimited	600	600	Unlimited	600	600	16	Unlimited calls from Claro to Claro (In Costa Rica only) América Sin Fronteras. included. See "Terms and Conditions América Sin Fronteras". Free and unlimited WhatsApp, Waze, Facebook, Instagram and Twitter. See "Terms and Conditions Planes Conexión"
Claro	Conexión 5	₡34 900	Unlimited	1500	1500	Unlimited	1500	1500	22	Unlimited calls from Claro to Claro (In Costa Rica only) América Sin Fronteras included. See "Terms and Conditions América Sin Fronteras". Free and unlimited WhatsApp, Waze, Facebook, Instagram and Twitter. See "Terms and Conditions Planes Conexión"

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Claro	Conexión 6	₡44 000	Unlimited	Unlimited	Ilimitado	Unlimited	Unlimited	Ilimitado	Ilimitado	Unlimited calls from Claro to Claro. América Sin Fronteras included. See “Terms and Conditions América Sin Fronteras” Free and unlimited WhatsApp, Waze, Facebook, Instagram and Twitter. See “Terms and Conditions Planes Conexión” Internet Unlimited
Kölbi	Especial 1	₡4250	N/A	N/A	30	N/A	N/A	2500	N/A	
Kölbi	Especial 2	₡16 000	N/A	N/A	30	N/A	N/A	6000	1.5	
Kölbi	Plan converson K1	₡7000	N/A	N/A	120	N/A	N/A	50	1	
Kölbi	Plan converson K2	₡15 000	N/A	N/A	400	N/A	N/A	300	1	
Kölbi	Plan kölbi Postpago 4G k1	₡9000	N/A	N/A	35	N/A	N/A	30	5	Includes access to WhatsApp.
Kölbi	Plan kölbi Postpago 4G k2	₡13 000	N/A	N/A	150	N/A	N/A	150	10	Includes WhatsApp, Facebook, Instagram and Waze
Kölbi	Plan kölbi Postpago 4G k3	₡18 000	N/A	N/A	300	N/A	N/A	300	14	Includes WhatsApp, Facebook, Instagram and Waze
Kölbi	Plan kölbi Postpago 4G k4	₡26 000	N/A	N/A	800	N/A	N/A	600	18	Includes WhatsApp, Facebook, Instagram and Waze
Kölbi	Plan kölbi Postpago 4G k5	₡36 000	N/A	N/A	1500	N/A	N/A	1300	26	Includes WhatsApp, Facebook, Instagram and Waze
Kölbi	Plan kölbi Postpago 4G k6	₡48 000	N/A	N/A	3000	N/A	N/A	2500	34	Includes WhatsApp, Facebook, Instagram and Waze
Movistar	Plan Postpago LTE PRO @1 ST	₡10 500	300	N/A	150	300	N/A	150	9	5GB of free social networks (WhatsApp, Twitter, Waze
Movistar	Plan Postpago LTE PRO @2 ST	₡15 500	Unlimited	N/A	200	Unlimited	N/A	200	11	5GB of free social networks s (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @3 ST	₡21 500	Unlimited	N/A	300	Unlimited	N/A	300	15	5GB of free social networks s (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @4 ST	₡26 500	Unlimited	N/A	600	Unlimited	N/A	600	17	5GB of free social networks s (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @5 ST	₡32 500	Unlimited	N/A	1000	Unlimited	N/A	1000	23	5GB of free social networks s (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @6 ST	₡41 500	Unlimited	N/A	1500	Unlimited	N/A	1500	31	5GB of free social networks s (WhatsApp, Facebook, Instagram, Twitter, Waze).

Source: Sutel, Directorate General of Markets, Costa Rica, 2020.

Table n.° 67. Costa Rica: Mobile and fixed telecommunications bundle features offered in December 2019

Operator	Bundle name	Cost	Services	Download speed	Number of channels	Number of fixed telephony minutes to fixed own network	Number of fixed telephony minutes to mobile own network	Number of off-net national fixed telephony minutes	Number of off-net national mobile telephony minutes	Number of included international call minutes
Cabletica	DOBLE PLAY MEGA 30	₡30 980	Internet + TV	30	114	NA	NA	NA	NA	NA
Cabletica	TRIPLE PLAY MEGA 30 + DIGITAL	₡34 089	Internet + TV + fixed telephony	30	114	500	NA	200	0	0
Cabletica	DOBLE PLAY MEGA 100	₡35 890	Internet + TV	100	114	NA	NA	NA	NA	NA
Cabletica	TRIPLE PLAY MEGA 100 + DIGITAL	₡38 999	Internet + TV + fixed telephony	100	114	500	NA	200	0	0
Cabletica	DOBLE PLAY MEGA 200	₡51 690	Internet + TV	200	114	NA	NA	NA	NA	NA
Cabletica	TRIPLE PLAY MEGA 200 + DIGITAL	₡54 799	Internet + TV + fixed telephony	200	114	500	NA	200	0	0
Kolbi	Plan TRIPLE con TV Avanzada	₡27 400	Internet + TV + fixed telephony	1	119	600				
Kolbi	Plan TRIPLE con TV Avanzada	₡28 400	Internet + TV + fixed telephony	2	119	600				
Kolbi	Plan TRIPLE con TV Avanzada	₡29 400	Internet + TV + fixed telephony	3	119	600				
Kolbi	Plan TRIPLE con TV Avanzada	₡30 400	Internet + TV + fixed telephony	4	119	600				
Kolbi	Plan TRIPLE con TV Avanzada	₡30 400	Internet + TV + fixed telephony	6	119	600				
Kolbi	Plan TRIPLE con TV Avanzada	₡30 400	Internet + TV + fixed telephony	10	119	600				
Kolbi	INTERNET + kA TV + Telefonía Fija	₡30 400	Internet + TV + fixed telephony	10	119	600				
Kolbi	Plan TRIPLE con TV Avanzada	₡33 400	Internet + TV + fixed telephony	20	119	600				
Kolbi	INTERNET + kA TV + Telefonía Fija	₡38 400	Internet + TV + fixed telephony	30	119	600				
Kolbi	INTERNET + kA TV + Telefonía Fija	₡40 400	Internet + TV + fixed telephony	50	119	600				
Kolbi	INTERNET + kA TV + Telefonía Fija	₡61 400	Internet + TV + fixed telephony	100	119	600				
Kolbi	INTERNET + kA TV + Telefonía Fija	₡101 400	Internet + TV + fixed telephony	200	119	600				
Kolbi	INTERNET + kA TV + Telefonía Fija	₡166 400	Internet + TV + fixed telephony	300	119	600				

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Operator	Bundle name	Cost	Services	Download speed	Number of channels	Number of fixed telephony minutes to fixed own network	Number of fixed telephony minutes to mobile own network	Number of off-net national fixed telephony minutes	Number of off-net national mobile telephony minutes	Number of included international call minutes
Kolbi	INTERNET + kA TV + Telefonía Fija	₡226 400	Internet + TV + fixed telephony	500	119	600				
Telecable	Combo TV Digital +@10	₡23 900	Internet + TV	10	170					
Telecable	Combo TV Digital +@15	₡29 600	Internet + TV	15	170					
Telecable	Combo TV Digital +@50	₡33 250	Internet + TV	50	170					
Telecable	Combo TV Digital +@100	₡34 600	Internet + TV	100	170					
Telecable	Combo TV Digital +@200	₡50 500	Internet + TV	200	170					
Telecable	Combo TV Digital +@300	₡93 990	Internet + TV	300	170					
TIGO	TV DIGITAL + 6MB	₡23 525	Internet + TV	6	157	na	na	na	na	na
TIGO	TV DIGITAL + 10MB	₡28 850	Internet + TV	10	157	na	na	na	na	na
TIGO	TV HD + 10 MEGAS	₡34 200	Internet + TV	10	178	na	na	na	na	na
TIGO	TV DIGITAL + 15MB	₡32 050	Internet + TV	15	157	na	na	na	na	na
TIGO	TV HD + 15 MEGAS	₡37 400	Internet + TV	15	178	na	na	na	na	na
TIGO	TV DIGITAL + 50MB	₡38 440	Internet + TV	50	157	na	na	na	na	na
TIGO	TV HD + 50 MEGAS	₡42 710	Internet + TV	50	178	na	na	na	na	na
TIGO	ONE TV + 75 MEGAS	₡49 350	Internet + TV	75	178	na	na	na	na	na
TIGO	ONE TV DVR + 75 MEGAS	₡50 710	Internet + TV	75	178	na	na	na	na	na
TIGO	ONE TV + 100 MEGAS	₡60 050	Internet + TV	100	178	na	na	na	na	na
TIGO	ONE TV DVR + 100 MEGAS	₡61 460	Internet + TV	100	178	na	na	na	na	na

Source: Sutel Directorate General of Markets Costa Rica 2020.

Table n.° 68. Costa Rica: Mobile and fixed telecommunications bundle features offered in December 2020

Operator	Bundle name	Cost	Services	Download speed	Type of Internet connection	Number of channels	Number of fixed telephony minutes to fixed own network	Number of fixed telephony minutes to mobile own network	Number of off-net national fixed telephony minutes	Number of off-net national mobile telephony minutes	Number of included international call minutes
Cabletica	DOBLE PLAY MEGA 30	₡31 990	Internet + TV	30	Hybrid (cable + fiber	180	N/A	N/A	N/A	N/A	N/A
Cabletica	TRIPLE PLAY MEGA 30 + DIGITAL	₡34 990	Internet + TV + Telefonía fija	30	Hybrid (cable + fiber	180	500		200		
Cabletica	DOBLE PLAY MEGA 100	₡36 990	Internet + TV	100	Hybrid (cable + fiber	180	N/A	N/A	N/A	N/A	N/A
Cabletica	TRIPLE PLAY MEGA 100 + DIGITAL	₡39 990	Internet + TV + Telefonía fija	100	Hybrid (cable + fiber	180	500			200	
Cabletica	DOBLE PLAY MEGA 200	₡52 490	Internet + TV	200	Hybrid (cable + fiber	173	N/A	N/A	N/A	N/A	N/A
Cabletica	TRIPLE PLAY MEGA 200 + DIGITAL	₡56 490	Internet + TV + Telefonía fija	200	Hybrid (cable + fiber	180	500			200	
Kölbi	Plan Dúo Telefonía + Internet 1Mbps	₡11 900	Telefonía fija + Internet	1	copper + fiber		600				
Kölbi	Plan Dúo TV Avanzada + Internet 1Mbps	₡24 400	Internet + TV	1	copper + fiber	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple Tv Avanzada + Telefonía + Internet 1 Mbps	₡27 400	Internet + TV + Telefonía fija	1	copper + fiber	119	600				
Kölbi	Plan Dúo Telefonía + Internet 2Mbps	₡14 900	Telefonía fija + Internet	2	copper + fiber		600				
Kölbi	Plan Dúo TV Avanzada + Internet 2Mbps	₡25 400	Internet + TV	2	copper + fiber	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple Tv Avanzada + Telefonía + Internet 2Mbps	₡28 400	Internet + TV + Telefonía fija	2	copper + fiber	119	600				
Kölbi	Plan Dúo Telefonía + Internet 3Mbps	₡16 900	Telefonía fija + Internet	3	copper + fiber		600				
Kölbi	Plan Dúo TV Avanzada + Internet 3Mbps	₡26 400	Internet + TV	3	copper + fiber	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple Tv Avanzada + Telefonía + Internet 3Mbps	₡29 400	Internet + TV + Telefonía fija	3	copper + fiber	119	600				
Kölbi	Plan Dúo Telefonía + Internet 4Mbps	₡17 900	Telefonía fija + Internet	4	copper + fiber		600				

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Operator	Bundle name	Cost	Services	Download speed	Type of Internet connection	Number of channels	Number of fixed telephony minutes to fixed own network	Number of fixed telephony minutes to mobile own network	Number of off-net national fixed telephony minutes	Number of off-net national mobile telephony minutes	Number of included international call minutes
Kölbi	Plan Dúo TV Avanzada + Internet 4Mbps	₡27 400	Internet + TV	4	copper + fiber	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple Tv Avanzada + Telefonía + Internet 4Mbps	₡30 400	Internet + TV + Fixed telephony	4	copper + fiber	119	600				
Kölbi	Plan Dúo Telefonía + Internet 6Mbps	₡19 900	Fixed telephony + Internet	6	copper + fiber		600				
Kölbi	Plan Dúo Tv Avanzada + Internet 6Mbps	₡27 400	Internet + TV	6	copper + fiber	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo 6 Mbps + TV Digital	₡27 400	Internet + TV	6	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple Tv Avanzada + Telefonía + Internet 6Mbps	₡30 400	Internet + TV + Fixed telephony	6	copper + fiber	119	600				
Kölbi	Plan Dúo Telefonía + Internet 10Mbps	₡19 900	Fixed telephony + Internet	10	Hybrid (cable + fiber)		600				
Kölbi	Plan Dúo TV Avanzada + Internet 10Mbps	₡27 400	Internet + TV	10	copper + fiber	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 10Mbps	₡27 400	Internet + TV	10	Fiber	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo 10 Mbps + TV Digital	₡27 400	Internet + TV	10	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple TV Avanzada + Telefonía + Internet 10Mbps	₡30 400	Internet + TV + Fixed telephony	10	copper + fiber	119	600				
Kölbi	Plan Triple kA TV + Telefonía + Internet 10Mbps	₡30 400	Fixed telephony + Internet	10	Fiber	127	600				
Kölbi	Plan Dúo Telefonía + Internet 20Mbps	₡24 900	Fixed telephony + Internet	20	copper + fiber		600				
Kölbi	Plan Dúo TV Avanzada + Internet 20Mbps	₡30 400	Internet + TV	20	copper + fiber	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo 20 Mbps + TV Digital	₡30 400	Internet + TV	20	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple Tv Avanzada + Telefonía + Internet 20Mbps	₡33 400	Internet + TV + Fixed telephony	20	copper + fiber	119	600				
Kölbi	Plan Dúo Telefonía + Internet 30Mbps	₡28 900	Fixed telephony + Internet	30	Fiber		600				

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Operator	Bundle name	Cost	Services	Download speed	Type of Internet connection	Number of channels	Number of fixed telephony minutes to fixed own network	Number of fixed telephony minutes to mobile own network	Number of off-net national fixed telephony minutes	Number of off-net national mobile telephony minutes	Number of included international call minutes
Kölbi	Plan Dúo 30 Mbps + TV Digital	₡35 400	Internet + TV	30	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 30Mbps	₡35 400	Internet + TV	30	Fiber	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 30Mbps	₡38 400	Internet + TV + Fixed telephony	30	Fiber	127	600				
Kölbi	Plan Dúo Telefonía + Internet 50Mbps	₡30 900	Fixed telephony + Internet	50	Fiber		600				
Kölbi	Plan Dúo 50 Mbps + TV Digital	₡37 400	Internet + TV	50	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 50Mbps	₡37 400	Internet + TV	50	Fiber	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 50Mbps	₡40 400	Internet + TV + Fixed telephony	50	Fiber	127	600				
Kölbi	Plan Dúo Telefonía + Internet 100Mbps	₡42 900	Fixed telephony + Internet	100	Fiber		600				
Kölbi	Plan Dúo kA TV + Internet 100Mbps	₡58 400	Internet + TV	100	Fiber	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 100Mbps	₡61 400	Internet + TV + Fixed telephony	100	Fiber	127	600				
Kölbi	Plan Dúo Telefonía + Internet 200Mbps	₡82 900	Fixed telephony + Internet	200	Fiber		600				
Kölbi	Plan Dúo kA TV + Internet 200Mbps	₡98 400	Internet + TV	200	Fiber	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 200Mbps	₡101 400	Internet + TV + Fixed telephony	200	Fiber	127	600				
Kölbi	Plan Dúo Telefonía + Internet 300Mbps	₡147 900	Fixed telephony + Internet	300	Fiber		600				
Kölbi	Plan Dúo kA TV + Internet 300Mbps	₡163 400	Internet + TV	300	Fiber	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 300Mbps	₡166 400	Internet + TV + Fixed telephony	300	Fiber	127	600				
Kölbi	Plan Dúo Telefonía + Internet 500Mbps	₡207 900	Fixed telephony + Internet	500	Fiber		600				
Kölbi	Plan Dúo kA TV + Internet 500Mbps	₡223 400	Internet + TV	500	Fiber	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 500Mbps	₡226 400	Internet + TV + Fixed telephony	500	Fiber	127	600				
Kölbi	Plan Dúo TV Avanzada + Telefonía	₡24 750	Fixed telephony + TV		copper + fiber	119	600				

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Operator	Bundle name	Cost	Services	Download speed	Type of Internet connection	Number of channels	Number of fixed telephony minutes to fixed own network	Number of fixed telephony minutes to mobile own network	Number of off-net national fixed telephony minutes	Number of off-net national mobile telephony minutes	Number of included international call minutes
Telecable	Paq TV Digital +@ 15 Mbps	₡25 800	Internet + TV	15	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 15 @A	₡27 050	Internet + TV	15	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+@ 15Mbps	₡28 750	Internet + TV	15	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 15 @A	₡30 950	Internet + TV	15	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 15 @S	₡31 040	Internet + TV	15	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +HD+@ 15 Mbps	₡31 050	Internet + TV	15	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 15@ A	₡32 300	Internet + TV	15	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 15 @S	₡33 860	Internet + TV	15	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD+@ 15Mbps	₡34 000	Internet + TV	15	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 15@ A	₡36 200	Internet + TV	15	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 15@ S	₡36 290	Internet + TV	15	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 15@ S	₡39 110	Internet + TV	15	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +@ 30 Mbps	₡31 800	Internet + TV	30	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 30 @A	₡34 100	Internet + TV	30	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 30 Mbps	₡34 490	Internet + TV	30	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 30 @A	₡36 950	Internet + TV	30	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +HD+@ 30 Mbps	₡37 050	Internet + TV	30	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 30 @S	₡38 050	Internet + TV	30	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 30@ A	₡39 350	Internet + TV	30	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 30@ A	₡39 350	Internet + TV	30	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD +@ 30 Mbps	₡39 740	Internet + TV	30	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 30 @S	₡40 800	Internet + TV	30	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 30@ S	₡43 300	Internet + TV	30	Fiber	157	N/A	N/A	N/A	N/A	N/A

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Operator	Bundle name	Cost	Services	Download speed	Type of Internet connection	Number of channels	Number of fixed telephony minutes to fixed own network	Number of fixed telephony minutes to mobile own network	Number of off-net national fixed telephony minutes	Number of off-net national mobile telephony minutes	Number of included international call minutes
Telecable	FTTH TV Digital Plus +HD+ 30@ S	₡46 050	Internet + TV	30	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital +@ 50 Mbps	₡35 400	Internet + TV	50	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig +50 @A	₡35 950	Internet + TV	50	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 50Mbps	₡38 180	Internet + TV	50	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 50 @A	₡40 050	Internet + TV	50	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital +HD+@ 50 Mbps	₡40 650	Internet + TV	50	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 50 @S	₡41 050	Internet + TV	50	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 50@ A	₡42 500	Internet + TV	50	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 50@ A	₡42 500	Internet + TV	50	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD +@ 50Mbps	₡43 430	Internet + TV	50	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 50 @S	₡43 800	Internet + TV	50	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 50@ S	₡46 300	Internet + TV	50	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 50@ S	₡49 050	Internet + TV	50	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +@ 100 Mbps	₡36 800	Internet + TV	100	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 100 @A	₡39 200	Internet + TV	100	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 100Mbps	₡39 920	Internet + TV	100	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +HD+@ 100 Mbps	₡42 050	Internet + TV	100	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 100 @A	₡42 250	Internet + TV	100	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 100@ A	₡44 450	Internet + TV	100	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 100@ A	₡44 450	Internet + TV	100	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD +@ 100Mbps	₡45 170	Internet + TV	100	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 100 @S	₡46 250	Internet + TV	100	Fiber	157	N/A	N/A	N/A	N/A	N/A

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Operator	Bundle name	Cost	Services	Download speed	Type of Internet connection	Number of channels	Number of fixed telephony minutes to fixed own network	Number of fixed telephony minutes to mobile own network	Number of off-net national fixed telephony minutes	Number of off-net national mobile telephony minutes	Number of included international call minutes
Telecable	Paq. FTTH Tv Dig Plus + 100 @S	₡49 050	Internet + TV	100	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 100@ S	₡51 500	Internet + TV	100	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 100@ S	₡54 300	Internet + TV	100	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +@ 200 Mbps	₡53 850	Internet + TV	200	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig+ 200 @A	₡56 200	Internet + TV	200	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 200Mbps	₡56 410	Internet + TV	200	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 200 @A	₡58 750	Internet + TV	200	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +HD+@ 200 Mbps	₡59 100	Internet + TV	200	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 200@ A	₡61 450	Internet + TV	200	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 200@ A	₡61 450	Internet + TV	200	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD +@ 200 Mbps	₡61 660	Internet + TV	200	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 200 @S	₡66 550	Internet + TV	200	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 200 @S	₡68 750	Internet + TV	200	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 200@ S	₡71 800	Internet + TV	200	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 200@ S	₡74 000	Internet + TV	200	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +@ 300 Mbps	₡85 300	Internet + TV	300	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 300 @A	₡86 200	Internet + TV	300	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 300 @A	₡88 950	Internet + TV	300	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 300Mbps	₡89 430	Internet + TV	300	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +HD+@ 300 Mbps	₡90 550	Internet + TV	300	Hybrid (cable + fiber)	119	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 300@ A	₡91 450	Internet + TV	300	Fiber	157	N/A	N/A	N/A	N/A	N/A

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Operator	Bundle name	Cost	Services	Download speed	Type of Internet connection	Number of channels	Number of fixed telephony minutes to fixed own network	Number of fixed telephony minutes to mobile own network	Number of off-net national fixed telephony minutes	Number of off-net national mobile telephony minutes	Number of included international call minutes
Telecable	FTTH TV Digital Plus +HD+ 300@ A	₡91 450	Internet + TV	300	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD +@ 300Mbps	₡94 680	Internet + TV	300	Hybrid (cable + fiber)	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 300 @S	₡100 250	Internet + TV	300	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 300 @S	₡103 000	Internet + TV	300	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 300@ S	₡105 500	Internet + TV	300	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 300@ S	₡108 250	Internet + TV	300	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 500 @A	₡185 300	Internet + TV	500	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 500 @A	₡188 050	Internet + TV	500	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 500@ A	₡190 550	Internet + TV	500	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 500@ A	₡190 550	Internet + TV	500	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 500 @S	₡220 300	Internet + TV	500	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 500 @S	₡222 300	Internet + TV	500	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 500@ S	₡225 550	Internet + TV	500	Fiber	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 500@ S	₡227 550	Internet + TV	500	Fiber	157	N/A	N/A	N/A	N/A	N/A
TIGO	TV Digital Avanzado + 15 Megas	₡24 900	Internet + TV	15	Hybrid (cable + fiber)	170	N/A	N/A	N/A	N/A	N/A
TIGO	TV Digital Avanzado + 30 Megas	₡30 900	Internet + TV	30	Hybrid (cable + fiber)	170	N/A	N/A	N/A	N/A	N/A
TIGO	TV Digital Avanzado + 100 Megas	₡36 900	Internet + TV	100	Hybrid (cable + fiber)	170	N/A	N/A	N/A	N/A	N/A
TIGO	ONE TV + 200 MEGAS	₡52 900	Internet + TV	200	Hybrid (cable + fiber)	241	N/A	N/A	N/A	N/A	N/A

Source: Sutel Directorate General of Markets Costa Rica 2020.

Table n.° 69. Costa Rica: Annual total projects developed through FONATEL, according to the status of each project, 2012-2020

Status	2012	2013	2014	2015	2016	2017	2018	2019	2020
Formulation/ Award	1	11	19	14	18	14	8	7	5
Execution/Reception	0	2	5	9	6	11	8	3	3
Production	0	0	2	4	8	10	20	24	25
Closing	0	0	0	0	0	0	0	2	4
Total	**1**	**13**	**26**	**27**	**32**	**35**	**36**	**36**	**37**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 70. Costa Rica: Districts with at least one program developed by FONATEL, per program, 2015-2020

Program	2015	2016	2017	2018	2019	2020
Connected Communities	11	32	72	72	103	127
Connected Households	0	216	381	434	471	475
Equipped Public Centers	0	0	172	263	263	263
Connected Public Spaces	0	0	0	0	178	313
Total	**11**	**231**	**391**	**460**	**478**	**481**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 71. Costa Rica: Devices delivered through FONATEL programs for access and use of ICTs, per program, 2016-2020

(cumulative annual figures)

Program	2016	2017	2018	2019	2020
Connected Households	10 089	30 418	84 268	130 579	148 426
Equipped Public Centers	0	6407	36 004	36,831	36 831
Total	**10 089**	**36 825**	**120 272**	**167 410**	**185 257**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 72. Costa Rica: Inhabitants, households and housing units with access to voice and data services in districts with programs developed by FONATEL, 2014-2020

Indicator	2014	2015	2016	2017	2018	2019	2020
Inhabitants	28 224	76 739	269 740	393 ,088	905 496	1 171 572	1 368 676
Households	8430	23 212	82 421	121 028	285 284	370 662	419 584
Housing units	8276	22 799	80,830	118,606	278,616	365,421	413,543

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 73. Costa Rica: Subscriptions to fixed telephony service, access to fixed Internet and mobile telephony provided through FONATEL programs, 2014-2020

Service	2014	2015	2016	2017	2018	2019	2020
Fixed telephony	13	10	112	387	1131	3409	3351
Fixed Internet	18	19	10 575	31 532	86 038	141 065	175 402
Mobile telephony	454	12 334	27 871	38 603	36 683	40 429	31 234

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 74. Costa Rica: FONATEL equity, 2012-2020

(annual figures in millions of colones)

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Equity	101 630	113 775	131 315	143 265	161 306	171 551	200 979	200 847	211 188
% of variation		12 %	15 %	9 %	13%	6 %	17 %	0 %	5 %

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 75. Costa Rica: Collection of special parafiscal contribution, 2012-2020

(annual figures in millions of colones)

	2012	2013	2014	2015	2016	2017	2018	2019	2020
CEPF collection	8649	9827	10 007	11 674	12 434	12 936	13 453	14 079	14 297
% of variation		14 %	2 %	17 %	7 %	4 %	4 %	5 %	2 %

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 76. Costa Rica: Investment executed through FONATEL per program, 2013-2020

(annual figures in millions of colones)

Program	2013	2014	2015	2016	2017	2018	2019	2020	Total
Connected Communities	49	3077	2 878	454	1971	4754	1936	10 860	25 978
Connected Households	0	0	0	734	6 060	17 298	21 205	17 366	62 663
Equipped Public Centers	0	0	0	0	4752	3357	1464	0	9573
Connected Public Spaces	0	0	0	0	0	0	981	3740	4721
Total	**49**	**3077**	**2878**	**1187**	**12 783**	**25 409**	**25 586**	**31 965**	**102 935**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 77. Costa Rica: Investment executed through FONATEL, per operator, 2013-2020

(annual figures in millions of colones)

Operator	2013	2014	2015	2016	2017	2018	2019	2020
ICE	10	25	2123	140	2263	5791	4055	12 314
Telecable	0	0	0	103	1372	4416	7072	5919
Cabletica	0	0	0	420	2978	5 941	6146	4035
Tigo	0	0	0	0	188	3143	3649	3209
Claro	0	2516	0	431	724	1423	1456	2592
RACSA	0	0	0	0	4752	3357	1741	1322
Coopeguanacaste	0	0	0	0	6	96	303	1310
Coopelesca	0	0	0	37	194	601	463	706
Coopesantos	0	0	0	38	272	577	648	416
Telefónica	39	537	755	18	33	64	45	85
Cable Pacayas	0	0	0	0	0	0	0	58
Cable Visión	0	0	0	0	0	0	6	0
Total	**49**	**3 077**	**2878**	**1 187**	**12 783**	**25 409**	**25 586**	**31 965**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 78. Costa Rica: Distribution of districts with connectivity (total or partial) with access to voice and data services provided through the Connected Communities Program, per region, 2014-2020

(cumulative annual figures)

Region	2015	2016	2017	2018	2019	2020
Huetar Caribe	3	3	17	17	19	19
Huetar Norte	8	25	25	25	25	25
Brunca	0	4	30	30	30	30
Chorotega	0	0	0	0	29	39
Pacífico Central	0	0	0	0	0	14
Total	11	32	72	72	103	127

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 79. Costa Rica: Achievement of NTDP goal for districts with connectivity through the Connected Communities Program, 2016-2020

Indicator	2016	2017	2018	2019	2020
Districts	32	72	72	103	127
Annual goal[1]	32	72	72	125	125
Achievement of annual goal	100 %	100 %	100 %	82 %	102 %
Total goal[1]	183	183	183	183	183
Achievement of annual goal	17 %	39 %	39 %	56 %	69 %

Note: [1]Goals established in NTDP 2015-2021 goals Matrix updated as at September 2020.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 80. Costa Rica: Annual total annual of projects of the Connected Communities Program, per status of each project, 2012 - 2020

Status	2012	2013	2014	2015	2016	2017	2018	2019	2020
Formulation/Award	1	11	19	13	17	13	6	6	4
Execution/Reception	0	2	5	9	6	11	8	3	2
Production	0	0	2	4	7	8	18	22	22
Closing	0	0	0	0	0	0	0	1	4
Total	**1**	**13**	**26**	**26**	**30**	**32**	**32**	**32**	**32**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 81. Costa Rica: Distribution of towers with telecommunications infrastructure in operation of the Connected Communities Program, per region, 2014-2020

(cumulative annual figures)

Region	2014	2015	2016	2017	2018	2019	2020
Huetar Caribe	7	7	7	7	62	111	116
Huetar Norte	0	24	143	143	147	148	173
Brunca	0	0	0	50	115	115	116
Chorotega	0	0	0	0	0	57	114
Pacífico Central	0	0	0	0	0	0	68
Total	**7**	**31**	**150**	**200**	**324**	**431**	**587**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 82. Costa Rica: Public Services Provision Centers with Internet access service enabled through the Connected Communities Program, institution, 2014-2020

Institution	2014	2015	2016	2017	2018	2019	2020
MEP	15	15	94	234	572	922	1351
MICITT	0	0	0	0	5	11	15
CEN-CINAI	0	0	0	0	23	63	66
CCSS	0	0	0	0	0	0	14
Total	**15**	**15**	**94**	**234**	**600**	**996**	**1446**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 83. Costa Rica: Inhabitants, households, and housing units with potential access to voice and data services in districts with connectivity (total or partial) provided through the Connected Communities Program, 2014-2020

	2014	2015	2016	2017	2018	2019	2020
Inhabitants	28 224	76 739	237 639	294 488	631 625	803 267	932 564
Households	8430	23 212	72 745	90 765	197 129	254 138	292 773
Housing units	8276	22 799	71 208	89 099	194 405	250 543	288 555

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 84. Costa Rica: Subscriptions to fixed telephony, access to fixed Internet and mobile telephony services provided through the Connected Communities Program, 2015-2020

Service	2014	2015	2016	2017	2018	2019	2020
Fixed telephony	13	10	112	387	1131	3409	3351
Fixed Internet	18	19	486	1114	1770	10,486	26 976
Mobile telephony	454	12 334	27 871	38 603	36 683	40 429	31 234

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 85. Costa Rica: Distribution of subscriptions to fixed Internet access provided through the Connected Communities Program, per region, 2014-2020

Region	2014	2015	2016	2017	2018	2019	2020
Huetar Caribe	18	19	13	13	14	2 171	6 657
Huetar Norte	0	0	473	894	1378	5720	13 515
Brunca	0	0	0	207	378	2595	6253
Pacífico Central	0	0	0	0	0	0	314
Chorotega	0	0	0	0	0	0	237
Total	**18**	**19**	**486**	**1114**	**1770**	**10 486**	**26 976**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 86. Costa Rica: Distribution of subscriptions to fixed telephony services through the Connected Communities Program, per region, 2014-2020

Region	2014	2015	2016	2017	2018	2019	2020
Huetar Caribe	13	10	3	2	5	873	1 064
Huetar Norte	0	0	109	278	873	1543	332
Brunca	0	0	0	107	253	993	1404
Pacífico Central	0	0	0	0	0	0	314
Chorotega	0	0	0	0	0	0	237
Total	**13**	**10**	**112**	**387**	**1131**	**3409**	**3351**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 87. Costa Rica: Distribution of subscriptions to mobile telephony services provided through the infrastructure facilitated by Connected Communities Program, per region, 2014-2020

Region	2014	2015	2016	2017	2018	2019	2020
Huetar Caribe	454	792	1565	2290	1865	6230	8682
Huetar Norte	0	11 542	26 306	33 491	32 273	29 861	17 349
Brunca	0	0	0	2822	2545	4338	5203
Total	**454**	**12 334**	**27 871**	**38 603**	**36 683**	**40 429**	**31 234**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 88. Costa Rica: Investment executed through the Connected Communities Program, per operator, 2013-2020

(annual figures in millions of colones)

Operator	2013	2014	2015	2016	2017	2018	2019	2020
ICE	10	25	2123	5	1213	3267	434	8183
Claro	0	2516	0	431	724	1419	1453	2592
Telefónica	39	537	755	18	33	68	49	85
Total	**49**	**3077**	**2878**	**454**	**1971**	**4754**	**1936**	**10 860**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 89. Households registered in the system for managing the Beneficiaries of the Connected Households Program, per status, 2016-2020

(cumulative figures per semester)

Status	IIS-16	IS-17	IIS-17	IS-18	IIS-18	IS-19	IIS-19	IS-20	IIS-20
Active	9947	17 042	28 806	51 142	78 815	105 555	117 719	120 660	126 095
Delisting	142	718	1601	2588	5190	8449	12 264	16 577	21 146
Administrative changes	0	60	25	161	263	472	596	801	1185
Allocated	2698	2472	6780	11 135	12 921	7082	8575	3881	7420
Total	**12 787**	**20 292**	**37 212**	**65 026**	**97 189**	**121 558**	**139 154**	**141 919**	**155 846**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 90. Costa Rica: Households benefitted by Connected Households Program per status, 2016-2020

(cumulative figures per semester)

Status	IIS-16	IS-17	IIS-17	IS-18	IIS-18	IS-19	IIS-19	IS-20	IIS-20
Benefitted	10 089	17 776	30 418	53 888	84 268	114 476	130 579	138 038	148 426
Active[1]	9947	17 042	28,806	51,142	78 815	105 555	117 719	120 660	126 095
Not active	142	734	1612	2746	5453	8921	12,860	17378	22,331

Note: [1]Corresponds to active subsidized subscriptions to Internet access service.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 91. Costa Rica: Achievement of the goal of NTDP for households benefitted by the Connected Households Program, 2016-2020

Indicator	2016	2017	2018	2019	2020
Benefitted	10 089	30 418	84 268	130 579	148 426
Annual goal[1]	10 089	30 418	63 582	95 196	154 496
Achievement of annual goal	100 %	100 %	133 %	137 %	96 %
Total goal[1]	140 496	140 496	140 496	140 496	186 958
	7 %	22 %	60 %	93 %	79 %

Note:[1] Corresponds to active subsidized subscriptions to Internet access service.

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 92. Costa Rica: Distribution of households benefitted by the Connected Households Program, per income quintile, 2016-2020

(cumulative figures per semester)

Income quintile	IIS-16	IS-17	IIS-17	IS-18	IIS-18	IS-19	IIS-19	IS-20	IIS-20
Quintile 1	9832	15 970	24 981	44 884	71 431	95 951	109 432	123 841	124 393
Quintile 2	256	1805	4283	7166	10 536	15 273	17 402	19 817	19 885
Quintile 3	1	1	1154	1838	2301	3252	3745	4137	4148
Total	**10 089**	**17 776**	**30 418**	**53 888**	**84 268**	**114 476**	**130 579**	**147 795**	**148 426**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 93. Costa Rica: Distribution of households benefitted by the Connected Households Program, per operator, 2016-2020

(cumulative figures per semester)

Operator	IIS 2016	IS 2017	IIS 2017	IS 2018	IIS 2018	IS 2019	IIS 2019	IS 2020	IIS 2020
Cabletica	5018	8369	13 608	21 053	30 590	36 407	40 033	40 369	43 853
Telecable	2124	3734	6059	11 890	22 915	32 689	37 361	39 069	43 966
ICE	1237	2243	4694	7606	10 726	19 730	23 279	26 770	26 867
Tigo	488	1453	3242	8370	13 646	18 322	21 613	23 205	24 313
Coopelesca	658	1102	1684	2774	3060	3390	3940	4110	4546
Coopesantos	458	744	947	1954	2982	3535	3921	4002	4274
Coopeguanacaste	106	131	184	241	324	380	402	403	426
Cable Visión	0	0	0	0	25	23	22	0	0
Cable Pacayas	0	0	0	0	0	0	8	110	181
Total	**10 089**	**17 776**	**30 418**	**53 888**	**84 268**	**114 476**	**130 579**	**138 038**	**148 426**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 94. Costa Rica: of households benefitted by the Connected Households Program, per province, 2016-2020

(cumulative figures per semester)

Provincia	IIS 2016	IS 2017	IIS 2017	IS 2018	IIS 2018	IS 2019	IIS 2019	IS 2020	IIS 2020
San José	3259	5780	9173	16 883	28 102	37 284	41 919	43 704	45 921
Alajuela	1721	3273	5224	9173	13 335	18 216	21 482	23 186	25 803
Cartago	510	998	1872	3718	7533	11 982	13 894	14 740	16 607
Heredia	492	1538	2942	4421	6997	9440	10 557	11 073	11 842
Guanacaste	1671	2482	4183	7350	10458	13 336	14 949	15 626	17 195
Puntarenas	1624	2533	4903	8209	12106	16 560	18 750	19 635	20 643
Limón	812	1172	2121	4134	5737	7658	9028	10 074	10 415
Total	**10 089**	**17 776**	**30 418**	**53 888**	**84 268**	**114 476**	**130 579**	**138 038**	**148 426**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 95. Costa Rica: Districts with presence of the Connected Households Program, 2016-2020

	2016	2017	2018	2019	2020
Districts	216	381	434	471	475

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 96. Costa Rica: Total active subsidized Internet access service subscriptions of the Connected Households Program, 2016-2020

Indicator	2016	2017	2018	2019	2020
Total active subsidized subscriptions	9947	28 806	78 815	117 719	126 095
Penetration	0.7 %	1.9 %	5.1 %	7.5 %	8.0 %

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 97. Costa Rica: Net penetration of the fixed residential Internet of the Connected Households Program, 2016-2020

Indicator	2016	2017	2018	2019	2020
Penetration	0.6 %	1.6 %	4.2 %	4.3 %	4.6 %
Net active subsidized subscriptions	8097	23 448	64 155	67 335	72 126

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 98. Costa Rica: Distribution of the investment executed by the Connected Households Program, per service operator, 2016-2020

(annual figures in millions of colones)

Operator	2016	2017	2018	2019	2020
Cabletica	420	2978	5941	6146	4035
ICE	136	1050	2524	3621	4131
Telecable	103	1372	4416	6622	4752
Coopesantos	38	272	577	648	416
Coopelesca	37	194	601	463	706
Tigo	0	188	3143	3649	3209
Coopeguanacaste	0	6	96	50	59
Cable Visión	0	0	0	6	0
Cable Pacayas					58
Total	**734**	**6060**	**17 298**	**21 205**	**17 366**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 99. Costa Rica: Achievement of the goal established in the NTDP for devices delivered by the Equipped Public Centers Program to CPSP, 2017-2020

Indicator	2017	2018	2019	2020
Devices	6407	36 004	36 831	36 831
Annual goal[1]	6407	18 533	36 000	36 831
Achievement of annual goal	100 %	194 %	102 %	100 %
Total goal[1]	40 000	40 000	40 000	123 643
Achievement of total goal	16 %	90 %	92 %	30 %

Note:[1]Goals established in the goal matrix of the NTDP 2015-2021, updated as of September 2020.
Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 100. Costa Rica: Digital zones with free Internet access commissioned through the Connected Public Spaces Program, 2019-2020

(cumulative figures per semester)

	IS 2019	IIS 2019	IS 2020	IIS 2020
Cumulative	101	301	402	510
Digital zones	101	200	101	108

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 101. Costa Rica: Achievement of the NTDP goal of digital zones with free Internet access through Connected Public Spaces Program, 2018-2020

Indicator	2018	2019	2020
Digital zones	0	301	510
Annual goal[1]	15	200	400
Achievement of annual goal	0 %	151 %	128 %
Annual goal[1]	513	513	513
Achievement of total goal	0 %	59 %	99%

Note: [1]Goals established in the goal matrix of the NTDP 2015-2021, updated as of September 2020.
Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 102. Costa Rica: Percentage of progress of digital zones with free Internet access commissioned through the Connected Public Spaces Program, per type of zone, 2020

Type of zone	Goal	In service	Pending	Achievement
Public space	419	417	2	100 %
Library[1]	61	61	0	100 %
Train station	28	28	0	100 %
Civic center[1]	7	6	1	86 %
Total	515	512	3	99 %

Note: There are two zones that are at the same time a library and a Civic Center. These correspond to the zones of Guararí and Aguas Zarcas. Both zones are counted once per each category.
Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 103. Costa Rica: Distribution of digital zones with free Internet access commissioned through the Connected Public Spaces Program, per operator, 2019-2020

Operator	2019		2020	
	Cantidad	Porcentaje	Cantidad	Porcentaje
Telecable	127	42%	170	33 %
Copopeguanacaste	108	36%	174	34 %
ICE-RACSA-PC	66	22%	166	33 %
Total	**301**	**100%**	**510**	**100 %**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 104. Costa Rica: Distribution of digital zones with free Internet access commissioned through the Connected Public Spaces Program, per province, 2019-2020

Province	2019		2020	
	Zones	Percentage	Zones	Percentage
San José	93	31 %	133	26 %
Alajuela	72	24 %	117	23 %
Heredia	60	20 %	62	12 %
Cartago	6	2 %	61	12 %
Puntarenas	29	10 %	57	11 %
Giuanacaste	34	11 %	53	10 %
Limón	7	2 %	27	5 %
Total	**301**	**100%**	**510**	**100 %**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 105. Costa Rica: Districts with presence of the Connected Public Spaces Program, 2019-2020

(cumulative monthly figures)

	IS 2019	IIS 2019	IS 2020	IIS 2020
Distritos	58	178	244	313

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

Table n.° 106. Costa Rica: Distribution of the investment executed through the Connected Public Spaces Program, per operator, 2019-2020

(figures in percentages)

Operator	2019		2020	
	Number	Percentage	Number	Percentage
Telecable	450	46 %	1167	31 %
RACSA-ICE	278	28 %	1322	35 %
Coopeguanacaste	253	26 %	1251	33 %
Total	**981**	**100 %**	**3740**	**100 %**

Source: Sutel, Directorate General of FONATEL, Costa Rica, 2020.

ACRONYMS

REPARAMOS
LAVADORAS
SECADORAS
REFRIGERADORAS
COCINAS
2226-5600

A4AI	Alliance for Affordable Internet
AON	Active Optical Networks
ARPU	Average Revenue per User
BCCR	Central Bank of Costa Rica (Banco Central de Costa Rica)
CCSS	Costa Rica Social Security Fund (Caja Costarricense de Seguro Social)
CECI´s	Intelligent Community Centers (Centros Comunitarios Inteligentes)
Cen Cinai	Education and Nutrition Centers and Comprehensive Care Children´s Centers (Centros de Educación y Nutrición y Centros Infantiles de Atención Integral)
CEPF/ SPFC	Special Parafiscal Contribution
CGR	Office of the Comptroller General of the Republic (Contraloría General de la República)
CPSP / PSPC	Public Services Provision Centers
DGC	Directorate General of Quality
DGF	Directorate General of FONATEL
DGM	Directorate General of Markets
DWDM	Dense wavelength division multiplexing
EBAIS	Basic Comprehensive Healthcare Teams (Equipos Básicos de Atención Integral en Salud)
ENAHO	National Households Survey (Encuesta National de Hogares)
ENIGH	National Survey on Household´s Revenue and Expenses (Encuesta National de Ingresos y Gastos de los Hogares)
FAC	Quality Adjustment Factor (Factor de Ajuste de Calidad)
FTTx	Fiber to the X
FONATEL	National Telecommunications Fund (Fondo National de Telecomunicaciones)
GB	Gigabyte
GDP	Gross Domestic Product
GSM	Global System for Mobile Communications
HFC	Hybrid fiber-coaxial – Hybrid fiber and copper networks, which use DOCSIS or similar technologies
HHI	Herfindahl-Hirschman Index (to measure market concentration)
ICE	Costa Rican Electricity Institute (Instituto Costarricense de Electricidad)
IMAS	Social Assistance Mixed Institute (Instituto Mixto de Ayuda Social)
INEC	National Institute for Statistics and Census (Instituto National de Estadística y Censos)
IP	Internet Protocol. Digital data rules and standards, functionally classified in the Red Layer according to DSI international model
IPIF	Internet Fixed Prices Index
IPTM	Mobile Telecommunications Fixed Price Index (Índice de precios de telecomunicaciones móviles)
IPTV	Internet Protocol Television
ISO	International Organization for Standardization
Kbps	Kilobits per second
LGT	General Law on Telecommunications, n.° 8642 (Ley General de Telecomunicaciones, Ley 8642)

LTE	Long Term Evolution – Wireless broadband technology designed to support Internet access to mobile telephones and portable devices
Mbps	Megabits per second
MEP	Ministry of Public Education (Ministerio de Educación Pública)
MH	Ministry of Finance (Ministerio de Hacienda)
MICITT	Ministry of Science, Tecnology, and Telecommunications (Ministerio de Ciencia, Tecnología y Telecomunicaciones)
MIDEPLAN	Ministry of National Planning and Economic Policy (Ministerio de Planificación National y Política Económica)
MMDS	Multichannel Multipoint Distribution Services
MMS	Multimedia Messaging System
MS	Ministry of Health (Ministerio de Salud)
Off-net	Refers to the origin of voice traffic or short messages from a network different to the destination network
On-net	Refers to the destination of voice traffic or short messages from the same network where traffic originated
PAPyP	Annual Plan for Projects and Programs (Plan Anual de Proyectos y Programas)
PBAS	Solidary Broadband Program (Programa Banda Ancha Solidaria)
PCC/CCP	Connected Communities Program (Programa de Comunidades Conectadas)
PCiC	Connected Citizen Program (Programa Ciudadano Conectado)
PCPE/EPCP	Equipped Public Centers Program (Programa de Centros Públicos Equipados)
PEPC/CPSP	Connected Public Spaces Program (Programa de Espacios Públicos Conectados)
PHC/CPH	Connected Households Program (Programa de Hogares Conectados)
NTDP	National Telecommunications Development Plan
UNDP	United Nations Program for Development
PON	Passive optical networks
QoSE	Quality of Service Experienced by User
RPCS	Regulation of the delivery and quality of services
SDH	Synchronous Digital Hierarchy, to transfer bit flows in a synchronized manner over fiber
SMS	Short Message Service
SITEL	System for Telecommunications Indicators (Sistema de Indicadores de Telecomunicaciones)
SUTEL	Telecommunications Superintendence (Superintendencia de Telecomunicaciones)
TB	Terabyte
UG	Management unit for the execution of FONATEL programs and projects
UIT	International Telecommunications Union: UN specialized organization in charge of regulating international telecommunications among different administrations and operating companies
USB	Universal Serial Bus. Device with a universal serial port for data storage
VoIP	Voice Over Internet Protocol
VPN	Virtual private Networks
XDSL	Digital subscriber line - technologies that use the copper telephone platform for access

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COSTA RICA

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