



Statistics for the  
Telecommunications Sector **2021**  
Costa Rica



384.6

E Superintendence of Telecommunications.

Statistics from The Telecommunications. / SUTEL. 1st. digital edition.

San José, Costa Rica, 2022.

309 p. : 34 mb : pdf

ISSN 2215-5341

A total of 100 copies were published ISSN: 2015-3683

1. TELECOMMUNICATIONS – COSTA RICA 2. STATISTICS – COSTA RICA



# CONTENTS

**002**

PRESENTATION

**004**

METHODOLOGY  
& DESCRIPTION  
OF SERVICES

**052**

GENERAL  
EVOLUTION  
OF THE SECTOR

**070**

FIXED  
TELEPHONY

**084**

MOBILE  
TELEPHONY

**100**

DATA  
DATA TRANSFER  
TRANSFER

**148**

PAY TELEVISION

**160**

COMMERCIAL  
OFFERS & PRICES

**172**

NETWORK  
QUALITY &  
PERFORMANCE

**198**

FONATEL

**238**

INTERNATIONAL

**248**

STATISTICS  
ANNEX



# PRESENTATION

As the old adage goes: “after the storm comes the calm”, but is it possible for said condition to apply to a sector such as communications, dynamic, evolving and constantly changing, having experienced the havoc caused by the COVID-19 pandemic, just like other areas?

The response is key, without a doubt, and not only associated to the market behavior but also that of its major players: the users, as we will see in this tenth edition of the statistics report of the telecommunications sector.

Consumer's likes and preferences are increasingly changing and diversifying, with a lower likelihood of going backwards. The latter is reflected, for instance, in the case of voice services, which income continued to fall throughout 2021 (18,7 % for basic traditional telephony and VoIP and 7,2 % for mobile telephony) and with a decrease in the number of subscriptions, accounting for 10% in the case of fixed subscriptions, a clear indication that the option to look back on behalf of the user -at least for now- does not come across as viable due to its current needs.

This context has caused for companies, as a result of post-pandemic resilience, to still remain in a phase of commercial readjustment, yet they remain innovating when it comes to their services commercialization strategies in order to satisfy their customers. This being the case, back in 2021, 187 telecommunications operators and service providers with an authorization certificate were accounted for, which resulted in an increase of 29 additional companies compared to the previous year.

Given the circumstances, Internet access has continued to position itself as the king of services, since data consumption gets bigger and bigger, up to the point that, together with mobile telephony, generated 87 % of the telecommunication sector income during 2021.

It should be noted that this growing trend in the Internet access service (4,5 %) occurs both for the fixed and mobile modalities. In like manner, in the particular case of mobile telephony, a 4.1 % (322 065) increase in relation to subscriptions was also detected.

A relevant aspect to be pointed out from 2021 was the user preference for what is known in the industry as packaging of

services, which consist of commercial offers that include several offers instead of a single one. Among the most sought-after services are the double play fixed Internet and pay TV and the triple play fixed Internet, TV and VoIP, among others.

When it comes to technological change, it is important to mention the progress made in the installation of fiber optics to attain higher speeds for Internet access and other telecommunication services, which reached a figure of 186 287 kilometers, showing a 5,7 % increase for this indicator compared to the previous year.

In times of pandemic, not only has our sector been an important support for other sectors and the economic reactivation, but its diversification has allowed it to remain afloat, even during the most difficult times of the national economy.

In that sense, a slight increase in investment in the sector during 2021 must be pointed out, accounting 0,6 % of the Gross Domestic Product (GDP), compared to 0,2 % of the previous year. In like manner, the ratio of the total income of the sector and GDP to market prices was of 2,00 %, virtually equal to the previous year, in spite of the adverse conditions faced during 2021.

Even though there was a 0,01 % reduction in income, said decrease is consistent with the national productive activity for said period. With regards to human resources directly associated to telecommunications services, the number of personnel hired to render these services decreased by 149 people, accounting for -1 % when compared to the year 2020.

It should be noted that, with regard to competition, significant progress was made during 2021 on the three pillars of the roadmap established for the implementation of Law n.° 9736: “Strengthening the competition authorities of Costa Rica”.

Among the most outstanding results of the first pillar, mention must be made of the publishing of Executive Regulations for Law n.° 9736, the awarding guides for market research and regulation assessment, from a competition standpoint, as well as the international

cooperation efforts coordinated with the International Development Bank (IDB) for the preparation of various competition guides and manuals.

With regard to the second pillar, the provision of new specific positions and resources related to competition was also possible, and the signing of international treaties with the National Institute for the Defense of Competition and the Protection of Intellectual Property (Indecopi) and the Supervisory Agency for Private Investment in Telecommunications (Osiptel), both from the Republic of Peru.

Finally, in the third pillar a marketing study about duct infrastructure that supports telecommunications networks and its impact on the market competition was completed.

In terms of universal access and service and solidarity, the goals defined for the Connected Households (goal no. 5) and Connected Public Spaces (goal no. 13) Programs were attained during 2021, obtaining results above 97%. In addition, it was possible to partially attain the goals associated with the Connected Communities (goal no.1) and Bicentenary's Education Network (goal no. 14) Programs with compliance percentages between 50% and 70%.

Sharing these results with the sector and the users is a privilege for our institution, for they certainly reflect the daily hard work of hundreds of men and women, so that more and more people have access to telecommunication services.

I appreciate the valuable cooperation of providers and operators in the sector who contributed with information in order for these data to be now available for the country and the whole world.

I also take this opportunity to express our appreciation to the Directorate General of Quality and Competition and FONATEL, coordinated by the Directorate General of Markets and the leadership of the Board of Directors, for the effort, commitment and dedication undertaken for this report to be an important instrument of information and knowledge in the telecommunications sector.

Gilbert Camacho Mora  
President of the Board







# **METHODOLOGY**

## AND SCOPE OF THE REPORT







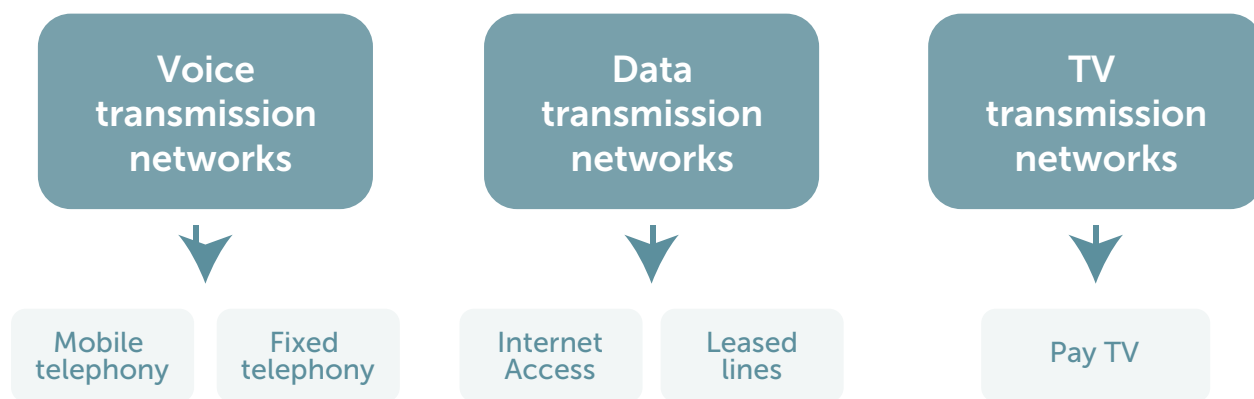
## • Description of telecommunication services included in this report

With the purpose of standardizing and simplifying the way market information delivered by service providers and network operators is compiled, telecommunications services available to the public have been divided based on the characteristics of the network deployed and the type of signal they carry, in addition; said classification is consistent

with the existing nomenclature for the granting of the Authorization Certificate<sup>1</sup>.

Considering the foregoing, services included in this publication are classified into three major categories: voice, data transfer and paid television services. Figure no. 1 illustrates this classification and the subgroups included in each case.

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



Source: SUTEL, General Directorate for Markets, Costa Rica, 2021

The services provided via voice transmission services include:

- **Mobile telephony services:** offer users two subscription modalities: pre-paid and post-paid.
- **Fixed telephony service:** this service is defined in article 3 of the Telecommunication Services Protection Regime for End Users. For the purpose of this report, it has been divided into three types of service provision: traditional basic telephony, IP or VoIP telephony and public telephony. As provided for in article 3° of the above-mentioned regulations, the provision of fixed telephony services includes any means of access, provided the terminals associated do not allow for mobility.

As for data transfer services, they are provided for in article 8°, subsection 75 of the Regulations for the Provision and Quality of Services and, for this publication; an analysis was performed by subdividing this service into two markets:

- **Internet access service:** Consists of the service rendered by a provider by which the necessary means of access is provided for subscribers to be able to connect their computer systems to Internet.
- **Leased lines service:** This modality implies data transfer between two or more geographically separated points of access. The transportation network is based on wired media.

<sup>1</sup> Resolution 9869 SUTEL-SCS-2028, RCS-374-2018: "Requirements for the processing of Authorization Certificate issuance and renewal requests to operate networks and provide telecommunications services available to the public, and notifications of services and coverage areas expansions." [https://www.sutel.go.cr/sites/default/files/rcs-374-2018\\_requisitos\\_para\\_autorizaciones\\_prorrogas\\_ampliaciones\\_de\\_th\\_1.pdf](https://www.sutel.go.cr/sites/default/files/rcs-374-2018_requisitos_para_autorizaciones_prorrogas_ampliaciones_de_th_1.pdf)

Finally, though television content is not considered to be a telecommunications service, it includes (contents) networks for television transmission, as some of these operate via the Internet. This section includes:

- **Pay televisionn:** Satellite television, Cable television and MMDS television.

Table n.º 1 below details the types of commercialization and characteristics of the network that support each of the services comprised in these 3 groups:

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

Category of telecommunications service	Marketing methods	Characteristics of the networks supporting it
Mobile telephony	Instant messaging (SMS), multimedia messaging (MMS), postpaid voice, prepaid voice.	<i>Satellite television, cable television, IP television and MMDS television.</i>
Fixed telephony	Traditional basic telephony, voice over IP (VoIP), RDSI.	Known as PSTN, it uses a set of exchange switches to establish temporary connections between two extremes, which is known as circuit commuting. In addition, by implementing a softswitch and other active elements, the PSTN network can be interconnected with any data network and provide voice over IP.
Pay television	Satellite television, cable television, IP television and MMDS television	<p>Service is provided through different technologies, be it a satellite system or a cable system based on DOCSIS 2.0 and higher. It is distinguished by the transmission or retransmission of television and audio signals to a group of users subscribed to the service through an agreement and monetary compensation for the provider, which requires a network consisting of a Head End<sup>[1]</sup> for wired distribution, or a satellite station for wireless distribution to access users<sup>[2]</sup>.</p> <p>This network, basically established for the provision of television services or pay contents, also allows for data transmission. Hence, even though it is not a telecommunications service, it is interesting to analyze its evolution.</p>

<sup>[1]</sup> Head End: head of the telecommunications network, where programming originates, and distribution network begins. Received signals usually come from satellites and broadcasters, even from Internet, and are made available for distribution. .

<sup>[2]</sup> Users and subscribers can be residential or commercial.

Category of telecommunications service	Marketing methods	Characteristics of the networks supporting it
Data transfer	Wholesale data gathering	Denomination used to describe the service provided by a telecommunications network operator capable of carrying traffic from other operators or providers. In other words, final services are offered by other providers, since this operator leases a logical or physical connection of the network it manages, in order for other providers to render the telecommunications services to end users.
	Internet Access	Consists of the service offered by a provider, through which the necessary means of access is supplied for subscribers to connect their IT equipment to the Internet.
	End-to-end wireless links	This method implies data transfer between two or more geographically separated access points. The transportation network is based on wired media.
	Leased lines	This method implies data transfer between two or more geographically separated access points. The transportation network is based on wired media.
	Virtual Private Networks	A private data network constructed on public telecommunications infrastructure by maintaining privacy through the use of tunneling protocols and security procedures.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Authorized services not included in this report are: geolocation, videoconference and *trunking*, since they require a concession granting access to radioelectric spectrum frequencies for private commercial use, reason why the

telecommunications network used to provide these services is private and not interconnected to public telecommunications services. Hence, they are not considered services available to the public.



## •Methodology

The tasks related to the General Directorate of Markets, Competence and Quality and FONATEL were consolidated into the methodologies applied to each area for the preparation of 2021 performance indicators for the Costa Rican telecommunications sector from the perspectives of indicators of the general evolution of the market, quality of services, and execution of FONATEL's programs and projects, respectively.

### Methodology applied to market behavior indicators

With respect to the indicators of the telecommunications market behavior, the Directorate General of Markets gathers information in three stages: information gathering, review and analysis, and results generation.

Figure n.º 2. Costa Rica: Gathering, review, analysis and generation of Telecommunications Sector indicators



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

The following tables summarize the main tasks performed in each of these stages.

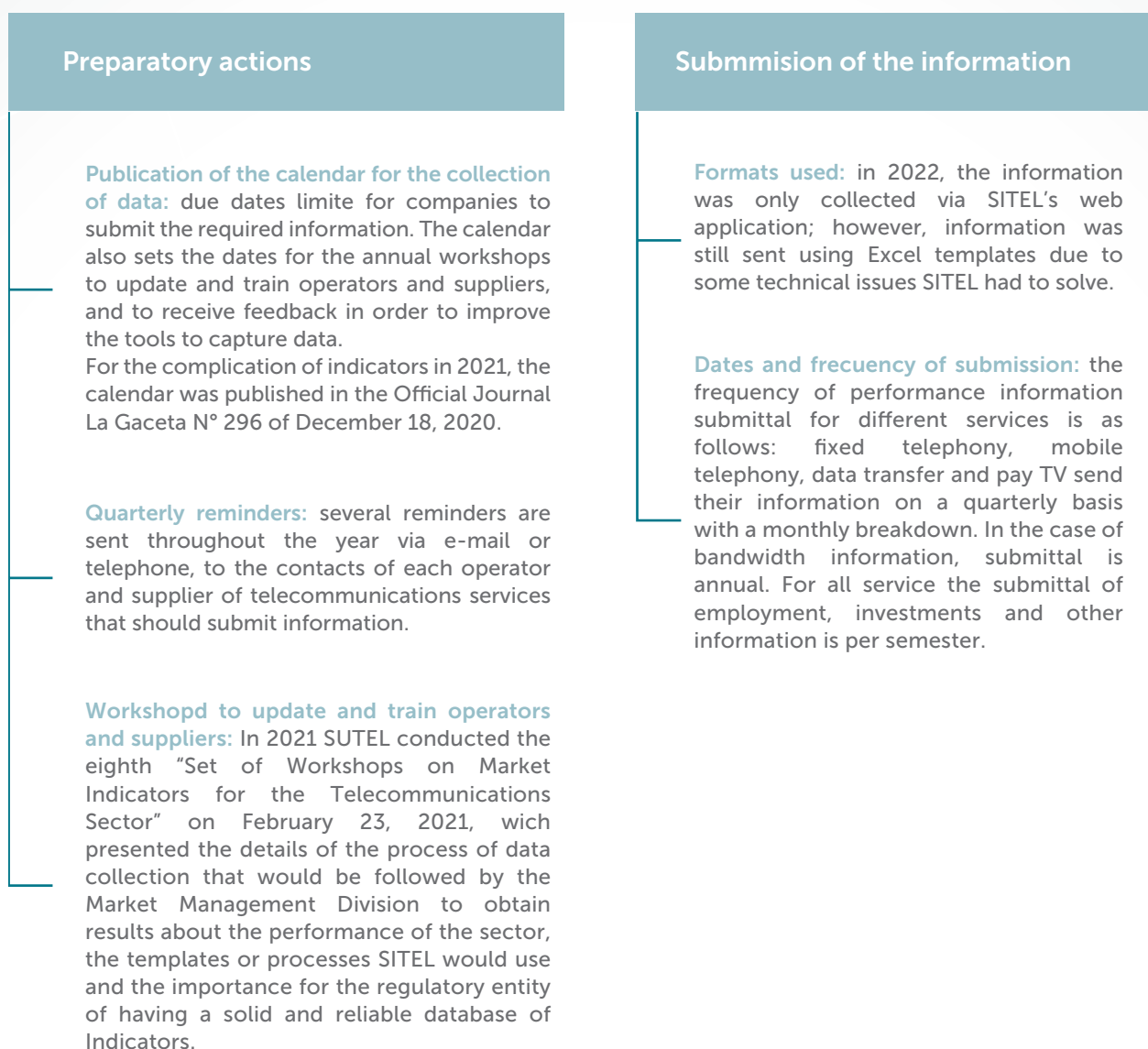
#### Information gathering

This phase is executed through the Telecommunications Indicators System, SITEL<sup>2</sup>, which feeds from information entered by operators on downloadable templates that facilitate data

reporting on behalf of operators and processing for report purposes. It should be pointed out that information contributed by each service operator or provider is deemed an affidavit with respect to each service reported.

<sup>2</sup> A platform consisting of a web application and a Business Intelligence Solution. SITEL is made up of two interfaces, one for SUTEL officers and another for persons authorized by the telecommunications service operator or provider, where information required to build indicators on downloadable templates is entered.

Figure n.º 3. Costa Rica: Information gathering for the construction of the Telecommunications Sector indicators



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Every year, with the purpose of ensuring the quality of information on behalf of the companies in the sector, training and update workshops for telecommunications services operators and providers are conducted. In 2021, because of the COVID-19 pandemic, the workshop took place online, with over 70 representatives of

telecommunications services operators and providers in attendance, corresponding to 47 operators with an active commercial offer. On this occasion, being a virtual workshop, interactive presentations and surveys were implemented, which showed acceptance on behalf of participants.

**Table n.º 2. Costa Rica: Telecommunications Superintendency: Attendance to workshops on Telecommunications Market Indicators, February 10, 2021.**

OPERATOR AND PROVIDER	PARTICIPANTS
AMERICAN DATA NETWORKS S. A.	1
SALAZAR QUESADA JUAN AGUSTÍN (Bird Link)	1
BNET LATINOAMÉRICA S. R. L.	1
COLUMBUS NETWORKS DE COSTA RICA S. R. L.	1
CABLE PLUS SRL	1
CABLE ZARCERO S. A.	1
CABLEBRUS S. A.	1
CABLETICA, SOCIEDAD ANÓNIMA	1
CALLMYWAY NY S.A.	1
CENTURYLINK COSTA RICA S. R. L.	1
CODISA SOFTWARE CORPORATION S. A.	1
COOPERATIVA DE ELECTRIFICACIÓN RURAL DE SAN CARLOS R. L. (COOPELESCA R. L.)	1
COOPERATIVA DE ELECTRIFICACIÓN RURAL LOS SANTOS R. L. (COOPESANTOS R. L.)	1
CRWIFI LIMITADA	1
DIDWW CR S. A.	1
GLOBAL COMERCIALIZADORA INTERNACIONAL S. A.	1
INSTITUTO COSTARRICENSE DE ELECTRICIDAD	1
IDEAS GLORIS S. A.	1
J.RED PACIFIC WIRE S. A.	1
METRO WIRELESS SOLUTIONS DE COSTA RICA M.W.S. S. A.	1
NETWORK CONNECT S. R. L.	1
NYXCOMM S. A.	1
SERVICIOS TECHNOLOGICOS ANTARES DE COSTA RICA S. A.	1
SISTEMA INTEGRAL DE REDES DE COMUNICACIÓN S. A.	1
TICARIBE S. A.	1
TRANSDATELECOM S. A.	1
BLUE SAT SERVICIOS ADMINISTRADOS DE TELECOMUNICACIONES S. A.	2
CLARO CR TELECOMUNICACIONES S. A.	2
CONSORCIO NACIONAL DE EMPRESAS DE ELECTRIFICACIÓN DE COSTA RICA R. L. (CONELÉCTRICA)	2
COOPERATIVA DE ELECTRIFICACIÓN RURAL DE ALFARO RUIZ (COOPEALFARO RUIZ R. L.)	2
EMPRESA DE SERVICIOS PÚBLICOS DE HEREDIA S. A. (ESPH)	2
FIBERLINK SOCIEDAD DE RESPONSABILIDAD LIMITADA	2
GOLD DATA COSTA RICA S. A.	2
GRUPO KONECTIVA LATAM S. A.	2
INALAMBRIKA NETWORKS S. A.	2
JUNTA ADMINISTRATIVA DEL SERVICIO ELÉCTRICO MUNICIPAL DE CARTAGO (JASEC)	2
COMUNICACIONES METROPOLITANAS METROCOM S. A. (METROCOM)	2
MUNDOREDES S Y H COSTA RICA S. R. L.	2
P.L.S.I. FIBERNET SOCIEDAD ANÓNIMA	2
RED CENTROAMERICANA DE TELECOMUNICACIONES S. A. (REDCA)	2

OPERATOR AND PROVIDER	PARTICIPANTS
STREAMING TV S. R. L.	2
TELECABLE S. A.	2
TELEFÓNICA DE COSTA RICA TC S. A.	2
UFINET COSTA RICA, S. A.	2
VILLALTA MORA BRYAN (ZOOM Connection)	2
COOPERATIVA DE ELECTRIFICACIÓN RURAL DE GUANACASTE R. L. (COOPEGUANACASTE)	3
R&H INTERNATIONAL TELECOM SERVICES S. A.	3
<b>GRAND TOTAL</b>	<b>70</b>

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

### Review and analysis of information

Once the information is received on the SITEL system, it is reviewed and carefully analyzed by the Team of the Directorate General of Markets (DGM). The actions carried out as a result of this general verification include the determination of the consistency in the time of the information and the reporting of complete data. If the above is not complied with, clarifications or corrections are required from those involved.

For the different services, inconsistencies are first communicated to the operator by e-mail, then by telephone call and finally by sending an official communication on behalf of the Directorate of Markets. Should an operator request a change in the historic data, indication must be made that it must be communicated to the SUTEL council and submit the corresponding justification.

Mention must be made of the fact that SUTEL ensures compliance with Law n.º 9694 National Statistics System, that makes it mandatory to provide information for statistical purposes, and more specifically article 19 that establishes:

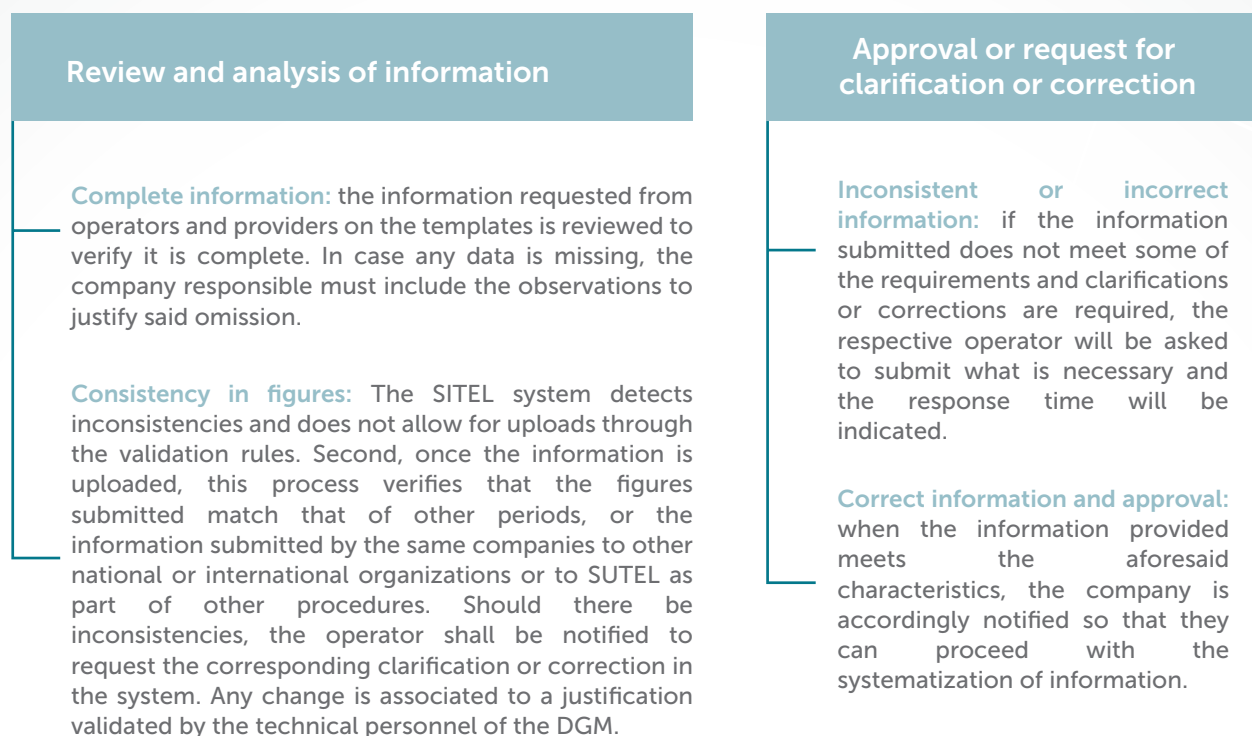
“Information contributed or provided within the framework of PEN (National Statistics Program) shall always be timely and true, under penalty of sanctions provided for in this law”.

It is important to mention that given that a new method was used to report and upload information since 2020 on the SITEL system, and additional filter was added to the review process that includes embedded rules for validation to prevent service operators and providers from including information not consistent with that historically reported, as indicated. In example, these rules prevent information upload in units different than those previously reported (thousands or millions of Colones, Kbps or MB), among others.

As part of this phase, the analyst in charge of the respective review ensures the inclusion of operators with the highest market share for the contribution of information, ensuring the representativeness of statistics.



Figure n.º 4. Costa Rica: Review and analysis of information for the construction of Telecommunications Sector indicators



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

It is important to note that in addition to the tasks of review, there are meetings with different operators throughout the year to clarify indicators required on the templates and share the observations provided by this Superintendence regarding the data they provided.

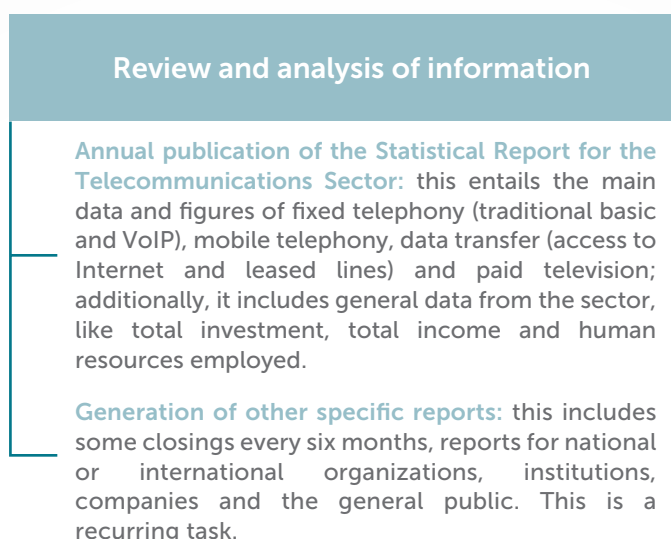
## Generation of results

This activity corresponds to the phase of generation of reports with the information provided by the operators of networks and the suppliers of telecommunication services, as well as with the information compiled from secondary national or international sources (INEC, UTI, World Economic Forum, etc.) A bi-annual report is generated and published in the SUTEL web page, as well as an annual report, which corresponds to this document.

In addition, in compliance with international organizations, the following reports were submitted:

- ITU World Telecommunications/ICT Indicators Short questionnaire, March 26, 2021
- Questionnaire OECD-BB-Dec2019\_quest\_CRI\_12JUN2020, March 3, 2021
- ITU ICT Price Basket Questionnaire, May 11, 2021
- ITU Survey on Tariff Policies, August 11, 2021
- OECD-BB-Portal-Dec2020\_Preview, July 27, 2021
- ITU World Telecommunication/ICT Indicators Long Questionnaire, September 30, 2021.

Figure n.º 5. Costa Rica: Results generation and final preparation of Telecommunications Sector indicators



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Compiled information presented in this report includes annual and quarterly figures to study the market behavior at revenue, traffic, and subscription levels. For the study of the 2017-2021 period, geometric growth rates were calculated to analyze the interannual growth of indicators. It is worth mentioning that the geometric rate assumes a constant percentage growth in time, contrary to the simple method, for which the change rate increases equally to each time unit considered. This means that in the simple model, the basic assumption consists of the analysis variable growing by the same amount (quantity) each time unit, while in the geometric rate the growth rate is constant per time unit and thus, it can be used for longer periods. Hence, it must be understood that in all sections, when reference is made to the average annual growth rate, it refers to a geometric rate.

In addition, the Herfindahl-Hirschman Index (HHI was also analyzed). This index measures the market concentration level and is an indicator used along with other behavior measurements and analysis to determine the existing market concentration level. For the specific calculation of the HHI, the market share of each company is quantified for any given market (in this case the share of the total number of

subscriptions was used) and the share percentage square of each of the companies that make up the market is added.

The index is deemed as a market concentration level measure or the economic concentration level within a market. Scores range 0 (perfect competition) to 10000 (monopoly). Thus, the greater a market concentration, the closer it is to the level associated with monopolistic control.

### Summary of behavior indicators presented in the report

The general definitions for each indicator of market behaviors are presented with the purpose of bringing clarity to the reader about the information processed. It must be noted that these definitions are in agreement with the ones applied by the International Telecommunications Union (ITU).

Table n.º 3. Costa Rica: Fixed telephony service indicators, 2021

Indicator	Definition
Total fixed active lines	Total number of lines in service and duly allocated to a customer, which are not in definite suspension of the service (articles 12 and 34 of the RPUF) and which present at least one ratable event during the last rating month or that has a valid service provision contract with the operator.
Active VoIP lines subscriptions	Number of active subscriptions to fixed lines that use voice over Internet transmission (VoIP) protocol. It only includes the total number of subscriptions to the VoIP service that have generated inbound and outbound traffic over the past three months. It excludes VoIP applications software (for example, VoIP from Skype between computers and from a computer to a phone).
RDSI, BRI and PRI service subscriptions	Total number of subscriptions of the Digital Network of Integrated Services (DNIS) that may be separated into service of basic speed interface (BRI) and primary speed (PRI).
Traditional basic telephony total traffic	Traffic that corresponds to the calls made through the analogue lines, digital or both.
Total VoIP traffic	Traffic that corresponds to the calls made through fixed managed VoIP telephony (voice transmission over Internet protocol).
International inbound telephone traffic	Traffic total with international origin and fixed on net destination.
International outbound telephone traffic	Total traffic with fixed on net origin and international destination.
Traditional basic telephony total revenue (retail)	This refers to the income from basic rate + excess + other line items associated to the provision of the fixed telephony service.
VoIP total revenue (retail)	This indicator is equivalent to the income associated to basic rate + excess + other line items associated to the provision of the VoIP.*
Number of subscriptions sold for fixed telephony service, individual or bundle	Subscriptions to fixed telephony service sold individually (not bundled with other service) and subscriptions to fixed telephony service sold bundled with other telecommunications services.

Note: \*Gross billed revenue for service sales, obtained in the provider's country. Excludes concepts such as taxes, devaluation, rebates, bonuses, discounts, cancelled sales and financial expenditures, among others.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Table n.º 4. Costa Rica: Data transfer service indicators, 2021

Indicator	Definition
Fixed wired Internet active subscriptions	Sum of the active subscriptions to the service that provides access to fixed wired Internet (cable modem, xDSL, fiber, home or building and other fixed wired technologies).
Fixed wireless Internet active subscriptions	Sum of the active subscriptions to the service that provides access to fixed wireless Internet (Satellite, fixed WiMax and other fixed wireless technologies).
Mobile Internet active subscriptions	Sum of active subscriptions to the service that provides mobile Internet (prepaid and postpaid cellular, Data Card, mobile WiMax and other mobile technologies).
Dial-up Internet active subscriptions	Number of dial-up Internet active subscriptions. This service includes Internet connection via a modem and a fixed telephone line, where the modem dials a phone number when Internet Access is required.
Number of leased lines (leased links)	Number of leased private connections. A leased line connects two locations of the telecommunications service for voice or private data. These lines do not have a special cable, but a reserved circuit between two points. Usually, the enterprises lease these lines for the connection of their offices because they guarantee the necessary bandwidth for the traffic of the network.
Internet traffic	Refers to the number of data transmitted and downloaded (in Gigabytes) by all the users of the Internet access service.
Total revenue for the provision of leased lines	Total revenue billed for the provision of leased lines service.
Maximum download speed offered	Maximum Internet speed offered to download data in the Internet access service.
Minimum download speed offered	Minimum Internet speed offered to download data in the Internet access service.
Total billed revenue for wired Internet access	Corresponds to the total billed revenue in association with the provision of wired Internet access service. *
Total billed revenue for wireless Internet access	Corresponds to the total billed revenue in association with the provision of wireless Internet access service. *
Total billed revenue for mobile Internet access	Corresponds to the total billed revenue in association with the provision of mobile Internet access service. *
Number of subscriptions sold for fixed Internet service, individual or bundle	Subscriptions to fixed Internet service sold individually (not bundled with other service) and subscriptions to fixed telephony service sold bundled with other telecommunications services.

Note: \*Gross billed revenue for service sales, obtained in the provider's country. Excludes concepts such as taxes, devaluation, rebates, bonuses, discounts, cancelled sales and financial expenditures, among others.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.



Table n.º 5. Costa Rica: Mobile telephony service indicators, 2021

Indicator	Definition
Postpaid active mobile subscriptions	Total number of subscriptions to postpaid mobile telephones that pay a monthly subscription rate and present at least one ratable event during the rating month and are not in definite service suspension pursuant to articles 12 and 34 of the RPUF.
Prepaid active mobile subscriptions	Total number of prepaid mobile telephones subscriptions that have at least one ratable event to the balance of the service within ninety-calendar days before the last rating and that belong to the prepaid platform.
Total capacity of mobile lines installed	Corresponds to the maximum number of mobile lines that can be connected. This number includes mobile lines already connected and mobile lines available for later connections, including those for technical use of the switch (test numbers).
Mobile traffic (voice, SMS and MMS)	Refers to the total traffic of the mobile telephony service.
Mobile traffic – fixed own	Traffic originating in own mobile network (on net mobile) with destination on own fixed net-work (fixed network of the same operator).
Mobile traffic on net	Traffic originating in mobile network with destination on the same mobile network (on net traffic).
Mobile traffic – other mobile networks	Traffic originating in own mobile network (on net mobile) with destination on other mobile networks (mobile networks of other operators).
Other mobile networks traffic – own mobile	Traffic originating in mobile networks of other operators (off net mobile) with destination on own mobile network (on net mobile).
Fixed own traffic –own mobile	Traffic originating in own fixed network with own mobile network (on net m-bile) as destination.
Mobile traffic – other fixed networks	Traffic originating on own mobile network (on net mobile) with other fixed networks (off net fixed) as destination.
Other fixed networks traffic-own mobile	Traffic originated in fixed networks of other operations (fixed off net) with destination own mobile network (on net mobile).
Mobile traffic - international	Traffic originated in own mobile network (on net mobile) with international destination (off net international).
International network traffics – own mobile	Traffic with origin in international networks (off net international) with destination of own mobile network (on net mobile).
Mobile traffic in transit	Traffic with off net origin (other fixed network, mobile and international long distance,) with off net destination (other fixed networks, mobile and international long distance that transit thru one own mobile network.
Total mobile voice traffic per payment modality	Corresponds to the sum of mobile voice traffic according to payment modality (pre-paid and post-paid). To construct this indicator, it is necessary to add on net traffic plus outbound off net traffic.Total mobile voice traffic: Mobile voice traffic on net + mobile voice traffic off net total (mobile voice traffic outbound to other mobile networks, to own fixed network, to other fixed networks and to international networks).

Indicator	Definition
Postpaid on net SMS traffic	Brief messaging traffic (SMS) exchanged between subscriptions to the same mobile network, under the postpaid modality.
Prepaid on net SMS traffic	Brief messaging traffic (SMS) exchanged between subscriptions to the same mobile network, under the prepaid modality.
Postpaid off net SMS traffic	Brief messaging traffic (SMS) sent and received by subscriptions to the mobile telephony service under the postpaid modality.
Prepaid off net SMS traffic	Brief messaging traffic (SMS) sent and received by subscriptions to the mobile telephony service under the prepaid modality.
Postpaid or prepaid national SMS traffic	Brief messaging traffic (SMS) sent to national destinations from mobile telephones under the postpaid or prepaid modality.
Postpaid or prepaid international SMS traffic	Brief messaging traffic (SMS) sent to international destinations from mobile telephones under the postpaid or prepaid modality.
Postpaid on net MMS traffic	Traffic of Multimedia (MMS) messages exchanged between subscriptions of the same mobile network under the postpaid modality.
Prepaid off net MMS traffic	Traffic of Multimedia (MMS) messages exchanged between subscriptions of the same mobile network under the prepaid modality.
Postpaid off net MMS traffic	Traffic of Multimedia messages (SMS) sent and received by subscriptions to the mobile telephony service under the postpaid modality.
Prepaid off net MMS traffic	Traffic of Multimedia (MMS) messages sent and received by subscriptions to the mobile telephony service under the prepaid modality.  Excludes: MMS on net traffic.
Postpaid or prepaid national MMS traffic	Traffic of Multimedia (MMS) messages sent to national destinations from mobile telephones under the postpaid or the prepaid modality.
Postpaid or prepaid international MMS traffic	Traffic of Multimedia (MMS) messages sent to international destinations from mobile telephones under the postpaid or the prepaid modality.
Outbound roaming telephone traffic	Total number of minutes of communication traffic made by own customers through local networks in roaming with foreign networks, when they are out of the zone of services of the local network (outbound roaming).
Inbound roaming telephone traffic	Total number of minutes of communication traffic received by own customers through local networks in roaming with foreign networks, when they are out of the service area of the local network (outbound roaming)
Outbound international roaming SMS and MMS traffic	Traffic generated by resident mobile subscribers when sending SMS and MMS when they are out of the service area of the local network.
Inbound international roaming SMS and MMS traffic	Traffic generated by resident mobile subscribers when receiving SMS and MMS when they are out of the zone of service of the local network (inbound roaming).

Indicator	Definition
Inbound roaming data traffic (TB)	Traffic transmitted (in TB) by resident subscribers in accessing Internet services when they are located out of the zone of services of the local network (inbound roaming).
Outbound roaming data traffic (TB)	Traffic received (in TB) by resident subscribers in accessing Internet services when they are located out of the zone of services of the local network (outbound roaming).
Average prices	Average prices of a call from a mobile telephone (prepaid or postpaid).
Average price of a local one-minute call (peak hours, on net) for mobile cellular telephony	<p>Price of a local on- minute call made during peak hours from a mobile telephone line. The calculation of this indicator can be made based on the distribution of the income generated from mobile calls (prepaid or postpaid) on net, made during the time window considered as “peak” or high consumption hours, divided by the number of minutes consumed (traffic) in these calls.</p> <p>It includes taxes.</p>
Average price of a local call per minute (out of peak hours, on net) for mobile telephones	<p>Price of a local call per minute carried out during peak hours from a mobile cellular phone (Prepaid or postpaid) to another cell phone from the same network. Calculation for this indicator may start with the distribution of the income generated by prepaid on net mobile calls done during “non-peak” hours or low consumption, by the number of minutes consumed (traffic) in these calls.</p> <p>Includes taxes.</p>
Average price of a local call per minute (out of peak hours, off net) for mobile cellular telephony	<p>Price of a local call per minute made out during peak hours from a mobile cellular telephone (prepaid or postpaid) to the mobile cellular telephony of another network. The calculation of this indicator can be made based on the distribution of the income generated under the concept of prepaid or postpaid mobile calls off net made during “non-peak” or low consumption hours, divided by the number of minutes consumed (traffic) in these calls.</p> <p>It includes taxes.</p>
Average price of a local call per minute (peak hours to a fixed network) for mobile cellular telephony	<p>Price of a local call per minute made out during peak hours from a mobile cellular telephone (prepaid or postpaid) to the fixed telephone network. Calculation may start with the distribution of the income generated by prepaid mobile called done to a fixed network during “peak” or high consumption hours by the number of minutes consumed (traffic) during these calls.</p> <p>It includes taxes.</p>
Average price of a local call per minute (out of peak hours to a fixed network) for mobile cellular telephony	<p>Price of a local call per minute made out during peak hours from a mobile cellular telephone (prepaid or postpaid) to the fixed telephone network. Calculation may start with the distribution of the income generated by prepaid mobile called done to a fixed network during “non-peak” or low consumption hours by the number of minutes consumed (traffic) during these calls.</p> <p>It includes taxes.</p>

Indicator	Definition
Average price of a local call per minute (peak hours, off net) for mobile cellular telephony	<p>Price of a local call per minute made in peak hours from a mobile cellular telephone (pre-paid or post-paid) to the fixed telephone network. The calculation of this indicator can be made based on the distribution of income generated for prepaid or postpaid mobile calls made to a fixed network during the peak hours or high consumption hours, divided by the number of minutes consumed (traffic) in these calls.</p> <p>It includes taxes.</p>
Average price of a local call per minute (weekend/at night, on net) for mobile telephony	<p>Price of a local call per minute made during the weekend, at night from a (pre-paid or post-paid) mobile cellular phone to a mobile telephone from the same network. Must include taxes; otherwise, a note must be included indicating the taxable rate.</p> <p>Calculation of this indicator may be done based on the distribution of income generated by pre-paid on net mobile calls during the weekend, at night, divided by the number of minutes (traffic) including taxes.</p>
Average price of a local call per minute (weekend, at night, off net) for mobile cellular telephony.	<p>Price of a local call per minute made during the weekend, at night, from a mobile cellular telephone (prepaid or postpaid) to a mobile telephone service from another network... The calculation of this indicator can be made based on the distribution of the income generated by pre-paid off net mobile calls made during the weekend, at night, divided by the number of minutes (traffic).</p> <p>It includes taxes.</p>
Average price of a local call per minute (weekend, night, to a fixed network) for mobile cellular telephony.	<p>Price of a local call per minute made during the weekend, at night, from a mobile cellular telephone (prepaid or postpaid) to a mobile telephone service from another network... The calculation of this indicator can be made based on the distribution of the income generated by pre-paid off net mobile calls made during the weekend, at night, divided by the number of minutes (traffic).</p> <p>It includes taxes.</p>
Average SMS (on net) price for pre-paid and post-paid mobile cellular telephony	<p>Average price of sending a brief message (SMS) from a mobile cellular telephone (pre-paid or post-paid) to the mobile cellular telephony of the same network. The calculation of this indicator can be made based on the distribution of the income generated divided by the number of SMS on net. It includes taxes.</p>
Average SMS (off net) price for pre-paid and post-paid mobile cellular telephony	<p>Average price of sending a brief message (SMS) from a mobile cellular telephone (prepaid or postpaid) to the mobile cellular telephony of another network. The calculation of this indicator can be made based on the distribution of the income generated divided by the number of SMS off net.</p> <p>It includes taxes.</p>

Indicator	Definition
Revenue for prepaid or postpaid mobile telephone services	Revenue associated to the prepaid or postpaid mobile telephony service. This is constructed from the aggregation of the revenue for the monthly rate, the revenue for excess minutes and the revenue that corresponds to other charges generated as part of the provision of the mobile telephony service; they are not part of the monthly rate or the inherent rate for excess minutes, as the fines for suspension or re-connection.
Revenue for prepaid or postpaid on net mobile voice traffic	Revenue associated to the mobile voice traffic originated in own mobile network (on net mobile) with destination to the same mobile network (on net mobile). *
Revenue for prepaid or postpaid outbound voice traffic	Revenue associated to the mobile voice traffic originated in own mobile network (on net mobile) with off net destination (own fixed network, other fixed networks, other mobile networks, international networks). *
Revenue for monthly subscription or minimal prepaid or postpaid rate	Revenue obtained from the collection of recurrent taxable rates in the subscription of the prepaid or postpaid mobile telephony service. *
Revenue for excess in fixed mobile telephone prepaid or postpaid service	Revenue associated to the excess minutes or minutes not contemplated in the minimal rate of the prepaid or pos-paid service. This includes excess minutes for local and international calls. *
Revenue for prepaid or postpaid mobile inbound voice traffic	Revenue associated to the traffic with off net origin (own mobile network, other fixed networks, other mobile networks, international networks) and on net destination (own fixed network). *
Revenue for prepaid or postpaid international outbound mobile voice traffic	Revenue associated to the mobile voice traffic originated in own mobile network (on net mobile) with international off net destination. *
Revenue for prepaid or postpaid inbound international mobile voice traffic	Revenue associated to the traffic with off net international origin and on net destination (own mobile network)*.
Revenue for number of postpaid or prepaid on net SMS	Revenue associated to the traffic of brief messages (SMS) exchanged between users of the same mobile network under the postpaid or prepaid modality *
Revenue for number of postpaid or prepaid off net SMS	Revenue associated to the traffic of brief messages (SMS sent to national and international destinations from mobile telephones, under the postpaid or prepaid modality.*
Revenue for number of postpaid or prepaid on net MMS	Revenue associated to the traffic of multimedia messaging service (MMS) exchanged be-tween users of the same mobile network, under the postpaid or prepaid modality.*
Revenue for number of postpaid or prepaid off net MMS	Revenue associated to the traffic of multimedia messaging service (MMS) sent to national and international destinations from mobile telephones, under the post-paid or pre-paid modality. *

Indicator	Definition
Revenue for postpaid or prepaid MMS sent to national destinations	Revenue associated to the total traffic of multimedia messages (MMS) sent to national destinations. It does not include messages sent from a computer to other computers or to mobile telephones. *
Revenue for postpaid or prepaid MMS sent to international destinations	Revenue associated to the total traffic of multimedia messages (MMS) sent to international destinations. It does not include messages sent from a computer to other computers or mobile telephones. *
Revenue for postpaid or prepaid SMS sent to national destinations	Revenue associated to the traffic of brief messages (SMS) sent to national destinations from mobile telephones.*
Revenue for postpaid or prepaid SMS sent to international destinations	Revenue associated to the traffic of brief messages (SMS) sent to international destinations from mobile telephones. *
Revenue for total number of MMS	Revenue associated to the total traffic of multimedia messages (MMS) sent to national and international destinations. It does not include messages sent from a computer to other computers or to mobile telephones.*
Revenue for outbound roaming telephone traffic (minutes)	Revenue generated by the subscribers to mobile telephony in making and receiving calls when they are out of the service area of the network from their country; for example, when they travel overseas. *
Revenue for inbound roaming telephone traffic (minutes)	Revenue generated by the visiting subscribers (foreigners) in making or receiving calls in a country. This income is obtained by the operators of the network in the country of the visiting subscribers. *
Revenue for outbound SMS and MMS roaming	Revenue generated by the subscribers to mobile telephony in sending SMS and MMS when they are out of the service area of the network from their country. *
Revenue for inbound SMS and MMS roaming	Revenue for the traffic generated by visiting subscribers (foreigners) in receiving SMS and MMS. This income is obtained by network operators in the country of visiting subscribers. *
Inbound roaming data traffic (TB)	Revenue for traffic generated by visiting subscribers (foreigners) in accessing the Internet. This income is obtained by network operators in the country of visiting subscribers.*
Outbound roaming data traffic (TB)	Revenue generated by mobile telephony subscribers in accessing the Internet when they are out of the service area of the network from their country. *
Wholesale revenue for mobile telephony services	Wholesale revenue associated to the provision of mobile telephone services. This refers specifically to the income from the charges of termination of calls in own network. This indicator is estimated based on the sum of revenue received from incoming traffic in own mobile networks *



Indicator	Definition
Total number of mobile telephony subscriptions, individual or bundled	Mobile telephony subscriptions sold individually (not sold bundled to other service) and mobile telephony subscriptions sold bundled with other telecommunications services.

Note: \* Gross billed revenue for service sales, obtained in the provider's country. Excludes concepts such as taxes, devaluation, rebates, bonuses, discounts, cancelled sales and financial expenditures, among others.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 6. Costa Rica: Pay TV indicators, 2021**

Indicator	Definition
Total number of subscriptions to multi-channel television via Cable TV services.	Number of subscriptions to multi-channel television, transmitted via ground means through hybrid fiber-coaxial cable (HFC) networks. These networks allow for the provision of other telecommunications services.
Total number of subscriptions to multi-channel television via direct home (DTH) antennas.	Number of subscriptions to multi-channel television that correspond to television signals received from a communications satellite and that are transmitted from the operator to the end user receiving device.
Total number of subscriptions to multi-channel television via IPTV.	Number of subscriptions to multi-channel television through broadband connections over the IP protocol.
Total number of subscriptions to multi-channel television through Microwave Multipoint Distribution Service (MMDS)	Number of subscriptions to multi-channel television using the Microwave Multipoint Distribution Service, which transmits wireless signals to the end user. This service allows for the provision of other telecommunications services.
Revenue for pay television service (revenue for subscriptions, connection, basic plan and value added)	Total billed revenue for pay television service, without deductions (taxes, returns, discounts, bonuses, offers, cancelled sales, and others), obtained in the country by pay TV service providers. *
Number of pay TV subscriptions sold individually or bundled	Pay TV subscriptions sold individually (not bundled with another service) and pay TV subscriptions sold bundled with other telecommunications services

Note: \*Gross billed revenue for service sales, obtained in the provider's country. Excludes concepts such as taxes, devaluation, rebates, bonuses, discounts, cancelled sales and financial expenditures, among others.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.



Table n.º 7. Costa Rica: General service indicators, 2021

Indicator	Definition
Staff employed in the rendering of public telecommunications services	<p>Number of staff employed (permanent and outsourced*) by network operators and telecommunications services providers in the country for the rendering of telecommunications services.</p> <p>Staff employed in national broadcasting networks shall not be included if only traditional broadcasting services are provided by them.</p> <p>*Outsourced staff (<i>outsourcing</i>) is to be included only if the person is specialized in the rendering of telecommunications services (ITU).</p>
Outsourced staff employed in the rendering of public telecommunications services	<p>Total number of staff employed under the outsourcing modality, by network operators and telecommunications services providers in the country for the rendering of telecommunications services. It is worth mentioning that outsourced staff must specialize in telecommunications services; otherwise it shall not be included in the indicator (cleansing, marketing, and security personnel, among others)</p> <p>Staff employed in national broadcasting networks shall not be included if only traditional broadcasting services are provided by them.</p> <p>If the number of people working in the execution of outsourced activities is unknown, an indication of an approximate number in accordance with said activities is suggested.</p>
Women employed in telecommunications services	<p>Total number of women employed (permanently and outsourced*) working in telecommunications services.</p> <p>* Outsourced staff is to be included only if they provide a specialized telecommunications service.</p>

Indicator	Definition
Investment per semester in telecommunications services	<p>Refers to the gross capital expenditure incurred in the past 6 months of tangible and intangible assets, to be used by the company providing telecommunications services in the country for the acquisition and improvement of property, plant and networks.</p> <p><b>INCLUDES:</b></p> <ul style="list-style-type: none"> <li>*Acquisition of intangible goods like intellectual property, software, licenses and patents (see detail in ID G8).</li> <li>*Expenditures in initial facilities, expansion of existing facilities expected to be used for a long period of time.</li> </ul> <p><b>EXCLUDES:</b></p> <ul style="list-style-type: none"> <li>*Expenses related to day-to-day operations.</li> <li>*R&amp;D Expenses.</li> <li>*License exploitation or radioelectric frequency spectrum use fees (see detail in ID G8).</li> <li>*Expenditures on software or telecommunications equipment for internal use. (ITU).</li> </ul> <p><b>NOTE:</b></p> <p>For figures expressed in a currency other than CRC (Costa Rican colón), conversion to colones must be made by using the buying reference exchange rate of Banco Central de Costa Rica at the end of each month.</p> <p>In case expenditures are shared to provide services other than telecommunications, the amount corresponding to telecommunications shall be estimated.</p> <p>In case expenditures are given on credit, the real value of the purchase must be recorded.</p>
Kilometers of fiber optics	<p>The number of kilometers of fiber optics installed as of date.</p> <p>Note: all infrastructure of own use exclusively is to be excluded.</p>
Number of subscriptions sold under different modalities: individual, double, triple and quadruple	<p>Subscriptions of different telecommunications services sold individually (not bundled with other service) and subscription sold bundled with other telecommunications services.</p>

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021

## Directorate General for Competition

The Strengthening of the Competition Authorities of Costa Rica Act, n.º 9736, provides that SUTEL is the sectoral authority responsible for the defense and promotion of competition in the sector of telecommunications and networks that support audio and TV broadcasting.

On its behalf, The General Telecommunications Law (LGT in Spanish), n.º 8642, Chapter II of Title III, provides for a Sectoral Competition Regime that assigns a series of legal competences to the Superintendency of Telecommunications as the sectoral competition authority in telecommunications, namely:

- a) To promote the principles of competition in the national telecommunications market.
- b) To analyze the degree of effective competition in markets.
- c) To determine when operations or acts executed or held abroad on behalf of operators or providers can affect effective competition in the domestic market.
- d) To ensure telecommunications market access for operators and providers on reasonable and non-discriminatory terms.
- e) To ensure access to essential facilities on a fair and non-discriminatory basis.
- f) Prevent dominant abuse and monopolistic practices issued by operators or providers in the market, providers may not allocate 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 will cease immediately, with no detriment to the responsibilities deriving from this conduct.
- g) Prevent and detect monopolies and investigate cartels, monopolistic practices, illegal mergers and other restrictions to the efficient functioning of the telecommunications market, and impose measures and sanctions provided for by law.
- h) Authorize or deny mergers in the telecommunications sector and networks that support audio and television broadcasting, and impose the conditions deemed necessary to offset potential anti-competitive effects deriving from a concentration.
- i) Request any individual or legal entity, de facto or de jure corporation, public or private, domestic or foreign, to provide the information and documentation required to fulfill its duties.
- j) Inspect and obtain copies of documents and physical or electronic records with the prior justified authorization from a Contentious Administrative and Civil Court, industrial and commercial establishments, and other real and personal property of operators and providers, when necessary to gather useful information to investigate absolute or relative monopolistic practices contemplated by this law and its regulations and ensure is not lost or destroyed; as provided for in chapter IV of title III of the Law for Strengthening the Competition Authorities in Costa Rica.
- k) Conduct activities for the promotion and defense of competition in the sector of telecommunications and networks that support audio and television broadcasting services.
- l) Issue an opinion on free and open competition with respect to regulations, agreements, circular letters, and administrative acts related to the sector of telecommunications and networks that support audio and television broadcasting services, without said criteria having any binding effect.

m) Other tasks assigned by the Law for Strengthening the Competition Authorities in Costa Rica and its regulations.

Hence, SUTEL has the authority to investigate and sanction, as appropriate, monopolistic practices by telecommunications operators, approve or reject applications to authorize telecommunications operators' mergers, and conduct activities for the promotion and advocacy of competition, among which are the issuance of opinions, market studies, the publication of guidelines and conducting dissemination and training activities to promote competition culture.

This year, on the overall market performance section, information has been included regarding the activities developed by SUTEL as the sectoral competition authority during 2021, specifically in relation to:

- Merger review.
- Investigations related to possible monopolistic practices, whether absolute or relative.
- Development of methodological analysis guidelines; meaning the guides to promote transparency, predictability, and legal certainty in relation to the application, formalities and procedures before SUTEL.
- Conduct activities for the promotion of the culture of competition.
- Conduct market analysis.
- Issue opinions on regulations, bills of law, request for proposal (RFP) and other type of administrative acts that might affect competition in the telecommunications markets.

## **Methodology applied to the monitoring and evaluation system for FONATEL's programs and projects**

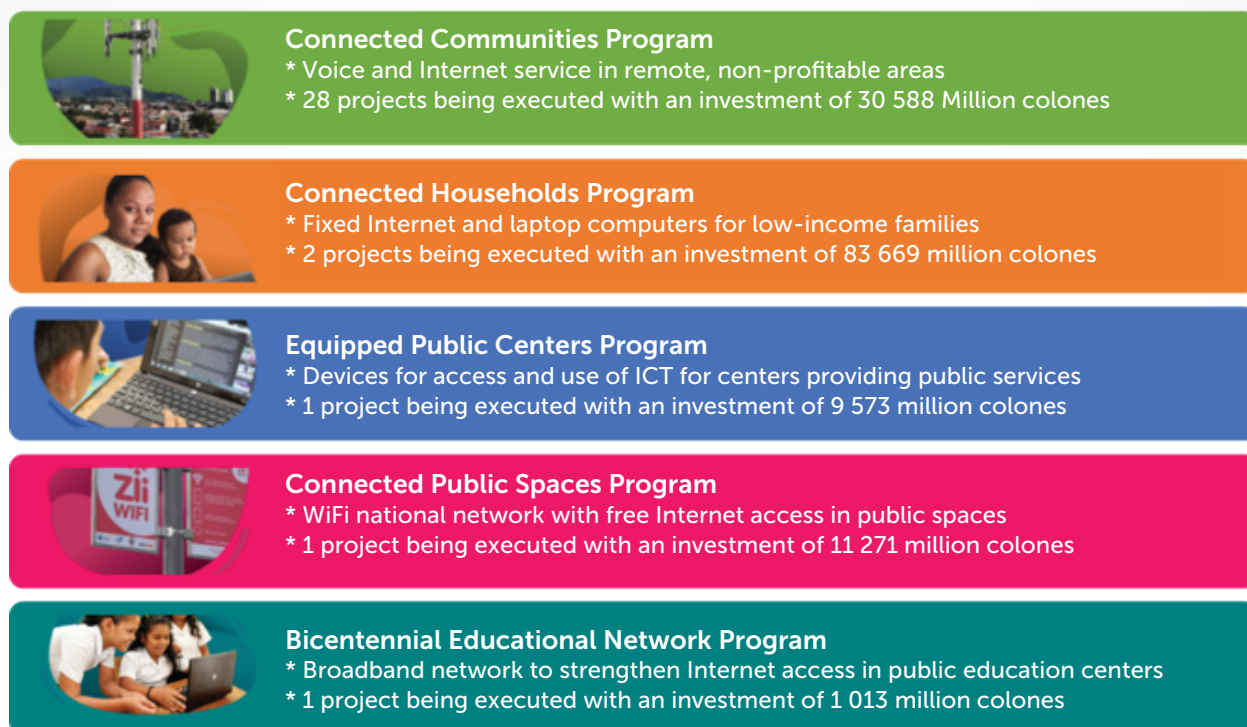
Telecommunications General Law, n.º 8642 (articles 31 to 40 and Transitory VI), authorize SUTEL to develop projects that guarantee the access and use of telecommunications services to the most vulnerable population or those inhabiting in geographic areas with a low economic return. This is carried out with funds coming from the National Fund of Telecommunications (FONATEL) according to the objectives set in such law, and the goals and priorities defined in the current National Plan of Development of Telecommunications (NTDP) 2015-2021.

To determine the scope of programs and projects for universal access, universal access 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 projects and programs while they are in force.

The portfolio of projects financed with resources from FONATEL closed 2021 with five programs, two out of which are in the planning phase, all programs have projects in the execution phase and one has projects in the closing stage<sup>3</sup>. These five programs together are associated to 11 goals included in the Digital Inclusion pillar of the NTDP 2015-2021. Figure n.º 6 shows the developing programs executed with FONATEL funds.

<sup>3</sup> Programs with projects in the planning phase in 2021: Connected Communities Program (Central region projects) and Equipped Public Centers Program (project 2). Programs with projects being executed (active): Connected Communities Program, Connected Households Program, Equipped Public Centers Program, Connected Public Spaces Program and Bicentennial Educational Network Program. The program with projects in the closing phase is the Connected Communities Program (Pacuarito and Roxana Projects).

Figure n.º 6. Costa Rica: Portfolio of programs developed<sup>4</sup> with funds from FONATEL 2021



Source: SUTEL, Directorate General, FONATEL, Costa Rica, 2021

It is important to mention that the development lifecycle of the FONATEL programs' projects consists of four stages, as detailed below:

**a) Initiation:** the process for the definition of a new project, to assess its value and viability. Includes receipt and initial evaluation of initiatives, pre-feasibility study, preliminary draft scheme and the generation of the development order (SDO) or articles of incorporation for the implementation of the new project.

**b) Planning:** the processes required to establish the scope of the project and define the necessary course of action to attain the goals set. Includes terms of reference for the award to the provider in charge of 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 consists of the formulation and bid/awarding.

• **Formulation:** consists of the projects in the planning phase, specifically from the issuance of the development order to the preparation of the request for proposal (RFP).

• **Bid / award:** consists of the projects in the planning phase, specifically from the beginning of the bidding process to the award to an offeror.

**c) Execution:** It comprises Project execution or development process pursuant to the work defined in the Project and Program Plan (project management begins), and control and follow-up process intended to analyze the project's progress and performance (including payment processing, quality control, risk management, and progress changes and monitoring in product delivery). This phase begins once the project is awarded to a network operator or telecommunications services provider until its completion; and consists of the execution/ receipt and production statuses.

<sup>4</sup> Includes all programs in one of the phases of a project's lifecycle: planning, execution and completion, that are executed with FONATEL's funds.

- **Execution / Receipt:** encompasses projects in the execution phase, specifically from the start of the project development, once awarded to an offeror, until its completion. Includes receipt and acceptance of infrastructure and equipment.
- **Production:** it covers projects in execution phase, specifically operating projects (providing services), from the commissioning of the infrastructure until the termination of the contract.
- d) Closing:** project completion and delivery process. Includes contract termination and completion and generation of the project closing documentation.

Within the framework of the above defined phases and as part of the controlling, monitoring and evaluation functions of the projects financed through FONATEL, two types of indicators are defined, built and compiled, and analyzed: operational indicators (that allow to measure project progress) and evaluation indicators (that measure the effects and impact of projects in target populations, as well as the perception of program beneficiaries regarding the goods and services received). This report includes only operational indicators associated to the programs with projects in execution phase.

It should be pointed out that overall results for the Telecommunication Sectors reported and analyzed in the sections corresponding to each service and that are part of this report include, implicitly, results of indicators regarding programs and projects financed through FONATEL and executed as of the cut-off date, reason why they should not be added to have a complete view of the sector.

## Operational indicators associated to FONATEL programs

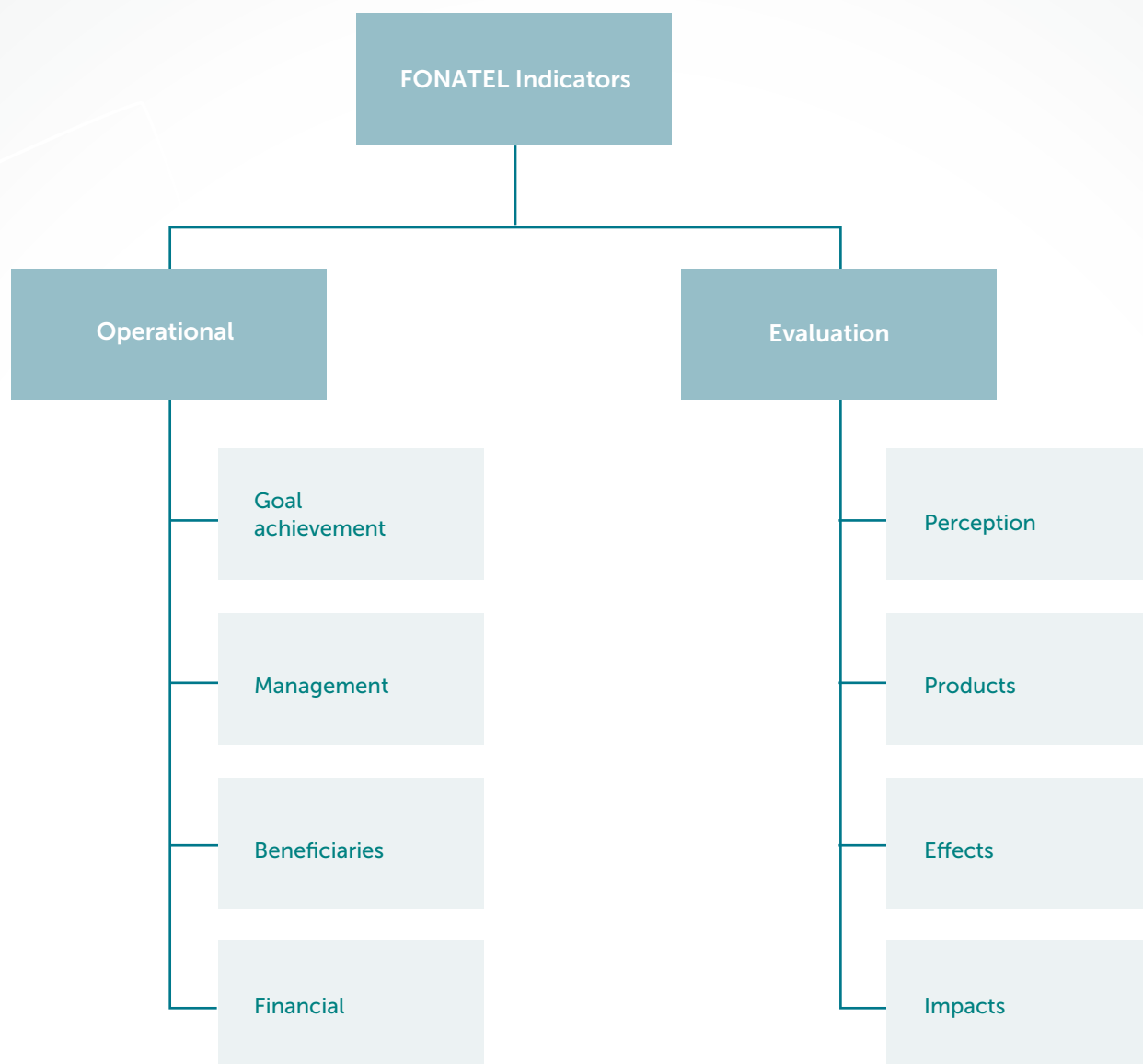
Operating indicators measure the progress in the compliance of goals contemplated in the NTDP in force for each program and each project's general progress. That is, they provide information about the performance of the actions relative to the provision of services, supply of devices and support products<sup>5</sup>, starting with each intervention or program developed within the FONATEL framework managed by SUTEL. The collection and analysis of these indicators is performed on a monthly basis via the monthly execution reports prepared by the Fiduciary of the Trust (Banco Nacional de Costa Rica) jointly with the management units<sup>6</sup> of the respective programs and projects in accordance with clause 14, section d.4 of the trust agreement.

Operating indicators are subdivided into four types or categories (see Figure n.º 6): goal compliance indicators, to monitor progress regarding goals of the current NTDP, management indicators, to monitor the operating progress of projects; beneficiary indicators, that allow to quantify populations that have benefited from the projects and programs' products and finally, financial indicators, aimed at measuring the execution of the Fund's resources in the development of projects and programs aimed at reducing the digital gap.

<sup>5</sup> Support products are defined as: devices, equipment and instrument that allow access and use of ICT and products designed to promote autonomy of people with disabilities.

<sup>6</sup> Management unit: auxiliary body of the trust, consisting of a group of professionals or specialists hired by the trustee to provide support in the required technical areas related to programs and projects to be completed with the trust funds. For programs in execution, management units will be handled by Ernst & Young, Price Waterhouse Coopers and the SPC-NAE consortium.

Figure n.º 7. Costa Rica: FONATEL 2021 Indicators



Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

The methodology based on the Logical Framework Approach<sup>7</sup> and the Chain of Results<sup>8</sup>, is used for the collection of operating indicators to guarantee that the programs, projects and actions associated to these are aligned to the goals and objectives of the public policy provided for in the current NTDP.

This methodology includes templates for the registration of the information and a catalog of indicators developed jointly with the corresponding SUTEL's Directorate General of Markets. The templates of indicators are completed by management units and sent to the Directorate

<sup>7</sup> 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 objectives and activities, indicators (specific results to be achieved, means of verification and assumptions (external factors that imply risks) Rows: components of the EAP: purpose, purpose, components / results and activities required to produce the Components / Results.

<sup>8</sup> The **results chain** provides a clear and logical definition of how the sequence of inputs, activities and products, directly related to the intervention, interact and allow the achievement of the effects and impacts.



General of FONATEL on behalf of the fiduciary of the trust on a monthly basis. The Directorate's technical team reviews the historic data, considering the details provided by the fiduciary of the trust in the monthly reports on management of programs and projects approved by the SUTEL Council, and in the follow-up monthly meetings with the latter and the management units. Additional controls are implemented during visits to sites covered and requests of information from institutions involved in the execution.

In addition, a verification of indicators is made on behalf of the Directorate General of Markets, in compliance with the provisions of the SUTEL Council pursuant to agreement 012-054-2021 (07336-SUTEL-SCS-2021) dated August 9, 2021.

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

- **Aggregate results:** corresponds to results obtained through indicators that measure in a general and aggregated manner the joint execution of programs and projects developed within FONATEL's framework.
- **Results per program:** refers to obtained results on the performance of the execution of each of the programs and projects managed through FONATEL, that specifically measure the status and progress of each of the projects being developed.

An excerpt of the catalog of operating indicators of FONATEL, corresponding to the four programs in execution as of 2021, is next presented.<sup>9</sup>

**Table n.º 8. Costa Rica: Catalog of indicators for monitoring and evaluation of FONATEL's programs and projects in execution phase, 2020**

Group	Type of Indicator	Name of Indicator	Indicator Description
Aggregate	Management	Total projects developed through FONATEL	Cumulative total of projects developed through FONATEL programs, pursuant to the status of the lifecycle phases they are in.
Aggregate	Management	Districts with at least one program developed by FONATEL	Cumulative total of districts with at least one program developed by FONATEL with (total or partial) connectivity, with access to voice and data service, or at least one household benefiting from a subsidy for Internet service and a device for its use or a CPSP with devices for access and use of ICT or a digital area with free working Internet.

<sup>9</sup> The catalog of operating indicators and its subdivision was validated in a joint process between the Directorate General of FONATEL and the Directorate General of Markets to guarantee the standardization of definitions and the validity of comparisons. These indicators were approved by the Board of SUTEL pursuant to agreements 002-031-2020 and 003-031-2020 (notified via official letters 03396-Sutel-SCS-2020 and 03397-Sutel-SCS-2020 of April 20, 2020, respectively) and agreements 011-057-2020 and 013-057-2020 (notified via official letters 07324-Sutel-SCS-2020 and 07326-Sutel-SCS-2020 of August 18, 2020, respectively). Regarding indicators of the Bicentennial Educational Network Program, these are in the process of being officially incorporated to the catalog of indicators, which is expected to be completed in the month of May 2022.

Group	Type of Indicator	Name of Indicator	Indicator Description
Aggregate	Management	Devices provided through FONATEL programs for access and use of ICT	Cumulative total of devices provided to households by Public Service Provision Centers (CPSP in Spanish) through FONATEL programs for access and use of information and communications technology (ITC).
Aggregate	Management	Public Service Provision Centers which benefited from FONATEL programs	Cumulative total of Public Service Provision Centers (CPSP) that have received the benefits (fixed voice and data services or devices for access and use of ICT) provided through programs developed by FONATEL.
Aggregate	Management	Households with access to voice and data in districts with programs developed by FONATEL	Estimated number of total households located in districts with presence of programs developed by FONATEL with access to voice and data services.
Aggregate	Management	Housing units with access to voice and data services in districts with presence of programs developed by FONATEL	Estimated number of total housing units located in districts with presence of programs developed by FONATEL with access to voice and data services.
Aggregate	Beneficiary	Inhabitants with access to voice and data services in districts with presence of programs developed by FONATEL	Estimated number of total inhabitants located in districts with presence of programs developed by FONATEL with access to voice and data services.
Aggregate	Beneficiary	Subscriptions to fixed Internet access service provided through FONATEL programs.	Total subscriptions to fixed residential Internet access service provided through FONATEL programs.
Aggregate	Financial	FONATEL's equity	Totality of FONATEL funds received by the different sources of financing provided for in article 38 of the General Telecommunications Law. Obtained from the sum of assets and liabilities property of the Fund.
Aggregate	Financial	Collection of special parafiscal contribution	Total amount received by the Fund for contributions made by telecommunication services operators and providers, equal to 1.5 % of the gross revenue directly obtained for the operation of networks and provision of telecommunication services.

Group	Type of Indicator	Name of Indicator	Indicator Description
Aggregate	Financial	Investment executed through FONATEL	Total sum of amounts from the fund executed for the development of each program and project financed by FONATEL.
Program 1	Goal achievement	Districts with (total or partial) connectivity with access to voice and data services provided through the Connected Communities Program	Cumulative total of districts with (total or partial) connectivity with access to voice and data services provided by projects in production phase of the Connected Communities Program of FONATEL.
Program 1	Goal achievement	Attainment of the NTDP goal for districts with connectivity of the Connected Communities Program	Attainment percentage of the goal established in the National Plan for Telecommunications Development (NTDP) in force, in the framework of the Connected Communities Program, on the total number of districts with (total or partial) connectivity with access to voice and data services.
Program 1	Goal achievement	Indigenous territories with (total or partial) connectivity with access to voice and data services provided through the	Cumulative total of indigenous territories with (total or partial) connectivity with access to voice and data services provided by projects in the production phase of the Connected Communities Program of FONATEL.
Program 1	Goal achievement	Attainment of the NTDP goal of indigenous territories with connectivity of the  Connected Communities Program	Attainment percentage of the goal established in the National Plan for Telecommunications Development (NTDP) in force, in the framework of the Connected Communities Program, on the total number of indigenous territories with (total or partial) connectivity with access to voice and data services.

Group	Type of Indicator	Name of Indicator	Indicator Description
Program 1	Management	Total projects in the Connected Communities Program pursuant to each project status	Cumulative total of projects in the Connected Communities Program of FONATEL, pursuant to their status in the lifecycle phases they are in.
Program 1	Management	Telecommunications infrastructure towers per construction-operation status of the Connected Communities Program	Cumulative total of telecommunications infrastructure towers per construction and operation status of the Connected Communities Program of FONATEL.
Program 1	Management	Public Service Provision Centers per Internet service availability status of the Connected Communities Program	Cumulative total of Public Service Provision Centers (CPSP) per Internet service availability status of the Connected Communities Program of FONATEL.
Program 1	Beneficiary	Inhabitants with potential access to voice and data services in districts with (total or partial) connectivity provided through the Connected Communities Program	Total inhabitants of districts with (total or partial) potential access to voice and data services in a production phase of the Connected Communities Program of FONATEL.
Program 1	Beneficiary	Active subscriptions to the fixed Internet access service provided through the Connected Communities Program	Total active subscriptions to the fixed residential Internet access service provided through the Connected Communities Program of FONATEL.
Program 1	Beneficiary	Active subscriptions to the fixed telephony service provided through the Connected Communities Program	Total active subscriptions to the fixed residential telephony service (record of at least one taxable event during the past month or a service rendering agreement in force with the operator) provided through the Connected Communities Program of FONATEL.
Program 1	Beneficiary	Active subscriptions to the mobile telephony service provided through the infrastructure facilitated by the Connected Communities Program	Total active subscriptions to the mobile telephony service provided through the infrastructure facilitated by the Connected Communities Program of FONATEL.

Group	Type of Indicator	Name of Indicator	Indicator Description
Program 1	Beneficiary	Beneficiary population of the Connected Communities Program	Inhabitants of districts or indigenous territories with (total or partial) connectivity with access to voice and data services provided by the projects in the production phase of the Connected Communities Program of FONATEL, subscribed to at least one fixed or mobile telecommunications service.
Program 1	Financial	Investment made through the Connected Communities Program	Total sum of amounts from the fund executed for the development of each of the projects of the Connected Communities Program.
Program 2	Management	Households contacted from the Connected Households Program per detailed status	Cumulative total of households registered in the System for the Administration of Beneficiaries of the Connected Households Program of FONATEL, which have been contacted by some telecommunications services provider, per detailed status.
Program 2	Goal achievement	Households benefiting from the Connected Households Program per status	Cumulative total of households benefiting from a subsidy for Internet service and a device for its (includes active and non-active) of the Connected Households Program of FONATEL.
Program 2	Goal achievement	Attainment of the NTDP goal of households benefiting from the Connected Households Program	Attainment percentage of the goal established in the National Plan for Telecommunications Development (NTDP) in force, in the framework of the Connected Communities Program, on the total number of households benefiting from a subsidy for Internet service and a device for its use.
Program 2	Management	Districts where the Connected Households Program is present	Cumulative total of districts where the Connected Households Program of FONATEL is present, with at least one household benefiting from a subsidy for Internet service and a device for its use.
Program 2	Management	Total projects in the Connected Households Program per each project status	Cumulative total of projects of the Connected Households Program of FONATEL, according to the status of the lifecycle phase they are in.
Program 2	Beneficiary	Active subsidized subscriptions to the Internet access service of the Connected Households Program	Cumulative total of subsidized subscriptions to the Internet access service (with active service) provided through the Connected Households Program of FONATEL.



Group	Type of Indicator	Name of Indicator	Indicator Description
Program 2	Management	Net penetration rate of fixed residential Internet service of the Connected Households Program	Percentage of total housing units in the country subscribing for the first time to fixed residential Internet access service provided through the Connected Households Program of FONATEL that keep it active <sup>10</sup> .
Program 2	Management	Total percentage of households benefiting from the Connected Households Program	Total percentage of households in the country that have benefited from the Connected Households Program of FONATEL.
Program 2	Beneficiary	Beneficiary population of the Connected Households Program	Population of the country that has benefited from the Connected Households Program of FONATEL (subsidy for Internet access service and a device for its use).
Program 2	Management	Households benefiting from the Connected Households Program with women heads of household	Cumulative total of households benefiting with a subsidy for Internet access service and a device for its use (both active and inactive) of the Connected Households Program of FONATEL, with women heads of household.
Program 2	Management	Minors benefiting from the Connected Households Program	Cumulative total of minors residing in households with a subsidy for Internet access service and a device for its use (includes active and inactive) of the Connected Households Program of FONATEL.
Program 2	Financial	Investment made through the Connected Households Program	Total sum of the amount of the Fund that has been executed for the financing and development of the projects in the Connected Households Program.
Program 3	Goal achievement	Devices provided by the Equipped Public Centers Programs to CPSP for access and use of ICT	Cumulative total of devices provided to Public Service Provision Centers(CPSP) through Equipped Public Centers Programs of FONATEL for a access and use of information and communication technologies.

<sup>10</sup> Calculated by dividing the net active subsidized subscriptions by the total number of homes reported in the National Home Survey published by the National Institute of Statistics and Census (INEC). This indicator is obtained by dividing it by the number of homes to be consistent with the penetration indicator calculated in the market, based on the definition of the International Telecommunications (UTI), where penetration corresponds to the proportion of totality of the market where services have been introduced. In this sense, the house corresponds to the physical infrastructure where services are installed, and which may include one or several households with access to the services installed. In addition, for the purposes of surveys applied by INEC, the tenure of telecommunications services is measured at house level.

Group	Type of Indicator	Name of Indicator	Indicator Description
Program 3	Goal achievement	Attainment of the NTDP goal established for devices provided by the Equipped Public Centers Programs to CPSP	Attainment percentage of the goal established in the National Plan for Telecommunications Development (NTDP) in force, in the framework of the Equipped Public Centers Programs on the total number of devices provided to Public Service Provision Centers (CPSP) for access and use of information and communication technologies.
Program 3	Management	Attainment of the RFP goal for devices provided by Equipped Public Centers Programs to CPSP, per institution	Attainment percentage of the goal established in the awarded tender of the Equipped Public Centers Programs, over the total quantity of device provided to Public Service Provision Centers (CPSP) for access and use of information and communication technologies per institution.
Program 3	Management	Total projects in the Equipped Public Centers Programs according to the status of each project	Cumulative total of projects in Equipped Public Centers Programs of FONATEL, according to the status of the lifecycle phase they are in.
Program 3	Management	Public Service Provision Centers benefited by the Equipped Public Centers Programs	Total acumulado de Centros de Prestación de Servicios Públicos (CPSP) con dispositivos para acceso y uso de las TIC entregados por el Programa Centros Públicos Equipados del FONATEL.
Program 3	Management	Districts where the Equipped Public Centers Program is present	Cumulative total of districts with Equipped Public Centers Programs of FONATEL, with at least a beneficiary CPSP.
Program 3	Financial	Investment made through Equipped Public Centers Programs	Total sum of amounts executed from the fund for the financing and development of each of the projects in the Equipped Public Centers Programs.
Program 4	Goal achievement	Digital zones with free Internet access by status of availability of the Connected Public Spaces Program service	Cumulative total of digital zones with free Internet access in the Connected Public Spaces Program of FONATEL according to the service availability status.
Program 4	Goal achievement	Attainment of the NTDP goal for digital zones with free Internet access in service of the Connected Public Spaces Program	Attainment percentage of the goal provided for in the National Plan for Telecommunications Development (NTDP) in force, in the framework of the Connected Public Spaces Program, on the total number of total digital zones with free Internet access in service.

Group	Type of Indicator	Name of Indicator	Indicator Description
Program 4	Management	Progress percentage of digital zones with free Internet access in service of the Connected Public Spaces Program	Compliance percentage of the total number provided for in the awarded RFP for the Connected Public Spaces Program of FONATEL, on the total number digital zones with free Internet access in service.
Program 4	Management	Access points installed in digital zones with free Internet access in the Connected Public Spaces Program by status of availability	Cumulative total of access points (AP) installed in digital zones with free Internet access in the Connected Public Spaces Program of FONATEL by status of availability.
Program 4	Management	Total projects in the Connected Public Spaces Program according to the status of each project	Cumulative total of projects in the Connected Public Spaces Program of FONATEL, according to the status of the lifecycle phase they are in.
Program 4	Management	Districts with Connected Public Spaces Program	Cumulative total of districts in the Connected Public Spaces Program of FONATEL, with at least one digital zone with free Internet access in service.
Program 4	Management	Single devices that connected to the free wireless Internet network from the Connected Public Spaces Program	Cumulative total of devices (MAC addresses of access terminals) that connected to the free Internet wireless network from the Connected Public Spaces Program.
Program 4	Management	Total logins in digital areas with free Internet access in service in the Connected Public Spaces Program	Cumulative total of logins in digital zones with free Internet access in service in the Connected Public Spaces Program of FONATEL.
Program 4	Management	Total network use time in digital zones with free Internet access in service in the Connected Public Spaces Program	Cumulative total of hours of use of Wifi networks in digital zones with free Internet access in service in the Connected Public Spaces Program of FONATEL.
Program 4	Management	Total data traffic of digital areas with free Internet access in service in the Connected Public Spaces Program	Total monthly data consumption, in GB, of links in digital zones with free Internet access in service in the Connected Public Spaces Program of FONATEL.
Program 4	Financial	Investment made through the Connected Public Spaces Program	Total sum of amounts from the fund executed for the financing and development of projects in the Connected Public Spaces Program.

Source: SUTEL, Directorate General of FONATEL, Costa Rica 2021.

## • Methodology applied to assess the quality of fixed Internet access service

### Providers included

To conduct this assessment, information corresponding to the four fixed Internet providers that account for 91.8 % of the total market for this service measured by subscriptions has been included, taking into account that the national measurement system for fixed Internet access service encompasses equipment distributed at country level, which allow for the evaluation of the quality of service provision of those operators with national representation and higher concentration of users<sup>11</sup>.

These providers are:

- Cabletica
- ICE
- Telecable
- Tigo

### Services assessed

Internet service providers offer a wide range of connectivity options, differentiated mainly by the speed at which a particular service is being provided.

The assessment of quality indicators for fixed Internet access service is carried out through measurements of the most representative services, particularly, the aim is to assess the service with the most active clients. Nonetheless, in some cases that speed in particular is not available for a specific service or location, the assessment is made with

the speed closest to commercial offer with the greatest number of active clients.

In general, all services considered in this report correspond to residential-type services, given they are the most abundant in the country and thus, more representative of Internet access at national level. In this regard, pursuant to the Regulations for the Provision and Quality of Service (RPQS), the assessment of residential services is sufficient to reflect a picture of the country regarding the quality of Internet access services.

LServices assessed are provided through different types of access technologies: i) copper, using ADSL technologies; ii) coaxial, using DOCSIS technologies; and fiber optics, through FTTH or GPON networks. Measurements made on Internet access services are done in accordance with measurement methodologies provided for in resolution RCS-019-2018<sup>12</sup> using ping and http tests for the Internet access service of operators, which makes them independent from the type of access used for the service to reach the end user and thus, they allow for the evaluation of the Internet access services regardless of the outside plant technology used to support them.

Results shown in this report are obtained from the quality assessments conducted over a total of 234 active Internet services distributed throughout the seven provinces in the country, which are assessed simultaneously and 24 hours a day through the measurement probes system described in the next session. The number of Internet services used to evaluate each operator in each province are detailed in Table n.º 9.

<sup>11</sup> In view of SUTEL's oversight duties, in accordance with article 73 subsection k of the Regulatory Authority of Public Services, n.º 7593, the assessment of quality of service for fixed Internet access focuses on those operators with national coverage and a significant market share, in order for the results obtained to reflect the quality of service at national level.

<sup>12</sup> Resolution RCS-019-2018 was published in the Official Newspaper n.º 42 of February 27, 2018.

Table n.º 9. Costa Rica: Number of services assessed per operator

Operator	San José	Alajuela	Cartago	Heredia	Guanacaste	Puntarenas	Limón	Total
Cabletica	24	11	3	10	7	6	1	62
ICE	24	15	10	10	9	5	4	77
Telecable	23	5	5	9	1	1	0	44
Tigo	12	12	6	10	5	3	3	51

Source: SUTEL, Directorate General for Quality. Costa Rica, 2021.

It should be stressed that the number of services used to evaluate each operator is sufficient to ensure an adequate representativeness of results, given that they exceed the minimum number of sites or points of measurements required pursuant to the methodology approved by SUTEL through resolution RCS-019-2018<sup>13</sup>.

### Equipment used to conduct quality assessment

Each Internet access service is evaluated using measurement probes, a specialized and dedicated equipment (hardware and software) to conduct service quality measurements.

The totality of measurement probes, along with measurement and data processing servers, constitute a distributed system for the national evaluation of the quality of services.

The use of measurement probes has been identified by the International Telecommunications Union (ITU) as one of the measurement methodologies options for quality service assessment, as provided for in recommendation ITU-T E.812 Amendment 1 (09/2020) Appendix III<sup>14</sup>, and recommendation ITU-T E.806 (06/2019)<sup>15</sup>. In particular, with regard to the use of measurement probes, this last recommendation of the ITU refers to them as: *means to conduct unattended measurements and the following was emphasized: "Unattended probes may provide near real time and historical end-to-end quality of service performance and can be used to collect granular, data that can help to detect quality of service degradations"*.

### Quality indicators evaluated

Two indicators established in Chapter Seven "Particular Indicators for Internet access service" of the RPQS in force (published in the Official Newspaper n.º 36 of Friday, February 17, 2017) are evaluated. These indicators are:

- International latency
- Relation between local and international data transfer with respect to speed provided

What each of these indicators consist of is next detailed:

#### • International latency

The latency indicator is evaluated by conducting *ping tests*, each of which sends 100 ICMP Echo Request packets and calculates how long it takes for each ICMP Echo Reply to be received. The average value of the 100 responses correspond to the result of a *ping test*.

The evaluation of the international latency indicator is carried out by conducting ping tests against a dedicated server located in Florida, USA, specifically in the IXP and Data Center named NAP of the Americas.

Each of the measurement probes conducts at least one ping measurement every 20 minutes, and they keep on making measurements 24x7.

<sup>13</sup> Resolution RCS-019-2018 was published in the Official Newspaper n.º 42 of February 27, 2018.

<sup>14</sup> Document available at: <https://www.itu.int/rec/T-REC-E.812/es>

<sup>15</sup> Document available at: <https://www.itu.int/rec/T-REC-E.806/es>



#### • Speed measured to speed provisioned ratio

The ratio between the data transfer speed and the speed provisioned is determined through files transferred through the HTTP protocol for at least 10 seconds. Independent measurements are taken for data download (HTTP Download) and for data sent (HTTP Upload).

The results obtained for data transfer are compared to the speed provisioned value for each Internet access service, in the interest of determining the rate or percentage that represents the speed measured versus the speed provisioned.

Each of the measurement probes conducts at least one HTTP measurement every 20 minutes, and they keep on making measurements 24x7.

### • Methodology applied to evaluate the quality of mobile voice and data services

#### Providers included

The quality of mobile voice and data services is evaluated through field measurements carried out on commercial services engaged with the three mobile network operators in the country. These operators are:

- Instituto Costarricense de Electricidad (Costa Rican Electricity Institute, abbreviated as **ICE**), through its commercial brand Kölbi
- Telefónica de Costa Rica TC (abbreviated as **TLF**), through its commercial brand Movistar
- Claro CR Telecomunicaciones (abbreviated as **CLR**), through its commercial brand Claro

#### Measurement system applied

The measurement system applied by SUTEL during 2020 consisted of a group of measurement probes distributed in vehicles that travel over the national territory throughout the year. The measurement system also includes robust servers for control and measurement purposes as the counterpart to remote equipment that allow for the gathering, storage, and processing of large amounts of data.

The use of measurement probes has been identified by the International Telecommunications Union (ITU) as one of the measurement methodologies options for quality service assessment, as provided for in recommendation ITU-T E.806 (06/2019) named “Measurement campaigns, monitoring systems and sampling methodologies to monitor the quality of service in mobile networks”.

The measurement probes that evaluate mobile services are installed on several vehicles that travel the country roads in such a way that the system acts as a distributed test drive, which guarantees that at least three measurement probes will remain inside each vehicle, one per each operator, taking measures simultaneously and thus obtaining results that allow to make a performance comparison of the three operators evaluated.

#### Quality indicators evaluated

For data services through mobile networks, the same quality indicators used for fixed services are evaluated, which were described in the previous section of this methodology.

For voice services through mobile networks, the indicators evaluated are those provided for in Chapters Five “Particular indicators for voice services” and Six “Particular indicators for mobile services” of the Regulations for the provision and quality of services in force (published in the Official Newspaper n.º 36 of Friday, February 17, 2017).

These indicators are:

- Unsuccessful call ratio
- Voice quality in telephone services
- Call setup time
- Dropped call ratio
- Mobile service coverage area

The details of what each of these indicators consists of is next presented:

#### • Unsuccessful call ratio

The Unsuccessful call ratio indicator consists of the relation between the total number of failed calls and the total number of valid call attempts during a determined period of time.

To evaluate this indicator, test calls are made to an automated response number and the time it takes to establish a successful call is recorded. If the call is not successfully established or it takes more than 10 seconds, the call attempt is considered to be unsuccessful.

#### • Voice quality in telephone services

The voice quality percentage indicator refers to the comparison of the characteristics of the signals (sound and voice) emitted with respect to the signals received in a telephone communication.

To evaluate this indicator, calls are made from the probe to a voice server especially arranged for this purpose. The evaluation is conducted through test calls and applying the POLQA algorithm (recommendation ITU-T P.863), for which a standard high quality voice file, meeting the ITU requirements, is used. Voice quality results are measured using the MOS metric scale with a rating from 1 to 5, 1 being the lowest score and 5 the highest for excellent quality.

#### • Call setup time

The call setup time indicator refers to the period of time elapsing from the sending of a complete destination address to the setting up of a call to the receiving terminal (meaning is recognized by the user access network making the call), and the caller receives a busy tone, dial tone, or answer signal.

To evaluate this indicator, test calls are made to an automated response number and the time it takes in seconds to establish a successful call is recorded.

#### • Dropped call ratio

The Dropped call ratio consists of the percentage of calls which, once they have been correctly established and therefore have an assigned traffic channel, are interrupted prior to their normal completion by the user, the cause of the early termination being within the operator's network.

To evaluate this indicator, calls are made to automated response numbers and once the call has been established, the call is kept for a 90-second lapse. If the call interruption is caused by the operator's network, it is recorded as a dropped call.

#### • Mobile service coverage area

The mobile coverage indicator is measured comparing the signal strength levels obtained in field measurements to the signal strength levels established by operators in their mobile service coverage. A comparison is made to determine what percentage of the coverage measured on the field really equals the coverage offered by the provider.

This indicator is evaluated by collecting data corresponding to the signal strength for 2G technologies (Received Signal Level or RxLev Full), 3G (Received Signal Code Power or RSCP) and 4G (Reference Signal Received Power or RSRP), and results are compared against the coverage layers that providers submit to SUTEL.

## • Methodology applied to assess the quality of mobile Internet access service

### Providers included

The analysis for the three mobile service providers authorized in the country is included. These providers are:

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

### User experience assessment methods

User's mobile phones are directly evaluated through the use of the OpenSignal application, which users can voluntarily install and use to measure the status or quality of the mobile service at any time..

The OpenSignal app is available on the official Google Play and Apple Store, and can be downloaded and installed by any user for free and thus, contribute to the user experience quality research contracted by SUTEL from OpenSignal.

The app collects quality of service data, from actual smartphone users and reports users' actual network experience, whether they are indoors or out, and in a wide range of situations, obtaining data that reflects the level of service obtained by the users directly on their phone devices.

Data is collected from measurements of network speed based on both user-initiated tests and automated tests. The majority of measurements are generated through automated tests, executed independently and at random intervals to capture what users are experiencing at a typical moment in time.

This user experience measurement approach does not use dedicated test servers, but rather measures the end-to-end consumer network experience and the full path from the user device all the way to the Content Delivery Networks (CDN), such as Google, Akamai, and Amazon.

Given that the app is installed voluntarily by users, the number of phones used varies through time, since it depends on the number of users installing the app and the period of time they keep it installed on their smartphones.

## Methodology for the evaluation of telecommunications services commercial supply

Based on the premise that the commercial supply adapts to the dynamism in the consumer preferences of a telecommunications services user, a qualitative analysis is made on the changes in the composition and characteristics of the offering between 2020 and 2021 for mobile and fixed telecommunications, with the purpose of reflecting the new consumer demands, as well as the responses given by the industry (supply).

In the case of mobile telecommunications (voice, SMS and mobile data) an analysis was made of the prepaid and postpaid packages in December 2020 versus December 2021 offered by authorized operators and which were commercializing telecommunications services at the time. Said information was collected through a web tool called Mi Comparador<sup>16</sup>.

With regard to fixed telecommunications (fixed Internet, fixed telephony and pay TV), a comparison was made between the packages offered in December 2020 vs. December 2021 by the main operators in this market (taking as reference those that in total accounted for 95 % of subscriptions in 2021).

<sup>16</sup> 16 Mi comparador is a platform of the Superintendency of Telecommunications that allow for the comparison from different devices, of plans and offers for telephone, Internet and television services, on this web page: <https://micomparador.sutel.go.cr/>

The qualitative comparison made consists of identifying the differences in terms of the composition of services, amount of data, channels, speeds, free apps, and type of apps with unlimited data usage, among others. This comparison highlights changes in consumer trends at national level and the way in which the commercial supply adapts through time to satisfy them.

## • Methodology for mobile telecommunications price index

This index enables the monitoring of the trends in the prices of the services acquired by mobile telecommunications users.

This monitoring is based on a series of technical criteria, statistical and economic, established in the construction of a general or national index, through sub-index pursuant to the payment modality.

It is important to clarify that, there are no adjustments in the quality of mobile data in the calculation of this index and its different levels and, in the case of the service of voice and SMS, these are considered homogeneous services, which indicates that the different operators have similar performance indicators given the similarities in the infrastructure of telecommunications used for the provision of services.

These are some calculation considerations:

- Mobile Internet services provided via Datacards are not included
- Prepaid promotions targeting specific segments such as, double recharges to numbers ending in 1, are excluded
- Does not include mobile telecommunications services bundled (packages) with other services

In like manner, it must be stressed that given that telecommunications is one of the most dynamic and changing groups, both from a technological standpoint and in relation to changes in consumer habits, this methodology will be constantly updating and improving. Thus, to the extent changes are introduced, the aim will be to maintain the possibility of historic comparisons, with all due warnings.

The methodological description is next presented:

### • Postpaid modality methodology:

The following prices are analyzed monthly for each operator (*i*):

- $plPT_{i,c,pl,m_1}$  → Unit prices<sup>17</sup> per component (voice on net, voice off net, SMS on net and SMS off net and mobile data) starting with the selected plan. Each of the plans selected (**pl**) are the ones that represent at least 80 % of the postpaid revenue per month per operator. Includes plans currently a part of the commercial supply, as well as those that, though no longer available for new users, still have affiliated subscribers.

<sup>17</sup> Unit prices: to obtain unit prices, distribute the value of each line between voice (on and off net), data and SMS (on and off net), according to the average at the operator level of these components, within the post-paid income of July of 2017 (month of reference); then each one of this amounts is divided by the number of minutes, messages and GB contracted at the maximum speed available for each plan, obtaining a price per unit of measurement.

- $plPT_{i,c,pl,m_1} \rightarrow$  Exceeding prices by component.

At operator level ( $i$ ) and during the month of analysis ( $m_1$ ), there is a unit price for each component on each postpaid plan selected ( $c$ )  $\rightarrow (plPT_{i,c,pl,m_1})$ . These are mathematically averaged to obtain a middle unit price per component coming from the plan information at operator level  $\rightarrow (PMedplPT_{i,c,m_1})$

Afterwards, to obtain a unique price per component for each operator at  $m_1$  that includes the price for surplus ( $pePT$ ). An average is calculated that includes: (a) the middle unit price of each component ( $PMedplPT_{i,c,m_1}$ ) averaged by the relative weight of the income received from the plans within the total income<sup>18</sup> of each operator ( $\alpha_{i,m_1}$ ) and (b) the surplus price of each component ( $pePT_{i,c,m_1}$ ) averaged by the relative weight of the income coming for the surplus within the total post-paid income ( $\beta_{i,m_1}$ ). Based on the aforesaid we obtain for each operator at  $m_1$  a unique price per component ( $PPT_{i,c,m_1}$ ).

Once we figure out the above data at  $m_1$  it is time to calculate the relative change of the unique prices per component at the operator level with regards to July of 2017 ( $\Delta PPT_{i,c,m_1}$ ). These, at the same time, will be weighed based on to the monthly share of each component within the post-paid income of the ( $UPT_{i,c,m_1}$ )<sup>19</sup>, obtaining a postpaid price index for each offer in the market ( $\mu PT_{i,m_1}$ ).

To conclude, take the index per operator ( $\mu PT_{i,m_1}$ ) and weigh with the monthly share of each operator within the total post-paid income ( $bPT_{i,m_1}$ )<sup>20</sup>, with this, obtain the monthly post-paid index at the national level ( $\tilde{IPT}_{m_1}$ ).

## Postpaid index formulas:

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

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

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

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

$$(5) \tilde{IPT}_{m_1} = \sum_{i=1}^3 \mu PT_{i,m_1} * bPT_{i,m_1}$$

$$(6) \tilde{IPT}_{c,m_1} = \Delta PPT_{i,c,m_1} * bPT_{i,m_1}$$

## Nomenclature

$i$  = Market offerors, where 1= Kölbi, 2 = Movistar and 3= Claro

$m_0$  = Base month, July 2017

$m_1$  = Month of analysis

$c$  = Components, 1= voice on net, 2= voice off net, 3= SMS on net, 4= SMS off net and 5 = mobile data.

$PT$  = Postpaid

$pl$  = Each operator's selected plan, ranging from 1 to  $z$

$z$  = Total plans selected by each operator in  $m_1$

$npl_{i,c,m_1}$  = Number of plans of operator  $i$  that were selected and contain the component analyzed in  $m_1$

## • Prepaid modality methodology

The prepaid user faces three types of prices for each component: bundled service prices ( $paqPR_{i,c,paq,m_1}$ ), promotion prices ( $prPR_{i,c,pr,m_1}$ ) and recharge prices ( $recPR_{i,c,m_1}$ ).

<sup>18</sup> Total income post-paid = minimum income (Income from the monthly cost of packages) + income from excess

<sup>19</sup> Where for each  $i$  in  $m_1$ ,  $\sum_{c=1}^5 UPT_c = 1$  is fulfilled

<sup>20</sup> Where for each  $i$  in  $m_1$ ,  $\sum_{i=1}^3 bPT_i = 1$  is fulfilled



With the objective of consolidating these prices we will explain the approach for each one of them:

1. For monthly middle unit prices, per operator package ( $\text{paqPR}_{i,c,\text{paq},m_1}$ ), the same methodology applied to postpaid plans unit prices is used, with the exception that the totality of prepaid packages offered in  $m_1$ , is used, obtaining ( $\text{PMedprPR}_{i,c,m_1}$ ).

2. Market prices for each component per operator in  $m_1$  ( $\text{recPR}_{i,c,m_1}$ ), are set by the operator.

3.1. In the case of promotions per operator at  $m_1$  ( $\text{prPR}_{i,c,\text{pr},m_1}$ ) analyze the details of the commercial offer to estimate a price per component in each promotion as well as the information coming as international reference such as, for example, the consumption of data for mobile applications<sup>21</sup> (Facebook, WhatsApp, Waze, Youtube, among others) and based on the information requested to operators, such as the average consumption per user of minutes, data, and unlimited messages. Once the prices per component per operator are available, calculate them arithmetically to obtain a unique middle price for promotions per component and operator. ( $\text{PMedprPR}_{i,c,m_1}$ ).

Once the above is ready, weight in  $m_1$  the prices of the three previous sources, based on their share within the pre-paid income of the month of reference<sup>22</sup> at operator level,  $w\text{rec}_i$  (weigh of income received from operator recharges),  $w\text{paq}_i$  (weigh of income from operator packages) y  $w\text{pr}_i$  (weigh of income from operator's promotions), thus obtaining a unique price per component for each operator for the month of analysis ( $\text{PPR}_{i,c,m_1}$ ).

Taking that information, calculate the relative perceptual change of unique prices per component for the month under study with regards to July 2017 ( $\Delta\text{PPR}_{i,c,m_1}$ ).

At the same time, these will be weighted by the monthly share of each component within the prepaid revenue of the operator ( $\text{OPR}_{i,c,m_1}$ )<sup>23</sup>, thus obtaining the prepaid price index for each offeror of this market in the month ( $\mu\text{PR}_{i,m_1}$ ).

To conclude, the index by operator is taken ( $\mu\text{PR}_{i,m_1}$ ) and weighted by the monthly share of each operator within the total prepaid revenue of the month under study ( $\text{pPR}_{i,m_1}$ )<sup>24</sup>, and this way we can obtain the national monthly prepaid index ( $\text{IPR}_{m_1}$ ).

#### Prepaid index formulas:

$$(7) \text{PMedprPR}_{i,c,m_1} = \frac{\sum_{npr=1}^{npr} \text{prPR}_{i,c,\text{pr},m_1}}{npr_{i,c,m_1}}$$

$$(8) \text{PPR}_{i,c,m_1} = w\text{rec}_i * \text{recPR}_{i,c,m_1} + w\text{paq}_i * \text{PMedpaqPR}_{i,c,m_1} + w\text{pr}_i * \text{PMedprPR}_{i,c,m_1}$$

$$(9) \Delta\text{PPR}_{i,c,m_1} = \frac{\text{PPR}_{i,c,m_1}}{\text{PPR}_{i,c,m_0}}$$

$$(10) \mu\text{PR}_{i,m_1} = \sum_{c=1}^5 \Delta\text{PPR}_{i,c,m_1} * \text{OPR}_{i,c,m_1}$$

$$(11) \text{IPR}_{m_1} = \sum_{i=1}^5 \mu\text{PR}_{i,m_1} * \text{pPR}_{i,m_1}$$

$$(12) \text{IPR}_{c,m_1} = \Delta\text{PPR}_{i,c,m_1} * \text{pPR}_{i,m_1}$$

Nomenclature

$i$  = Market offerors: 1= Kölbi, 2= Movistar, 3= Claro, 4= Tuyomóvil and 5= Fullmóvil

$m_0$  = Base month, July 2017

$m_1$  = Month of analysis

$c$  = Components, 1= voice on net, 2= voice off net, 3= SMS on net, 4= SMS off net and 5 = mobile date.

$\text{PR}$  = Prepaid.

$npr_{i,c,m_1}$  = Number of promotions of operator  $i$  that include the component analyzed in  $m_1$

$\text{pr}$  = Each prepaid promotion for operator  $i$  for  $m_1$ , begins at 1 and until £

£ = Totality of promotions from  $i$  to  $m_1$

<sup>21</sup> Telecommunications company from Chile, ENTEL. [www.entel.cl/calculadora-datos/](http://www.entel.cl/calculadora-datos/)

<sup>22</sup> SUTEL has information on this indicator only for the base month.

<sup>23</sup> Where for each  $i$  in  $m_1$  it is true that  $\sum_c \text{OPR}_c = 1$

<sup>24</sup> Where for each  $i$  in  $m_1$  it is true that  $\sum_i \text{pPR}_i = 1$

**paq** = Each package of operator  $i$  to  $m_1$  starting at 1 until  $\eta$

**$\eta$** = Totality of promotions from  $i$  to  $m_1$

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

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

For  $m_1$  the postpaid ( $\tilde{I}PT_{m_1}$ ) and prepaid ( $\tilde{I}PR_{m_1}$ ) indexes are weighted according to the relative weight of each modality within total income for mobile telecommunications<sup>25</sup>  $\pi PT_{m_1}$  postpaid modality weight  $\pi PR_{m_1}$  and (prepaid modality weight)<sup>26</sup>.

#### National index formulas:

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

Nomenclature

$m_1$  = Month of analysis

## Index methodology

### • of Fixed Internet prices

The Internet in homes is becoming more common and has become, in many cases, essential for daily life, as proven by the fact that the total number of people with Internet in their homes was 60.2 % in 2015 (INEC) and the most recent data corresponding to 2019 reached 86.34 % (INEC).

In addition, the data presented in this report indicates that the subscriptions registered for the fixed Internet service have had a growth between 2020 and 2021 of 8.38 %, thus having for the year 2021 a total of 1 000 000 subscriptions.

Another important aspect is that in December 2017<sup>27</sup>, SUTEL declares this service in conditions of competition, so from there the prices are set by the market dynamics between supply and demand.

Given the above, the need arises to have a tool that measures the variation of prices per giga of speed<sup>28</sup> way that SUTEL has one more input for the decision-making in the face of a regulation in which there will be no cap pricing as had happened since the opening of the market until that date.

The Retail Service Price Index of Fixed Internet (FIPI) measures price variation per unit of speed contracted by Costa Rican households as of July 2018, which allows to analyze what is the tendency of these in the market.

To calculate the FIPI, The following considerations were made:

- The four operators with the largest market share (Kölbi, Tigo, Cabletica and Telecable, which together account for 95 % of subscriptions) are taken into account. Although in total there are 18 operators that provide fixed Internet services, the rest of the operators each represent between 0 % and 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 the home (residential) level and that are also provided as a single service (not packaged or bundled) are analyzed.
- The technology (xDSL, HFC, FTTx and wireless), by which the operator offering the Internet service is not relevant to this calculation. According to the perception of operators on market competition. "this occurs mainly at the price level because the end customer focuses mainly on their purchase decision towards obtaining a better price and not necessarily

<sup>25</sup> It is the sum of the prepaid income plus postpaid income of the month of study.

<sup>26</sup> It is true that  $\pi PT_{m_1} + \pi PR_{m_1} = 1$

<sup>27</sup> SUTEL (2016). "Review of the retail service of residential Internet access from a fixed location, analysis of the degree of competition in this market, declaration of important operators and imposition of obligations" (RCS-258-2016) Retrieved from: [https://www.sutel.go.cr/sutel/resoluciones?field\\_tipo\\_documento\\_tid=All&=Aplicar](https://www.sutel.go.cr/sutel/resoluciones?field_tipo_documento_tid=All&=Aplicar)

<sup>28</sup> The Internet has unlimited data, so commercial offers are based on the speed contracted.

towards obtaining a better quality” (according to the RCS-258-2016 report). In addition, the report considers that Internet services from a fixed location have similar characteristics, quality levels and prices, which is why all technologies are considered to belong to the same relevant market. Therefore, the determining factor for decision making purposes on consumption, is the speed required for your homes.

- These operators provide the customer with a variety of Internet speeds. However, since the quality levels and quantity of consumption for households are lower than that of companies, not all the speeds available on the market will be considered. In this case, up to a maximum speed of 100 Mbps will be taken into account for each operator. This is based on the fact that up to 100 Mbps is the speed offered in most operators for residential fixed Internet.

In addition, taking the behavior of household spending, using information from the National Household Income and Expenditure Survey (ENIGH) of 2013, and using the relative weight of the expenditure structure, to extrapolate to 2018, it was obtained that the expenditure in communications ranges from 13 000 to 64 000 colones depending on the income quintiles, with an average of 36 000 colones. This information is contrasted with the average value of bundles over 100 Mbps exceeding 50 000 colones. In this sense, it is verified that it is unlikely that a household consumes speeds greater than 100 Mbps because it far exceeds in total consumption in communications estimated on average per household in the ENIGH.

- Commercial offers are selected by operator, representing at least 80 % of fixed Internet service subscriptions. In addition, both plans that are currently within the commercial offer are included, as well as those that, although not in force, maintain affiliated subscriptions.
- The prices that are analyzed only measure the fixed Internet service, therefore, the cost of the modem or installation is not included.
- The reference month is July 2018.

### Indicator Calculation:

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

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

2. To obtain a middle unit price per operator ( $PMedIF_{i,m_1}$ ) each unit price of the operator ( $i$ ) and in the month of analysis are taken ( $m_1$ ) and weighted according to the share obtained in the revenue of the month of reference ( $\delta_{i,v,m_1}$ )

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

3. To obtain a middle national price  $PIF_{m_1}$ , a weighted average of  $PMedIF_{i,m_1}$  must be obtained according to the monthly share of each operator within the total revenue for fixed Internet for the month under study ( $\beta IF_{i,m_1}$ )

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

4. Finally, the relative percentage change of national prices is calculated with respect to the month of reference ( $\Delta PIF_{i,v,m_1}$ ), obtaining this way the fixed Internet monthly index at national level ( $\Gamma IF_{m_1}$ )

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

According to the theory, the weightings of price indicators are usually based on household spending on goods and services. In this case, as the expenses that households have regarding the fixed Internet are not available, the income obtained by the operators for them will be used.

## Nomenclature:

**Cant**= number of Megabit.

**IF**= fixed internet.

**i**= Market offerors, where 1= Kölbi, 2= Tigo, 3= Cabletica and 4= Telecable

**m<sub>0</sub>**= base month

**m<sub>1</sub>**= month of analysis

**n**= number of packages of the operator (**i**) that were selected during the month of analysis (**m<sub>1</sub>**)

**v**= speed of the commercial offer

## • Index methodology for international calls

Part of the objectives set by SUTEL is to continue with the implementation of methodologies to measure the behavior of prices in the telecommunications market, so the need for a tool for monitoring the prices of the international calls.

This service has shown a decrease in revenue received, due to other technologies such as calls through the Internet and other platforms, but continue with an important niche of market, to the point that the different operators of mobile and fixed telephony continue to provide the service.

This methodology is proposed in the measurement of price behavior in the residential sector for fixed telephony and mobile telephony prices.

This service accounts for 5 % of total fixed telephony revenue and 3.8 % of revenues for mobile telephony, that's why its importance in tracking.

Currently the international calling service is provided by 15 operators, and more than 8 million lines that can be used potentially.

Following the above, the international call price index of the retail mobile and fixed telephone service measures the variation of the minute prices to the different destinations from July 2020, which allows monitoring the trend at the price level.

The following aspects are considered to calculate the index:

1. The operators with the largest market share are taken in relation to the traffic of international outgoing calls, in this case they are Kölbi (fixed and mobile), Claro and Telefónica, which represent 86 % of the traffic, of the total of 15 operators that provide the international call service, for the rest of the operators their participation ranges from 14 %, therefore, they will not have significant weight in the results.
2. The countries with the highest outbound traffic from the national territory (totaling at least 80 %) are selected monthly by consulting the operators. From there, the five most important destinations are selected according to the traffic that occurs among the three selected operators.
3. Prices per minute at household level are analyzed, in the case of fixed Kölbi and prices per minute at mobile telephony level for mobile operators in those destination countries according to point 2.
4. The prices directed at the household level (residential, in the case of fixed telephony) and mobile users are analyzed, and that are also provided as a single service (not packaged).
5. The unit price of international minutes is not considered within the postpaid plans because the operators do not distinguish the destination, but the minutes are counted within the plan as a whole, regardless of whether they are nationally or internationally, this is the case of operators that offer minutes to other countries within their regional network.
6. Packages for postpaid and prepaid modality are not taken into account, especially aimed at international minutes in force in the month of study because the minutes within the Packages are not differentiated according to the destination, it is assumed that the consumption is domestic, because the package of minutes is charged as a national destination regardless of whether they are international.

7. The surplus price is used in the postpaid and prepaid modalities according to the international destination of the calls.
8. The prices that are analyzed only measure the subservice of international calls, therefore, the cost of the modem (VoIP) or installation is not included.
9. The reference month is July 2021 (base month)
10. Only the prices of calls made through the fixed or cellular telephone network are taken, the prices of other platforms such as Skype or Gmail are not taken into account.
11. The utilization weight of international calling packages is calculated against the price per minute for postpaid and prepaid for each operator in July 2020

#### **Index calculation:**

1. The five most important (international) destinations are selected according to the traffic for each operator, separated for the telephony modalities (fixed, postpaid mobile and prepaid mobile).
2. For each operator the market price is obtained for the telephony modalities (fixed, postpaid mobile and prepaid mobile) in the different destinations. The price of the destination according to telephony modality is weighted by the weight of the income according to the modality.

3. For each operator, the price weighted according to the destination of the call is obtained.

$$PMI_{i,m_1} = PI_{i,A,m_1} * \beta_{i,A,m_1} + PI_{i,B,m_1} * \beta_{i,B,m_1} + PI_{i,C,m_1} * \beta_{i,C,m_1} + PI_{i,D,m_1} * \beta_{i,D,m_1} + PI_{i,E,m_1} * \beta_{i,E,m_1}$$

The price of each operator is weighted by the weight of the revenue according to the destination of the call.

4. The average price for the reference month is estimated by means of the weighted union of the prices according to operator, obtained in point 3.

$$PMI_{m_1} = PMI_{1,m_1} * \beta_{1,m_1} + PMI_{2,m_1} * \beta_{2,m_1} + PMI_{3,m_1} * \beta_{3,m_1}$$

5. Finally herself Calculated the change percentage relative of the national prices with respect to the reference month ( $\Delta PMI_{m_1}$ ), thus obtaining the monthly rate of international calls a level national ( $\tilde{IIM}_{m_1}$ )

#### **Nomenclature:**

**MI**= international minute

**i**= market offerors, where 1= Kölbi, 2= Claro, 3= Telefónica

**m<sub>0</sub>**=base month

**m<sub>1</sub>**=month of analysis

**n<sub>1</sub>**= number of destinations of operator (**i**) that were selected during the month of analysis (**m<sub>1</sub>**); A; B; C; D y E







GENERAL  
**EVOLUTION**  
OF THE SECTOR



## • Commercial offering for telecommunications services in 2021

For 2021, there were 187 operators and telecommunications services providers with authorization certificate (some of them in the commercial activation process). These implies a greater number of offerors of analyzed telecommunications services, with an increase of 29 with respect to 2020 and 44 with respect to the total registered for 2017. In this sense, it is worth mentioning that even though during 2020-2021 there were particularities that affected the market and the economy in general, more companies tried to incur in the commercialization of telecommunications services, to which we must add that the market is evidently undergoing a commercial rearrangement where the users' requirements (new and more demanding needs) and the commercial offering of operators converge.

Regarding the number of operators that contributed information during the analysis period, pursuant to the service they provide, in the case of fixed telephony 100 % of active operators reported information; 100 % for mobile telephony, 59 %, for data transfer and 100 % for pay TV. In the case of data transfer a pattern of behavior continues where operators that contributed information are the ones with the greatest market share and hence, the general conclusion for this sector remain unchanged. In like manner, the remaining 40 % of offerors for these services includes companies that are commercially active with other services, as well as those in initial or pre-operating phases of the data transfer service.

## • Revenue behavior for the Telecommunications Sector

**For 2021 the market generated revenues for 728 269 million colones, accounting for a decrease in nominal terms of 0.01 % with**

Consistent with the behavior of the national productive activity in general for said period.

On the other hand, building the ratio between the sector's total revenue and the Gross Domestic Product to market prices ([see Chart n.º 2](#)), the ratio obtained for 2021 is of 2.00 %. When compared to 2020, the indicator is virtually the same (2.1 %).

Regarding the pattern of behavior of revenues at service level ([see Chart n.º 3](#)), in general terms se fixed telephone services (basic traditional and VoIP) and mobile telephony (voice and msm), show a downward trend, being the fourth consecutive year with this behavior. Mention must be made of the mobile telephony case, which revenue decreased by 7.2 % in the last year of analysis. On the contrary, with regard to Internet access service as a whole (data transfer) and leased lines that show an increase with regard to 2020, with 4.5 % and 9.2 % respectively.

For 2021, the behavior registered in 2020 in the case of data transfer revenues is confirmed, doubling the mobile telephony revenues, which validates the existence of a change in consumer preferences of current telecommunications users.

A separate analysis of each service revealed the following:

### Mobile telephony

Taking as basis revenues as a whole for voice and messages traffic, 189 914 million colones were accounted for in 2021, which represents a decrease of 7.2 %, with regard to 2020. For the 2017-2021, the annual growth rate is of -9.70 % as shown in [Chart n.º 3](#). The revenue reported for mobile telephony revealed that 97 % come from voice traffic the remaining 3 % from messages, maintaining this percentage weight virtually the same when compared to 2020 (2.8 %).

## Fixed telephony (traditional basic and VoIP)

For fixed telephony service (traditional basic and VoIP telephony), revenues were recorded for the year 2021 totaling 38 756 million colones, representing a decrease of 18.7 % compared to the year 2020. This service has shown a tendency to decrease over the years, due to the lower use especially in the traditional basic modality, which is evident when analyzing the average growth rate of the 2017-2021 period, which is -18.7 % on annual average. ([see Chart n.º 3](#)).

### Traditional basic telephony

The revenue generated by traditional basic telephony has had a decreasing behavior throughout the previous measurements. Thus, this service shows a reduction of 21.7 % in the last year in the revenue generated and a negative annual average growth rate of 9 % for the period analyzed. The relative weight of this service in relation to the total of basic telephony decreases compared to 2020, going from 85.5 % to 82.5 % in 2021.

### Fixed VoIP telephony

Revenues associated with fixed VoIP telephony over the years had been growing, but in 2021 it experienced a slight decrease of 1 % compared to 2020. The average annual growth rate since 2017 is 8.25 %.

## Internet access (includes mobile Internet access)

In the case of the Internet access service, the income item shows an increasing trend, since for the period 2017-2021 the average annual growth rate is 7.39 %. By 2021 this service generated as one all 445 712 million colones, increasing by 4.5 % compared to what was reported in 2020. It is important to note that income from Fixed Internet accounts for 43.1 % and mobile Internet 56.8 %. The growth rates for the last year for the revenues generated by these services were 11.8 % and -0.9 % respectively.

## Leased lines

For the year 2021, 53 886 million colones generated by this service are reported, which represents an increase of 9.2 % compared to 2020. In this case, the growth rate in the period from 2017 to 2021 is on average 4.62 % per year.

When analyzing the percentage weights of the income of each service in relation to the total income of the sector, two scenarios are presented. The first totals the income of mobile telephony and Internet (mobile network) in the same item, followed by fixed Internet access, traditional telephony and VoIP telephony and finally, leased lines ([see Chart n.º 4](#)). In the second scenario, revenues from fixed Internet access and mobile Internet are added in a single line of income, followed by mobile telephony (voice only), traditional telephony and VoIP telephony and finally, leased lines ([see Chart n.º 5](#)).

In the case of the first scenario, mobile phone service and mobile Internet access (mobile network) represents 61 % of revenues by 2021. This percentage has been decreasing over the years, going from 66 % in 2017, to what was registered in 2021. In second place is fixed Internet service with 27 %, followed by leased lines with 7 % and traditional basic telephony and VoIP telephony with 5 %. The percentage weight of telecommunications services by the mobile network represents almost two thirds of the market.

In relation to the second scenario, the Internet access service (fixed and mobile) with 61 % of revenues turns out to be the most important, followed by mobile telephony (voice only) which generates 26 %, which shows that the consumer preference for data consumption is increasingly enlarged, in comparison with 2020, where the percentages were 59 % and 28 % respectively. Finally, as in the first scenario, leased lines represent 8 % and fixed telephony contributes with 5 %. In this scenario, the Internet access and mobile telephony service together generate 87 % of the sector's revenue.



## • Behavior of subscriptions in the Telecommunications Sector

An important aspect in the telecommunications market is to analyze the behavior of subscriptions in different services, due to the role they play in the growth of the sector. For this topic, details can be observed in [Table n.º 12](#), which shows the information on the level of penetration of services measured by number of inhabitants or homes for the analysis period (2017-2021).

### Mobile Telephony

The mobile telephony service registered 7 834 452 subscriptions in the year 2021. For the prepaid modality, 5 139 500 were counted and 2 694 935 for postpaid, with a percentage ratio of 65.6 % and 34.4 % respectively of the total.

If the total number of subscriptions is considered, by 2021 this service changed the behavior exhibited in 2020. This is because in 2021 total subscriptions increased by 322 065, that is, 4.1 % in total. The increase is occurring in both payment methods, postpaid and prepaid as well with 133 068 and 188 457 more respectively, compared to 2020 (2.6 % and 6.7 % respectively). The penetration of this service in 2021 is of 152 %, with an increase of 5 percentage points compared to what was registered in 2020.

### Fixed telephony (traditional basic and VoIP)

For fixed telephone service, the data on the number of subscriptions in general continues to show a decrease as in previous years, going from 556 617 for 2020 to 500 550 by 2021, representing a decrease of 56 067 subscriptions (10 %). In relation to the penetration of the service in the population and housing, it is found that by 2021 it is 10 % and 30 % respectively.

This is a decrease of 1 and 5 percentage points respectively in relation to the figure recorded in 2020.

By separating traditional basic telephony and VoIP telephony, it is shown that the decreases are focused on traditional basic telephony where 60 592 fewer subscriptions were registered compared to 2020 (12 %); while VoIP telephony service, on the other hand, registered an increase of 4525 subscriptions (9 %).

In the penetration of services during 2021 separately, it is shown that for traditional basic at the population level it is 9 % and housing of 27 %, showing a decrease compared to 2020 (10 % and 32 %), while the VoIP service 1.1 % and 3.4 % respectively, in this case there is an increase compared to 2020 (1 % and 3.3 %).

### Basic traditional telephony

Subscriptions for traditional fixed telephony are decreasing, as demonstrated in the behavior of the last 5 years; for 2021, 443 684 subscriptions were counted, 303 744 fewer than the ones registered for the year 2017 (747 428), with a negative average annual growth rate of 9.90 % for the period 2017-2021.

### Fixed VoIP Telephony

In the case of fixed VoIP telephony, although there is an increase in 2021, the behavior in the last 5 years has been downward. For this year, 56 866 subscriptions were registered, 4673 less when compared to 2017, causing the average growth rate to be 1.57 % in the period from 2017 to 2021.

## **Internet access (includes mobile Internet access)**

The Internet access service (fixed and mobile) shows for the first time in the analysis period a decrease in subscriptions compared to 2020. By 2021, 5 559 795 were registered, representing 74 624 fewer subscriptions. This decreasing effect can be detected by separating subscriptions into fixed wireless, fixed wireless, and mobile. In the first instance, fixed wired subscriptions show a 7 % growth (66 042 subscriptions), in the case of fixed wireless and mobile services the decrease was 382 and 140 666 subscriptions respectively.

### **Dedicated lines**

The behavior of the subscriptions of the leased lines service has been variable during the analysis period, but for the year 2021 there is a decrease in subscriptions compared to 2020, with 5657 fewer connections.

### **Bundled services**

As part of the monitoring of the commercialization of telecommunications services, indicators were implemented to monitor changes in the offer of these services. For this reason, during 2019 the measurement of the bundled subscription packaging indicators began, therefore for the measurement of 2021 there are three consecutive annual measurements.

For the measurement, the term bundling 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 pay 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.

In the first instance, the presence of bundled versus individual subscriptions is analyzed. In the case of fixed Internet subscriptions, it can be seen that in recent years this service is contracted in a bundled way, concluding that 60 % of subscriptions were packaged during 2021 (as detailed in [Chart n.º 6](#)). In the fixed telephony service, which has two modalities, for the traditional or conventional the presence of bundled subscriptions is 29 %, while in the VoIP mode it is of 79 % ([Chart n.º 7](#) and [Chart n.º 8](#)). For pay TV, 68 % of subscriptions are associated with another service ([Chart n.º 9](#)). It should be noted that during 2021 no operator or provider has marketed mobile phone subscriptions in bundle with another telecommunications service.

It is important to know which package has the most subscriptions and in this way determine the consumption habits of users. This is detailed in [Chart n.º 10](#), where, as noted, the largest number of subscriptions are in the double play package or bundle of fixed Internet and pay TV, followed by the triple play package of fixed Internet, pay TV and VoIP fixed telephony; followed by the package of Fixed Internet- VoIP fixed telephony and finally, VoIP fixed telephony with pay TV.

### **Kilometers of optical fiber**

The importance of technological change to achieve higher speeds of access to the Internet and other telecommunications services is evident. For this, the behavior of fiber kilometers in recent years was measured; as seen in [Chart n.º 11](#), for the year 2020 the kilometers of fiber installed were 176 203, while for 2021 the value is 186 287, showing a growth in this indicator of 5.7 %.

## • Total investment

The total investment of the telecommunications sector in the last 4 years has shown no growth, but for 2021 it increased slightly, representing in that year 0.6 % of GDP, compared to 0.2 % registered in 2020. Even so, this increase is equivalent to only 0.4 %, demonstrating that the telecommunications market continues to contract, this coupled with the behavior of the country's economy. When crossing investment with gross capital formation, a greater increase is shown compared to the previous indicator, in this case the proportion went from 1.7 % to 0.5 % compared to 2020.

associated the provision of telecommunications services decreased by 149 people, representing -1 % compared to 2020 ([see Chart n.º 14](#)). When comparing the human resources employed in the sector with the country's workforce, the indicator shows a slight decrease compared to 2020, but with stability throughout the analysis period ([see Chart n.º 15](#)). In the case of the sector's workforce and total population, as seen in [Chart n.º 16](#), no changes are shown over time, with a slight increase in the last year.

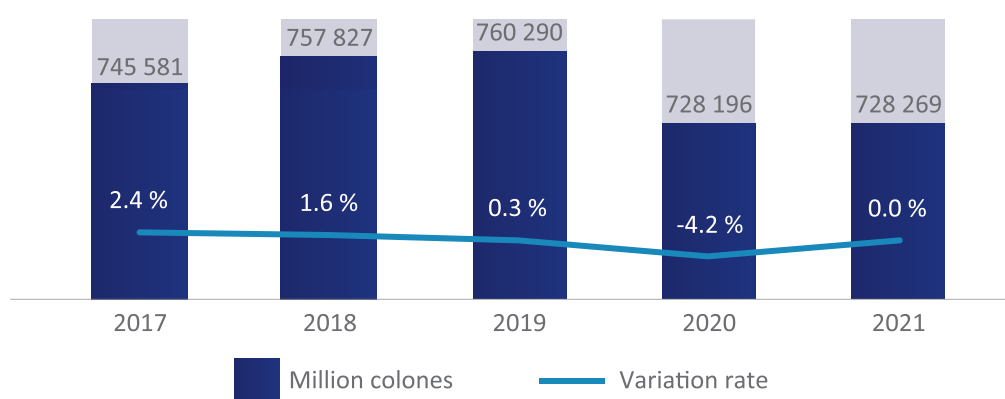
When analyzing the behavior of the female population working in the telecommunications sector, a decrease in the number is shown compared to 2020 (52 fewer women). This time this indicator shows a slight increase to 2021, with a cumulative growth rate of -0.7 % compared to 2017.

## • Human resources employed

In the case of human resources directly associated with telecommunications services, the data for 2021 indicate that the personnel hired directly

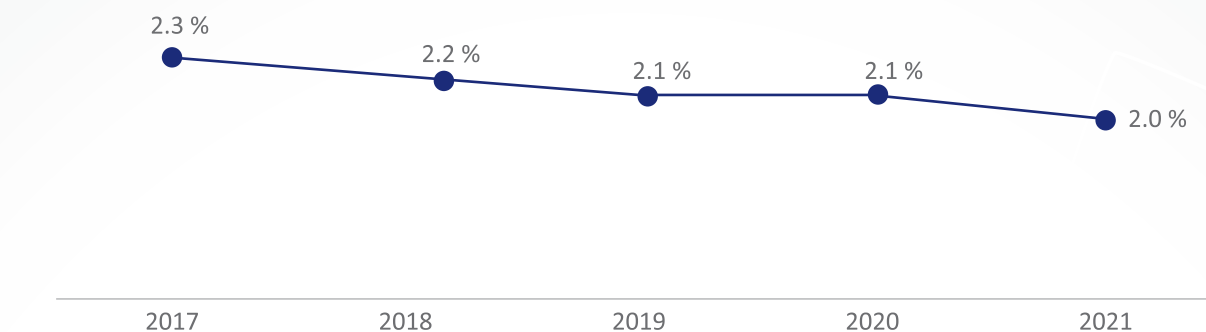
**Chart n.º 1. Costa Rica: Total revenue for the Telecommunications Sector, 2017 - 2021**

(annual figures in million colones and variation percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

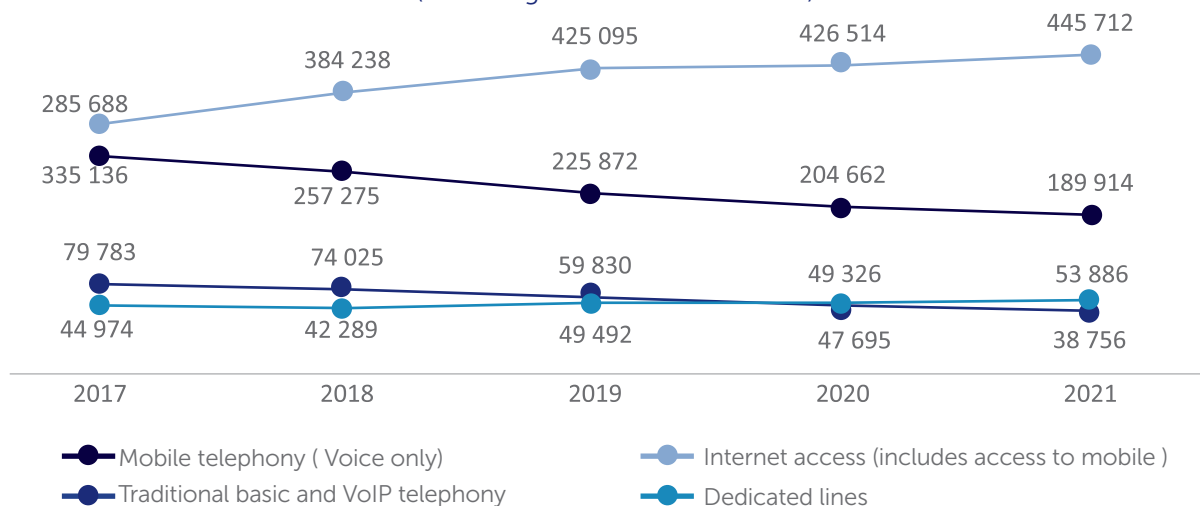
Chart n.º 2. Costa Rica: Total revenue of the Telecommunications Sector as a proportion of GDP\*, 2017-.2021  
(annual figures in percentages)



Note: \*Gross Domestic Product at current market prices.

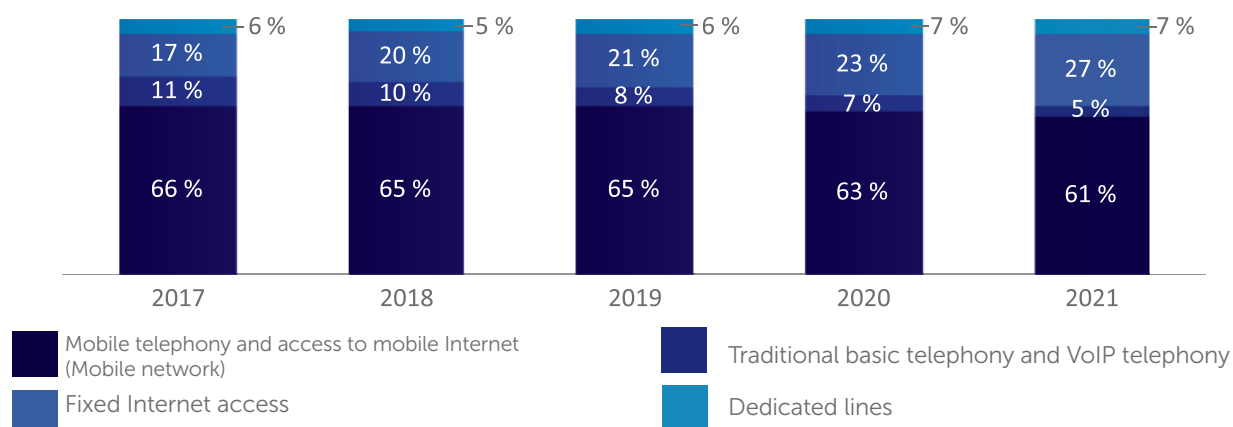
Source: SUTEL, Directorate General of Markets and BCCR, Costa Rica, 2021.

Chart n.º 3. Costa Rica: Total revenue of the Telecommunications Sector per service, 2017 -2021  
(annual figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 4. Costa Rica: Total revenue of the Telecommunications Sector per service, 2017 - 2021  
(annual figures in percentages)

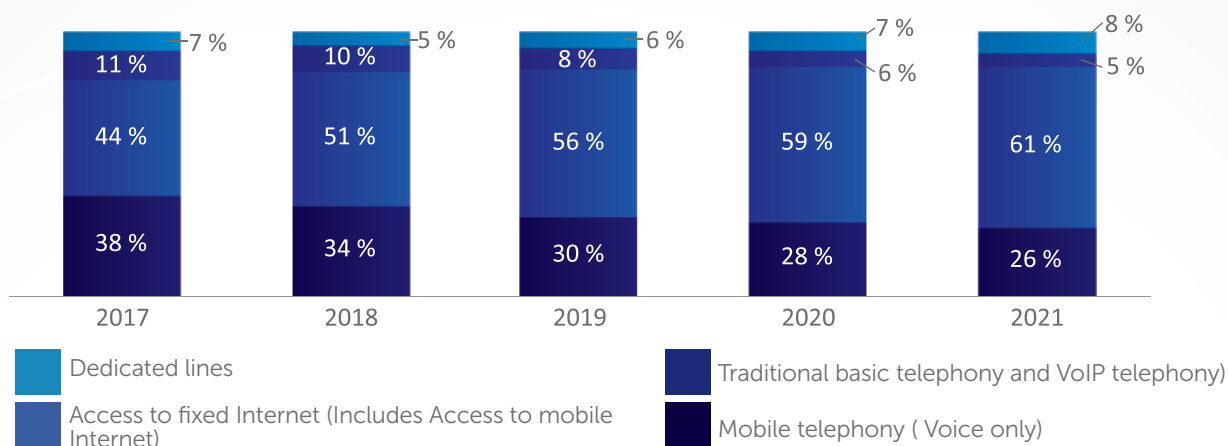


Note: Mobile revenue also includes revenue generated by mobile Internet access service.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

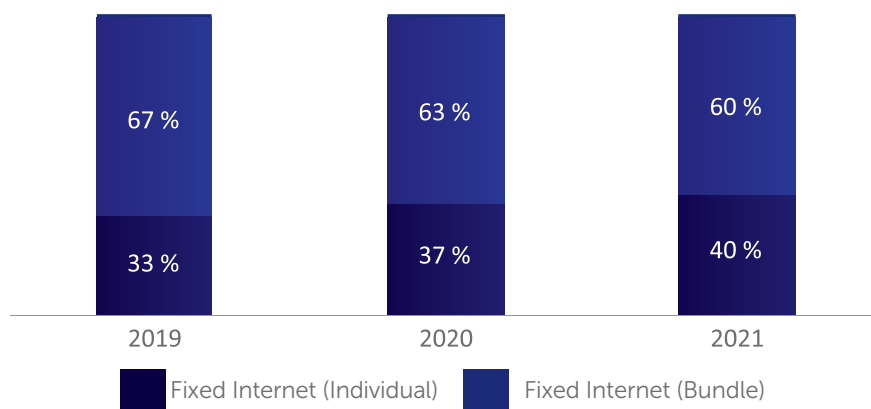
Chart n.º 5. Costa Rica: Total revenue of the Telecommunications Sector per service, 2017 - 2021

(annual figures in percentages)



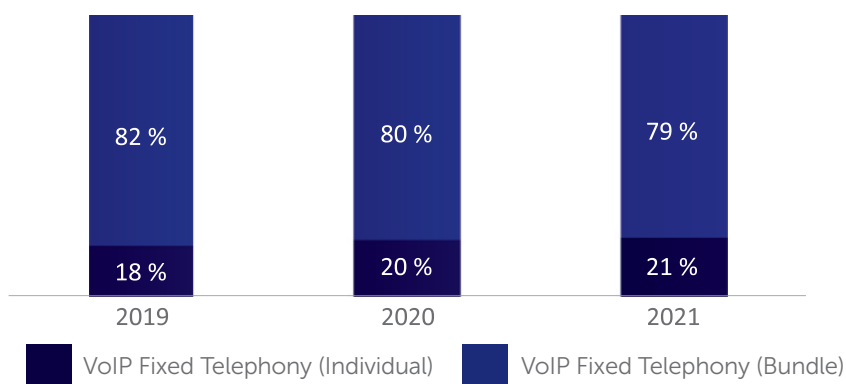
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 6. Costa Rica: Distribution of subscriptions for fixed Internet per individual contract or bundled with other services, 2019-2021



Fuente: SUTEL, Dirección General de Mercados, Costa Rica, 2021.

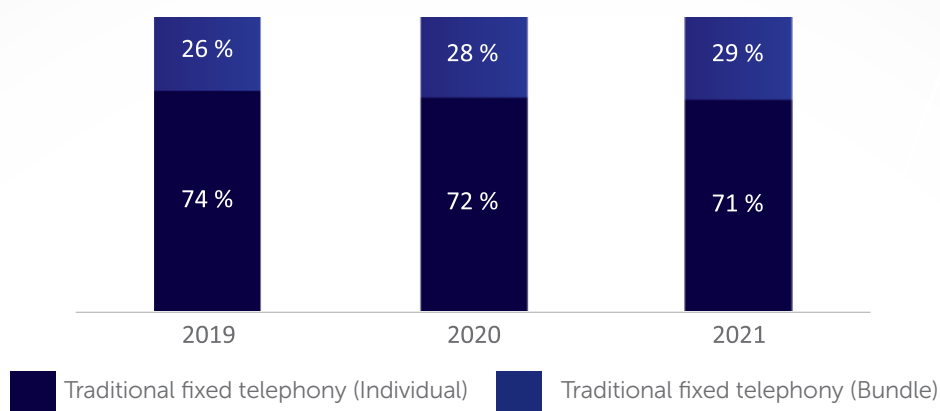
Chart n.º 7. Costa Rica: Distribution of subscriptions for fixed VoIP telephony per individual contract or bundled with other services, 2019-2021



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

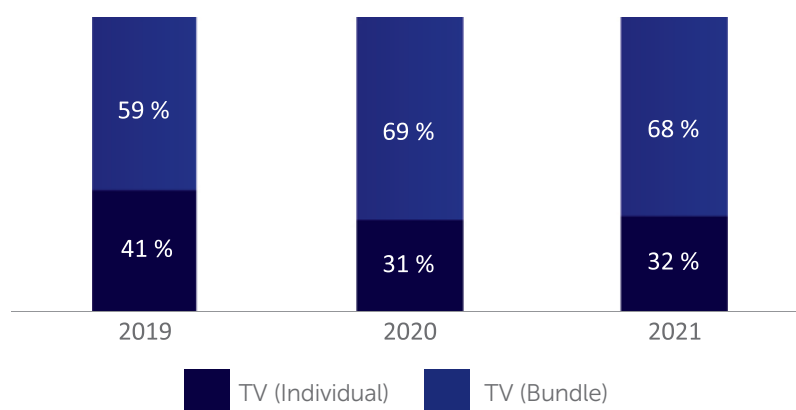


Chart n.º 8. Costa Rica: Distribution of subscriptions for traditional fixed telephony per individual contract or bundled with other services, 2019-2021



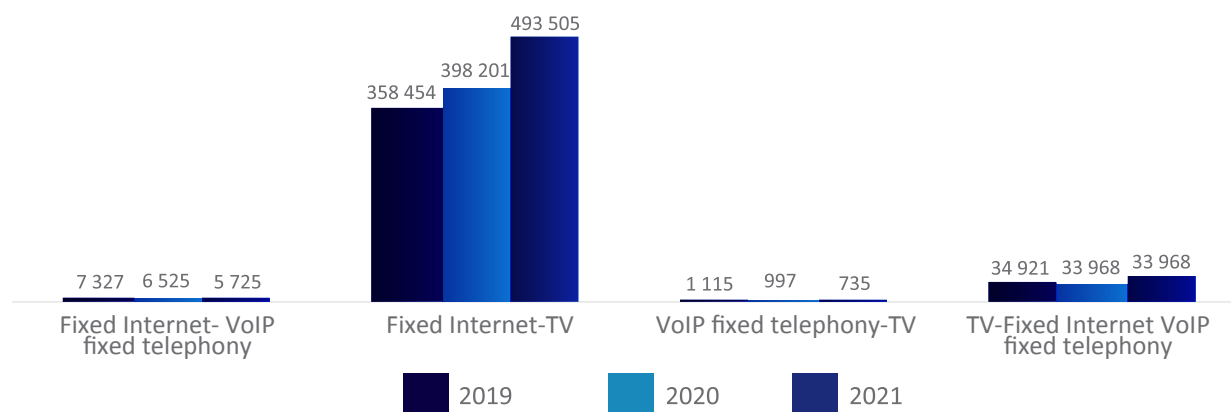
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 9. Costa Rica: Distribution of subscriptions for pay TV per individual contract or bundled with other services, 2019-2021



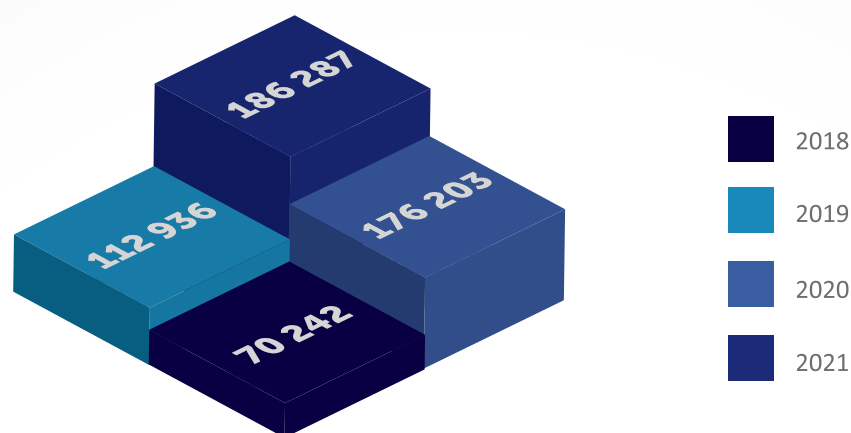
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 10. Costa Rica: Number of subscriptions per type of bundled telecommunications services, 2019-2021



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 11. Costa Rica: Number of kilometers of optical fiber installed, 2018-2021

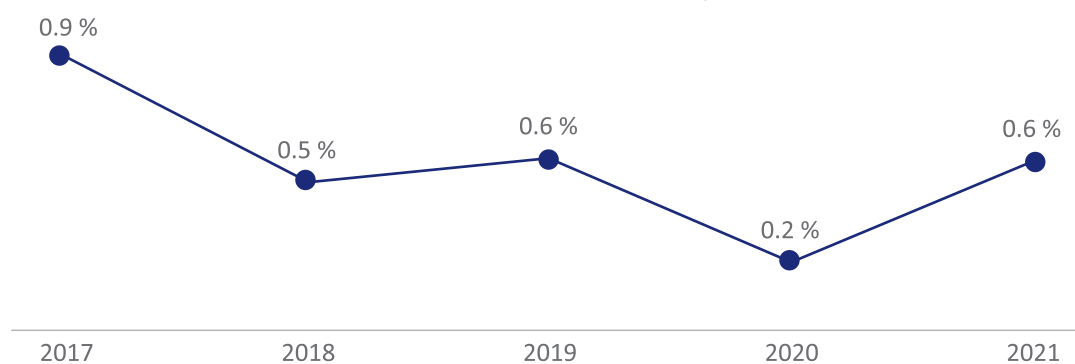


Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 12. Costa Rica: Total investment of the Telecommunications Sector as a proportion of the GDP<sup>1</sup>, 2017- 2021

(annual figures in percentages)

(cifras anuales en porcentajes)

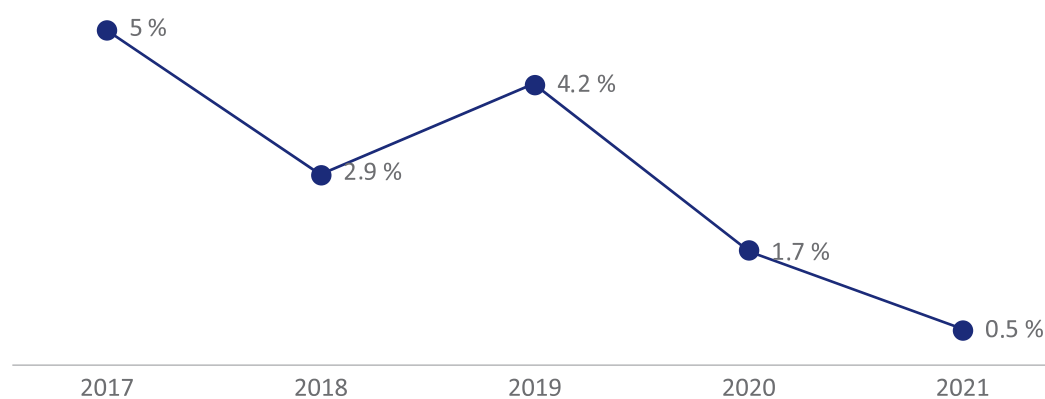


Note: <sup>1</sup> Gross Domestic Product at current market prices.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

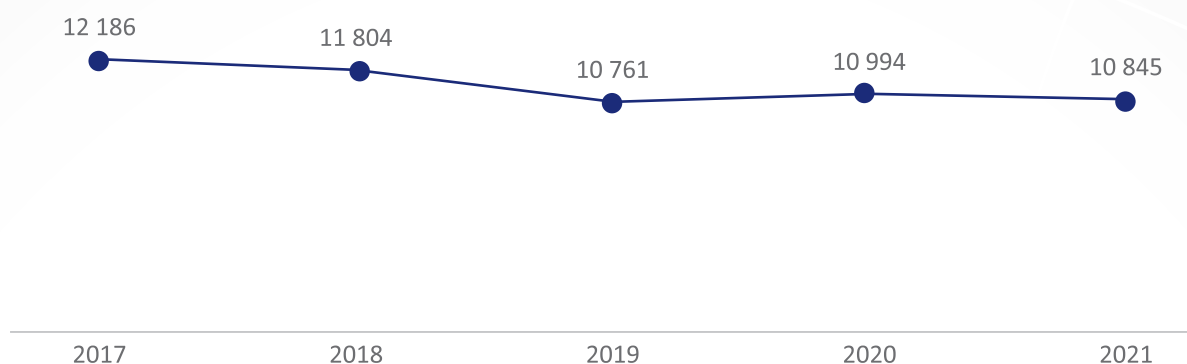
Chart n.º 13. Costa Rica: Total investment of the Telecommunications Sector as a proportion of the Gross Capital Formation, 2017-2021

(annual figures in percentages)



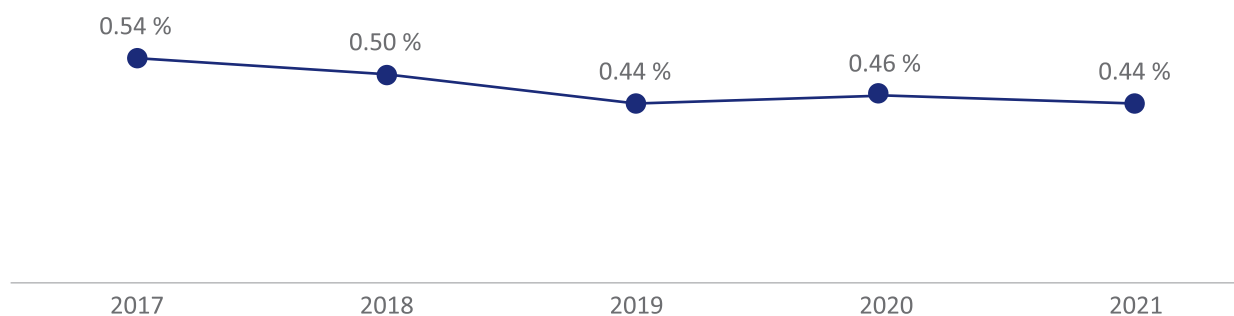
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 14. Costa Rica: Workforce of the Telecommunications Sector, 2017 - 2021**  
(annual figures)



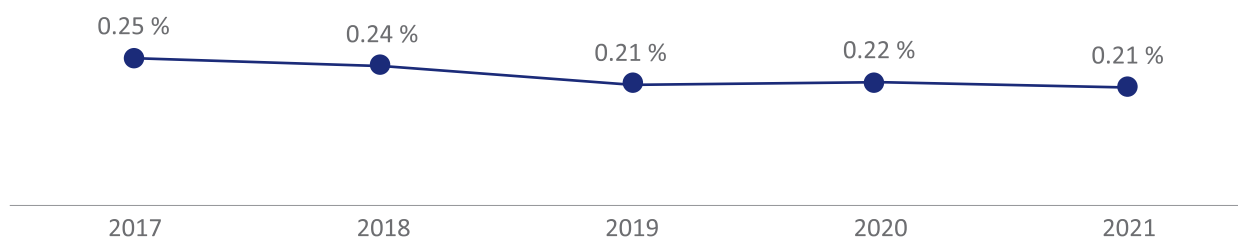
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 15. Costa Rica: Percentage of the Telecommunications Sector workforce with regard to the Economically Active Population, 2017 – 2021**  
(annual figures in percentage)



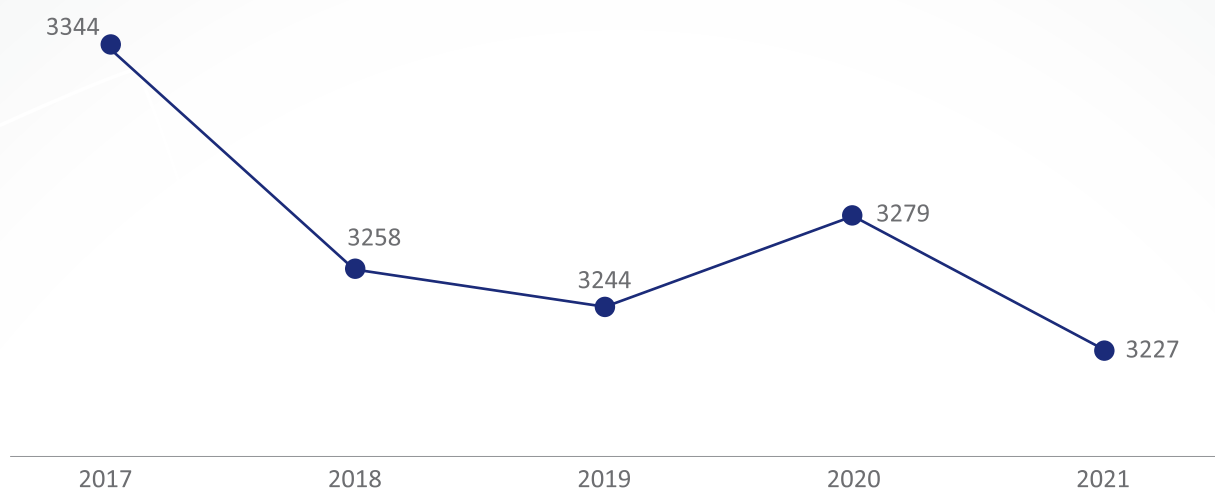
Source: SUTEL, Directorate General of Markets, Costa Rica, 2020.

**Chart n.º 16. Costa Rica: Percentage of the Telecommunications Sector workforce with regard to the total Population, 2017 - 2021**  
(annual figures in percentage)



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

Chart n.º 17. Costa Rica: Female workforce in the Telecommunications Sector, 2017 - 2021



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Table n.º 10. Costa Rica: Number of telecommunications services operators and providers, 2016 - 2021

Indicator	2016	2017	2018	2019	2020	2021
Total companies authorized	135	143	152	148	158	187
Rate of response of indicators	83 %	80 %	80 %	77 %	77 %	86 %

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Table n.º 11. Costa Rica: Percentage distribution of companies per service included in the indicators report for the sector, 2016 – 2021

Service	2016	2017	2018	2019	2020	2021
Fixed telephony	94 %	90 %	100 %	100 %	100 %	100 %
Mobile telephony	100 %	100 %	100 %	100 %	100 %	100 %
Data transfer*	97 %	55 %	61 %	68 %	60 %	59 %
Pay TV	100 %	97 %	100 %	100 %	100 %	100 %

Note: \*Over the years the operators with the most important market share provide market information, ensuring the comparability of statistics. In fixed Internet, the three operators with the largest share contribute almost 95 % of the market year after year, seven other operators contribute almost all the remaining 5 %.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Table n.º 12. Costa Rica: Summary of performance indicators for the Costa Rican telecommunications sector 2017-2021

Indicator	2017	2018	2019	2020	2021
<b>Sector's aggregated data</b>					
Total revenue (million colones)*	745 581	757 827	760 290	728 440	728 269
Total revenue/GDP (percentage)	2.29 %	2.18 %	2.10 %	2.09 %	1.95 %
Inversión total/GDP (percentage)	0.92 %	0.50 %	0.58 %	0.23 %	0.6 %
Total human resources employed	12 186	11 804	10 761	10 991	10 795
Total human resources employed /Total economically active population	0.54 %	0.50 %	0.44 %	0.46 %	0.44 %
<b>Fixed telephony</b>					
Total subscriptions	808 967	763 254	636 504	556 617	500 550
Total subscriptions /100 inhabitants	16 %	15 %	13 %	11 %	10 %
Total subscriptions /100 homes	54 %	50 %	40 %	35 %	30 %
Total subscriptions to fixed basic traditional telephony	747 428	695 518	571 808	504 276	443 684
Total subscriptions to fixed basic traditional telephony / 100 inhabitants	15 %	14 %	11 %	10 %	9 %
Total subscriptions to fixed basic traditional telephony / 100 homes	50 %	45 %	36 %	32 %	27 %
Total subscriptions to VoIP	61 539	67 736	64 696	52 341	56 866
Total number of public phones	4674	4581	3798	3265	2905
<b>Mobile telephony</b>					
Total subscriptions	7 778 436	6 920 090	7 309 970	7 512 370	7 834 435
Prepaid subscriptions	5 733 685	4 709 693	4 892 208	5 005 892	5 139 500
Postpaid subscriptions	7 309 970	2 210 397	2 417 762	2 506 478	2 694 935
Total subscriptions/100 inhabitants	157 %	138 %	145 %	147 %	152 %
Prepaid subscriptions /Total subscriptions	74 %	68 %	67 %	66.6 %	65.6 %
Postpaid subscriptions /Total subscriptions	26 %	32 %	33 %	33.4 %	34.4 %
<b>Data transfer</b>					
Total subscriptions to Internet access	5 533 005	5 924 290	5 568 807	5 634 419	5 559 795
Total subscriptions to fixed Internet access	744 041	834 784	904 734	992 725	1 058 767
Total subscriptions to wired fixed Internet access	735 833	829 296	900 276	986 673	1 053 097
Total subscriptions to wireless fixed Internet access	8208	5488	4458	6052	5670
Total subscriptions to mobile Internet access	4 788 964	5 089 506	4 664 073	4 641 694	4 501 028
Total subscriptions to fixed Internet access/100 inhabitants	15 %	17 %	18 %	19 %	20 %
Total subscriptions to fixed Internet access/100 homes	50 %	54 %	57 %	63 %	64 %
Total subscriptions to mobile Internet access/100 inhabitants	97 %	102 %	92 %	91 %	87 %
Total subscriptions to mobile Internet access / total subscriptions to mobile telephony	54 %	60 %	55 %	62 %	57 %
Total connections to leased lines	18 486	16 951	22 921	23 682	18 025



Pay TV					
Total subscriptions	831 907	883 883	874 088	866 593	848 950
Total subscriptions/100 inhabitants	17 %	18 %	17 %	17 %	16 %
Total subscriptions/100 homes	56 %	57 %	55 %	55 %	51 %
Reference indicators					
Total population	4 947 490	5 003 402	5 058 007	5 111 238	5 163 038
Gross domestic product at market prices (millions of current colones)**	32 506 356	34 691 057	36 279 504	34 893 724	37 256 836
Total homes	1 496 053	1 540 029	1 578 161	1 581 585	1 650 361

Notes:

\* These figures do not include revenue associated to pay TV service.

\*\*For 2018, BCCR changed the GDP calculation basis, using the year 2012.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

## • COMPETITION

Telecommunications General Law (Law 8642), the Law for the 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. To this purpose, SUTEL was granted powers as a sectoral authority responsible for the defense and promotion of free and open competition in the telecommunications and networks sector that serves as support for broadcasting services of free access, as established in article 29 and chapter II of title III of Law 8642, as well as in article 2 of the Law for Strengthening of the Competition Authorities of Costa Rica, Law 9736.

In short, based on the aforementioned legal regulations, the main functions performed by SUTEL as a sectoral competition authority in telecommunications, refer to the areas of investigation and sanction of practices contrary to the principles of free and open competition in the market, the application of the scheme of merger review and the advocacy and promotion of competition.

As indicated in the Telecommunications Sector Statistics Report for the year 2019<sup>29</sup>, on November 18, 2019, Law 9736 entered into force; regulations that came to strengthen the national competition authorities, providing them with an updated legal framework, adhering to the best international practices in the field.

As part of the work carried out by SUTEL as a sectoral competition authority, in conjunction with the Commission to Promote Competition (COPROCOM), a Roadmap for the Implementation of Law 9736 was drawn up, in order to implement in a more efficient way the new legal framework for competition. To this end, the roadmap proposes three pillars for the achievement of its objectives: (1) regulatory strengthening, (2) institutional strengthening and (3) effective enforce of competition rules.

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

The objective of the second pillar is institutional strengthening, which seeks to provide SUTEL with the technical capacities and tools necessary for the effective application of competition law.

<sup>29</sup> Document that can be accessed at this-mail address: [https://www.sutel.go.cr/sites/default/files/informe\\_estadisticas\\_sector\\_de\\_la\\_telecomunicaciones\\_2019\\_2019.pdf](https://www.sutel.go.cr/sites/default/files/informe_estadisticas_sector_de_la_telecomunicaciones_2019_2019.pdf)

This included the necessary actions to reform the institutional organization of SUTEL to ensure its administrative and technical independence, allocate an appropriate budget, hire the necessary human resources and implement the necessary inter-institutional coordination mechanisms.

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

Based on the actions defined in this Roadmap, during 2021 SUTEL achieved an important advance in the fulfillment of these objectives, as detailed below.

In relation to the First Pillar, referring to regulatory strengthening, and in accordance with the provisions of paragraph 142 of Law 9736, SUTEL<sup>30</sup> participated in an inter-institutional commission formed by the Ministry of Economy, Industry and Trade (MEIC), the Ministry of Foreign Trade (COMEX) and COPROCOM, for the preparation of the Executive Regulations to Law 9736. As part of that Commission, SUTEL actively contributed to the drafting process of that Regulation and to its public consultation.

After a series of efforts, the Executive Regulations to Law 9736 were published in the Official Gazette (La Gaceta) n.º 233, Scope n.º 246 of December 3, 2021.

In follow-up to the process initiated in 2020, related to the elaboration of a series of guides and manuals for the effective application of Law 9736, during the year 2021 the following instruments were awarded<sup>31</sup>:

- Guideline to conducting market analysis.
- Guidelines for competition assessment.

Finally, in 2021, the Inter-American Development Bank (IDB), despite reductions in funding for international cooperation, informed SUTEL that it had allocated resources to a cooperation project with non-reimbursable funds to develop the following instruments for the effective implementation of Law 9736:

- Guidelines to Clemency Policy Implementation
- Internal manual for clemency policy implementation
- Manual for detecting collusive tenders
- Internal manual for performing dawn raids

In 2020, the IDB tendered the *Consultancy for the Development of Capacities in the Field of Clemency and Strengthening of the Competition Authorities of Costa Rica, whose products will be the Guidelines of the program of benefits of exoneration and reduction of administrative sanctions and the Internal Manual for the program of benefits of exoneration and reduction of administrative sanctions*, are currently in the final publication stage.

Now in relation to the other instruments: *Internal Manual for the Application of Leniency Policy, Manual to Detect Collusive Tenders and Internal Manual for Conducting Inspections*, the IDB is currently in place. at the stage of awarding projects to a consultant.

Likewise, during the year 2021 SUTEL published the Guidelines of good practices for the management of shared residential infrastructure of telecommunications networks aimed at inhabitants and condominium managers, apartment buildings and gated residential, whose objective is to provide guidance to the inhabitants and managers of condominiums, apartment, buildings and gated communities, in terms of good administrative practices associated with the management of

<sup>30</sup> Pursuant to agreement 013-058-2019 of ordinary meeting 058-2019 of SUTEL Council.

<sup>31</sup> Abbreviated tender 2021LA-000005- 001490001.

infrastructure for common use for the deployment, maintenance and expansion of telecommunications networks.

In relation to the second pillar, related to institutional strengthening, SUTEL, together with the support of the ARESEP Board of Directors, created in 2020 the Directorate-General for Competition (DGCO), while during 2021, this Directorate was strengthened through the following actions:

- 1.Provision of two new positions for the DGCO, including the position of Director.
- 2.Provision of financial resources, allocating a specific budget to the DGCO for the attention of competition issues.

Also, in relation to the second pillar, in accordance with the provisions of article 25 of Law 9736 and recognizing that international technical cooperation is a fundamental element to increase institutional capacities and effectiveness in the application of competition laws, SUTEL is in the process of negotiating cooperation agreements with the National Institute for the Defense of Competition and the Protection of Intellectual Property (Indecopi) and with the Supervisory Body for Private Investment in Telecommunications (Osiptel), a regulator in telecommunications, both from Peru.

Finally, in relation to the third pillar, concerning the effective application of competition rules, during 2021 a market study on the pipeline infrastructure that supports networks of telecommunications and its impact on market competition was awarded<sup>32</sup>.

### **Statistics of the Directorate-General for Competition 2021**

The competition statistics summarize the results in terms of the cases processed by SUTEL in 2021 in relation to the Sectoral 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: data generals, cartels, abuses of dominant position, concentrations and advocacy.

Table n.º 13. Costa Rica: Monopolistic Practice Statistics for the Telecommunications Sector, 2021

Items	2021
<b>MONOPOLISTIC PRACTICES</b>	
Investigations initiated	5
<i>Initiated ex officio</i>	1
<i>Initiated by complaint</i>	4
Sanctioned practices	0
<i>Absolute monopolistic practices</i>	0
<i>Relative monopolistic practices</i>	0
Early terminations	2
<i>With commitments offered</i>	2
<i>With recognition of guilt</i>	0
Dawn Raids	0
<b>MERGERS</b>	
Notified	1
<i>Authorized in the first phase</i>	0
<i>Authorized in the first phase with commitments</i>	0
<i>Authorized in the second phase *</i>	1
<i>Authorized in the second phase with commitments</i>	0
<i>Denied in the second phase</i>	0
<i>Withdrawn by the parties</i>	0
Unnotified	1
<i>Under investigation</i>	1
<i>Sanctioned</i>	0
<b>ADVOCACY AND PROMOTION</b>	
Opinions issued	12
Guidelines issued	1
Organized workshops	6
Market studies	3
<i>In progress</i>	3
<i>Completed</i>	0

Note: \*The notification occurred in 2020, but was resolved in the second phase in 2021.

Source: SUTEL, Directorate General for Competition, Costa Rica, 2021.



# FIXED

# TELEPHONY





## • Subscriptions

During 2021, the number of subscribers to the fixed telephony service (traditional basic and VoIP) showed the same downward behavior observed during the last years. Specifically, in the period 2020 - 2021 these subscriptions presented a reduction of 11.2 %, which is equivalent to 56 067 fewer subscriptions. In addition, of the 808 967 customers that the service had at the end of 2017, at the end of 2021 there were 500 550, as recorded in [Chart n.º 18](#). This trend even accelerated in 2019 compared to 2018, to such an extent that the corresponding reduction (126 750 subscribers, equivalent to 16.61 %), is greater than the average of the previous five years (77 104 subscribers, i.e. -11.22 % per year).

Fixed telephony includes both traditional basic telephony service and voice over Internet Protocol (VoIP) service. [Table n.º 14](#) the difference in the behavior of the number of subscribers of both technologies. In the case of traditional basic telephony, a total of 443 864 subscriptions are presented at the end of 2021, demonstrating a reduction of 60 592 subscriptions, representing a relative decrease of 12 %. Compared to 747 428 in 2017, the reduction is of 303 744 subscriptions (41 %).

The VoIP service showed variations in the number of customers during the last five years as seen in [Chart n.º 19](#).

**Regarding the year 2021, this service saw the number of subscribers increase by 4525 new subscribers,**

which means an increase of 8.6 % in the last year. On the other hand, the change compared to 2017 was different, given that the number decreases by 4673 subscriptions, which implies in percentage terms a reduction of 8 %.

On the other hand, the percentage distribution of the last year of the service through these technologies' changes with respect to the dynamics shown in previous years, due to the

increase in the number of VoIP subscriptions in the last year, causing an increase of two percentage points for 2021 compared to 2020 in the participation of this technology ([see Chart n.º 20](#)).

If the level of concentration existing in the fixed telephony market that includes, as has been pointed out, the services provided through traditional basic telephony and VoIP is analyzed, it is necessary to bear in mind the declaration of the Costa Rican Electricity Institute (ICE) as the incumbent operator, especially because of the monopoly that still exists in the provision of the service through the first of these technologies.

Noted the above, the determination of the Herfindahl-Hirschman Index (IHH) for the entire fixed telephone service for the year 2021 yields the value of 7903 points, lower than that presented in 2020 of 8233 points, but that does not differ significantly from the result included in the RCS-261-2016 of November 23 2016 (8771 points).

As indicated in the aforementioned resolution RCS-261-2016, as well as in previous reports, the IHH as a structural indicator shows that the entry of new competitors into the Costa Rican VoIP fixed voice communications market has had a slight impact on the recomposing of quotas, driven specifically by the dynamism in the behavior of telephony under this technology. However, the reduction in the share of traditional basic telephony tends to slightly improve the IHH recorded in the last year.

As a result of the behavior analyzed above and in relation to the indicators associated with the penetration of the service, it is necessary that the penetration of the fixed telephone service in general is consistent with the decreasing trend of previous years, despite the behavior of the VoIP service. As presented in [Chart n.º 21](#) the percentage of subscriptions with respect to the total population goes from 16.4 % in 2017 to 9.7 % in 2021, this same behavior is presented with respect to 2020, with a decrease of 1.2 percentage points.

According to the above, the penetration of traditional basic telephone service individually shows the decreasing trend and for 2021 it is estimated at 8.6 subscriptions per hundred inhabitants, a value lower than that presented in 2020 from 9.9 and still lower than 15.1 in 2017 ([see Chart n.° 22](#)).

On the other hand, the penetration of voice over Internet Protocol (VoIP) service presents an increase for 2021 compared to 2020, estimated at 11 subscriptions per 1000 inhabitants, an estimate that exceeds the value of 10.2 corresponding to 2020 but lower than the calculation presented for 2017 (12.4 per thousand inhabitants) ([see Chart n.° 23](#)).

With regard to market share and distribution by operators of the fixed telephone service, it has two edges. The first associated with the traditional basic telephone service, in which the Costa Rican Electricity Institute, through its trademark Kölbi, being the only provider of the service under this modality holds 100 % of the participation in this service.

In [Chart n.° 24](#) and [n.° 25](#) you can see the distribution by operator of the subscribers of the VoIP service and its evolution in the last two years. It is evident that the same five operators accumulate more than 90 % of the subscriptions during the two periods, maintaining the order of participation, that is: Millicom, Cabletica, Telecable CallMyWay and R&H.

As for public telephone service, which is also considered to be part of fixed telephony, [Chart n.° 26](#) reflects the steady decline in the number of these devices, the which went from 4 674 at the end of 2017 to 2 905 in 2021, which implies, in absolute terms, 1769 less in the last five years, and with it an annual decrease rate of 11 % for that period. As for the number of phones in 2021 compared to those reported in 2020, these also present a decrease of 360 devices, which in relative terms represents a decrease of 11 %.

### Telephone traffic through fixed networks has been reduced over time,

so that while in 2017 2683 million minutes were spent, by 2021 that traffic had decreased to 1353 million minutes, which is equivalent to an average annual reduction of 14.4 %. Considering only the last year, the observed reduction (294 million minutes) represents a greater decrease (17.8 %) than the aforementioned annual average reduction of the period analyzed. ([see Chart n.° 27](#)).

Contrary to the behavior shown by fixed telephony as a whole, mainly due to what happened with traditional basic telephony, in relation to VoIP telephony service, the corresponding telephone traffic has decreased to a lesser extent. In this sense, the minutes taken through VoIP went from 394 million minutes in 2017 to 117 million minutes in 2021, which is equivalent to an average annual decrease of 1 % and 3 % to go from 183 million to the 117 million presented in the last year ([see Chart n.° 28](#)).

In relation to the VoIP service, the available information allows to obtain the percentage distribution of telephone traffic by operator. In that sense, the distribution corresponding to the year 2021 showed that the five operators with the highest traffic concentrated 79.52 % of the minutes spent, namely: Millicom, Cabletica, Telecable CallMyWay and R & H ([see Chart n.° 29](#)). The data for 2021 shows a decrease in the proportion corresponding to these same operators, which together for this last year reaches 78.7 % ([see Chart n.° 30](#)).

As for the dynamics of outbound national fixed telephony traffic to fixed and mobile networks, this has the decreasing trend characteristic of the service, for both cases. At the end of 2021 the total outbound traffic is 7357 thousand minutes and for 2020 the value is 8677 thousand minutes, which represents a decrease of 1320 thousand minutes (17 %).



This behavior is consistent with what was presented during the reference five-year period, a period in which traffic to fixed networks has an average annual rate of decrease of 13.2 % and to mobile networks 12.7 % in the same period. ([see Chart n.° 31](#)).

Regarding the total inbound fixed telephony traffic, at the end of 2021 it is 11 711 million minutes, which means a reduction of 9 % compared to 2020. Regarding the period 2017 – 2021, it presents an average annual rate of decrease of 6 %, demonstrating in the last year a greater decrease, going from 15 017 million minutes to 11 711 million minutes ([see Chart n.° 32](#)).

Finally, the average traffic per subscriber in traditional basic telephony in 2020 reached 2902 minutes, while in 2021 this average had been reduced to 2651 minutes, which is equivalent to a decrease of 8.7 %. Similarly, it occurs in VoIP service, which average traffic per user has decreased from 3501 minutes in 2020 to 3115 minutes in 2021, with a percentage decrease of 11 % ([see Chart n.° 33](#)).

It is relevant to note that the difference in the behavior of the average traffic of traditional basic telephony or VoIP is consistent with the average income calculated in the section referring to revenues

telephone traffic and unlike the behavior shown by the revenues of fixed telephony in general and traditional basic telephony in particular, VoIP revenues show a lower decrease. This reduction in revenues is evident when looking at [Chart n.° 35](#), at the end of 2021 6174 million colones are reported (88 million colones less), which is equivalent to a decrease of 1.4 %.

The available information on revenue and the number of subscribers, allows for the obtaining of the average revenue generated by each user to these operators (ARPU for its acronym in English).

When considering both fixed telephony in general, both traditional basic telephony and VoIP telephony together, the corresponding calculations show a very similar average annual income per subscriber for the top five years analyzed (2017-2021). The corresponding value in those years ranged between 71 000 and 120 000 colones during that period with an average annual reduction of 6.3 % and 9.9 % compared to 2020 in the last year.

However, by 2020 the average annual income for both services tends to differ, for example, 108 566 for VoIP service and 71 692 for traditional basic telephony. Unlike in 2017, when both items had similar values, 97 602 and 98.708 respectively ([see Chart n.° 36](#)).

Additionally, the indicator collected allow for the calculation of the average income per minute for both traditional basic telephony service and VoIP. The resulting values, included in [Chart n.° 37](#), show that, except for 2017, there is a sustained decrease in the average price paid by users of the VoIP service. The average price dropped from 32 colones in 2017 to 27 colones in 2021. In the case of traditional basic telephony, the resulting average price shows an increasing trend, going from 15 to 35 colones in that same five-year period. The pre-eminence of the latter means of connection within the fixed telephone service has the effect that the average prices of the service as a whole are approximate to those of traditional basic telephony.

## • Revenue

In line with the behavior in subscriber and telephone traffic figures, revenues derived from the provision of fixed telephony service in general also show a downward trend during the reference period.

While in 2020 fixed telephony generated 46.884 million colones, in 2021, the corresponding revenues were reduced to 37 982 million colones, that is, a decrease equivalent to 19 % in this last year. As for the four-year period considered, total revenues decreased by 41 801 million colones, representing an average annual reduction of 16.9 % ([see Chart n.° 34](#)).

Just like what happened in the case of the VoIP service with the number of subscribers and

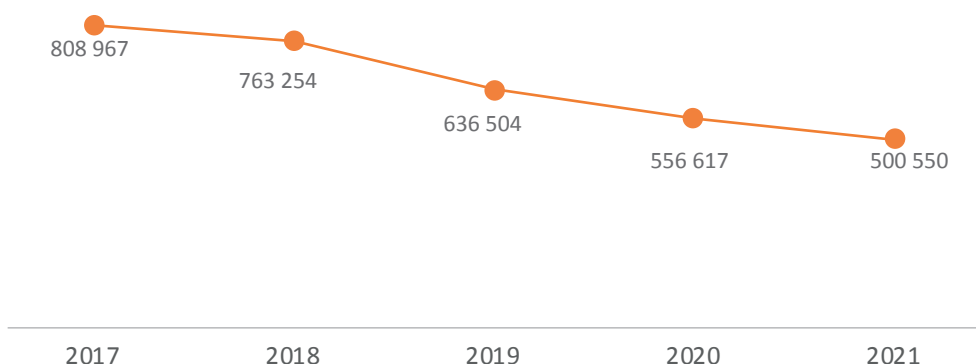


Table n.º 14. Costa Rica: Subscriptions to basic traditional telephony and VoIP telephony, 2017 - 2021  
(figures at year-end)

Subscriptions	2017	2018	2019	2020	2021
<b>Total</b>	808 967	763 254	636 504	556 617	500 550
<b>Basic Traditional Telephony</b>	747 428	695 518	571 808	504 276	443 684
<b>VoIP</b>	61 539	67 736	64 696	52 341	56 866

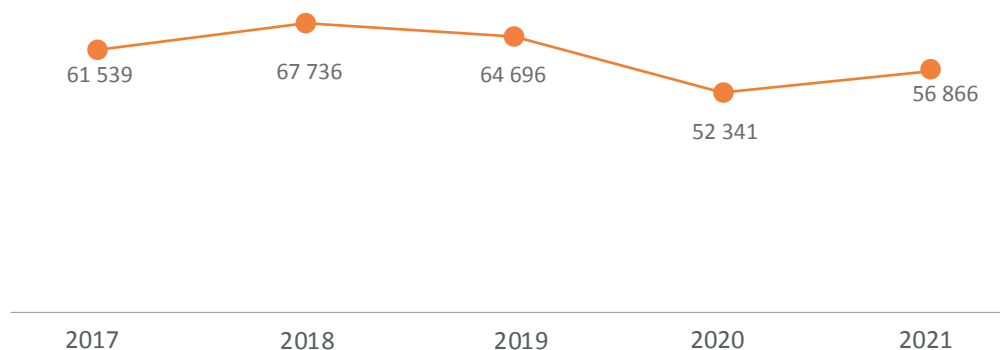
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 18. Costa Rica: Subscriptions to basic traditional telephony and VoIP telephony, 2017 - 2021  
(annual figures)



Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

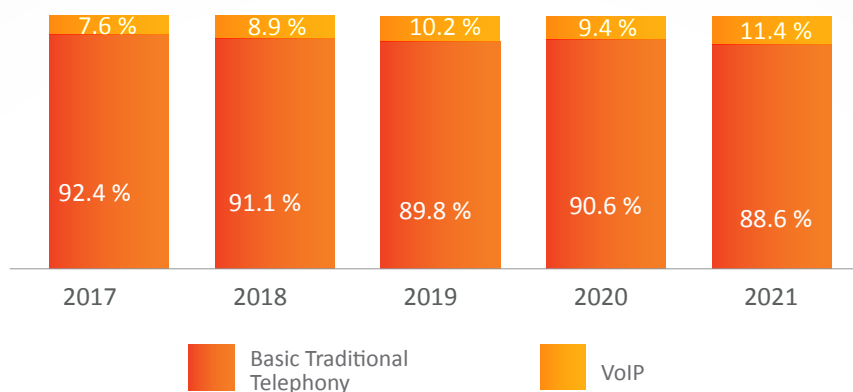
Chart n.º 19. Costa Rica: Subscribers to VoIP telephony, 2017 - 2021  
(annual figures)



Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

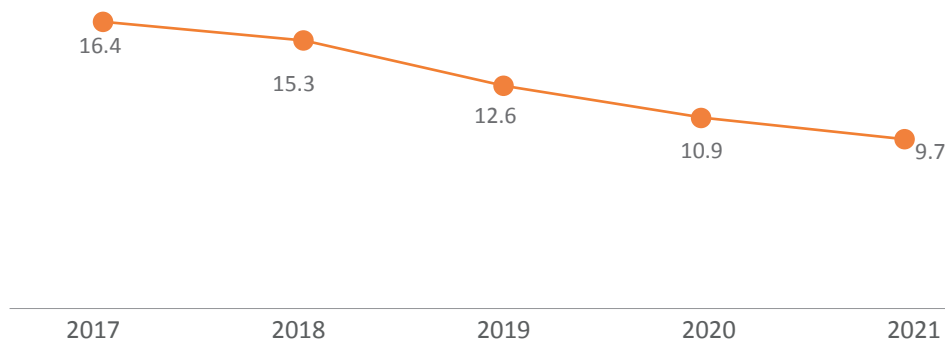


Chart n.º 20. Costa Rica: Percentage distribution of basic traditional telephony and VoIP telephony, 2017 - 2021  
(annual figures)



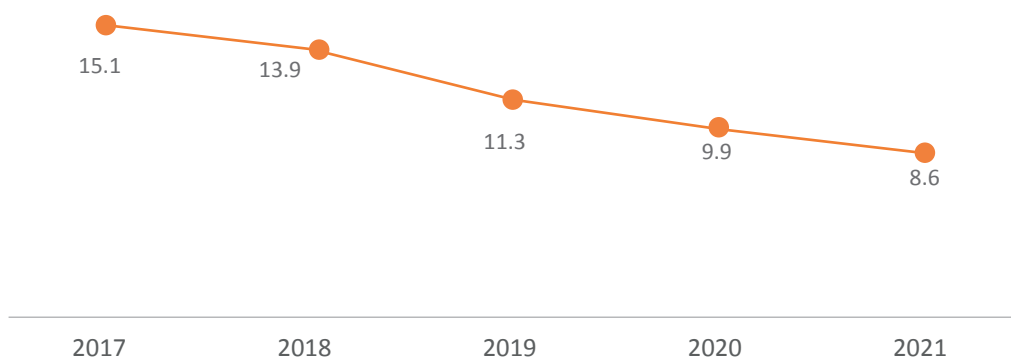
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 21. Costa Rica: Fixed telephony service penetration, 2017-2021  
(subscriptions per one hundred inhabitants)



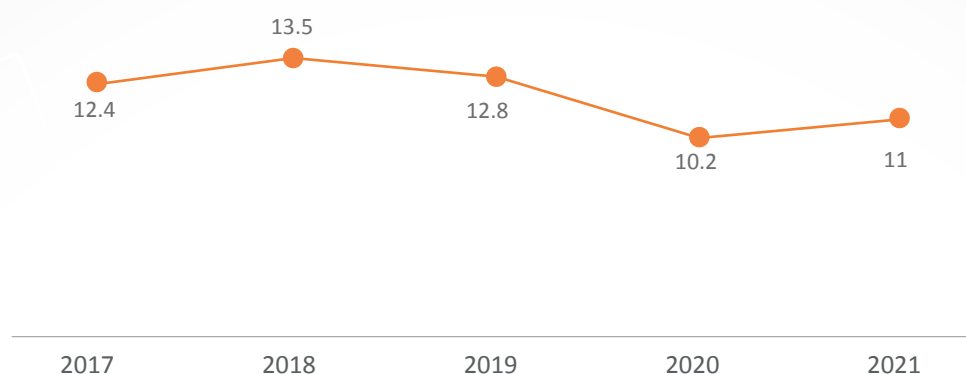
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 22. Costa Rica: Fixed telephony service penetration, 2017-2021  
(subscriptions per one hundred inhabitants)



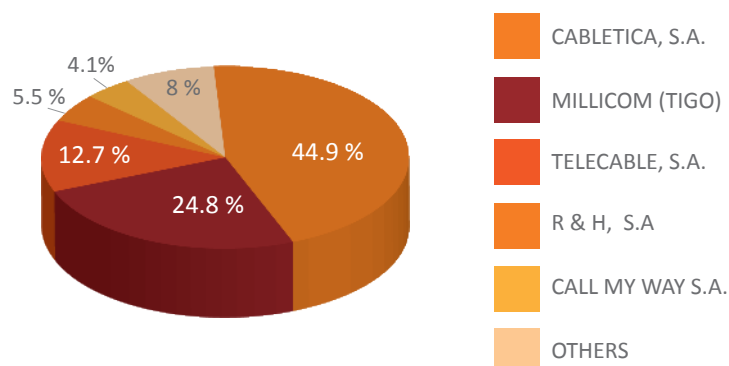
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 23. Costa Rica: VoIP telephony service penetration, 2017-2021**  
(subscriptions per one thousand inhabitants)



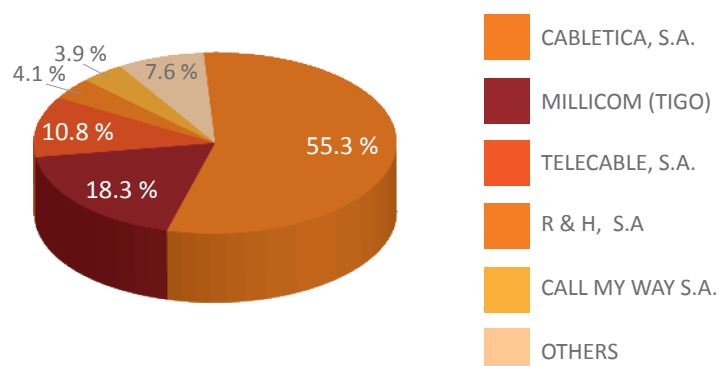
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 24. Costa Rica: Distribution of VoIP telephony subscribers per operator, December 2020**  
(figures in percentages)



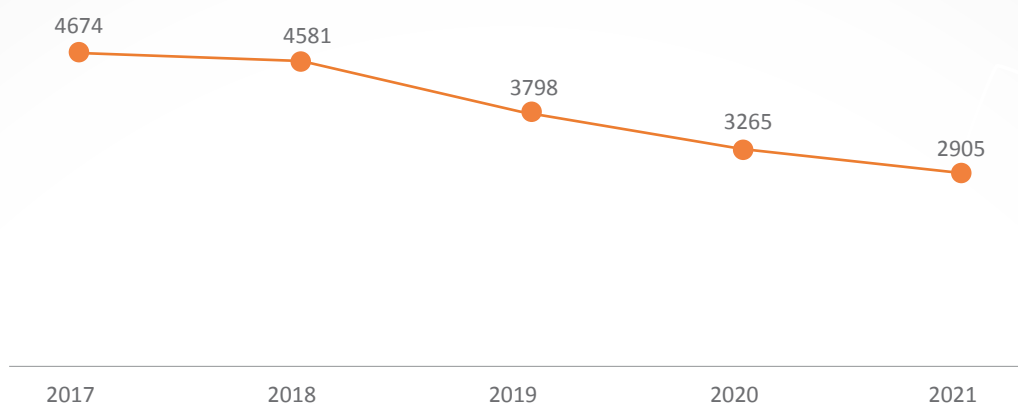
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 25. Costa Rica: Distribution per operator of VoIP telephony subscribers, December 2021**  
(figures in percentages)



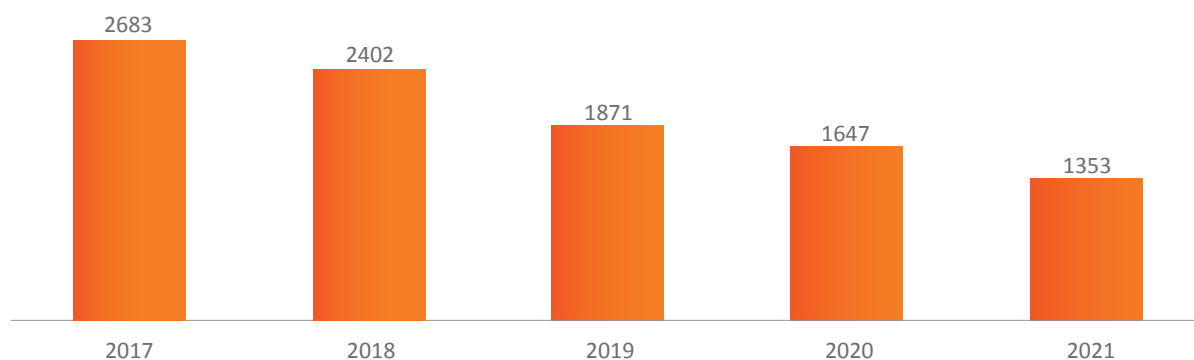
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 26. Costa Rica: Number of public phones, 2017-2021**  
(annual figures)



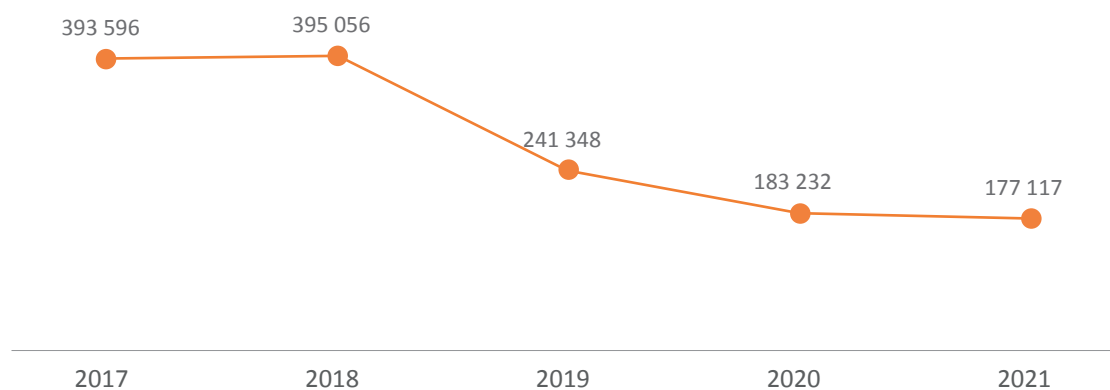
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 27. Costa Rica: Fixed telephony traffic, 2017-2021**  
(millions of minutes per year)



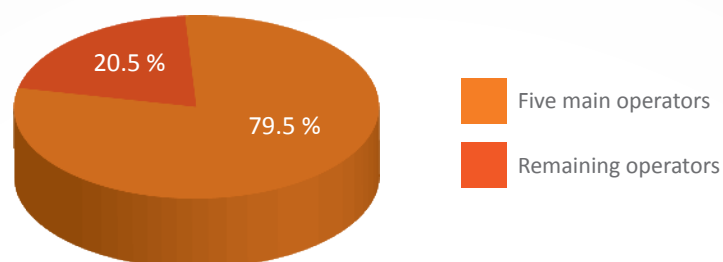
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 28. Costa Rica: VoIP telephony traffic, 2017-2021**  
(thousands of minutes per year)



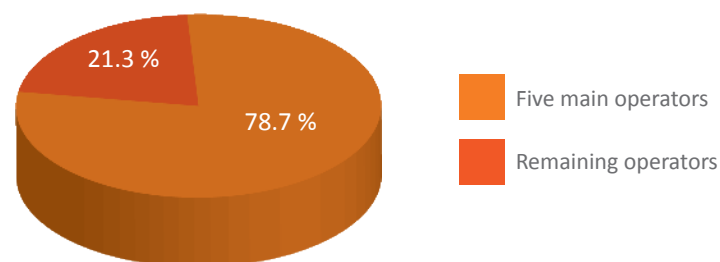
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 29. Costa Rica: Distribution of VoIP telephony traffic per provider, 2020  
(figures in percentages)



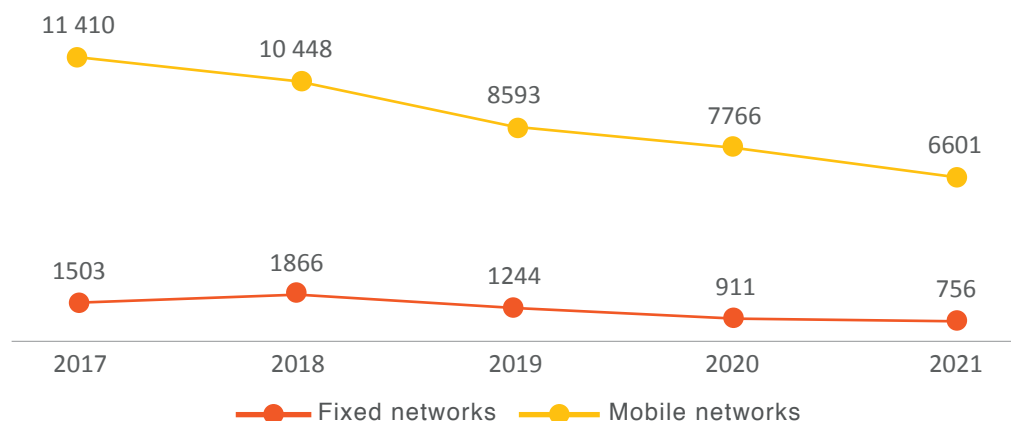
Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 30. Costa Rica: Distribution of VoIP telephony traffic per provider, 2021  
(figures in percentages)



Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

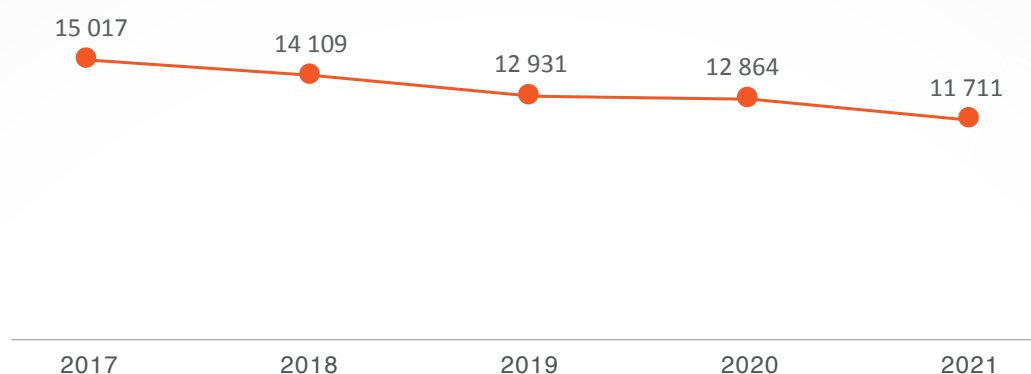
Chart n.º 31. Costa Rica: Outbound national fixed telephony traffic to fixed and mobile networks, 2017-2021  
(annual figures in thousands of minutes)



Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 32. Costa Rica: total inbound fixed telephony traffic, 2017-2021

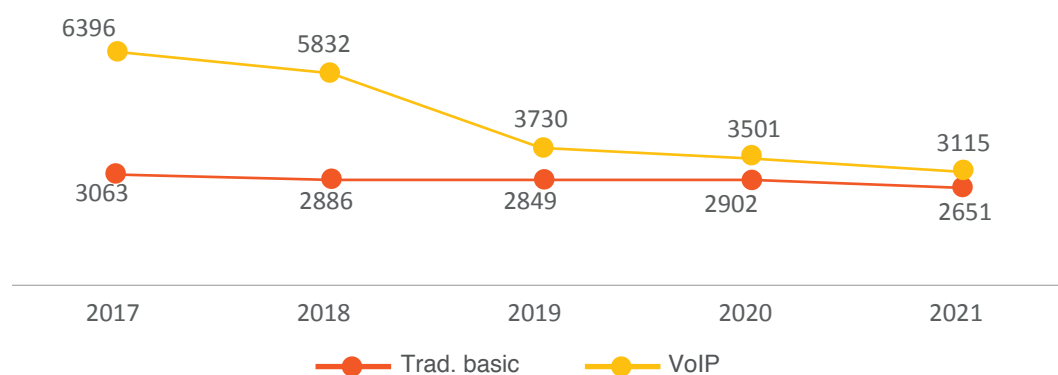
(annual figures in million of minutes)



Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 33. Costa Rica: Average traffic per fixed telephony subscriber per type of connection: traditional basic and VoIP, 2017-2021

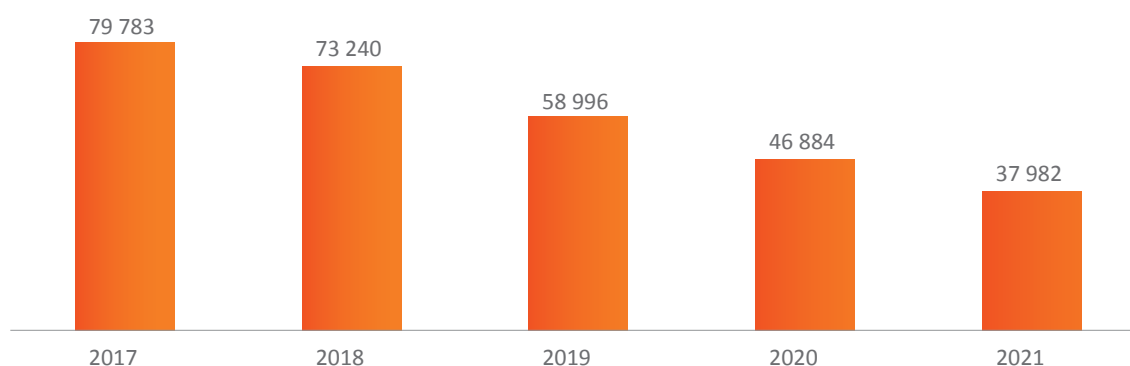
(figures in minutes)



Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 34. Costa Rica: Fixed telephony revenue, 2017-2021

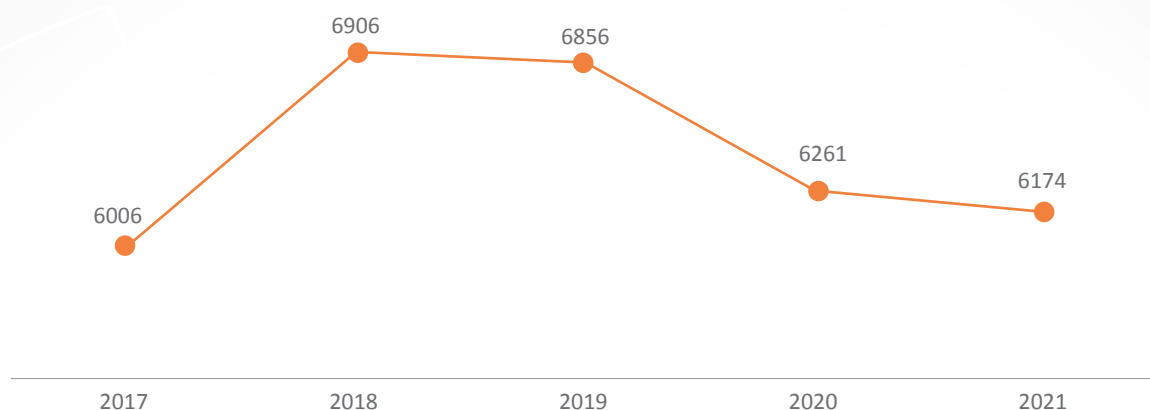
(figures in million colones)



Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 35. Costa Rica: VoIP, telephony revenue 2017-2021

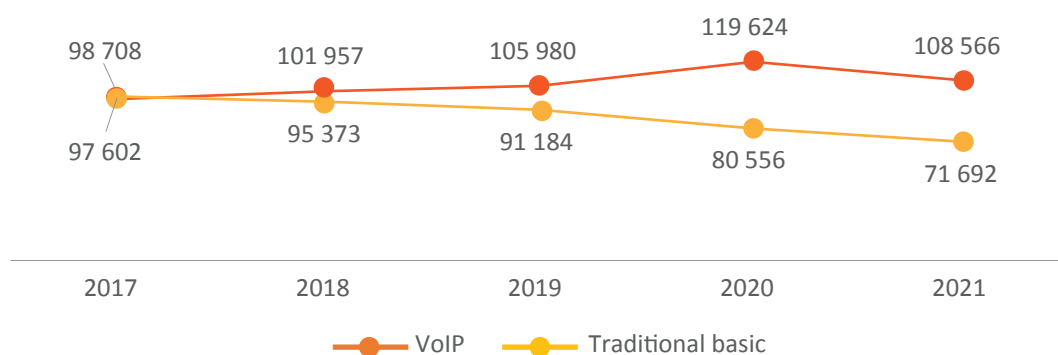
(figures in million colones)



Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 36. Costa Rica: Average income per fixed telephony subscriber per connection type: Traditional basic and VoIP, 2017-2021

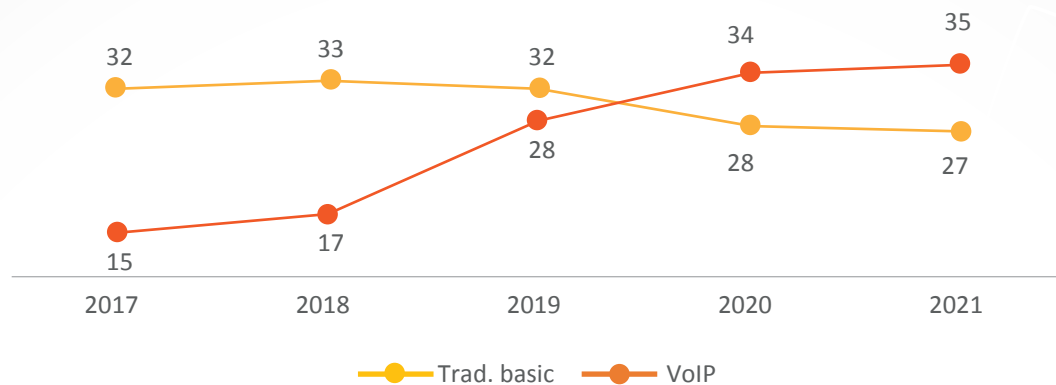
(annual figures in colones)



Source: Sutel, Directorate General of Markets, Costa Rica, 2021.



Chart n.º 37. Costa Rica: Average revenue per telephony minute per connection type: Traditional basic and VoIP, 2017-2021  
(annual figures in colones)



Source: Sutel, Directorate General of Markets, Costa Rica, 2021.



# MOBILE TELEPHONY<sup>33</sup>

---

<sup>33</sup> One operator corrected historical prepaid subscription data from 2012 to 2019, and two operators also corrected traffic data for the years 2019 and 2020. Therefore, in these themes (subscriptions and traffic) some indicators do not coincide with the publication of the previous year. In both situations, the corrected data were reported to SUTEL, after the official publication of the Telecommunications Sector 2020 Statistics.





## • Subscription

At the end of 2021, 7 834 435 subscriptions were registered, registering a growth of 4.29 % compared to 2020 (7 512 370 subscriptions). This upward trend is recorded for the third consecutive year since 2018 (4.2 % average annual growth), in which subscriptions reached 6 920 090 ([see Chart n.° 38](#)).

However, this results in a penetration of 151.7 %, which is 4.7 percentage points above that corresponding to the previous year (147 %) and above the average of the OECD countries (121.79 %, figure to the last year published, 2020). This percentage reached in 2021 is the third highest penetration since 2011, the year in which the registration of this indicator by SUTEL. ([see Chart n.° 39](#)).

In relation to payment methods, postpaid subscriptions increased by 7.5 % compared to 2020, while prepaid by 2.7 % ([see Chart n.° 40](#)). As for its share of total subscriptions in the postpaid mobile phone service, it continues to expand its share reaching 34.4 % at the end of 2021 (the highest historical share). On the other hand, prepaid registered 65.6 % complementary, giving up one percentage point compared to the previous year, it is important to note that this behavior is close to the average shares of OECD countries of the last year published, 2020 (33 % prepaid and 67 % postpaid) ([See Chart n.° 41, 42 and 43](#)).

In relation to the distribution of the market by operator,

**Movistar covered 42.3 %, followed by ICE (38.6 %) and Claro (19.1 %).**

At this point it should be noted that only Movistar has had a sustained increase in its total share for the last five years ([see Chart n.° 44](#)).

As for the participation of operators by payment method, in prepaid Movistar participates in 49.6 %, followed by ICE with 33.7 % and Claro with 16.7 %, while in the postpaid mode, ICE has a participation of 47.8 %, Movistar 28.5 % and Claro 23.7 % ([see Chart n.° 45](#)).

Previous entries result in the IHH<sup>34</sup>, ÍHerfindahl-Hirschman Index<sup>35</sup> reaching 3644 points in 2021 ([see Chart n.° 46](#)).

## Traffic •

Outbound voice minute traffic decreased by 10.76 % compared to 2020 ([see Chart n.° 47](#)). This downward trend has been steady despite the increase in the number of subscriptions in recent years. This could suggest a change in users' habits in relation to voice communication through the use of other means for voice transmission, such as WhatsApp.

For example, the consumption of minutes per subscriber went from 66 minutes per month in 2020 to 56 minutes in 2021. This situation is accentuated if we compare the figures of 2021 with those of 2017, when 73 minutes were recorded on average per month per user ([see Chart n.° 48](#)). Now, in terms of payment method, it has to be that in 2021 monthly an average postpaid consumer consumes 111 minutes, while the prepaid, 27 minutes (in both modalities the lowest consumption is presented in the last five years). The above average consumptions produce a relationship between postpaid and prepaid traffic of 4 postpaid minutes for each prepaid minute (even though the share of postpaid subscriptions is just over a third of the prepaid).

<sup>34</sup> The HHI for 2016 (the year in which the mobile telecommunications service was declared competitive) was 3891 points..

<sup>35</sup> <https://www.oecd.org/competition/abuse/2376087.pdf> . The Herfindahl Index or Herfindahl and Hirschman Index (IHH) is one measure employee in economy What Advises envelope the concentration Economic of one market. Or inversely the measure of lack of competence in one system economic. One index elevated Express one market very concentrated y little competitive.

As for the destination of calls ([see Chart n.° 50](#)), the behavior remains similar over the years, the traffic generated in calls to mobiles on net prevails with 50.7 %, followed by mobile off net (27.5 %), fixed numbers (18.2 %) and international calls (3.5 %).

On the other hand, the traffic of international calls (both incoming and outgoing), continues its downward trend (originated since 2018), decreasing by 7.0 % in relation to the year 2020 (in the last 5 years its decrease Annual average is 4 %). It is important to note that the main driver of this decrease is outgoing international traffic as it decreased by 17 %, unlike inbound traffic, which on the contrary increased 5 % compared to the previous year ([see Chart n.° 51](#)).

Voice *roaming traffic* (sum of inbound and outbound roaming) grew by 14.2 % compared to 2020 ([see Chart n.° 52](#)). However, it should be noted that this traffic has not yet reached the levels recorded before the pandemic (39 million minutes in 2021 vs. 80 million minutes in 2019). This same situation occurs with SMS/MMS roaming traffic which increased by 58.5 % compared to 2020 ([see Chart n.° 53](#)); however, it still does not reach the levels of 2019 (15 million messages against 21 million respectively).

Meanwhile, data roaming traffic increased by 136 % its 2020 counterpart ([see Chart n.° 54](#)), surpassing pre-pandemic levels. It is important to highlight these growths in 2021, largely driven by the opening of borders and the reduction of international health restrictions in the face of COVID-19, in addition to the commercial offers that operators use in order to generate greater profitability of their networks, for example, promotional packages with minutes to other countries charged at local rate.

Finally, outbound SMS messaging traffic has presented a decreasing trend of 22.4 % per year since 2017 (-2.1 % compared to 2020) reaching 1385 million messages, so the last decrease in the

pace of decline in the last year slowed down ([see Chart n.° 55](#)).

This number of messages translates into an average monthly consumption of 15 messages per user vs. 35 that were presented at the beginning of this last five years ([see Chart n.° 56](#)).

**In general terms, local consumption (measured in minutes) decreased by 10.76 % compared to 2020 despite the increase in the number of subscriptions of 4.3 %,**

since the voice traffic of the postpaid modality is the modality with the highest participation in traffic (68 %) and this was precisely the one that presented a significant decrease of 17 % compared to the previous year.

## Revenue

In this last five years (2017 to 2021), mobile phone revenues (includes outbound and inbound national and international voice, SMS, MMS, excludes roaming and mobile data) show a downward trend (8.8 % annual average), reaching 189.914 million colones by 2021 (-7.21 % compared to the previous year). This is consistent with the sustained decline in voice and messaging minute traffic for these same years ([see Chart n.° 57](#)) and the decline in mobile telecommunications prices (see Mobile Telecommunications Price Index chart [n.° 175](#) in the commercial price and offers section). That is, the fall in mobile phone revenues is the result of lower levels of demand (traffic), as well as a reduction in the prices per minute of the service ([see section on prices and commercial offers](#)).

Relative to mobile revenue components, voice revenue share is 97.0 %, and messaging (SMS) 3 % ([see Chart n.° 58](#)), remaining virtually unchanged over the years of study.

This revenue, divided by the number of mobile telephony users, indicate that subscription brings approximately 2020 colones per month, of which 60 colones are as a result of messaging and 1960 colones by voice (this calculation excludes mobile data revenue). It is important to indicate that this income per user has been the lowest of the last five years, with 2018 being the year with the highest income per user, 3098 colones ([see Chart n.° 59](#)).

However, voice roaming revenues experienced an increase of 42.2 % compared to the previous year, reaching a figure of 1553 million colones, as a result of the increase in their traffic. On the other hand, roaming revenues from messaging and data also increased with 109.84 % (2819 million colones more in relation to 2020), both growths are the highest reported in the last five years ([see Chart n.° 60](#) and [61](#)).

If mobile data income is incorporated into the mobile phone revenue in order to have an estimate of the total revenue generated by the mobile network, this presents a decrease (3.7 % compared to 2020), registering an amount of 443 143 million colones. It is important to note that this decrease has occurred in the last five years with an annual average of -2.19 %, this because -as indicated with mobile phone revenues- also data revenues fell in the last year by 0.93 %, for the second consecutive year, but this year it slowed down, because in 2020 the decrease was -3.4 % ([see Annex n.° 55](#)).

#### **Mobile network revenue at the component level points to mobile data share continuing its upward trend**

and touches its highest level in the last five years with 57.1 % (55.5 % in 2020), while the voice yields from 43 % to 42 % and messaging is maintained at 1 % ([see Chart n.° 63](#)).

It is important to indicate that, of the total revenues of the mobile network, the largest proportion corresponds to the postpaid modality (79.6 % for the year 2021), historical behavior that has been increasing, while the prepaid modality participates in 20.4 % at the end of this year ([see Chart n.° 64](#)).

At the level of mobile network income per user, the year 2021 closed in which a user contributes on average 4714 monthly colones (-7.7 % in relation to the year 2020). However, from the point of view by payment method, a postpaid user contributes 10 910 colones per month (-7.9 % in relation to the previous year), while a prepaid 1464 colones per month (-15.5 % compared to 2020), it is important to indicate that, in nominal terms, in both modalities of payment the amount has presented a decreasing trend since 2018. In general terms, for each prepaid colon, 7.45 postpaid colones are contributed to the mobile network entry. ([see Chart n.° 65](#)).

## **Portability**

The year 2021 presented a decrease of 3469 in number portability compared to the previous year (-0.8 %), closing with 450.960 successful portings ([see Chart n.° 66](#)).

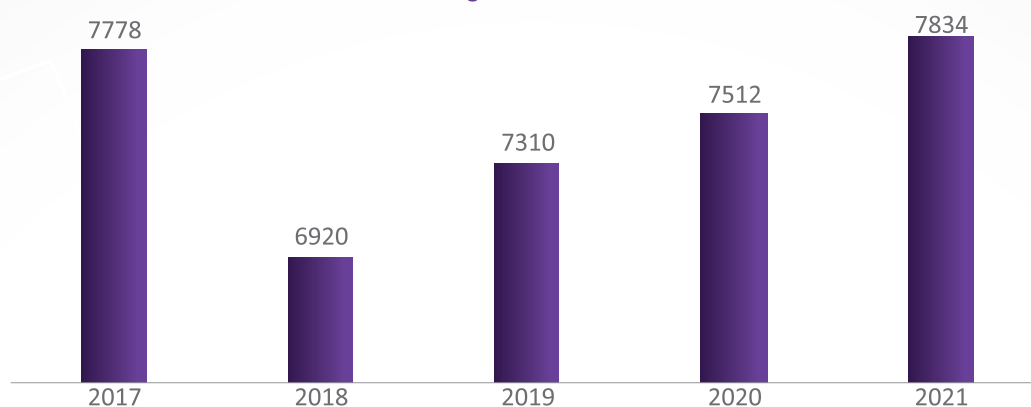
At the operator level, Movistar is the largest net recipient (imported portings minus exported) of customers who transfer their number from another operator to their company, + 635 342 net new subscriptions since the year 2013 ([see Chart n.° 67](#)).





Chart n.º 38. Costa Rica: Subscriptions to mobile telephony service,  
2017 -2021

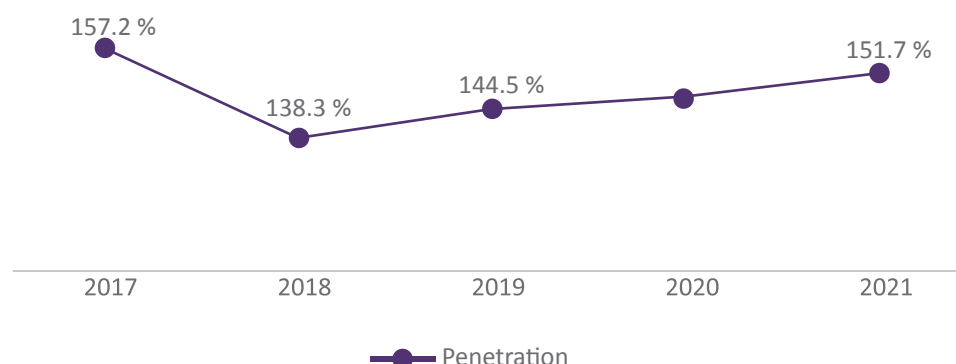
(annual figures in thousands)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 39. Costa Rica: Subscriptions to mobile telephony service per each 100  
inhabitants , 2017-2021

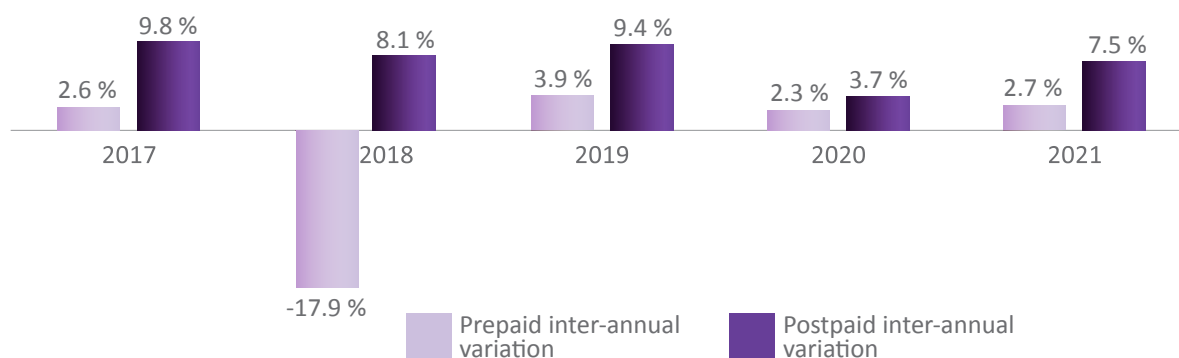
(annual figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 40. Costa Rica: Annual growth rate for subscription to mobile telephony  
service, per payment modality, 2017-2021

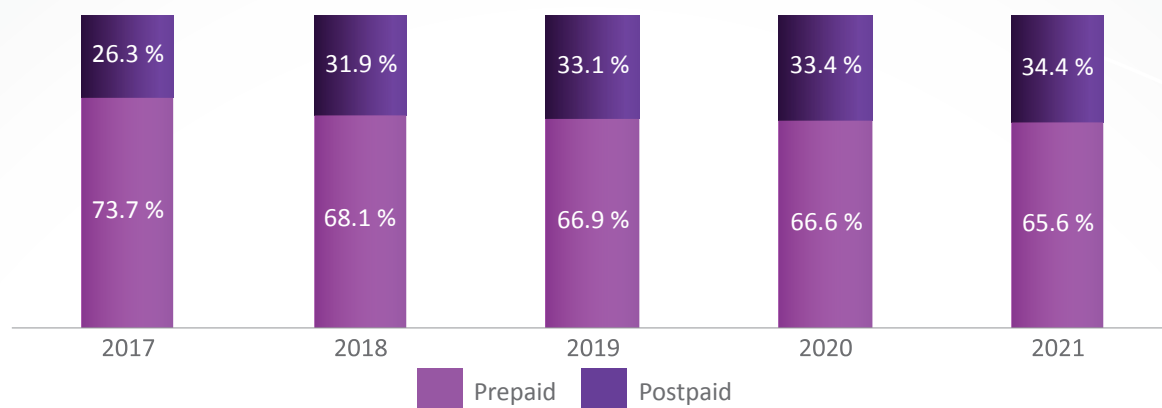
(annual figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 41. Costa Rica: Subscriptions distribution per payment modality, 2017-2021

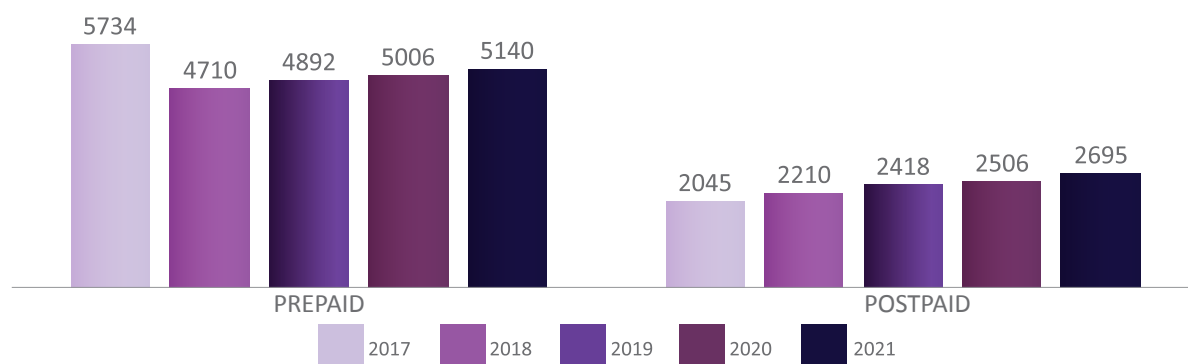
(figures in annual percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 42. Costa Rica: Subscriptions to the mobile telephony service per payment modality, 2017-2021

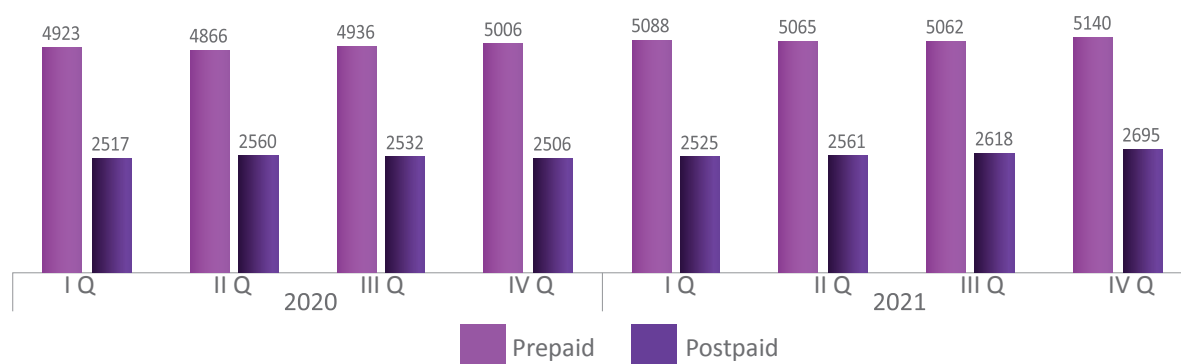
(annual figures in thousands)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 43. Costa Rica: Subscriptions to the mobile telephony service per payment modality, 2020-2021

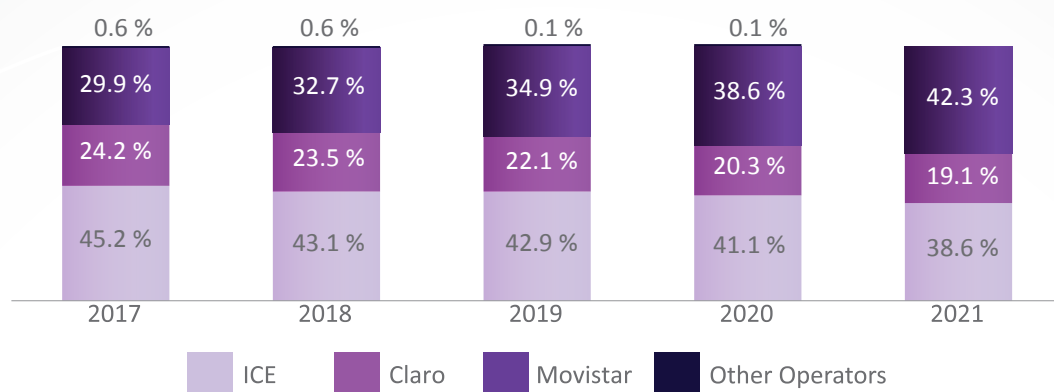
(quarterly figures in thousands)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

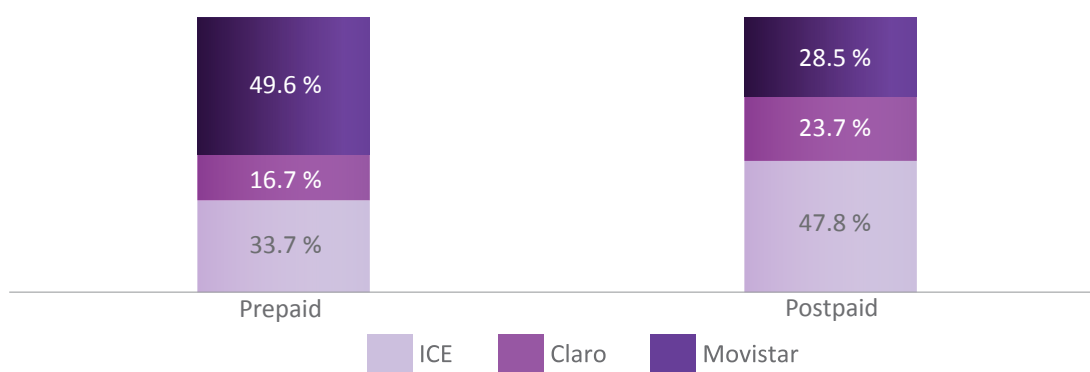


Chart n.º 44. Costa Rica: Distribution of subscription to the mobile telephony service per operator, 2017 - 2021  
(annual figures in percentages)



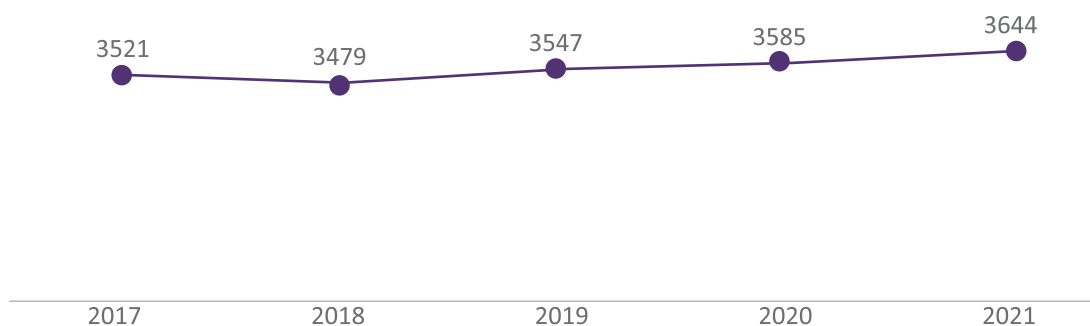
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 45. Costa Rica: Distribution of subscription to the mobile telephony service per operator, per payment modality, 2021  
(annual figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

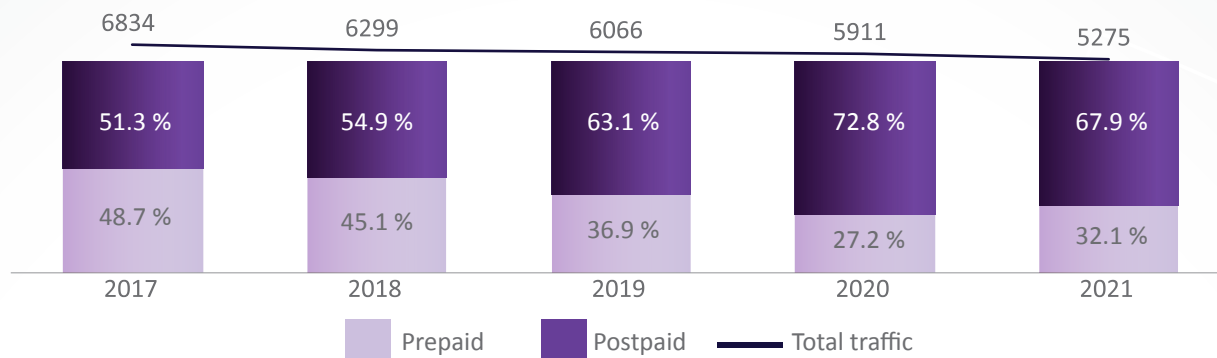
Chart n.º 46. Costa Rica: IHH Evolution per year, 2017 - 2021  
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 47. Costa Rica: Total outbound mobile telephony traffic <sup>1</sup> and its percentage distribution per payment modality, 2017-2021**

(figures in millions of minutes and percentages)

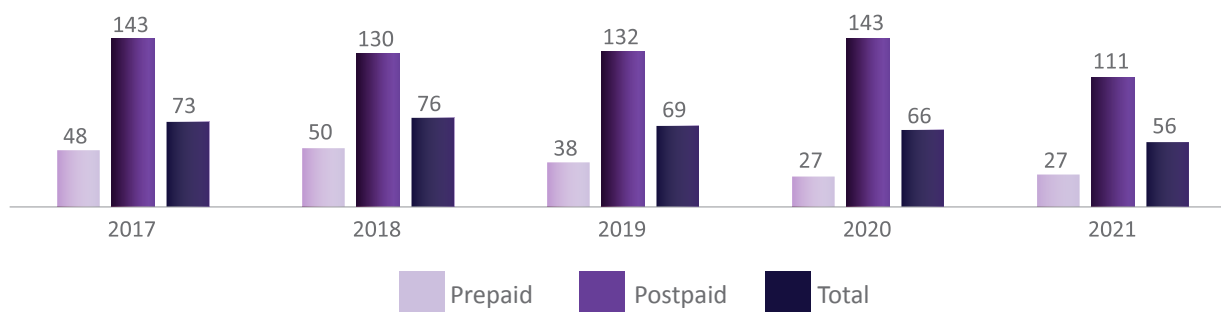


<sup>1</sup> Includes only national and international voice minutes, excludes roaming

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 48. Costa Rica: Monthly average voice traffic per subscriber pursuant to payment modality, 2017-2021**

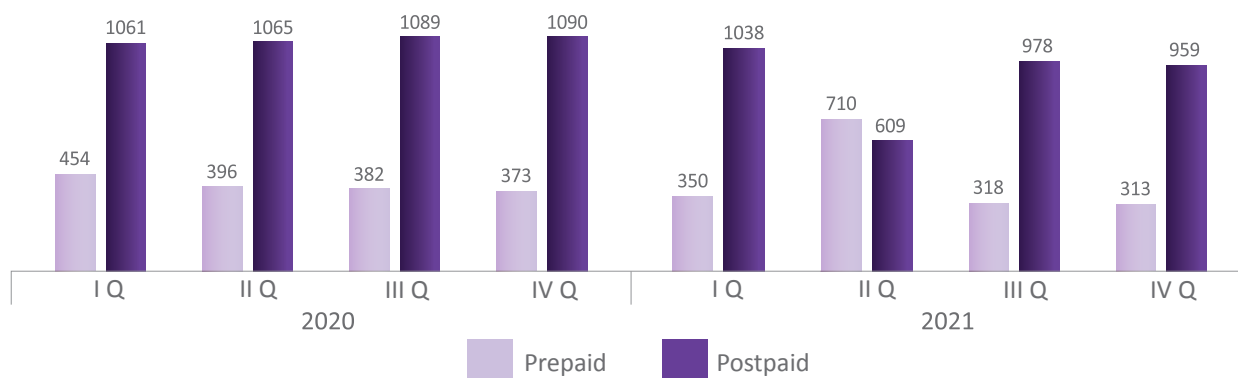
(annual figures in minutes per month and per subscriber)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

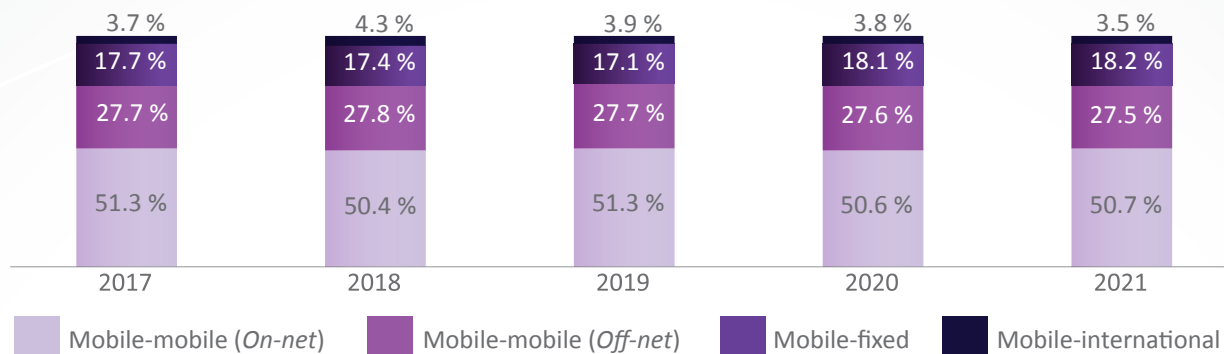
**Chart n.º49. Costa Rica: Total mobile telephony service traffic per payment modality, 2020 and 2021**

(quarterly figures in millions of minutes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

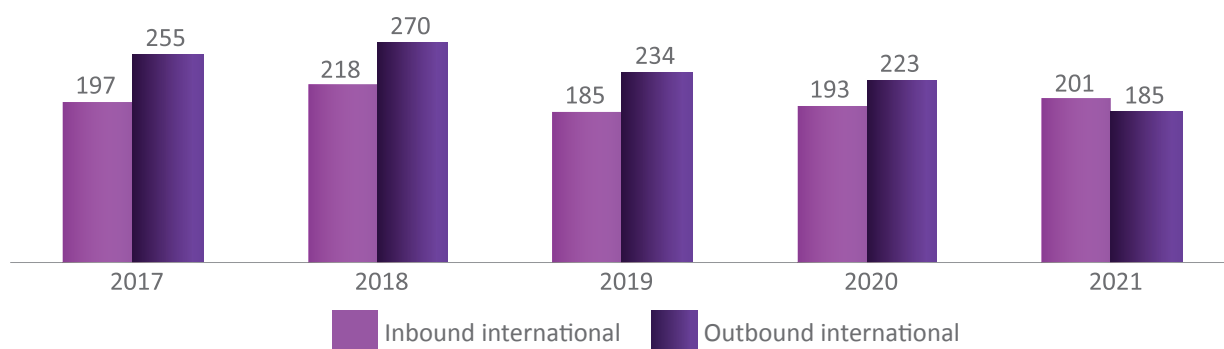
Chart n.º 50. Costa Rica: Distribution of total traffic associated with mobile telephony service per destination<sup>1</sup>, 2017-2021  
(annual figures in percentages)



<sup>1</sup> Includes only national and international voice minutes, excludes *roaming*.

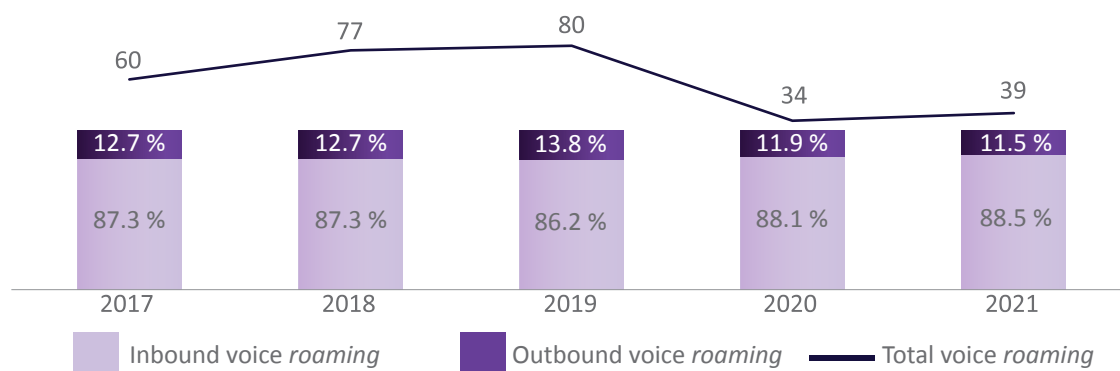
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 51. Costa Rica: Total international traffic associated to the mobile telephony service, 2017-2021  
(annual figures in million minutes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

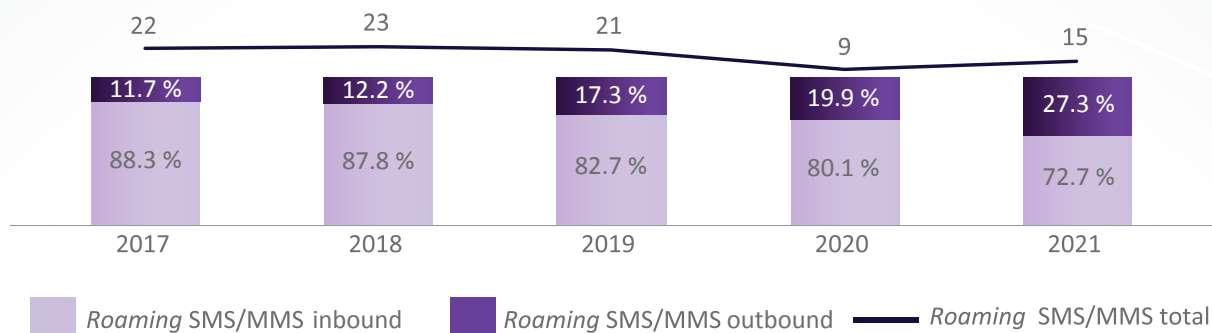
Chart n.º 52. Costa Rica: Total and percentage distribution of voice roaming traffic associated to mobile telephony service, 2017-2021  
(annual figures in million minutes and percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

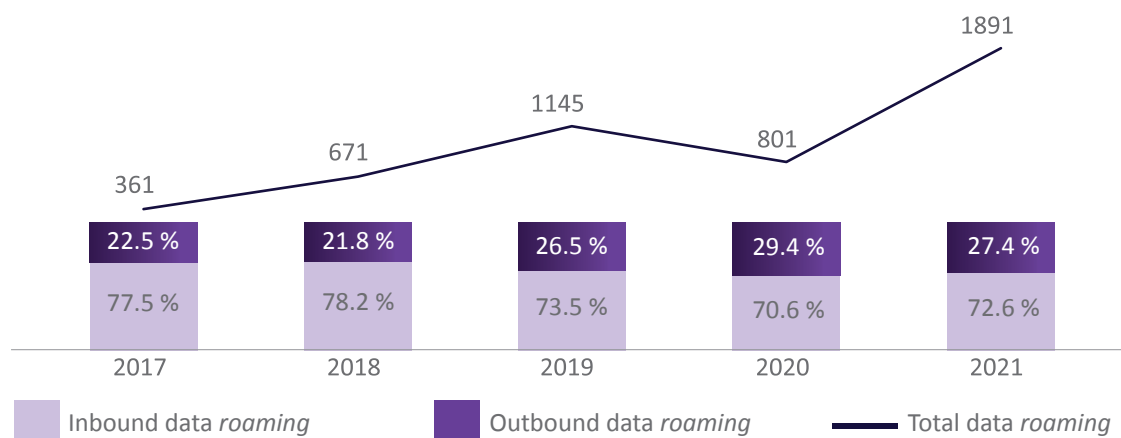


**Chart n.º 53. Costa Rica: Total and percentage distribution of SMS/MMS roaming traffic associated to the mobile telephony service, 2017-2021**  
(annual figures in millions of messages and percentages)



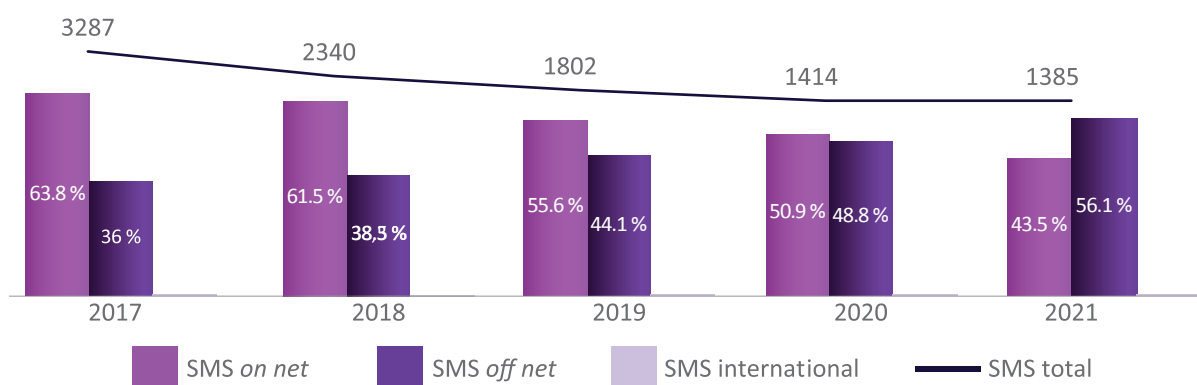
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 54. Costa Rica: Total and percentage distribution of data roaming associated to the mobile telephony service, 2017-2021**  
(annual figures in TB and percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

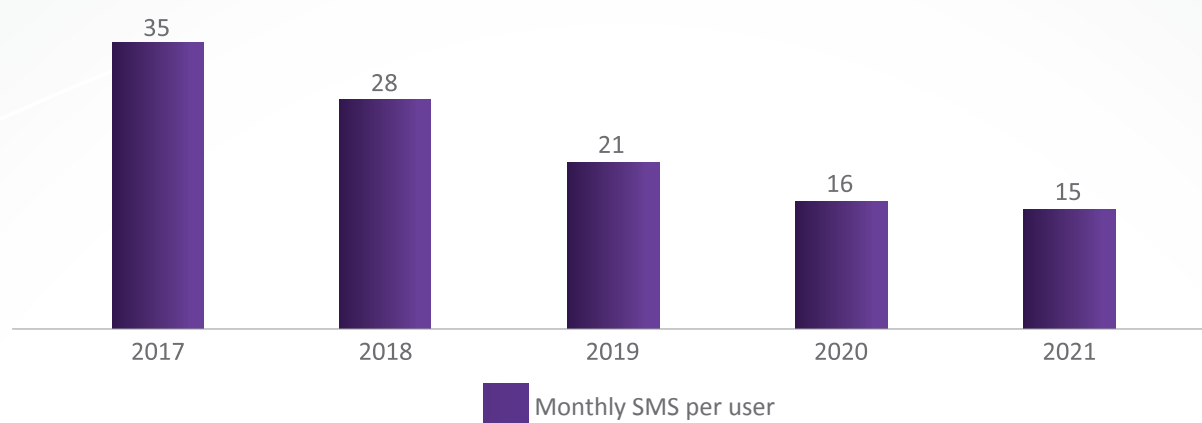
**Chart n.º 55. Costa Rica: Total and percentage distribution of SMS traffic, 2017-2021**  
(annual figures in millions of messages and percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 56. Costa Rica: Monthly average SMS traffic, 2017-2021

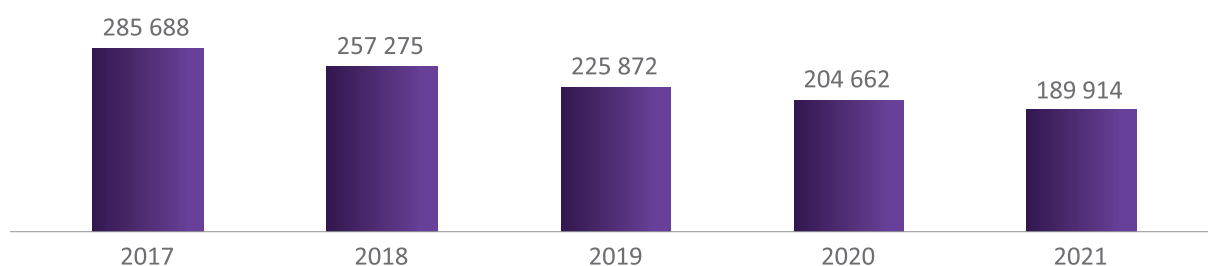
(figures in number of monthly messages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 57. Costa Rica: Total revenue of mobile telephony service<sup>1</sup>, 2017-2021

(annual figures in million colones)

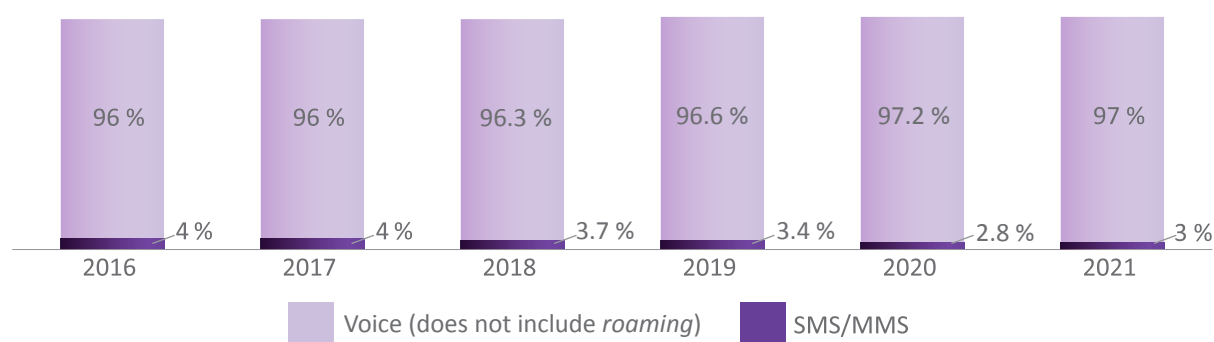


<sup>1</sup>Does not include mobile data or roaming.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 58. Costa Rica: Distribution of total revenue associated to the mobile telephony service per component, 2017-2021

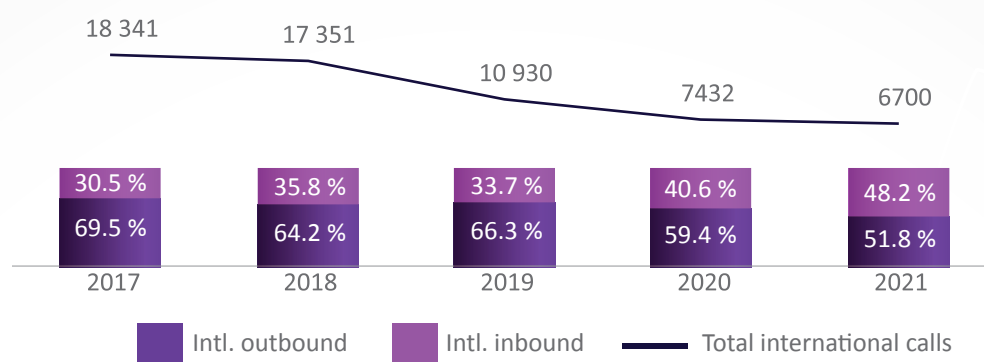
(annual figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 59. Costa Rica: Total international calls revenue, 2017-2021**

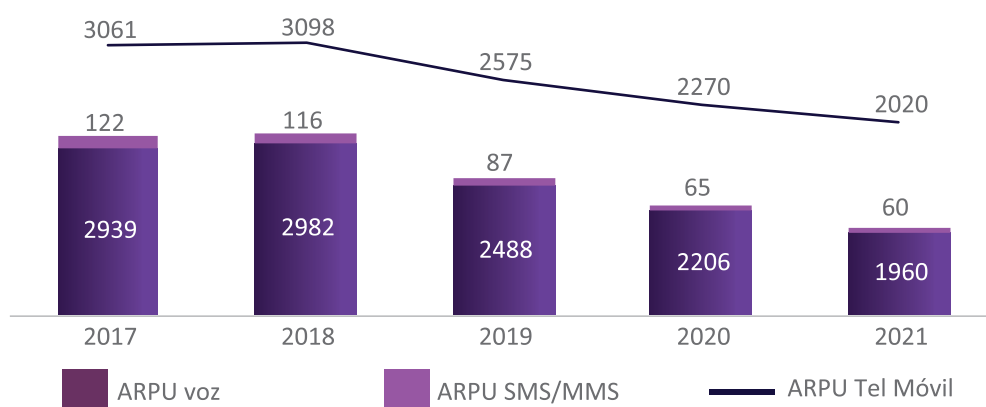
(annual figures in million colones and percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 60. Costa Rica: Monthly average revenue per mobile telephony subscriber<sup>1</sup> (ARPU), per component, 2017-2021**

(figures in colones)

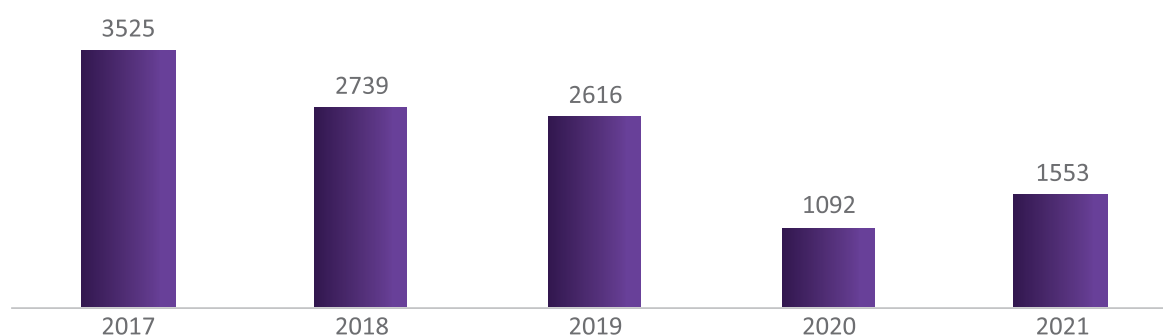


<sup>1</sup>Does not include roaming or data.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 61. Costa Rica: Voice roaming total income, 2017-2021**

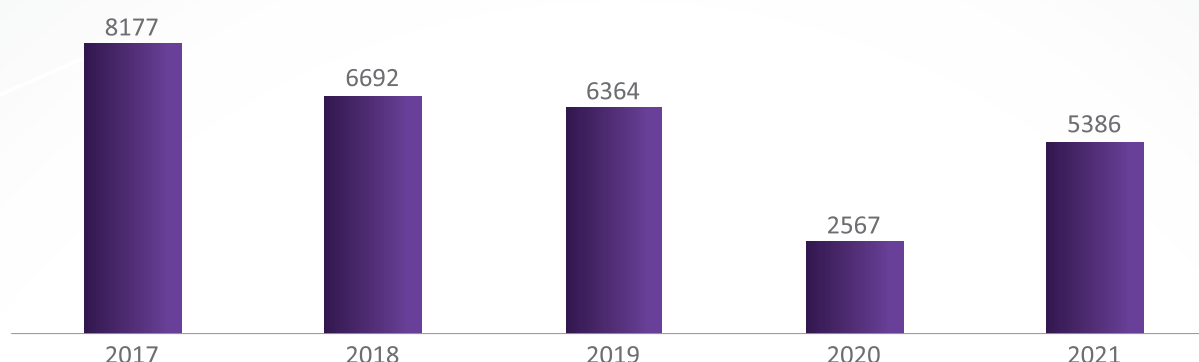
(annual figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 62. Costa Rica: Total revenue for SMS/MMS and data roaming,  
2017-2021

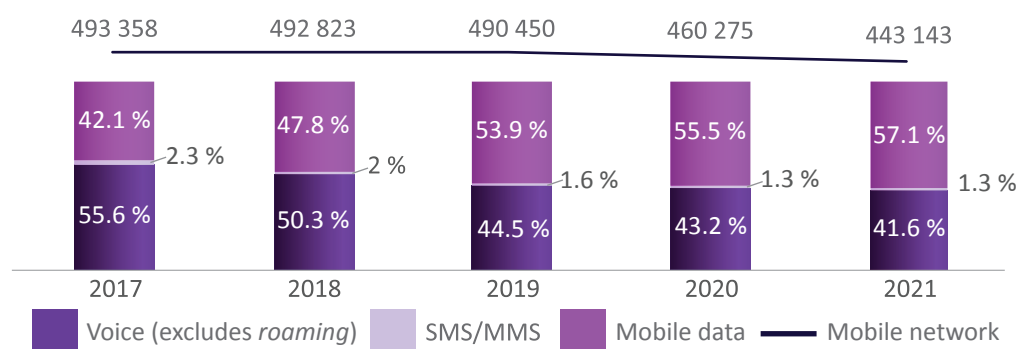
(annual figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 63. Costa Rica: Distribution of total revenue associated to the mobile  
network per component, 2017-2021

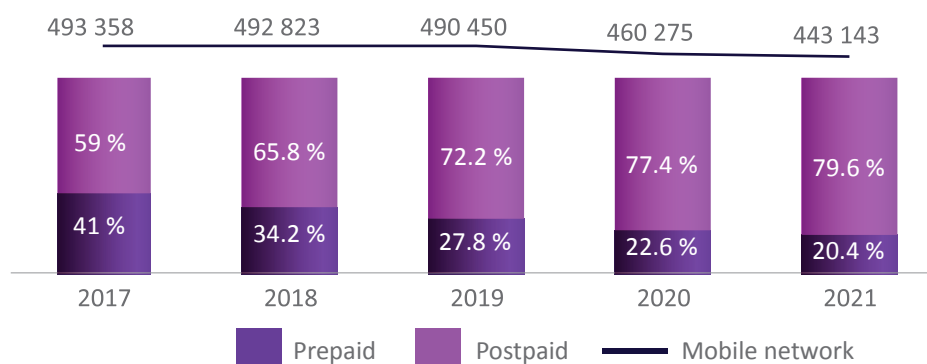
(annual figures in percentages and million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 64. Costa Rica: Distribution of total revenue associated to mobile network<sup>1</sup>,  
by payment modality, 2017-2021

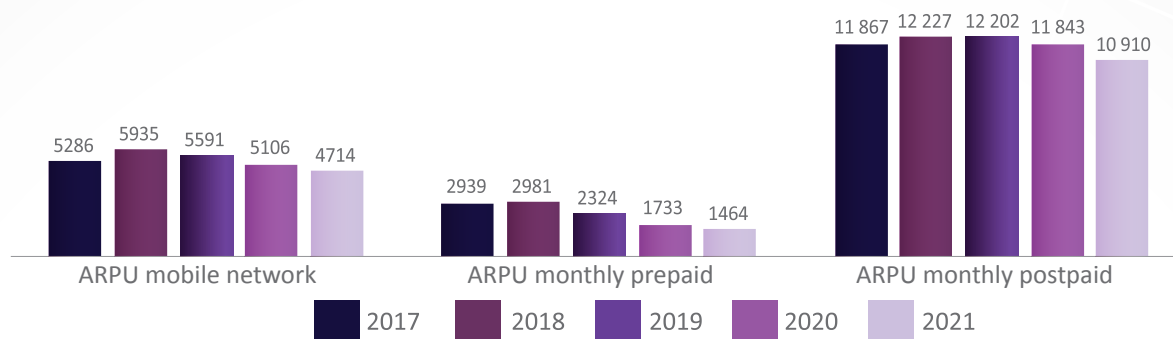
(annual figures in percentages)



<sup>1</sup> Includes revenue for mobile voice, messaging and mobile data, does not include roaming.

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

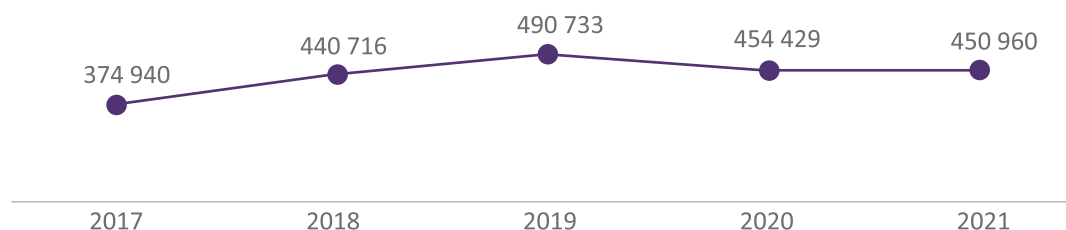
Chart n.º 65. Costa Rica: Monthly average income per mobile network user<sup>1</sup> (ARPU)  
per payment modality, 2017-2021  
(figures in colones per month)



<sup>1</sup>Average revenue per subscriber (ARPU), including outbound and inbound mobile voice revenue domestically and internationally, domestic and international SMS/MMS, and mobile data, excludes revenue by roaming (voice, SMS/MMS and data).

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

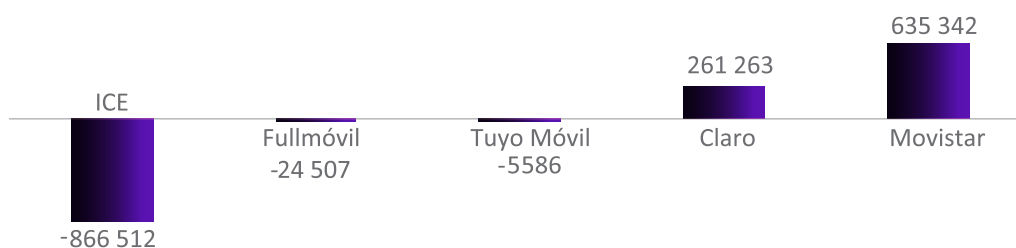
Chart n.º 66. Costa Rica: Porting success rate<sup>1</sup> 2017 - 2021  
(annual figures)



<sup>1</sup>Porting success rate: Number of portings that were finally activated in the new operator's network

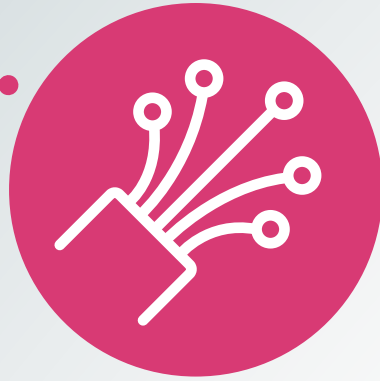
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 67. Costa Rica: Net portings<sup>1</sup> per operator,  
December 2013- December 2021  
(accumulated figures)



<sup>1</sup> Net portings: Number of imported portings minus exported portings.

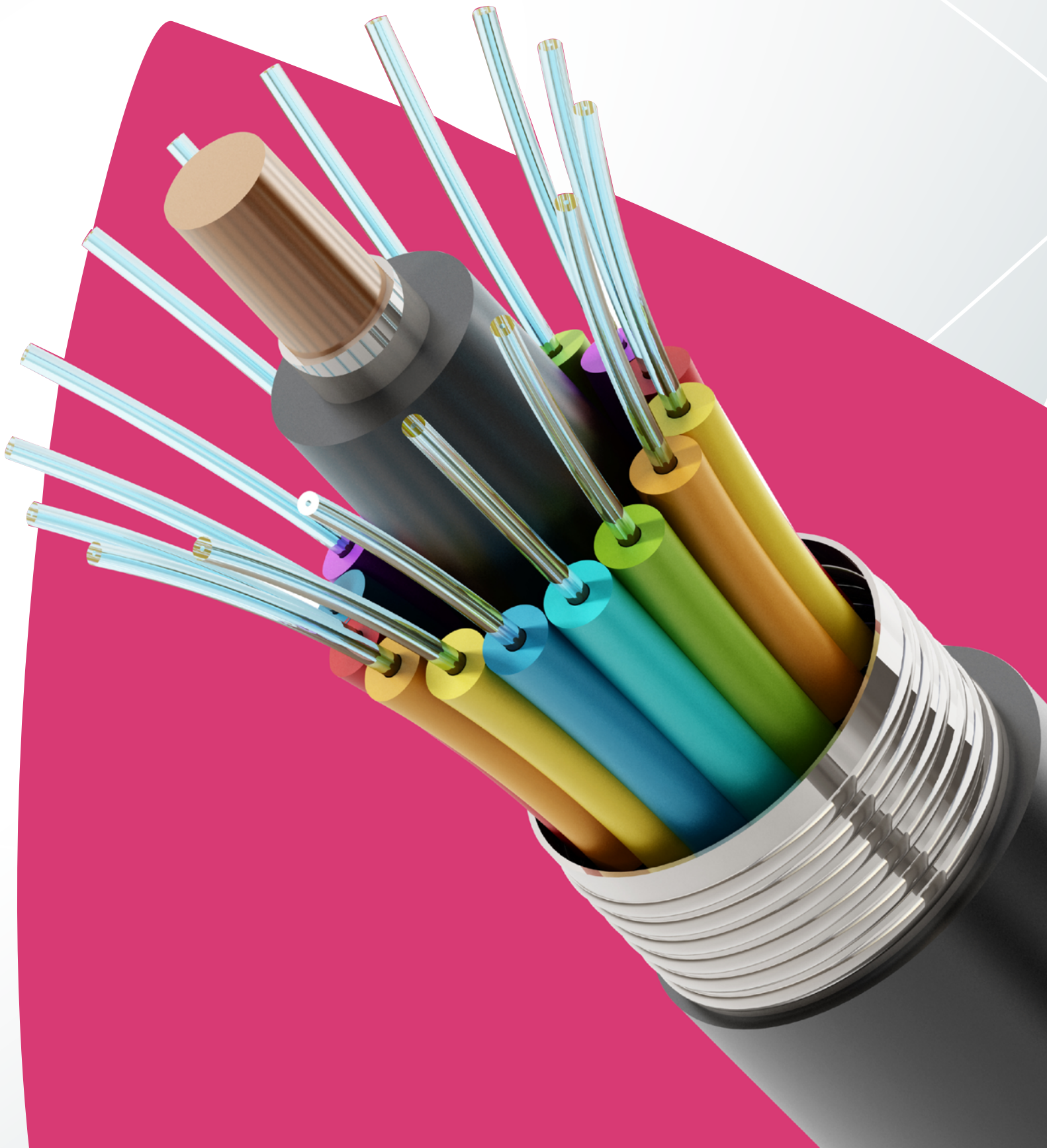
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.



# DATA

## TRANSFER





### Suscriptions

[Chart n.º 68](#), shows total subscriptions for the period 2017-2021. At the end of 2021, a total of 4 501 028 subscriptions were registered, this represents an average annual variation for the period of -1.5 %, and a percentage change between 2020 and 2021 of -3 %. In absolute terms, this last figure implies 140 666 fewer subscribers between December 2020 and December 2021.

[Chart n.º 69](#) shows the quarterly comparison between 2020 and 2021. The percentage change is negative in each quarter, -1.6 % for the first quarter, -5.6 %, -3 % and -3 % for the second, third and fourth quarters respectively.

[Chart n.º 70](#), on the other hand, shows the detail by payment method (prepaid and postpaid) and for USB devices such as datacards. For the period 2020-2021 there is a positive percentage variation in the number of prepaid subscribers of 0.6 %, while for postpaid and datacard/USB there are variations of -6.3 % and -3.9 % respectively.

When analyzing the monthly behavior for the last two years by payment method and device, a fall is also observed in [Chart n.º 71](#) being that the average monthly percentage variation for the period is -0.2 % in postpaid, -0.1 % in prepaid and -0.1 % in datacard/USB.

[Chart n.º 72](#) highlights the percentage distribution by payment method and device in each quarter of 2021. For the fourth quarter of that year, it can be seen that subscriptions by datacard/ USB represent 2.85 % of the total; postpaid, 49.12 % and prepaid, 48.03 %.

Regarding the market share by operator in 2021, a breakdown by payment method and device is presented. Thus, [Chart n.º 73](#) shows that in the case of datacard / USB, the ICE closes the year with 84.4 % (1.3 percentage points less than in 2020), followed by Claro with 10.4 % (0.3

percentage points less than in 2020) and then Telefónica closes 2021 with a 5.2 % share (1.6 percentage points more than in 2020).

[Chart n.º 74](#) shows the market share per operator for the prepaid mode. At the end of 2021, the ICE covers 43.9 % (6.2 percentage points more than the previous year), Telefónica 40.4 % (5.1 percentage points less than the previous year), and Claro 15.7 % (0.8 percentage points more than the previous year) respectively, of the total subscribers under this modality.

Finally, for postpaid, it is presented in [Chart n.º 75](#) that 38.3 % of the market share corresponds to ICE (10.8 percentage points less than in 2021), to Telefónica 32.2 % (7.2 points). more than 2020) and Claro 29.5 % (3.6 percentage points over its share in 2020).

If a general analysis is carried out, considering the total number of subscriptions per company, regardless of the modality, for this year ICE has to cover 42.3 % (48.5 % in December 2020), Telefónica a 35.4 % (30.3 % in December 2020) and Claro by 22.3 % (21.2 % at the end of 2020), thus showing a rearrangement of participation quotas compared to a year ago.

To expand the study of mobile Internet service, the distribution of subscriptions according to the contracted speed is presented [Chart n.º 76](#) shows the detail for datacard/USB subscriptions as of December 2021, where the range between 5 Mbps and 8 Mbps shows the most subscriptions at 81.3 % of the total (up 0.4 percentage points). than 2020).

[Chart n.º 77](#) allows you to see the percentage distribution for prepaid mode, where the range from 8 Mbps to 15 Mbps is the one with the highest number of subscriptions with 84.3 % (this range of speeds is the first time that posts subscribers in prepaid). Then, [Chart n.º 78](#) shows the distribution by speed for postpaid subscriptions, where four speed ranges marked to group the different offers are observed, with the range of 8 Mbps to 15 Mbps being the one with the highest number of subscriptions with 38.5 %

of the total (in 2020 this range covered 2.3 % of the total), followed by the range from 5 Mbps to 8 Mbps with 33.0 %, then the range from 2 Mbps to 5 Mbps with 19.6 % and finally speeds less than 2 Mbps with 9.40 %.

To complement this analysis of participations in subscriptions, the evolution of market concentration indices according to the Herfindahl-Hirschman Index is shown. [Chart n.º 79](#) presents this value for the period 2017-2021.

The decrease in market concentration towards the last year is 173 points, reaching 3538 points. It should be noted that despite the reduction in concentration, following this analysis criterion, this market continues to be classified as concentrated according to the parameters indicated by SUTEL in resolution RCS-082-2015, called Methodology for the analysis of the degree of effective competition in telecommunications markets.

[Chart n.º 80](#) shows the proportion of mobile Internet subscriptions versus the number of fixed Internet subscriptions, where a decrease is seen, from 4.7 times in 2020 to 4.3 in 2021.

Finally, [Chart n.º 81](#) shows the number of subscriptions per 100 inhabitants at the end of each year of the period 2017-2021. It is observed that for the end of 2021 a penetration of 87.2 % is calculated, a decrease of 3.6 percentage points compared to the value of the previous year.

## Revenues

To analyze revenue behavior, [Chart n.º 82](#) shows the total revenue generated by this service in the period of 2017-2021, where it is observed that 2021 closes with 253 228 million colones, a variation of -0.9 % compared to the previous year.

[Chart n.º 83](#), meanwhile, shows the comparison by quarter for the years 2020 and 2021. The percentage change for the first two quarters is negative (-1.4 % and -4.2 % respectively), and then positive variations

were recorded in the third and fourth quarters with 1.1 % and 0.8 % respectively. That is, during the last two quarters of 2021, higher revenues were registered compared to those registered in that same period a year ago.

[Chart n.º 84](#) presents the detail by payment method and device for the period 2020-2021. Thus, the income received in datacard / USB varies by -6 % in the last year (-629 million colones), for the prepaid modality there is a percentage variation of -7.9 % (-4103 million colones), and for the postpaid modality there is a positive variation of 1.2 %, (2326 million colones). As indicated, during the last year the revenue generated by mobile Internet contracted by 0.9 %, which indicates that the increase in postpaid did not compensate for the fall in prepaid or datacard.

Next, [Chart n.º 85](#) allows you to see the monthly detail of mobile Internet service revenue by payment method and device for the years 2020 and 2021. From the information provided therein, monthly averages are calculated for the period in postpaid, prepaid and datacard of 0.2 %, -0.9 % and 0.2 % respectively.

[Chart n.º 86](#) shows the percentage distribution by payment method and device in each quarter of 2021. In the fourth quarter of the year, the distribution of total revenues shows the highest participation of the postpaid modality (76.9 %), compared to prepaid and datacard/USB with 19.2 % and 3.9 %.

Next, [Chart n.º 87](#) shows the breakdown by contracted speed for reported revenue associated with datacard/USB devices. Thus, it can be seen that, in the range of 5 Mbps to 8 Mbps the quota was 65.5 % of the total, in the range of connections less than or equal to 2 Mbps the share was 17.1 %, for the range from 8 Mbps to 15 Mbps from 9.1 % and for the range from 2 Mbps to 5 Mbps from 8.3 %.

[Chart n.º 88](#), on the other hand, presents the distribution by speed in prepaid, where 56.7 % of the income comes from connections at speeds between 5 Mbps and 8 Mbps; while 43.3 % comes from the range of 8 Mbps to 15 Mbps.

[Chart n.º 89](#) presents the distribution of postpaid revenue, where 48.9 % of revenue is obtained from contracted speeds between 5 Mbps and 8 Mbps Mbps, 24.6 % of the speed range from 8 Mbps to 15 Mbps, 18.7 % for connections between 2 Mbps and 5 Mbps, and 7.9 % of subscribers are with speeds of 2 Mbps or less.

Next, in [Chart n.º 90](#) you can see the average monthly income per user in 2021 for each payment method and for datacard / USB. It is observed that at the end of 2021 there is an average income per user in postpaid of 7500 colones per month, in prepaid of 6624 colones and 2142 colones in datacard / USB.

## Traffic

Total annual mobile Internet traffic is seen in [Chart n.º 91](#) for the periods 2017 to 2021. At the end of last year it is estimated at 269 169 TB, thus registering an increase of 21 % compared to the previous year.

Next, a quarterly comparison for the period 2020-2021 is presented in [Chart n.º 92](#). The increase can be seen when analyzing each quarter of 2021 with respect to its counterpart of 2020. These increases were 21.7 % for the first quarter, 13.7 % for the second, 26.0 % for the third quarter and 22.0 % for the fourth quarter.

[Chart n.º 93](#) presents, for the period 2020-2021, the detail by payment method and access device. It is appreciated how the traffic increases in all the connection options from one year to the next, 50.2 % in prepaid, 81.5 % in datacard and 16.2 % in postpaid.

[Chart n.º 94](#) shows the monthly detail of traffic by payment method and device for 2020 and 2021. There is a trend that is growing, accentuated towards March 2020. Average monthly growth is calculated for postpaid, prepaid and datacard/USB, and obtained respectively: 1.3 %, 3.6 % and 3.5 %.

The detail of the traffic associated with each payment method and datacard/USB per quarter in

2021 is shown in [Chart n.º 95](#). At the end of the year, the participation in datacard/USB is 4.7 % of the total, in prepaid 11.9 % and in the postpaid mode it is 83.4 %.

[Chart n.º 96](#) presents the distribution of traffic for datacard/USB by speed. There it can be seen that 36.5 % of the traffic generated corresponds to clients with access to connections between 2 Mbps and 5 Mbps. In [Chart n.º 97](#) the same is true for the prepaid mode, where 52.2 % of the traffic corresponds to customers with contracted speeds between 5 Mbps and 8 Mbps. Then, in [Chart n.º 98](#), for postpaid mode, you can see that in the range of speeds below 2 Mbps 45.9 % of the revenue.

Finally, the average traffic in GB per user and per month during 2021 (in prepaid, postpaid and datacard / USB) is presented in [Chart n.º 99](#). The three categories increase towards the end of 2021, it is observed in December of that year an average consumption per user in postpaid of 9.5 GB, 9.1 GB in prepaid and 1.5 TB in datacard.

## Fixed Internet •

### Subscriptions

For the period 2017-2021 there is an increase in subscriptions for fixed Internet service. [Chart n.º 100](#) shows how 2021 closes with 1.058.767 subscriptions, representing a percentage change from 2020 of 6.7 %. [Chart n.º 101](#) shows the quarterly comparison for the years 2020 and 2021, where each of the quarters registers a positive percentage change compared to the same period a year ago, 10.2 % in the first quarter, 7.8 % in the second, 7.7 % in the third quarter and 6.7 % in the fourth quarter.

Next, [Chart n.º 102](#) shows the variations in the number of subscriptions by technology, comparing the end of 2020 with the corresponding one of



2021. For cable networks the percentage change is of -0.6 %; for copper networks of -38.1 %, for fiber networks 109.1 % and, finally, for the wireless/other technologies group, a percentage change of 6.8 % is calculated.

[Chart n.º 103](#) shows the total subscriptions per month for each access technology. When calculating the average monthly growth from January 2020 to December 2021 we obtain: 0.2 % for cable networks, -1.7 % for copper networks, 4.2 % for fiber optic networks and 1.2 % for the wireless/other technologies group.

[Chart n.º 104](#) shows the percentage distribution per quarter for the year 2021, for the fourth quarter the share of each technology was: 59.5 % for cable (4.3 percentage points less than in 2020), 12.5 % for copper (9.1 percentage points less than in 2020), 27.3 % for fiber (13.4 percentage point more than in 2020) and 0.7 % for wireless/other (same as in 2020).

[Chart n.º 105](#) then presents the number of subscriptions by speed ranges contracted in 2020 and 2021. It is simplified to only four speed ranges, where at speeds less than 2 Mbps there is a percentage change of -86 %, in the range from 2 Mbps to 8 Mbps a variation of -26 %, in the group from 8 Mbps to 100 Mbps a percentage change of 41 % and for speeds of more than 100 Mbps an increase of 189 %.

[Chart n.º 106](#) shows the monthly subscriptions for 2020 and 2021 for each speed range indicated, thus calculating the average growth per each month, average growth per month, resulting in speeds below 2 Mbps the average monthly growth for the period was -8.1 %, for the 2 Mbps to 8 Mbps group -1.1 %, for speeds between 8 Mbps and 100 Mbps 1.8 % and for subscriptions over 100 Mbps 7.6 %.

[Chart n.º 107](#) presents the detail for 2021 of all speed ranges that are requested from traders. It is observed that the range with the highest annual percentage variation was that of speeds above 100 Mbps with 5.3 % (67.057 subscribers).

To close the detail by contracted speeds, [Chart n.º 108](#), allows you to see the quotas of total subscriptions for each quarter; at the end of the year, in the fourth quarter, the range of speeds between 50 Mbps and 100 Mbps is the one with the highest share, with 19.3 %, followed by the range of 15 Mbps at 30 Mbps with 17.3 %.

[Chart n.º 109](#) shows the calculation of the market concentration index (HHI) for fixed Internet service in the period 2017-2021. A value of 2191 points is obtained, a result that implies a decrease of 350 points compared to the beginning of the period, a moderate market concentration according to the provisions issued by SUTEL.

[Chart n.º 110](#), is next, which shows the market share for fixed Internet service by operator. We then have the composition of the market according to the size of the participation share of the companies, that is: the ICE with a market share of 29.8 %, then Cabletica with 23.5 %, Telecable 19.9 %, Tigo 18.6 % and finally 8.2 % for all other active operators.

[Chart n.º 111](#) presents service penetration in the period 2017-2021, which reaches 20.5 % by the end of 2021, 5.5 percentage points more than in 2017. In addition, [Chart n.º 112](#) shows the penetration of fixed Internet service per home, a figure that increases by 1.4 percentage points compared to 2020, reaching 64.2 %.

## Revenues

Total revenue for the period 2017-2021 is shown in [Chart n.º 113](#). In 2021, the total revenue generated by this service was 192 484 million colones, a growth of 12.6 % compared to the last year.

[Chart n.º 114](#) presents the quarterly comparison of revenue between 2020 and 2021. When calculating the percentage change, there are positive numbers between each quarter: 13.7 % in the first, 13.7 % in the second, 13.5 % in the third and 9.9 % in the fourth.

[Chart n.º 115](#) presents the total revenue generated by the service by technology. It is observed that, in cable networks, the variation between 2020 and 2021 was 8.5 %, in copper of -3.7 %, in fiber of 31.0 % and in wireless/other of 5.8 %. [Chart n.º 116](#) shows the monthly value of revenue for 2020 and 2021, highlighting the increase in revenue generated in fiber networks, which is estimated at 1.7 %.

[Chart n.º 117](#) presents next the share of revenue per quarter in 2021; for the fourth quarter, 41.5 % were generated by cable-based technologies, for fiber networks 36.4 %, copper 19.6 % and wireless/others 2.5 %.

[Chart n.º 118](#) shows the detail by speed ranges . In this case, four ranges can be seen. The speed greater than 100 Mbps presents an annual growth of 88 % in revenue; for the range from 8 Mbps to 100 Mbps the variation was 20 %; the range of speeds less than or equal to 2 Mbps varied by -59 %, and the range between 2 Mbps and 8 Mbps, presented a percentage variation of -0.1 %. As can be seen, higher speed ranges show increasing behavior.

[Chart n.º 119](#) shows the monthly value of revenue received in the same four ranges mentioned above for the years 2020 and 2021. It is observed that the range of contracted speeds greater than 100 Mbps is the one with the highest monthly average variation with 5.8 %.

[Chart n.º 120](#) shows the detail of revenue for all the speed ranges collected, when calculating average monthly growth, there are positive variations in the highest speed ranges , from 30 Mbps to 50 Mbps, from 50 Mbps to 100 Mbps, and in the speeds greater than 100 Mbps (2.9 %, 2.7 % and 7.1 % respectively).

The revenue review concludes with [Chart n.º 121](#), which shows the percentage distribution of each speed range by quarter in 2021. Specifically, just considering the fourth quarter, the range of speeds greater than 100 Mbps concentrates 20.2 % of revenue, followed by the range from 8 Mbps to 15 Mbps with 19.8 %.

## Traffic

Total traffic over fixed networks is presented in [Chart n.º 122](#) for the period 2017-2021. In 2021, the figure of 3.279.824 TB is reached, a growth of 48 % compared to last year and 429 % compared to the level registered in 2017.

[Chart n.º 123](#) presents the quarterly comparison between 2020 and 2021, where the change between the same quarters of each year was 337.455 TB for the first quarter, 251.908 TB for the second quarter, 255 136 TB for the third quarter and 223 055 TB for the fourth quarter.

Finally, [Chart n.º 124](#) presents the share of traffic by technology and by quarter for 2021, by the end of the year, 66.0 % of traffic was recorded on cable networks, 5.6 % in copper, 25.8 % in cable networks. fiber and 2.6 % in wireless technologies.

## Wholesale Internet access • — — — — —

### Connections

In 2021, the wholesale Internet access service presented an increase in the number of operators offering the service. According to [Chart n.º 125](#) information was recorded for 17 companies. [Chart n.º 126](#) shows the number of connections recorded for the period 2017-2021, closing 2021 with 2569 connections and a percentage variation of 177 % between 2020 and 2021.

[Chart n.º 127](#) shows the quarterly growth from 2020 to 2021, in all periods there is a positive percentage variation, specifically, in the fourth quarter of each year the percentage variation was 177 %. [Chart n.º 128](#) presents the monthly evolution of the number of connections during 2020 and 2021, registering an increase from the beginning of 2021 that is maintained until the end of the year. The average monthly variation of the period for the total number of connections is 5.9 %.



Next, [Chart n.º 129](#) presents the distribution by technology for 2021, where at the end of the year the participation was 6.5 % in DWDM, 11.6 % in microwave, 81.6 % in fiber technologies (PON/AON/Ethernet/+) and 0.3 % in SDH.

In the [Chart n.º 130](#) the connections by speed range in 2021 are reviewed. There is a variation in the number of connections per speed between the first and 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 from 4.1 % to 2.2 %, respectively, and from 40.8 % to 32.3 %. The range from 10 Mbps to 100 Mbps ends the year with the highest share, 51.3 %.

## Revenues

As of [Chart n.º 131](#) the information corresponding to the income reported in the wholesale Internet service for the period 2017-2021 is presented. A total of 12.451 million is observed in 2021, and a percentage change between 2020 and 2021 of 49 % is calculated.

[Chart n.º 132](#) shows the percentage distribution by technology between the end of 2020 and 2021; between each period the variations are positive. 43 % in the first quarter, 60 % in the second quarter, 60 % in the third quarter and 36 % between the fourth quarter of each year.

As a complement, [Chart n.º 133](#) shows the value of revenue for each month of 2020 and 2021. When calculating the monthly averages of the period, the increase of 4.0 % in microwave revenues stands out, as well as the positive variation of revenues in fiber optics (PON/AON/ Ethernet/+), with 3.4 %; while in DWDM and SDH variations are shown percentages of -3.4 % and -3.0 % respectively.

Regarding the share of technology revenue, [Chart n.º 134](#) presents the quarterly detail, where for the fourth quarter it is observed that fiber connections (PON/AON/Ethernet/+) cover 87.8 % of revenues.

The detail by speed is shown in [Chart n.º 135](#). The distribution of revenue per quarter for five speed ranges is appreciated: less than 2 Mbps, which begins the year covering 15.7 % of revenues and closes the fourth quarter with a 11.5 % and from 2 Mbps to 10 Mbps, up from 4.8 % in the first quarter to 5.2 % in the fourth quarter. For the range from 10 Mbps to 100 Mbps, the revenue share increased from 31.3 % in the first quarter to 38.1 % in the fourth quarter; the 100 Mbps to 600 Mbps increased from 10.1 % to 16.0 %, and finally the revenue share for the range from 600 Mbps to 10 Gbps was 38.1 % in the first quarter and 29.2 % in the fourth quarter.

## Leased lines

### Connections

[Chart n.º 136](#) shows a total of 33 companies that reported in 2021 data from the leased link service. [Chart n.º 137](#) shows the total number of connections for the same period, where 2021 closes with 18 025, an average annual growth for the period of -1 %.

[Chart n.º 138](#) shows the quarterly change between 2020 and 2021; percentage changes are negative in each quarter compared to the same period a year ago: first quarter, -12.1 %; second quarter, -11.9 %; third quarter, -20.9 % and fourth quarter -23.9 %.

Then, [Chart n.º 139](#) presents the percentage distribution of connections by market (wholesale and retail). At the end of 2021, the wholesale market covers 24.0 % of the total connections, and the retail market the remaining 76.0 % of the total.

In [Chart n.º 140](#), the composition of the connections by territory of service provision (national territory or international territory) is shown. In this case, at the end of 2021, 98.1 % of connections were registered within the national territory and only 1.9 % outside the country.

Next, in [Chart n.º 141](#) the detail of connections by territory (national and international) for the wholesale market is provided, where 96 % are connections in the national territory. Similarly, in [Chart n.º 142](#) the percentage of retail connections by territory is presented and it is observed that 99 % of the connections are provided in national territory.

[Chart n.º 143](#) shows the monthly revenue for the wholesale market in 2021. As of July, total subscriptions in the range of speeds below 5 Mbps decreases, as in the other ranges, except in the range of speeds greater than 100 Mbps, where a monthly compound growth of 4.8 % is calculated.

[Chart n.º 144](#) then presents the speed revenue data for the retail market on a monthly basis in 2021. The ranges of speeds less than 5 Mbps and that of speeds between 5 Mbps and 8 Mbps present negative percentage variations, -1.6 % and -0.6 % respectively.

The other ranges show positive variations, especially the speed range of more than 100 Mbps, with an average monthly growth of 5.8 %

Next, the entire service is reviewed (without distinction of market) by technological. Thus, [Chart n.º 145](#) shows the change from 2020 to 2021 for connections over virtual private networks (VPNs), digital links and a third group that collects frame data, rental of ports, analog links and other types of connection. In 2021, the negative percentage variation in all technologies stands out.

El [Chart n.º 146](#) shows the evolution of connections by technology on a monthly basis in the period from 2020 to 2021. Connections for virtual private networks (VPNs) have an average growth per month of -1.3 %, digital links of -2.5 % and the Ports/Other/Analog/Frames group an average annual growth of -2.6 %.

Finally, el [Chart n.º 147](#) shows the percentage share by technology for each quarter of 2021, where in the fourth quarter there is 45.6 % for VPN, 25.7 % for digital links and 28.6 % for the third group mentioned.

## Revenues

In relation to service revenue, [Chart n.º 148](#) shows the total annual revenue for the period 2017-2021. In 2021 there is a total of 53.886 million colones, a percentage variation of 9.2 compared to 2020.

[Chart n.º 149](#) presents the comparison by quarter for the period 2020-2021, where a percentage variation of 16.7 % is observed in the first quarter compared to its counterpart of the previous year; for the second quarter 9.7 %, for the third quarter 3.5 % and for the fourth quarter 7.7 %.

[Chart n.º 150](#) shows the revision by market type as a percentage for revenue for each quarter of 2021, for the fourth quarter 30.0 % of revenue from wholesale customers and 70.0 % from customers in the retail market are calculated.

Next, [Chart n.º 151](#) shows the percentage distribution of income by territory of service provision (national territory and international territory); it can be seen that in the fourth quarter, 83.2 % of income is received by customers on national soil.

Next, it is analyzed by type of market and by territory of provision at the end of the year. [Chart n.º 152](#) shows the percentage composition of the wholesale market according to territory, where 79.0 % of revenue comes from customers outside the country's borders. Similarly, [Chart n.º 153](#) presents the distribution of income in the retail market by type of territory, where 88.1 % comes from international customers.

[Chart n.º 154](#) shows the percentage distribution by speed range of revenue for the wholesale market on a monthly basis in 2021. Calculating the average monthly growth for each range, negative values are obtained for all speed ranges. Similarly, [Chart n.º 155](#) exhibits the detail by speed and by month for the retail market in 2021, where it is highlighted that the average monthly growth for all speed ranges is positive, except for the range of speeds less than 5 Mbps with a -0.2 %.

Next, the income by connection technology is analyzed, considering the total number of connections without distinction of the type of market. [Chart n.º 156](#) presents, for the period of 2020-2021, the variation for VPN platforms, digital links and the group of Ports/Other/Analog/ frames, respectively calculated, for each of them, annual variations of 0.8 %, 20.6 % and 16.7 %.

[Chart n.º 157](#) presents revenue by technology platform month-over-month during 2020 and 2021. The average growths obtained are: 1.1 % in VPN, 0.8 % in digital links and 1.5 % in the Ports/Other/Analog/Frames group.

Finally, [Chart n.º 158](#) shows the percentage detail of revenue received per technology platform per quarter in 2021, closing the year with 48.1 % of VPN revenue, 26.0 % for digital links, and 25.9 % for the third group.

## • Cantonal analysis of fixed services

At the end of 2021, a report with geographical detail on the status of cantonal subscriptions of fixed Internet services, fixed telephony, was published in the link <https://sutel.go.cr/pagina/informes-de-mercados-reporte-cantonal>, and subscription television. This was the first time this work was carried out and it was decided to use the information available as of December 2020 (most recent debugged data).

Prior to the preparation of this report, some characteristics of the available data were studied, even prior to 2020, and the geographical analysis was simplified by including only the variable of the cantonal population together with the number of customers per canton of each service. With this, it was possible to compare the country-level penetration of services with a cantonal penetration rate. Therefore, in that report, the cantonal detail by province was presented in the first instance, not only of the subscriptions, but also of the number of operators and the respective cantonal penetration.

In summary, [Chart n.º 159](#) presents, at the provincial level, the participation share of fixed Internet subscriptions: San José 36 %, Alajuela 20 %, Cartago 13 %, Heredia 11 %, Limón 7 %, Puntarenas 7 %, and Guanacaste 6 %.

[Chart n.º 160](#) shows similar information for landline service. As can be seen, the quotas of each province are: San José 49 %, Alajuela 17 %, Cartago 11 %, Heredia 7 %, Puntarenas 5 %, as well as Guanacaste and Limón.

The case for pay television is presented in [Chart n.º 161](#), where Guanacaste and Puntarenas appear with a greater participation. In summary, we have: San José 29 %, Alajuela 21 %, Puntarenas and Guanacaste 11 % each, Heredia 10 % and Limón 8 %.

Next, the cantonal detail is expanded through geographical visualizations; in [Map n.º 1](#) a heat map is presented with the number of fixed Internet subscriptions per canton, where the darkest areas show the cantons with the highest number of subscriptions, with the canton of San José having the largest number of users at the end of December 2020 with 89.839 subscriptions, and Hojancha the one that registers fewer users with 796 subscriptions.

Then, [Map n.º 2](#) presents the darkest areas with the cantons with the most subscribers in fixed telephony (San José is the one with the largest number with 98.222 subscriptions, on the contrary, Hojancha registers 81 subscriptions).

[Map n.º 3](#) presents the same detail for the pay television service, which shows a greater number of hot spots representing more cantons with high subscriber numbers. The canton with the highest number of subscribers is Alajuela with 54.575 and the one with the fewest registered customers is Turruabares with 1589.

In the cantonal study, as mentioned, it was considered that the population size of each canton has a direct relationship with the number

of subscriptions, this was tested with a linear regression in which a correlation coefficient of 0.954 was calculated and a determination of 0.909, from the 2020 data. Knowing this, it was decided to calculate penetration ratios per canton, that is, to divide the total number of subscriptions in a canton by its number of inhabitants for the three services mentioned. This with the intention of comparing the cantonal values with the penetration of each service obtained at the national level.

The national penetration calculated for fixed Internet service is of 19.4 subscriptions per inhabitant, for fixed telephone service it is 10.9 and the calculated value for pay television is 17.0. Such values are used as thresholds to compare with the value for each canton in each service, values that are seen in [Tables n.º 15, 16 and 17](#).

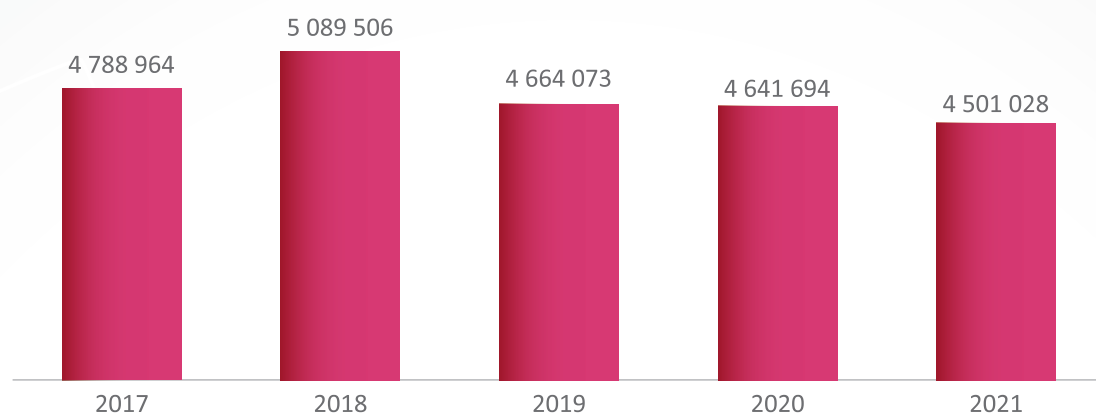
To add value to the above, [Map n.º 4](#) presents the cantons that exceed the thresholds mentioned in the three services (in Alajuela: San Ramón, San Mateo, Grecia and Alajuela; in San José: Escazú, Santa Ana, Mora, Puriscal, Coronado, Curridabat, Montes de Oca and Tarrazú, the canton of Cartago, and in Puntarenas: Garabito), while [Map n.º 5](#) shows the cantons that in none of the three services managed to exceed the threshold given by the reason of national penetration (in San José: Alajuelita, León Cortés, Pérez Zeledón and Aserrí; in Alajuela: Guatuso, Los Chiles, Poás, San Carlos, Upala and Sarchí; in Cartago: Oreamuno and El Guarco; in Heredia: Santa Bárbara and Sarapiquí; in Limón: Siquirres, Talamanca, Guácimo and Matina; in Guanacaste: Cañas and La Cruz and in Puntarenas: Buenos Aires, Corredores, Coto Brus and Golfito).





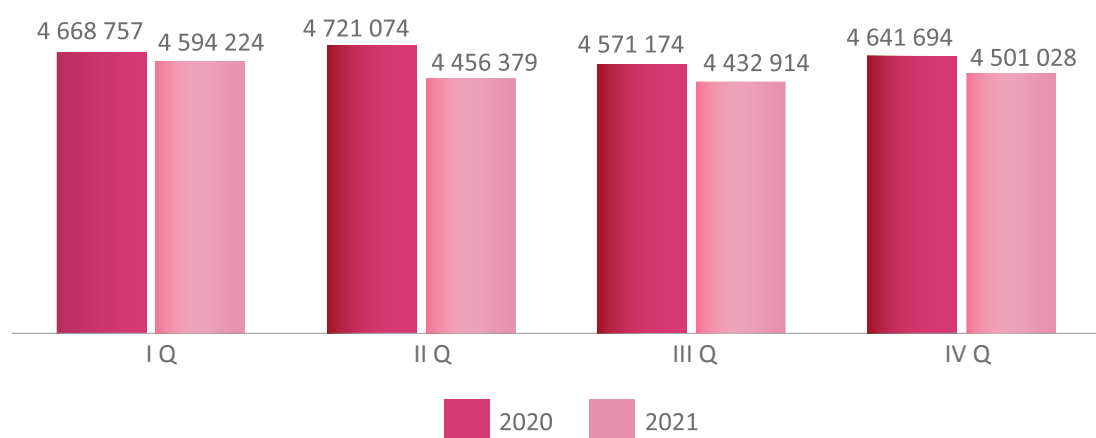


**Chart n.º 68. Costa Rica: Subscriptions, Internet access on mobile network, 2017-2021**  
(annual figures)



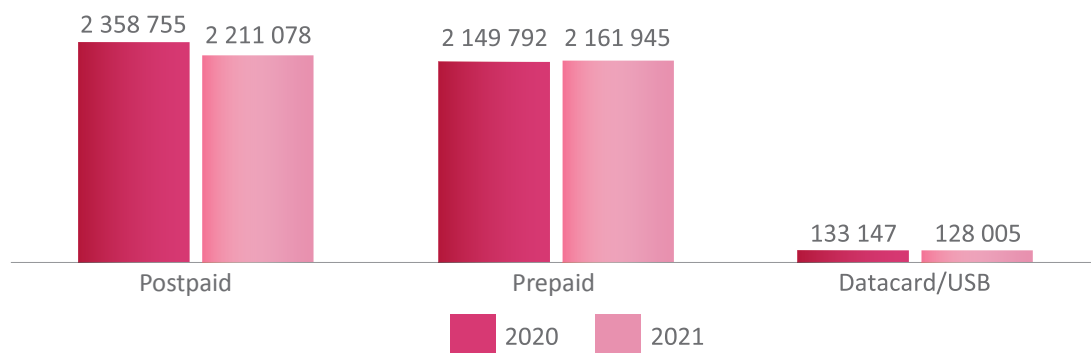
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 69 . Costa Rica: Subscriptions, Internet access on mobile network, 2020-2021**  
(quarterly figures)



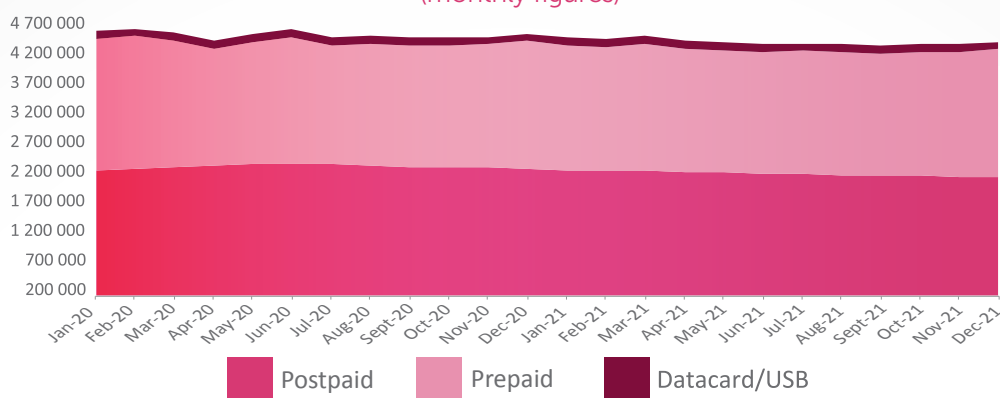
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 70. Costa Rica: Subscriptions, mobile Internet access, comparison per payment modality and access device, 2020-2021**  
(annual figures)



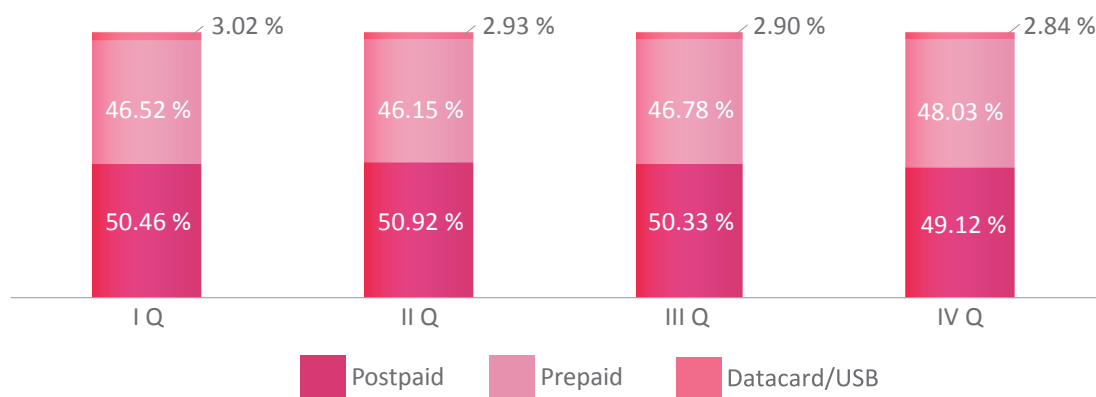
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 71. Costa Rica: Subscriptions, mobile Internet access, comparison per payment modality and access device, 2020-2021**  
(monthly figures)



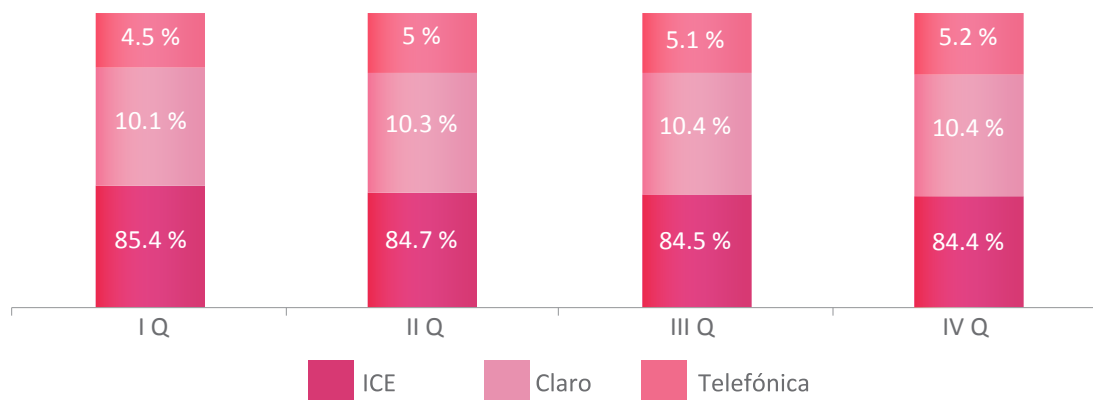
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 72. Costa Rica: Subscriptions, Internet access on mobile network, percentage distribution per payment modality and access device, 2021**  
(quarterly figures in percentage)



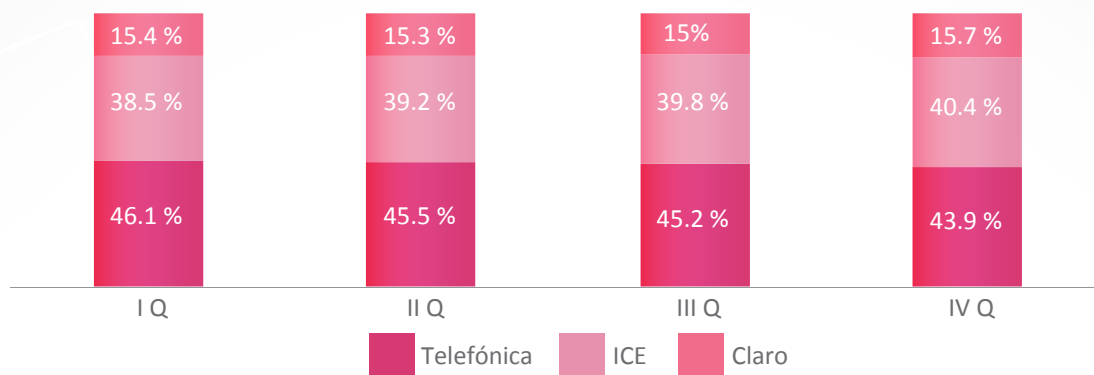
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 73. Costa Rica: Subscriptions, Internet access on mobile network, datacard. Percentage distribution per operator, 2021**  
(quarterly figures in percentage)



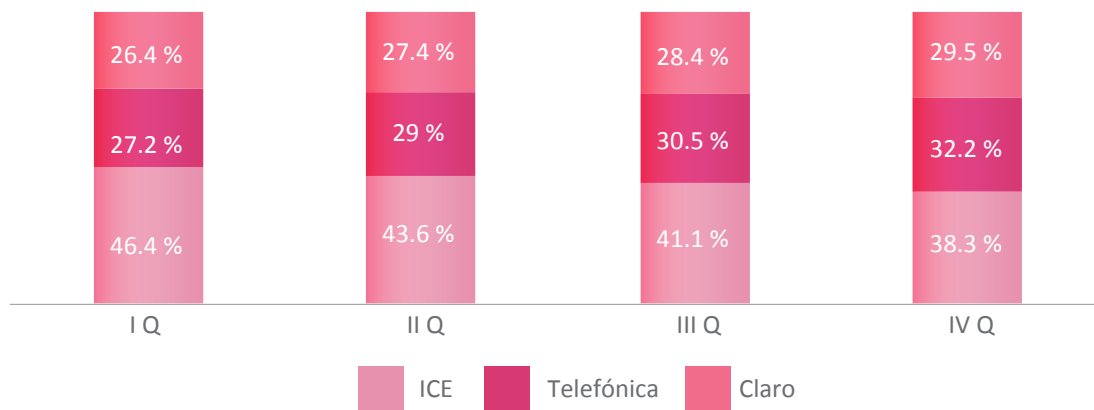
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 74. Costa Rica: Subscriptions, Internet access on mobile network, prepaid.**  
**Percentage distribution per operator, 2021**  
 (quarterly figures in percentage)



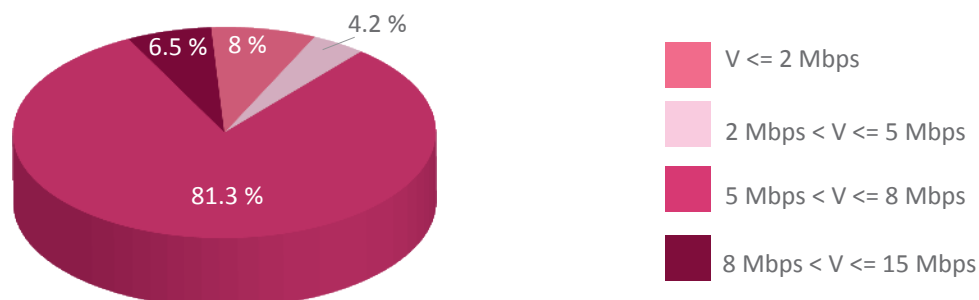
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 75. Costa Rica: Subscriptions, Internet access on mobile network, postpaid.**  
**Percentage distribution per operator, 2021**  
 (quarterly figures in percentage)



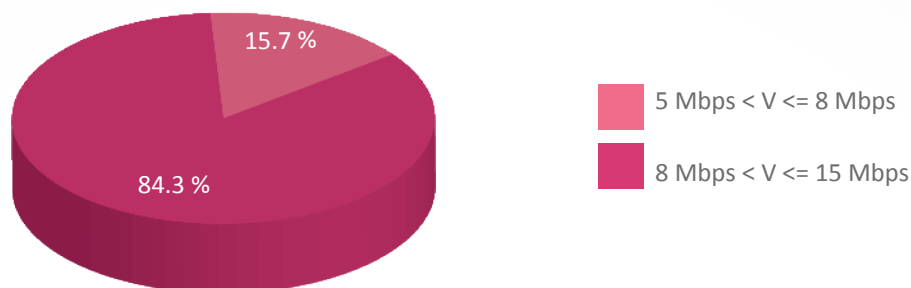
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 76. Costa Rica: Subscriptions, Internet access on mobile network.**  
**Percentage distribution per speed, datacard, 2021**  
 (figures in percentage at year end)



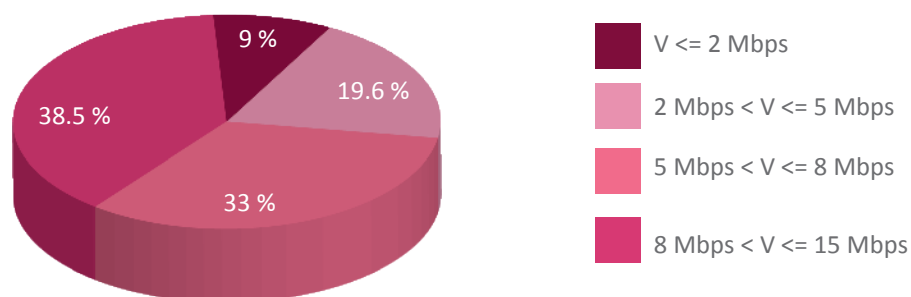
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 77. Costa Rica: Subscriptions, Internet access on mobile network.**  
**Percentage distribution per speed, prepaid modality, 2021**  
 (figures in percentage at year end)



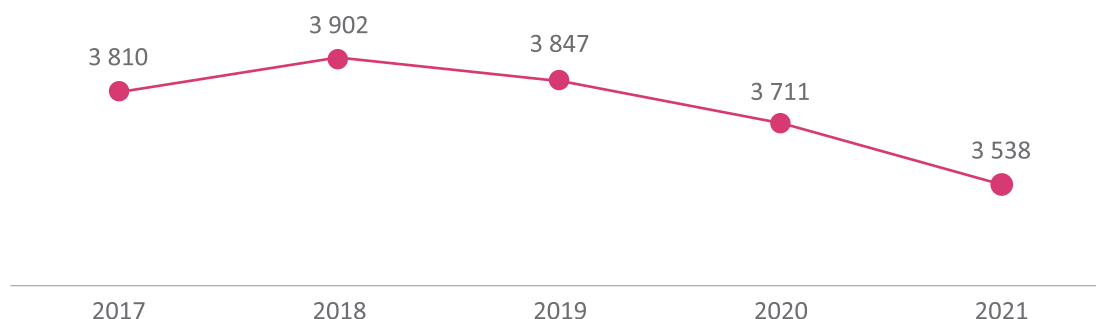
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 78. Costa Rica: Subscriptions, Internet access on mobile network.**  
**Percentage distribution per speed, postpaid modality, 2021**  
 (figures in percentage at year end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

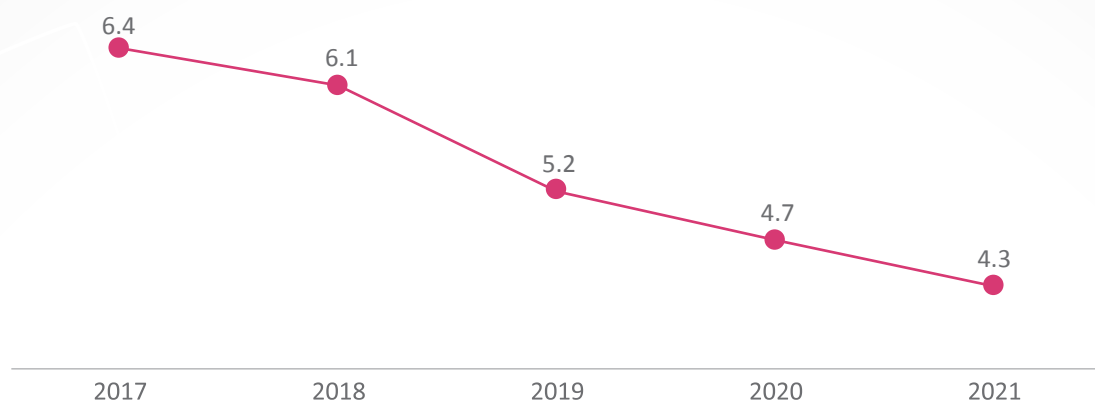
**Chart n.º 79. Costa Rica: IHH Evolution, Internet access on mobile network,**  
**2017-2021**  
 (figures at year end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 80. Costa Rica: Mobile Internet to fixed Internet subscription ratio, 2017-2021**

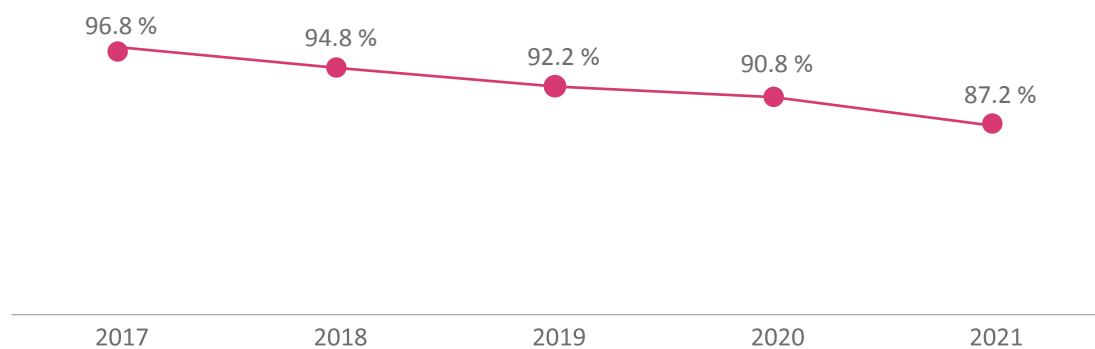
(figures at year end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 81. Costa Rica: Subscriptions, mobile Internet access for every 100 inhabitants, 2017-2021**

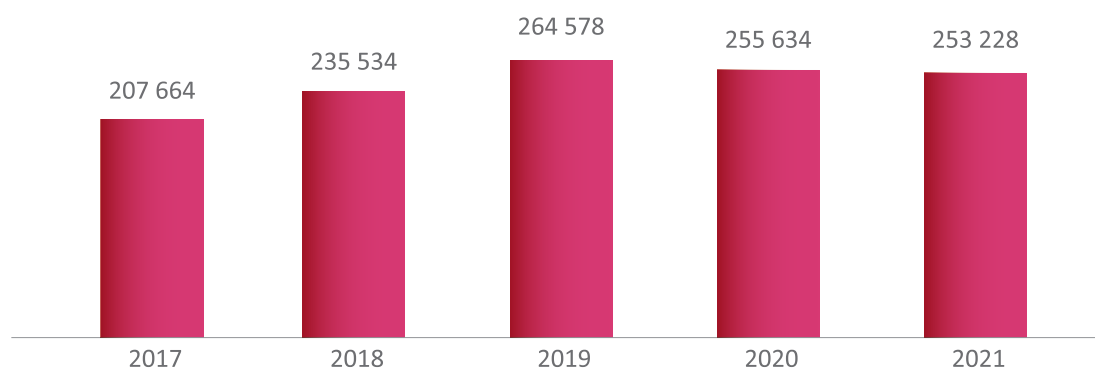
(figures at year end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 82. Costa Rica: Revenue, Internet access on mobile network, 2017-2021**

(annual figures in million colones)

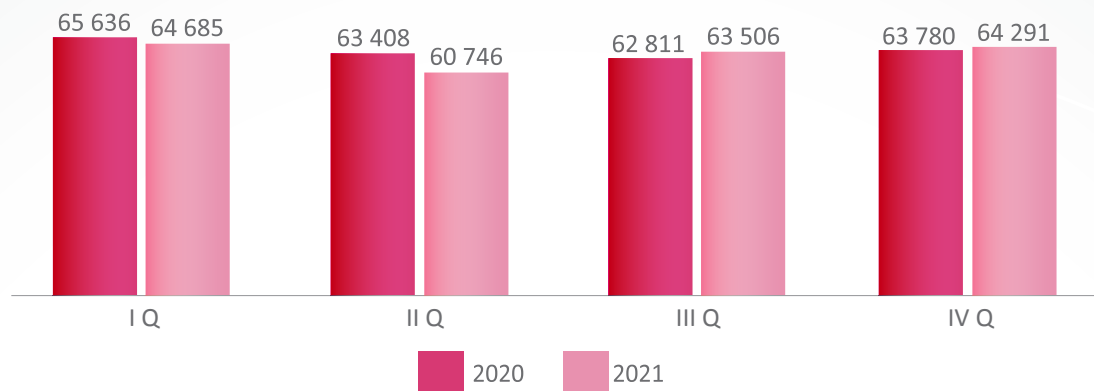


Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.



Chart n.º 83. Costa Rica: Revenue, Internet access on mobile network, 2020-2021

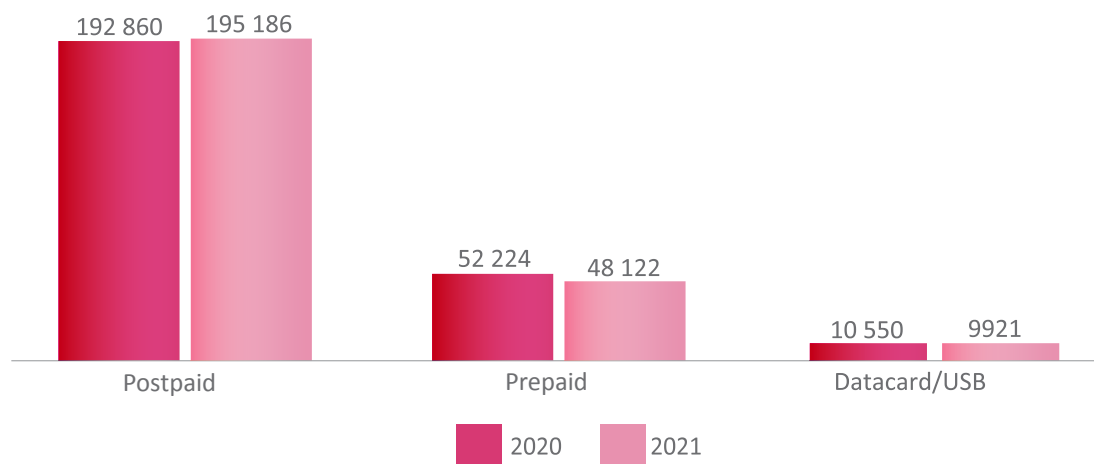
(quarterly figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 84. Costa Rica: Revenue, mobile Internet access, comparison per payment modality and access device, 2020-2021

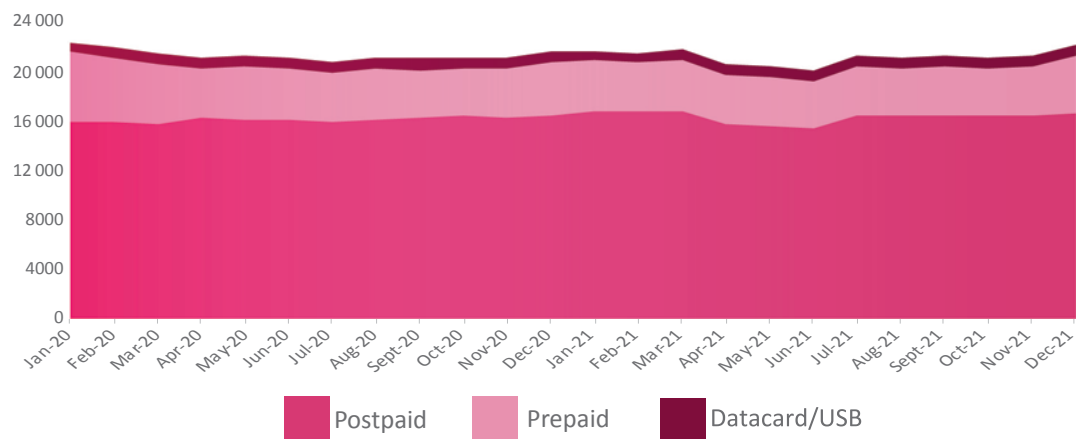
(annual figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

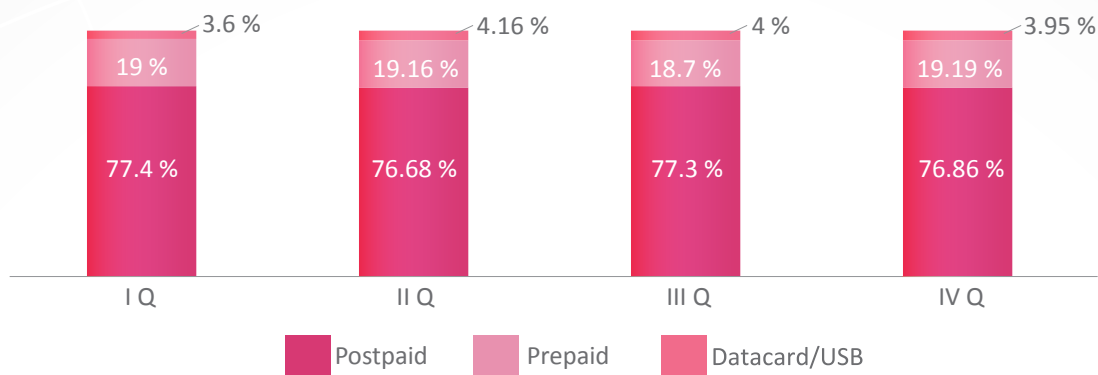
Chart n.º 85. Costa Rica: Revenue, mobile Internet access, comparison per payment modality and access device, 2020-2021

(monthly figures in million colones)



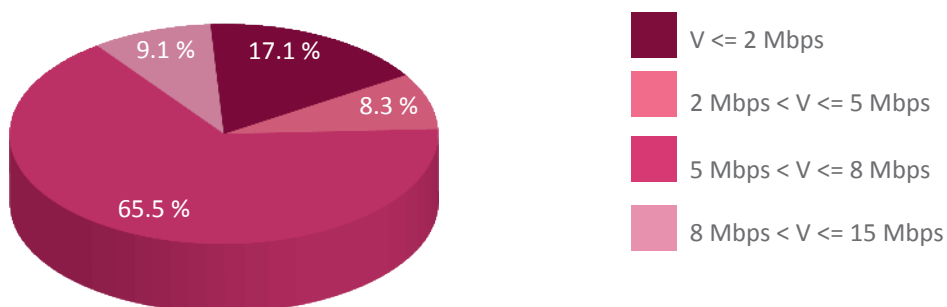
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 86. Costa Rica: Revenue, Internet access on mobile network, percentage distribution per payment modality and access device, 2021**  
(quarterly figures in percentages)



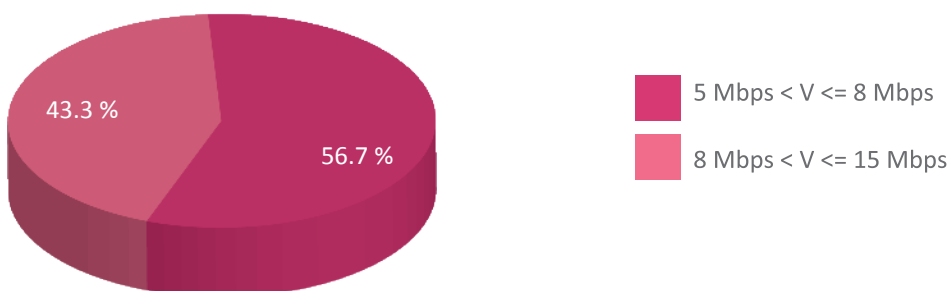
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 87. Costa Rica: Revenue, Internet access on mobile network, datacard. Percentage distribution per speed, 2021**  
(annual figures in percentage)



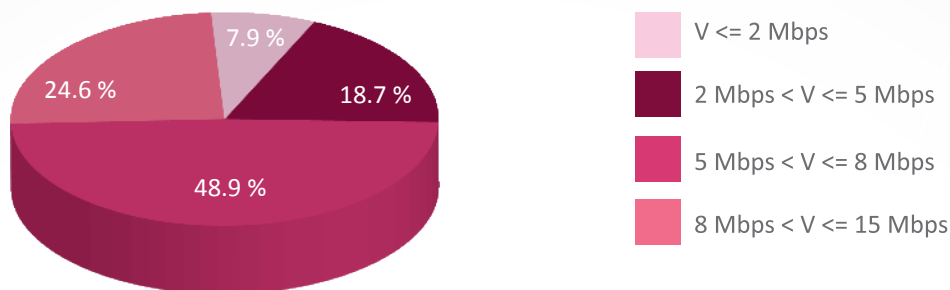
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 88. Costa Rica: Revenue, Internet access on mobile network, prepaid. Percentage distribution per speed, 2021**  
(annual figures in percentage)



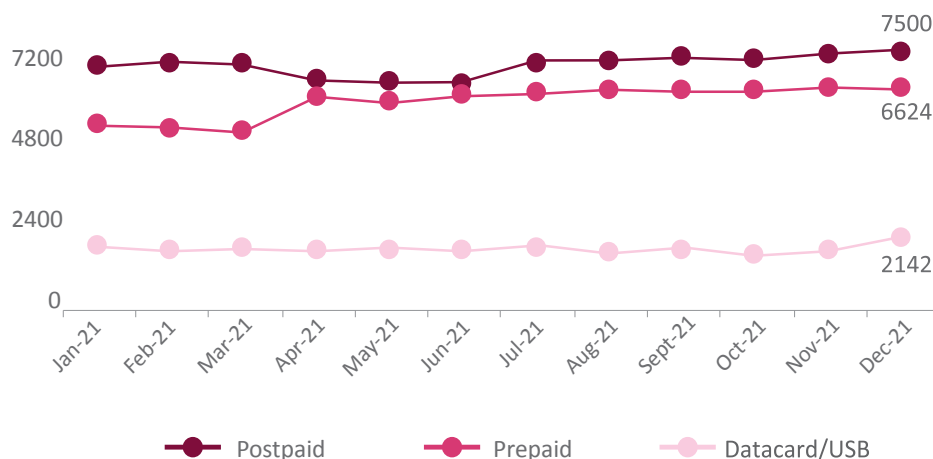
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 89. Costa Rica: Revenue, Internet access on mobile network, postpaid.  
Percentage distribution per speed, 2021  
(annual figures in percentage)



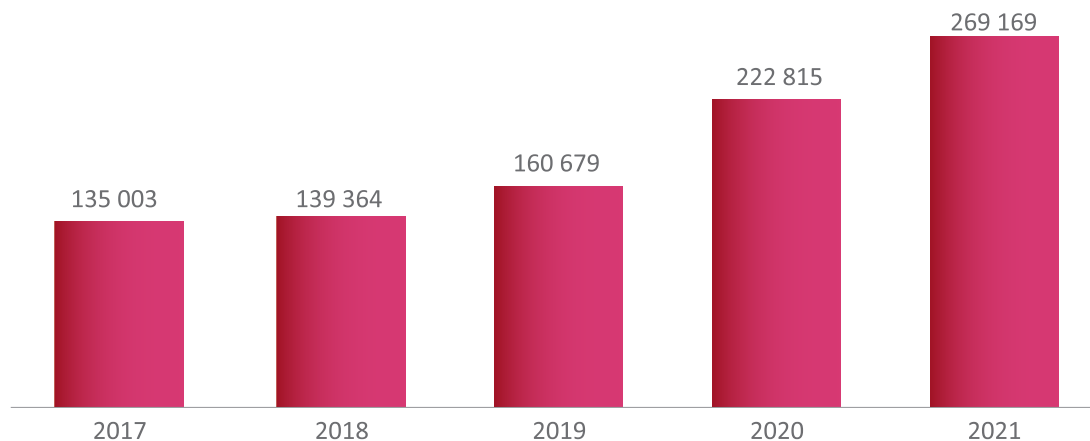
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 90. Costa Rica: Revenue, Internet access on mobile network, average revenue per user per each payment modality and in datacard, 2021  
(monthly figures in colones per user)



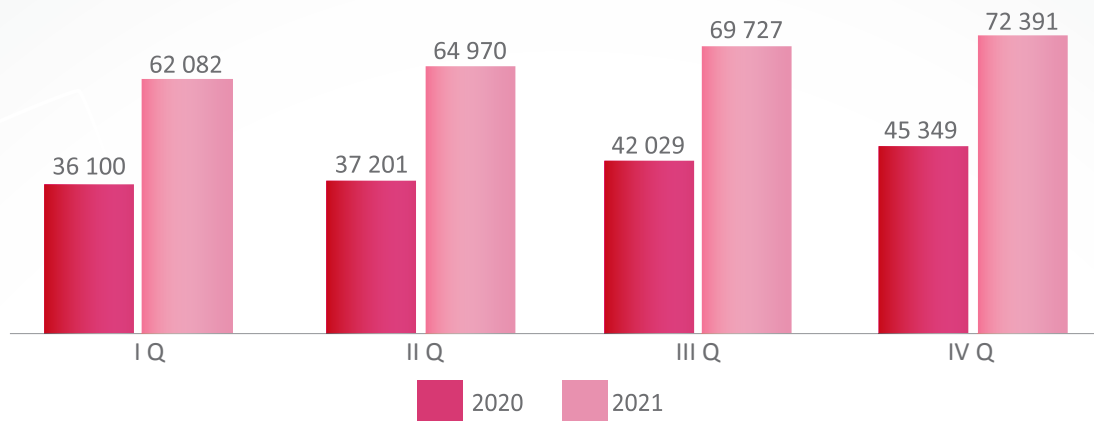
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 91. Costa Rica: Traffic, Internet access on mobile network, 2017-2021  
(annual figures in TB)



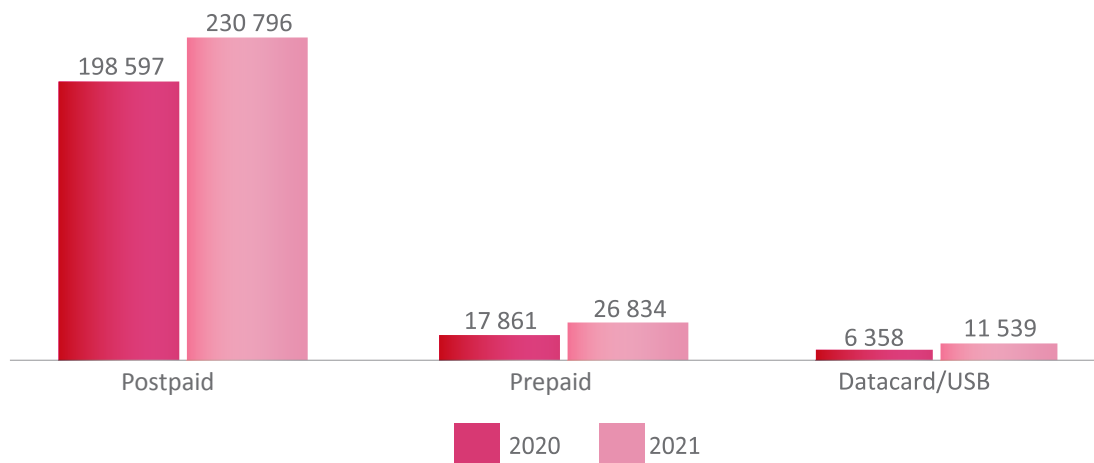
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 92. Costa Rica: Traffic, Internet access on mobile network, 2020-2021  
(quarterly figures in TB)



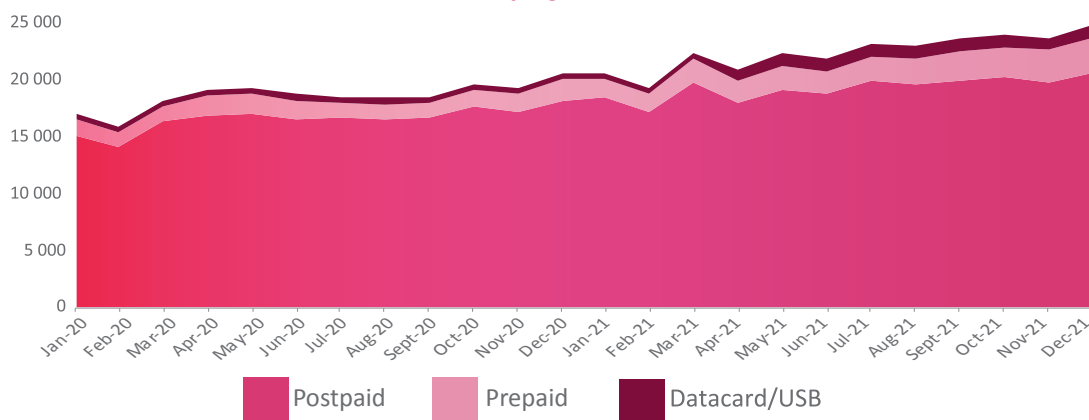
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 93. Costa Rica: Traffic, mobile Internet access, comparison per payment modality and access device, 2020-2021  
(annual figures in TB)



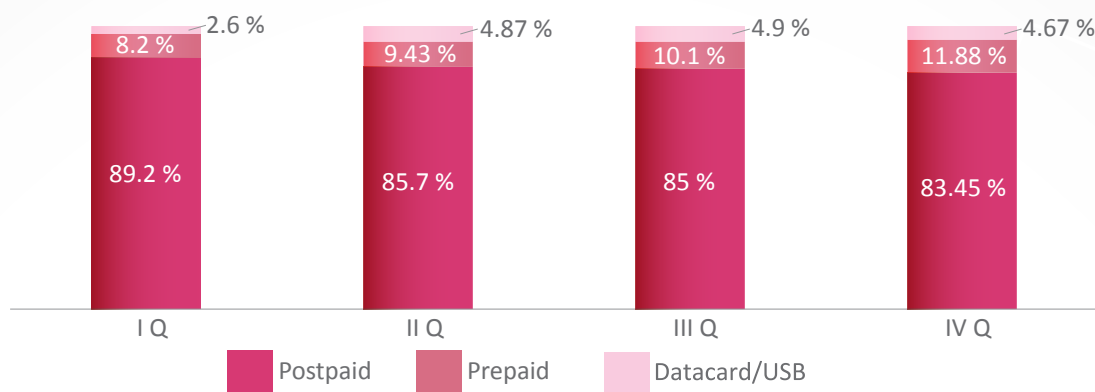
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 94. Costa Rica: Traffic, mobile Internet access, comparison per payment modality and access device, 2020-2021  
(monthly figures in TB)



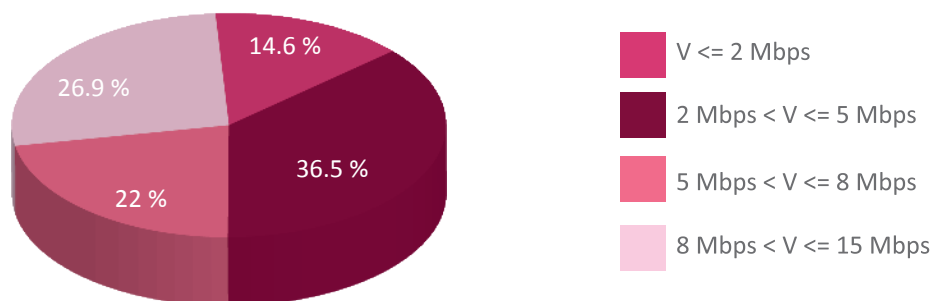
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 95. Costa Rica: Traffic, Internet access on mobile network, percentage distribution per payment modality and access device, 2021**  
(quarterly figures in TB)



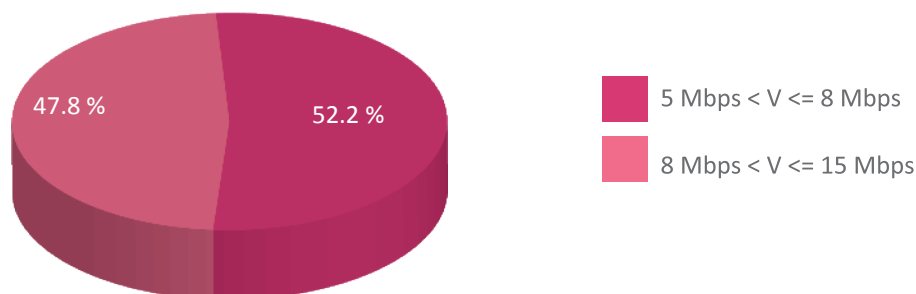
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 96. Costa Rica: Traffic, Internet access on mobile network, datacard. Percentage distribution per speed, 2021**  
(annual figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

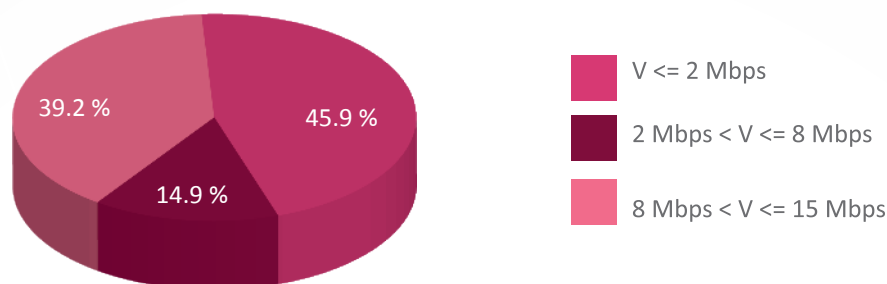
**Chart n.º 97. Costa Rica: Traffic, Internet access on mobile network, prepaid. Percentage distribution per speed, 2021**  
(annual figures in TB)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

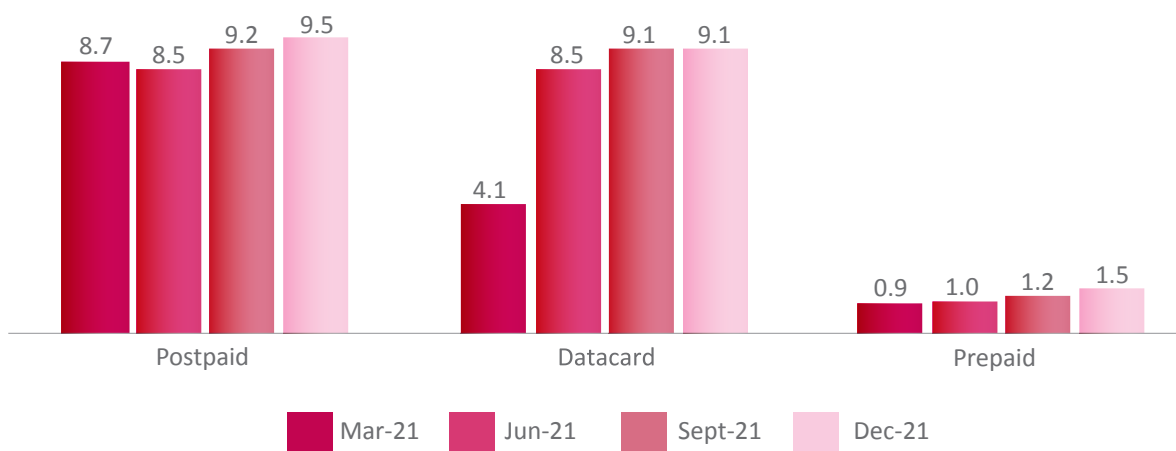


**Chart n.º 98. Costa Rica: Traffic, Internet access on mobile network, postpaid.**  
**Percentage distribution per speed, 2021**  
 (annual figures in TB)



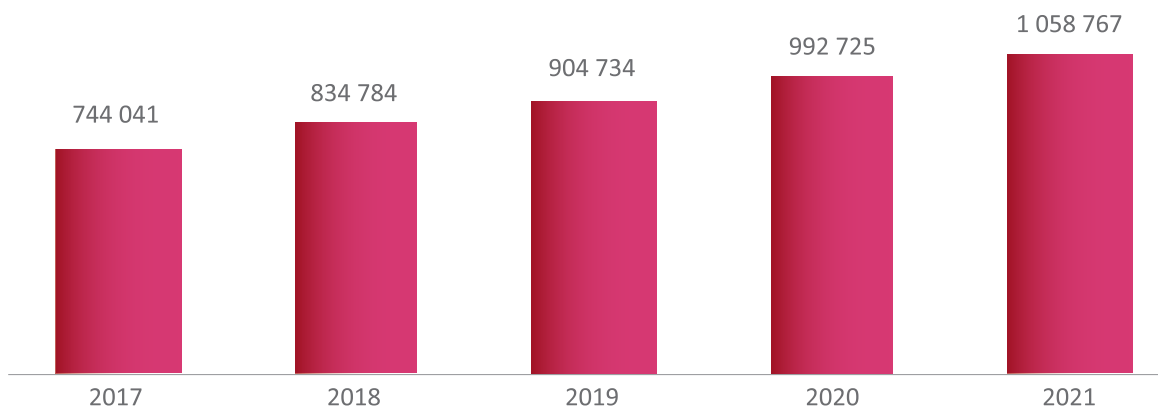
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 99. Costa Rica: Traffic, Internet access on mobile network, average traffic per user per each payment modality and in datacard, 2021**  
 (figures in GB per user per month)



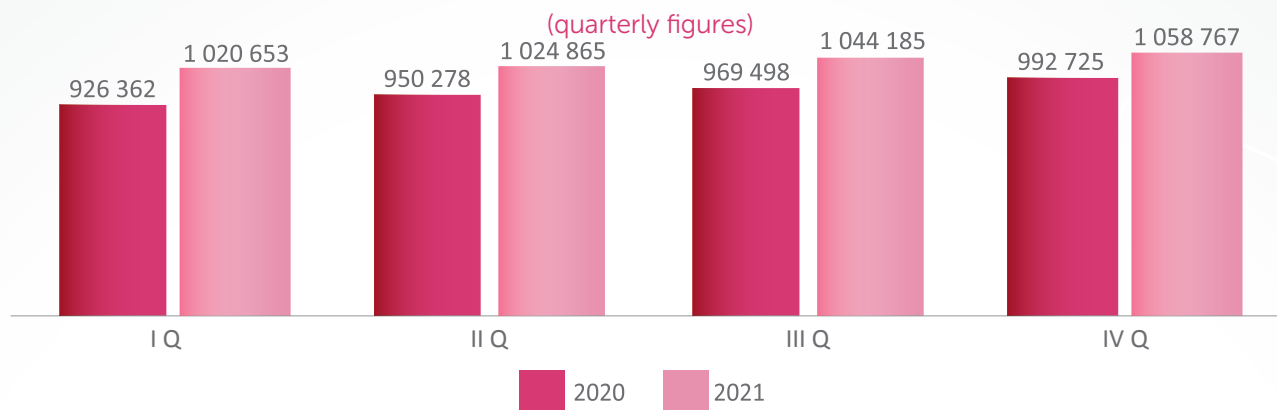
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 100. Costa Rica: Subscriptions, Internet access on fixed network, 2017-2021**  
 (annual figures)



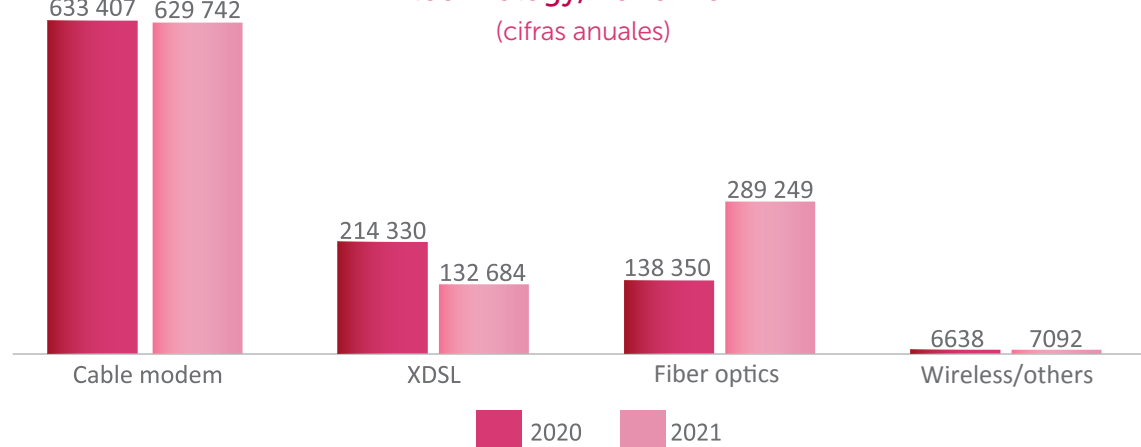
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 101. Costa Rica: Subscriptions, Internet access on fixed network, 2020-2021



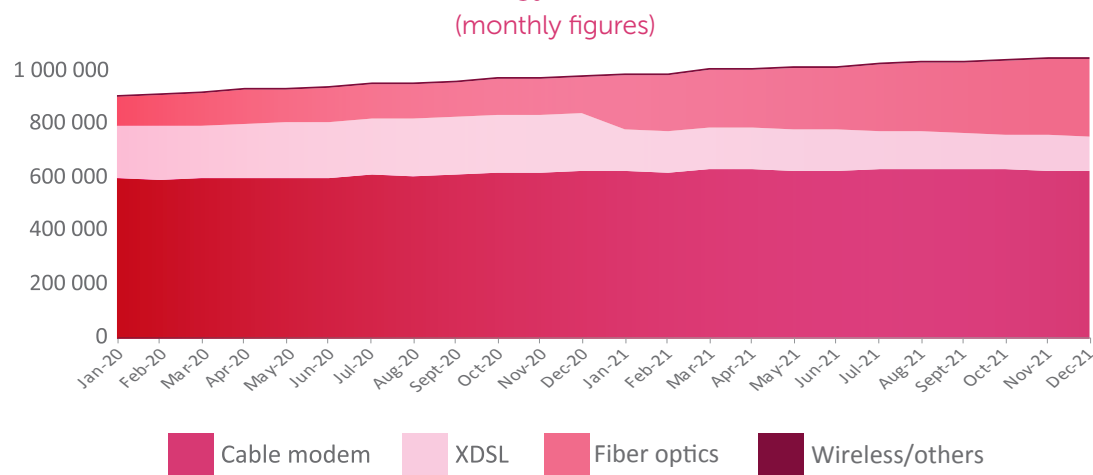
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 102. Costa Rica: Subscriptions, fixed Internet access, comparison per technology, 2020-2021



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

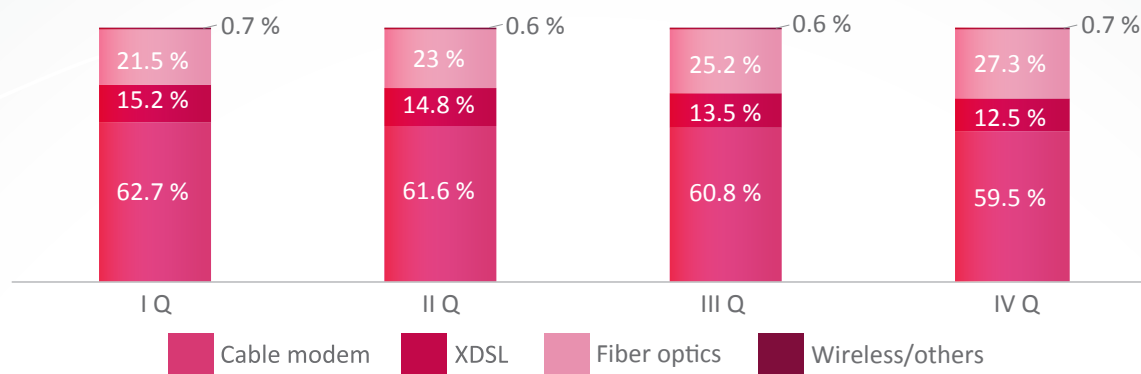
Chart n.º 103. Costa Rica: Subscriptions, fixed Internet access, comparison per technology, 2020-2021



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 104. Costa Rica: Subscriptions, fixed Internet access. Percentage distribution per technology, 2021**

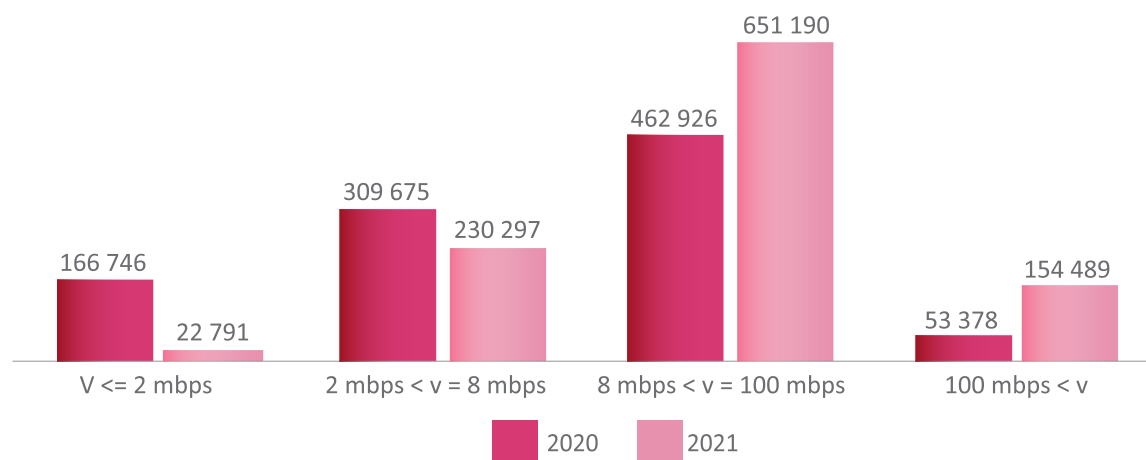
(quarterly figures in percentage)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 105. Costa Rica: Subscriptions, fixed Internet access, comparison per speed, 2020-2021**

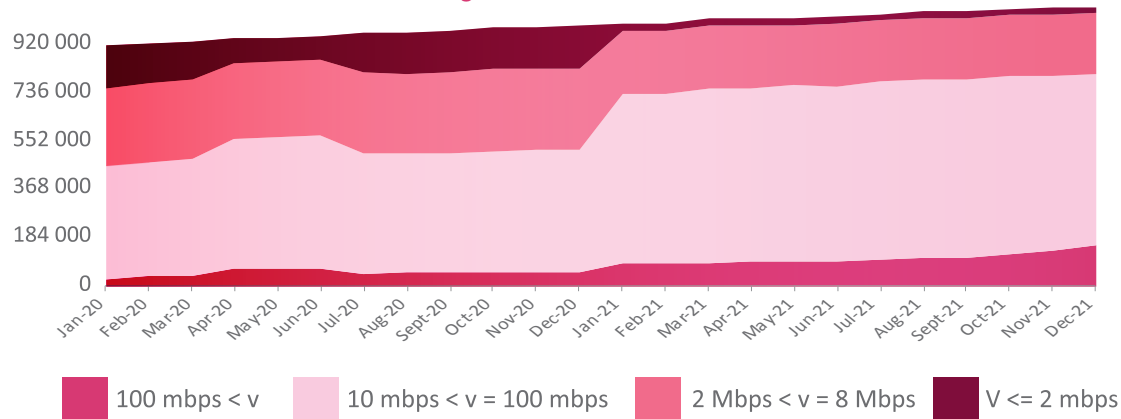
(figures at year end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

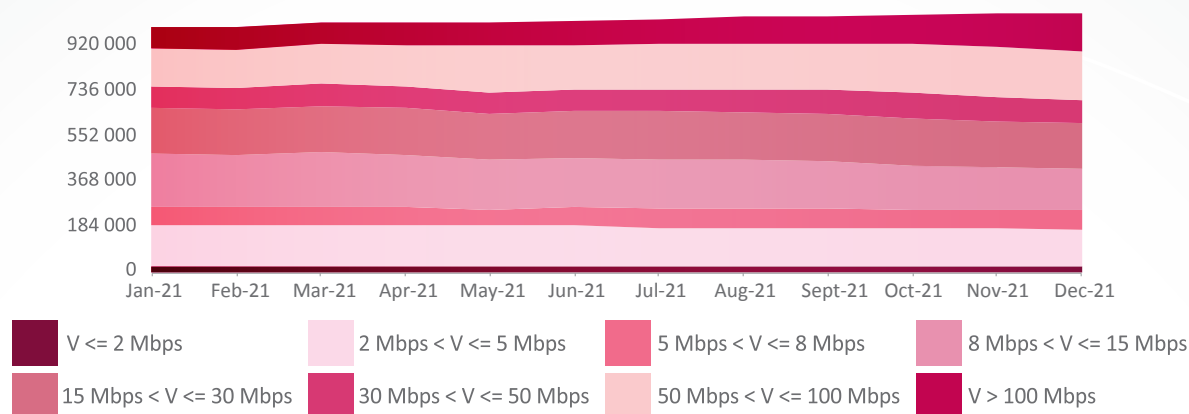
**Chart n.º 106. Costa Rica: Subscriptions, fixed Internet access. Details per speed, 2020-2021**

(figures at month end)



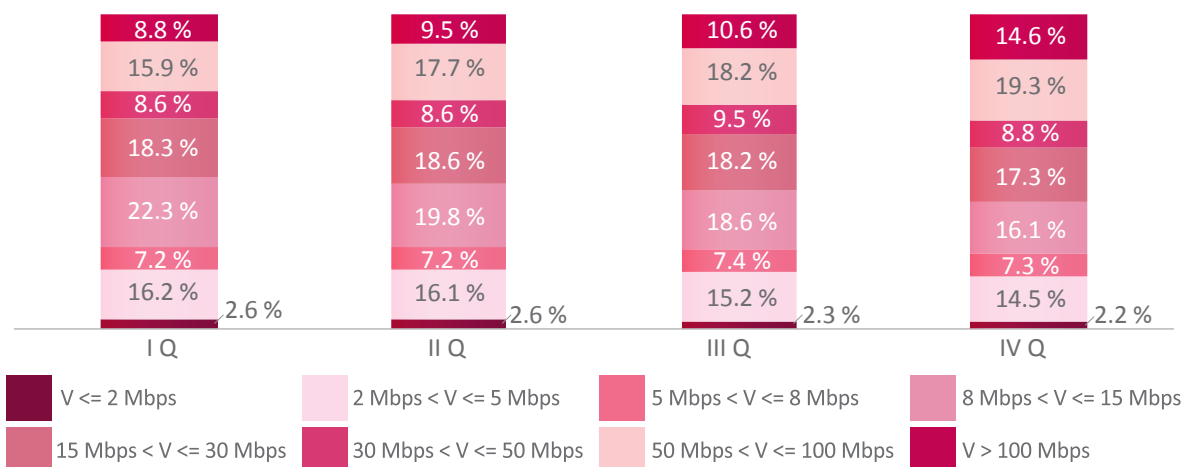
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 107. Costa Rica: Subscriptions, fixed Internet access, detail by speed ranges and month, 2021**  
(figures at month end)



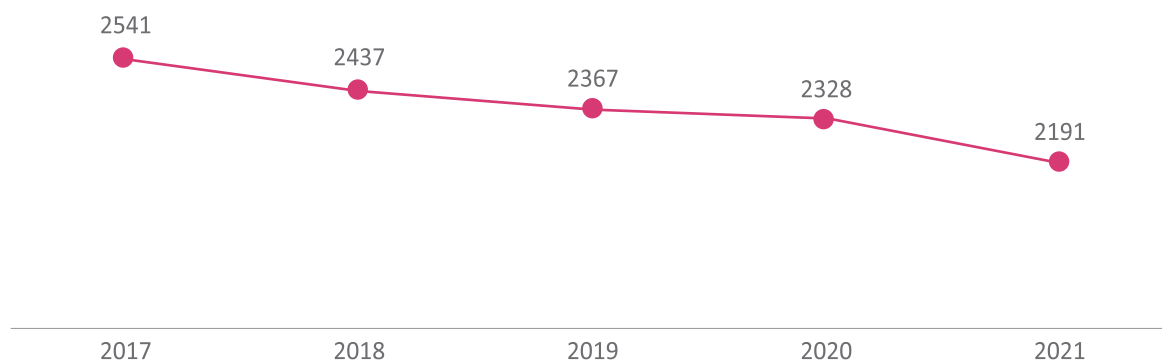
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 108. Costa Rica: Subscriptions, fixed Internet access. Percentage distribution per speed, 2021**  
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

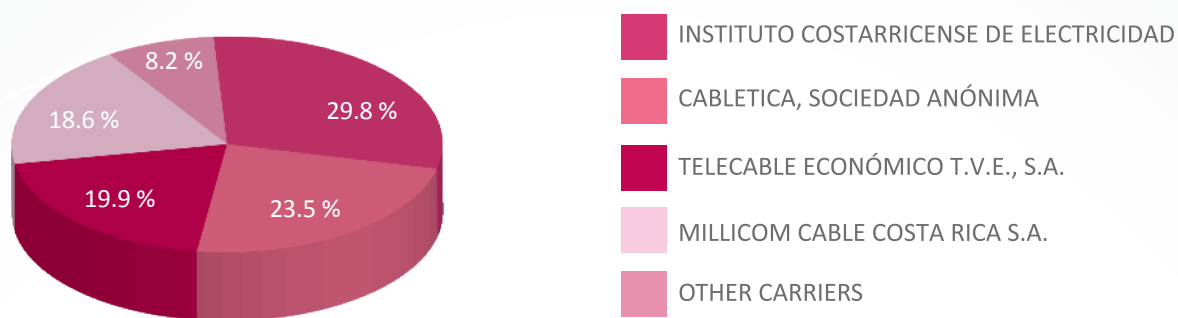
**Chart n.º 109. Costa Rica: IHH Evolution fixed Internet access, 2017-2021**  
(figures in percentage)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 110. Costa Rica: Market share, fixed Internet access, 2021

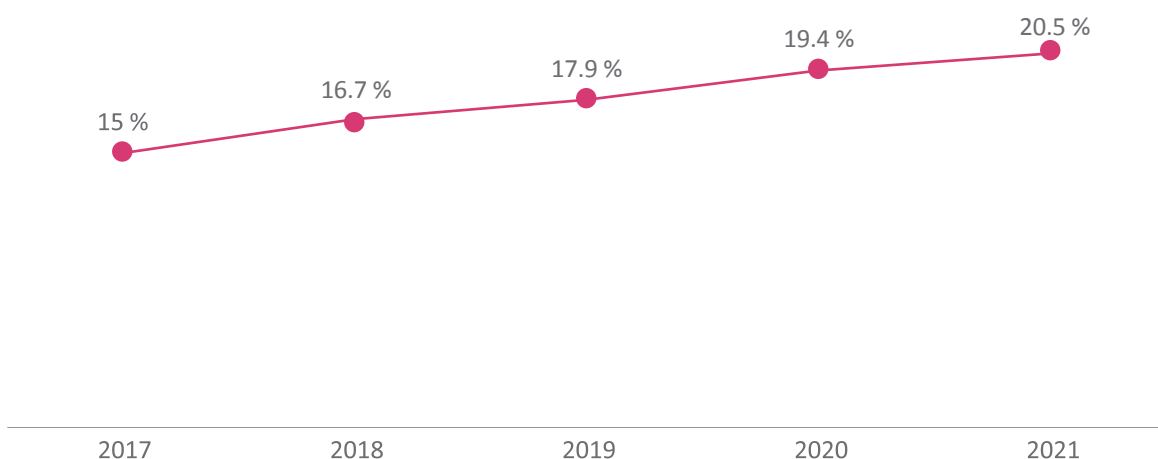
(figures at year end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 111. Costa Rica: Subscriptions, fixed Internet access per 100 inhabitants, desde 2017-2021

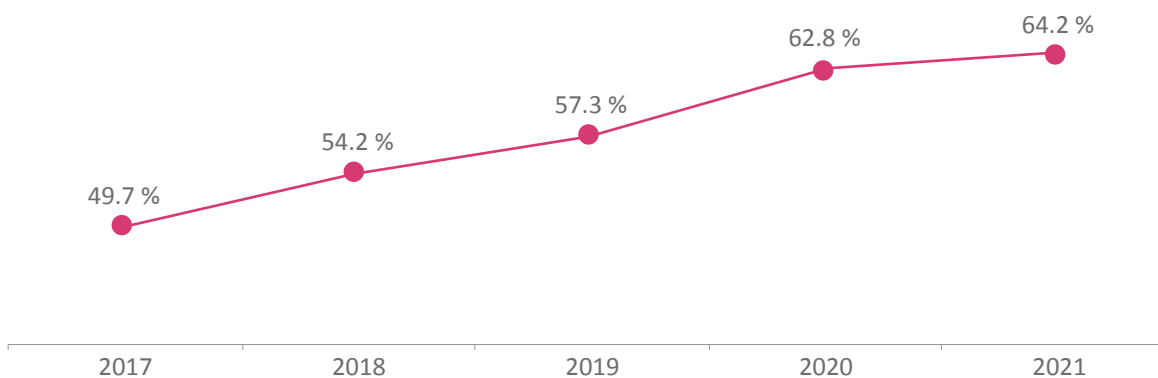
(figures in percentage)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

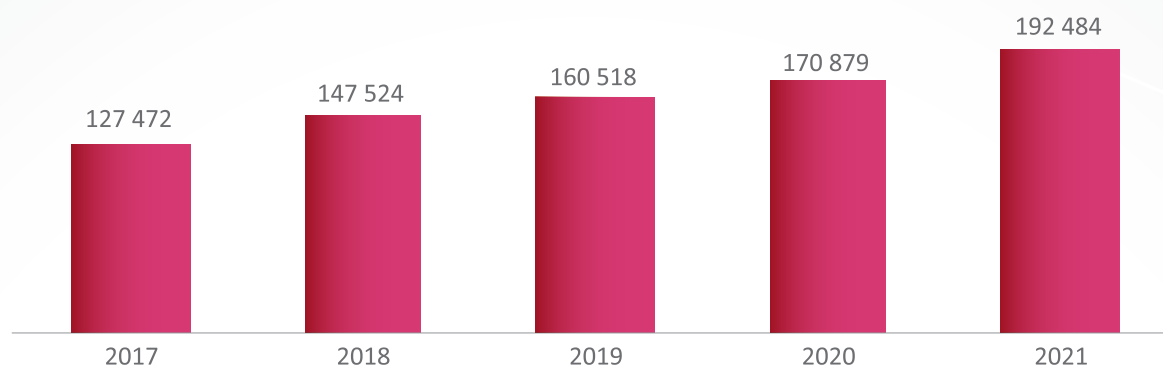
Chart n.º 112. Costa Rica: Subscriptions, fixed Internet access per 100 homes, 2017-2021

(figures in percentage)



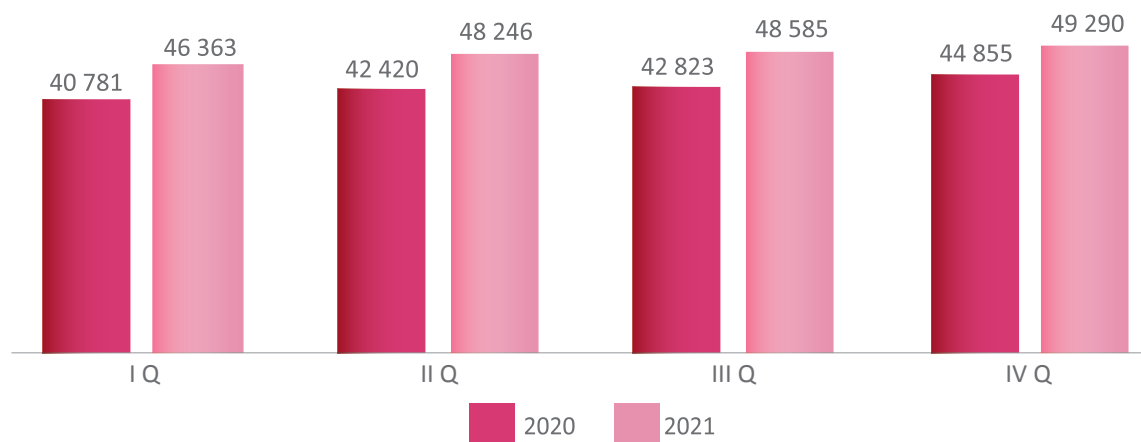
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 113. Costa Rica: Revenue, Internet access on fixed network, 2017-2021**  
(annual figures in million colones)



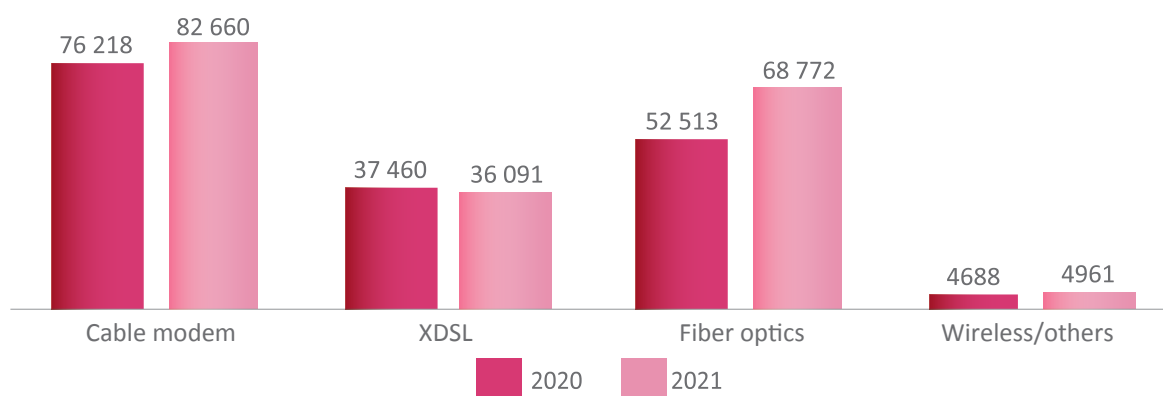
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 114. Costa Rica: Revenue for fixed Internet access, 2020-2021**  
(quarterly figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 115. Costa Rica: Revenue for fixed Internet access, comparison per technology, 2020-2021**  
(annual figures in million colones)

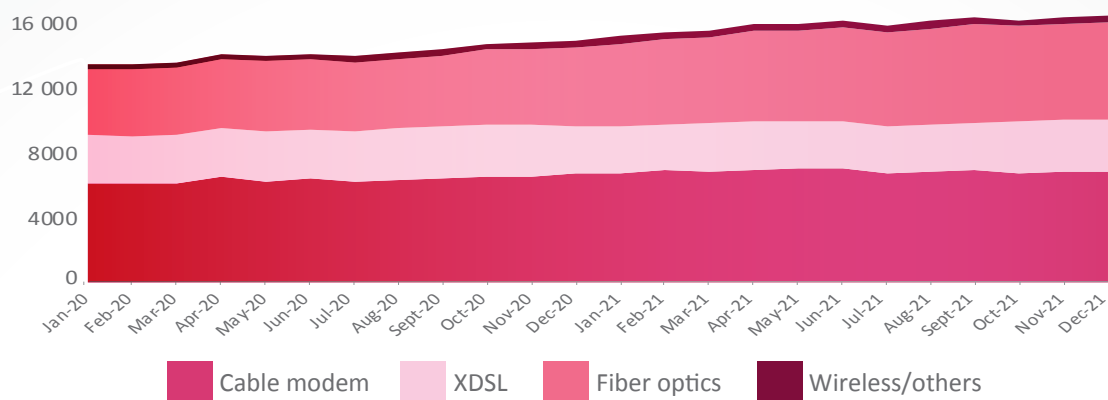


Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.



**Chart n.º 116. Costa Rica: Revenue, fixed Internet access. Percentage distribution by technology, 2017- 2021**

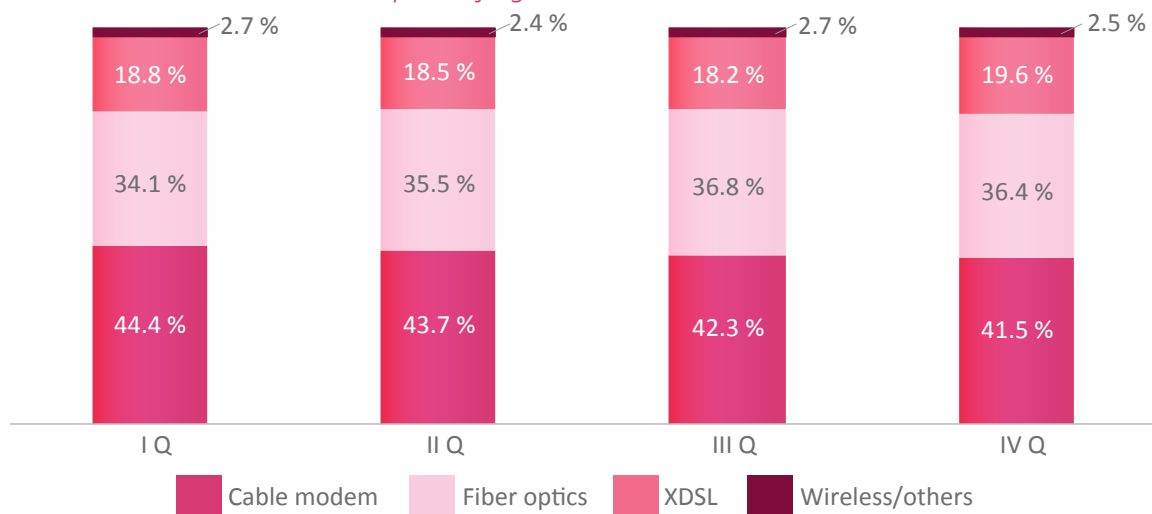
(monthly figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 117. Costa Rica: Revenue, fixed Internet access. Percentage distribution per technology, 2021**

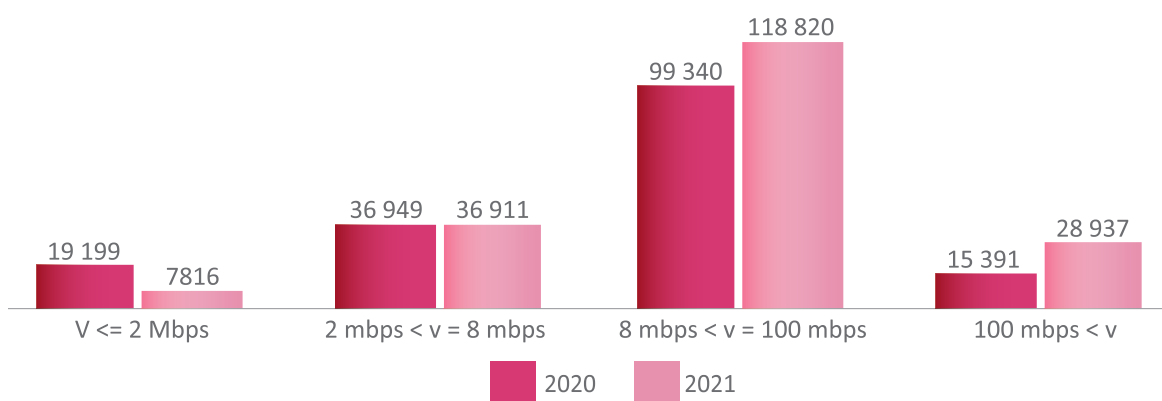
(quarterly figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 118. Costa Rica: Revenue, fixed Internet access, comparison per velocidad, 2020-2021**

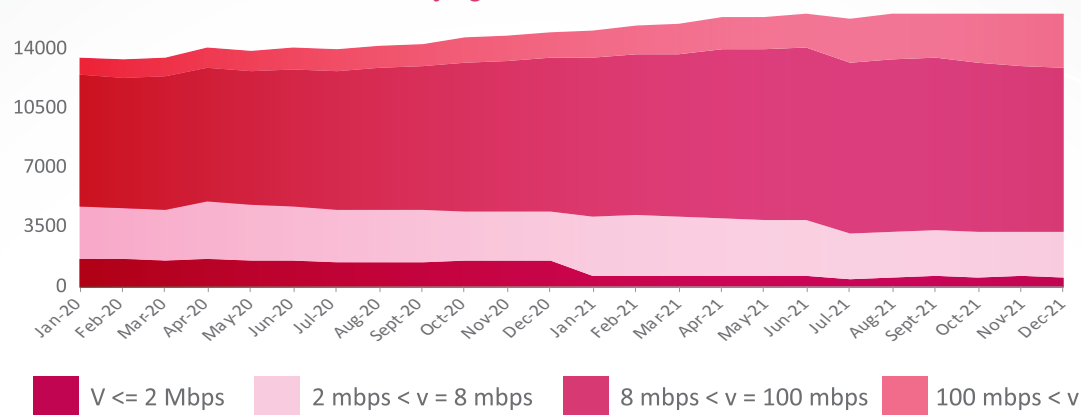
(annual figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 119. Costa Rica: Revenue for fixed Internet access, comparison per speed, 2020-2021

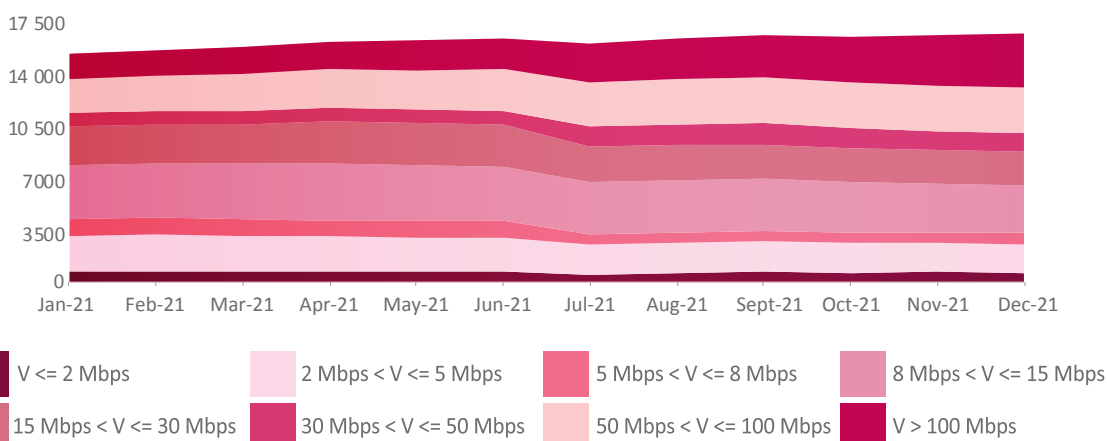
(monthly figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 120. Costa Rica: Revenue, fixed Internet access, comparison by speed, 2021

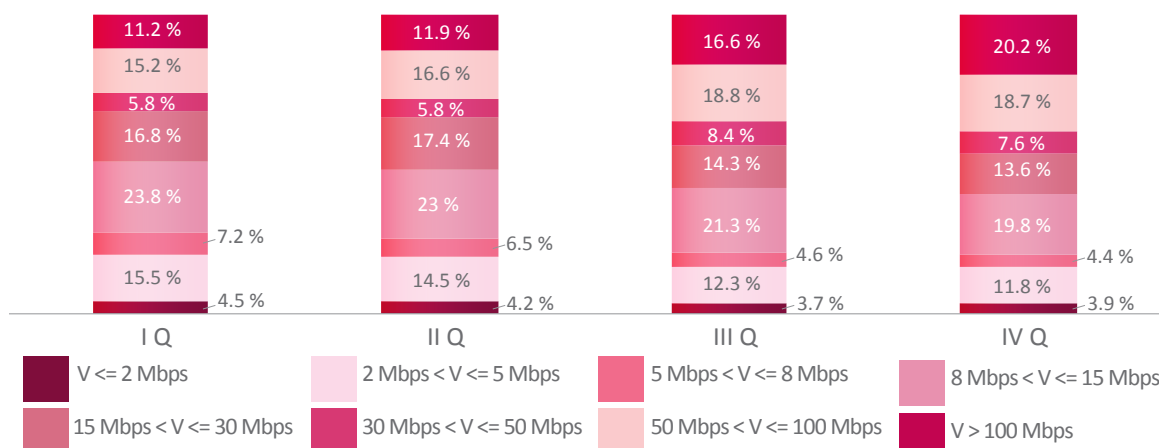
(annual figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

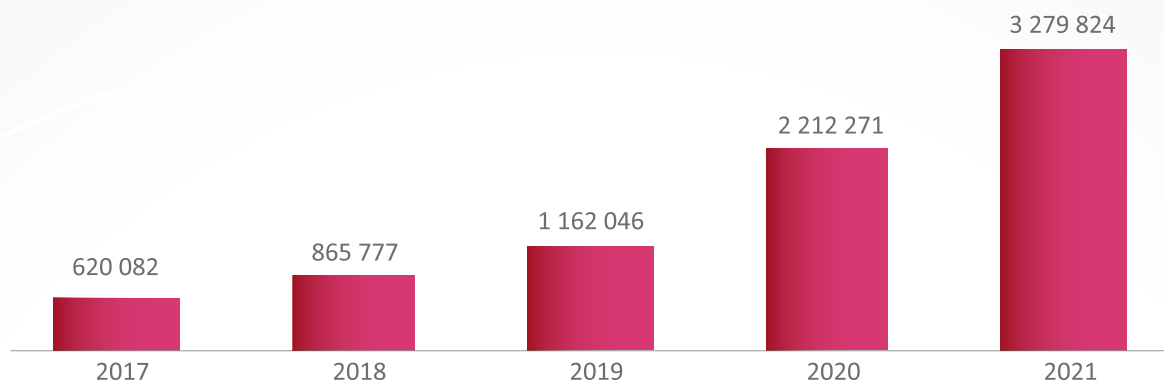
Chart n.º 121. Costa Rica: Revenue, fixed Internet access, distribution by new speed ranges, 2021

(quarterly figures in million colones)



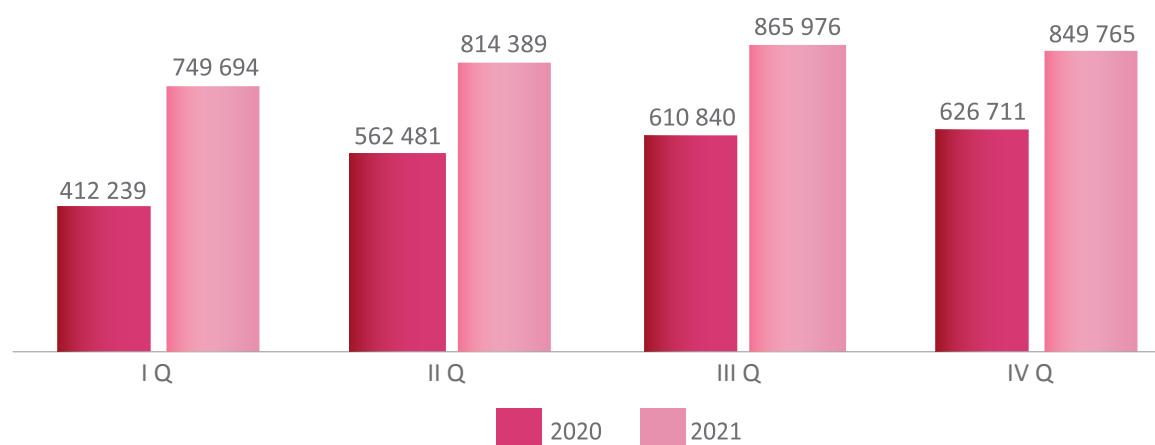
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 122. Costa Rica: Traffic, Internet access on fixed network, 2017-2021**  
(annual figures in TB)



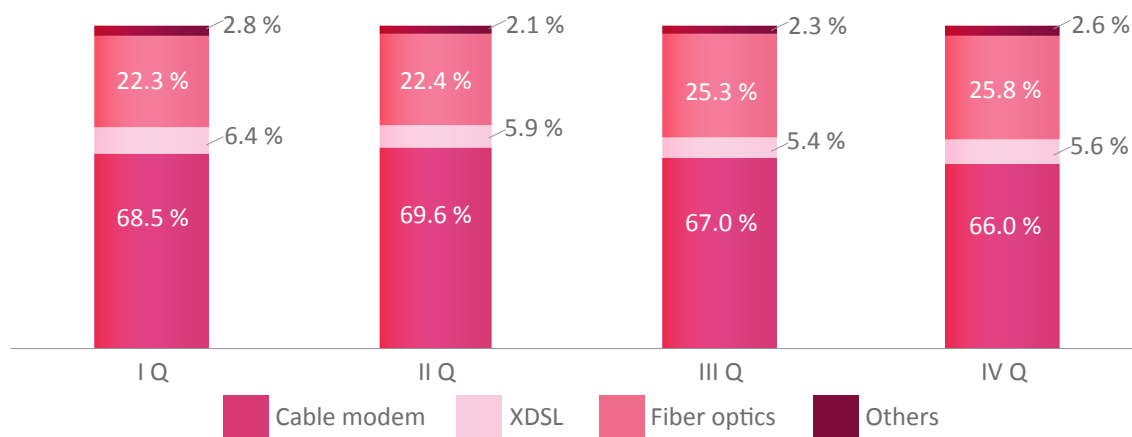
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 123. Costa Rica: Traffic, fixed Internet access, quarterly comparison 2017-20201**  
(quarterly figures in TB)



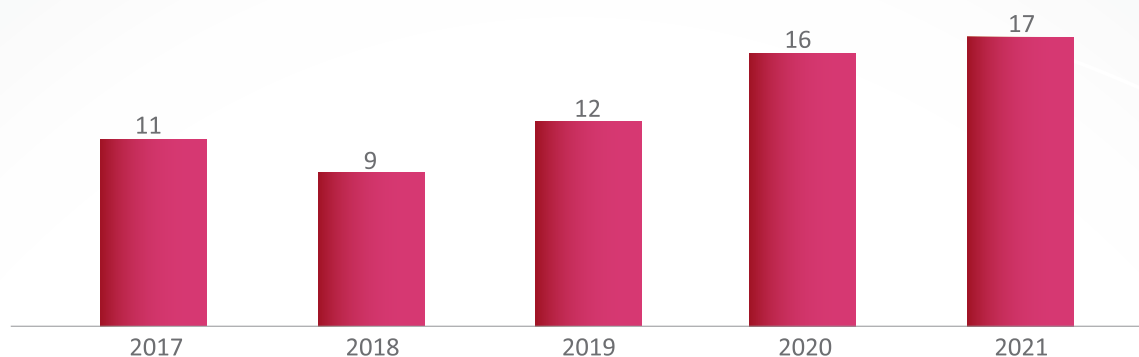
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 124. Costa Rica: Traffic, fixed Internet access, comparison by technology, 2021**  
(quarterly figures in TB)



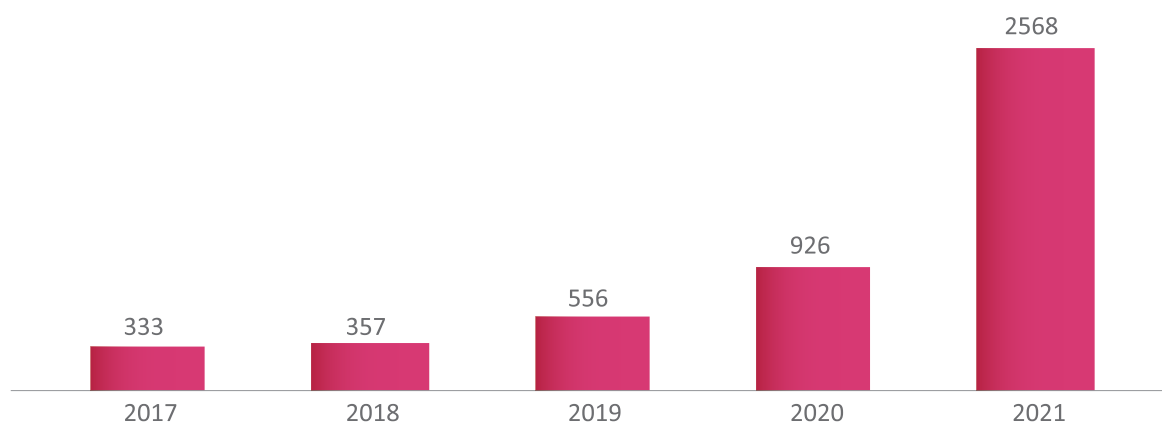
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 125. Costa Rica: Connections, wholesale Internet access, number of participating companies, 2017-2021**  
(annual figures)



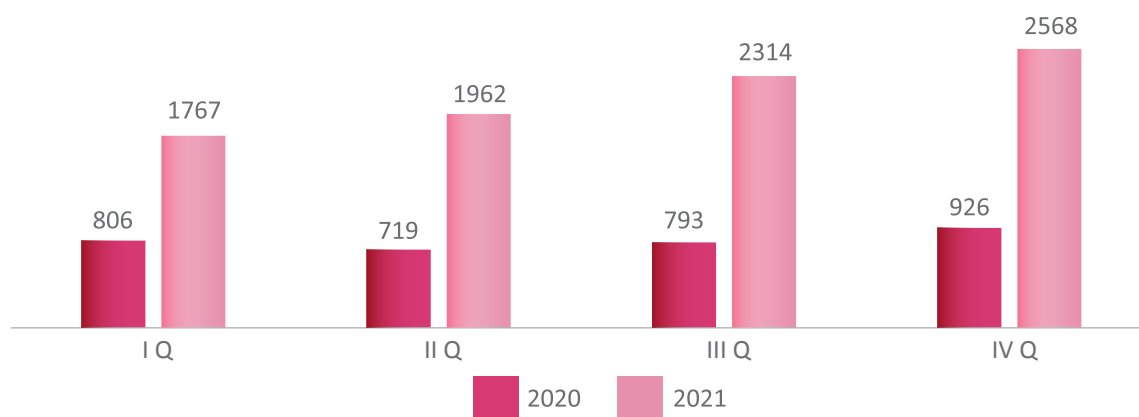
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 126. Costa Rica: Connections, wholesale Internet access, 2017-2021**  
(annual figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

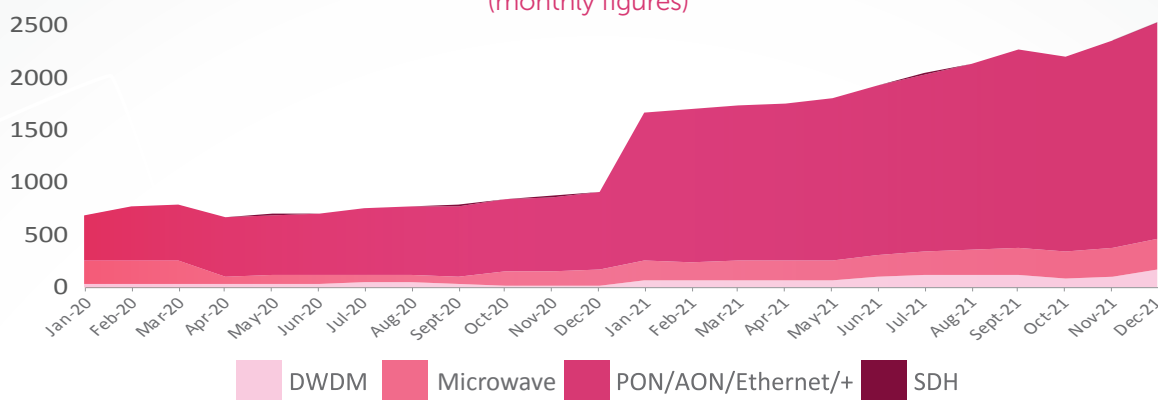
**Chart n.º 127. Costa Rica: Connections, wholesale Internet access, 2020-2021**  
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 128. Costa Rica: Connections wholesale Internet access, percentage distribution per connection technology, 2020-2021

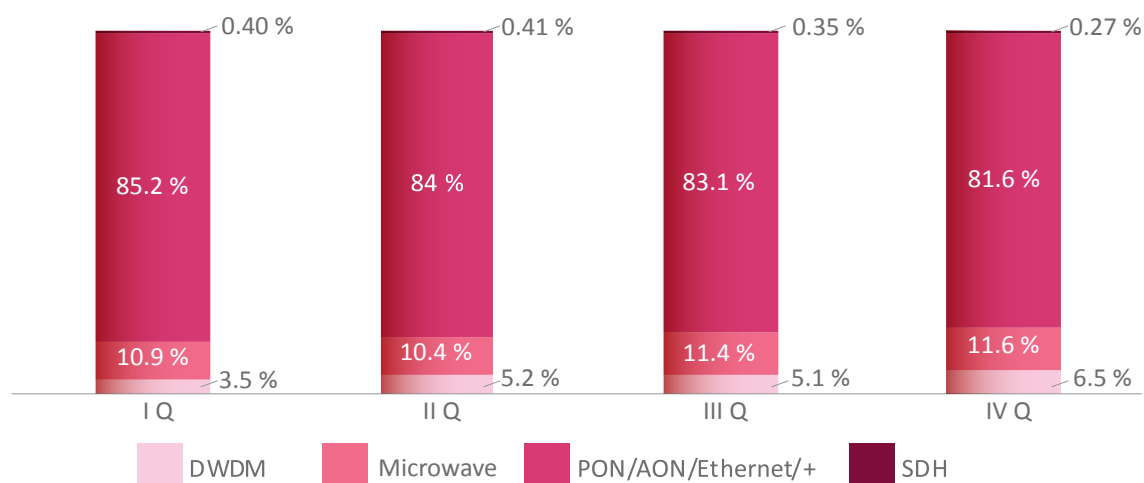
(monthly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 129. Costa Rica: Connections wholesale Internet access, percentage distribution per connection technology, 2021

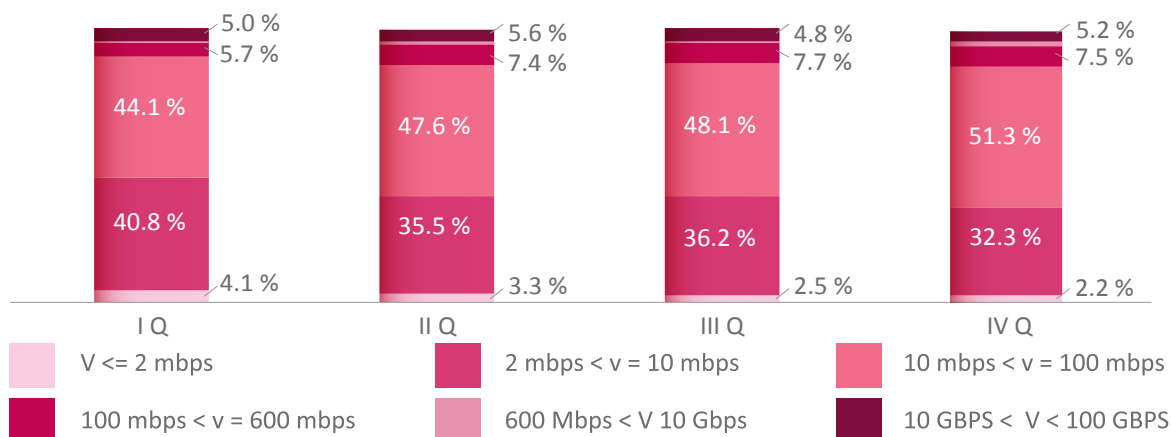
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 130. Costa Rica: Connections, wholesale Internet access, percentage distribution per speed, 2021

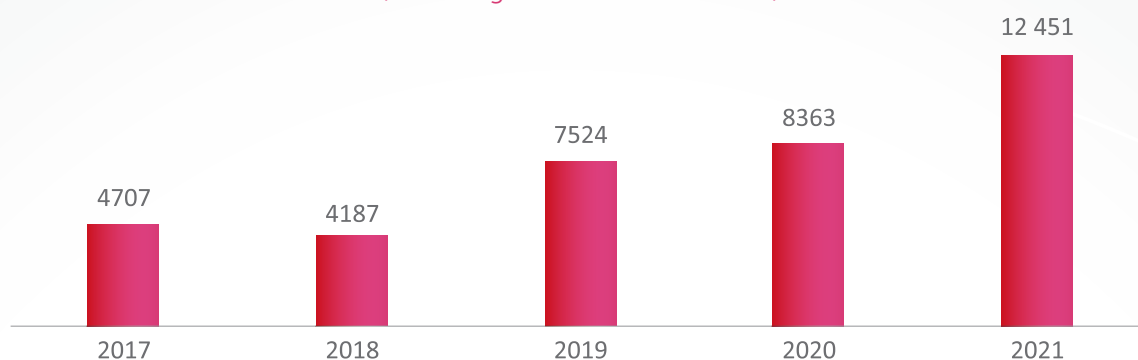
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 131. Costa Rica: Revenues, wholesale Internet access, 2017-2021**

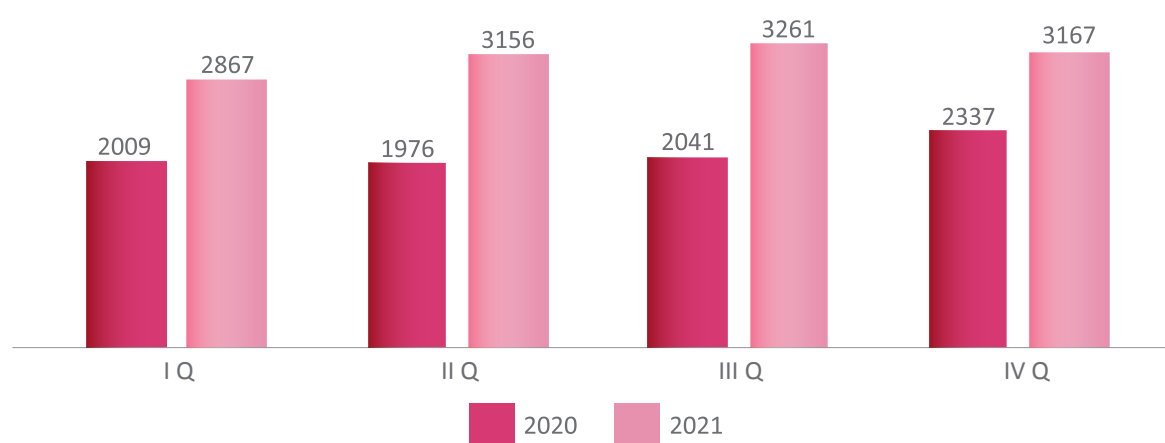
(annual figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 132. Costa Rica: Connections, wholesale Internet access, 2020-2021**

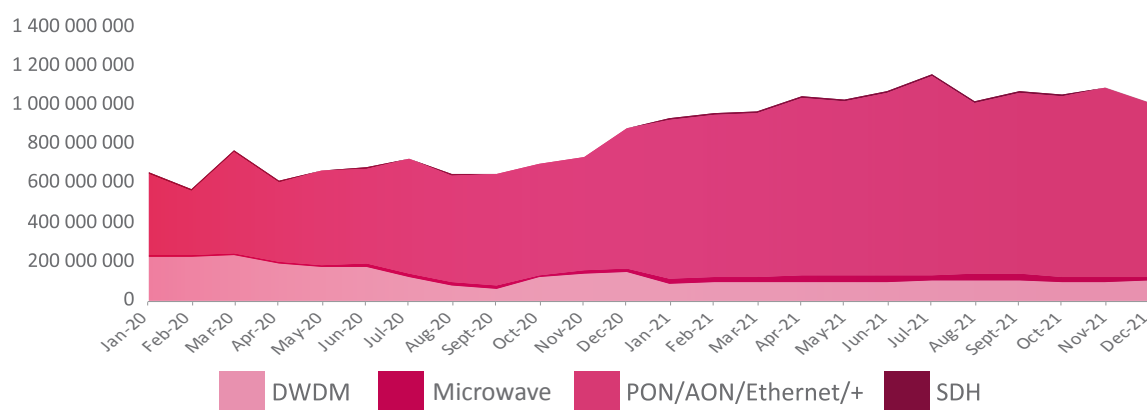
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 133. Costa Rica: Revenues, wholesale Internet access, distribution per technology, 2021**

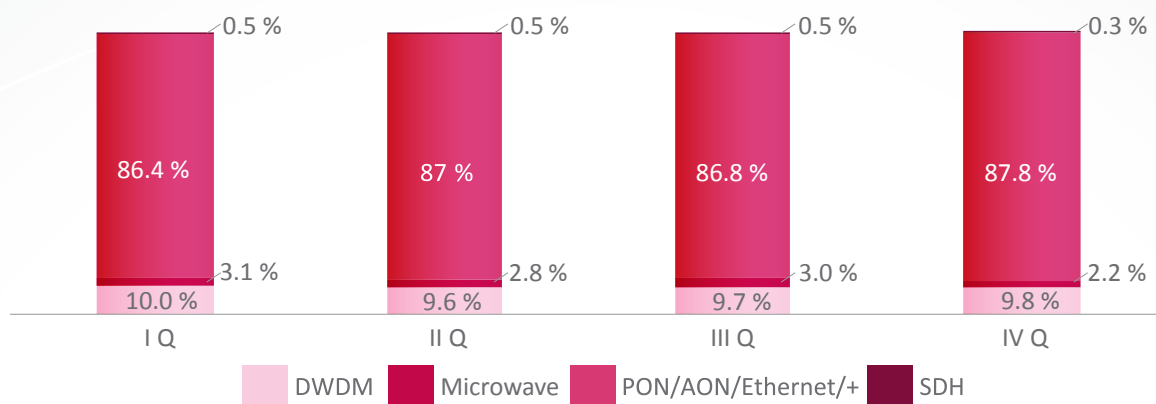
(quarterly figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

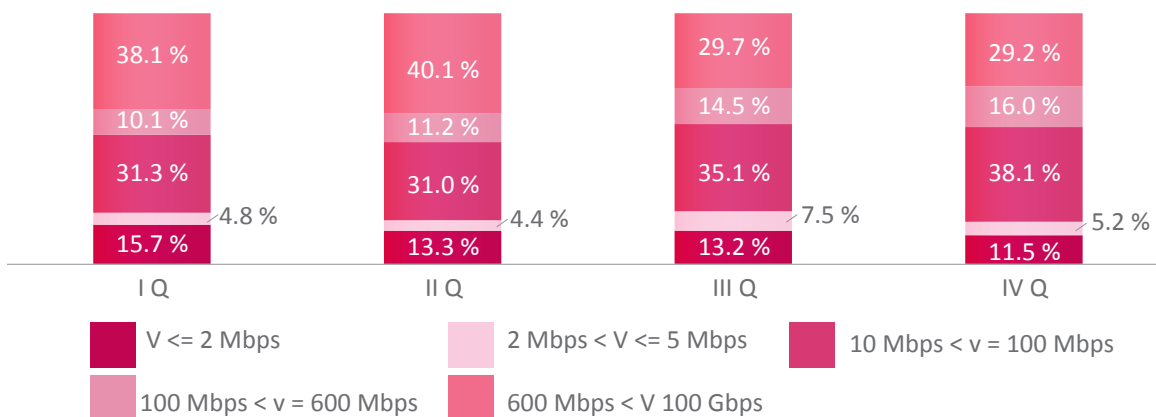


**Chart n.º 134. Costa Rica: Revenues, wholesale Internet access, distribution by technology, 2021**  
(quarterly figures in million colones)



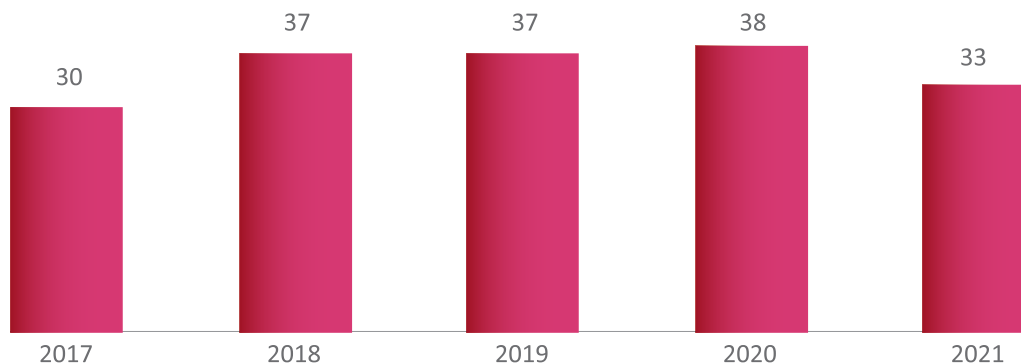
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 135. Costa Rica: Revenues, wholesale Internet access, distribution by speed, 2021**  
(quarterly figures in percentages)



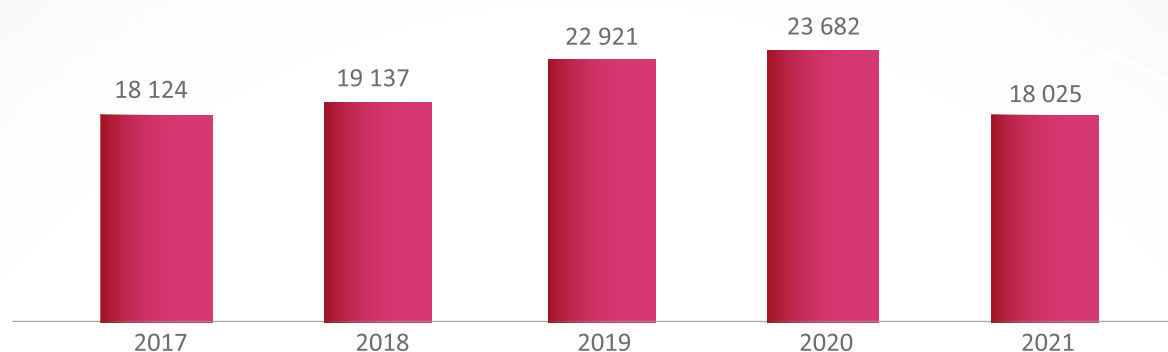
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 136. Costa Rica: Connections, leased lines, number of active companies, 2017-2021**  
(annual figures)



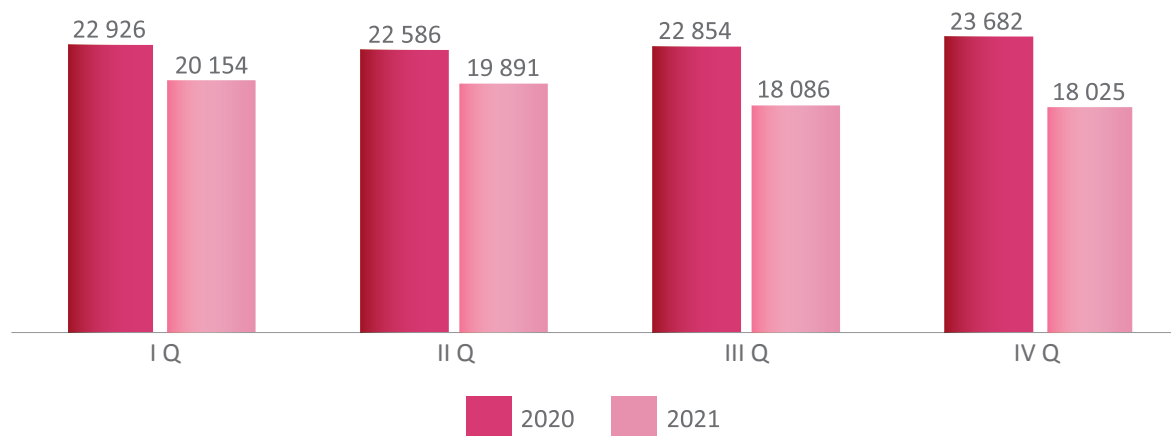
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 137. Costa Rica: Connections, leased lines, 2017-2021**  
(annual figures)



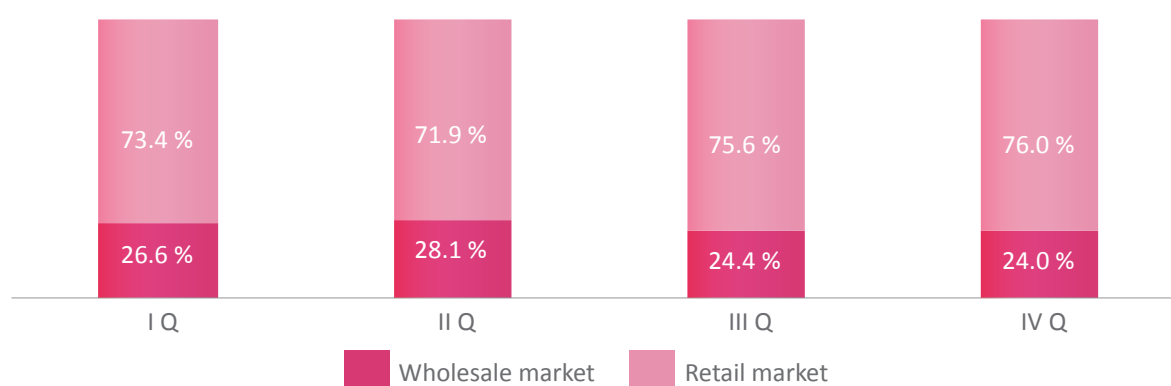
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 138. Costa Rica: Connections, leased lines, 2020-2021**  
(quarterly figures)



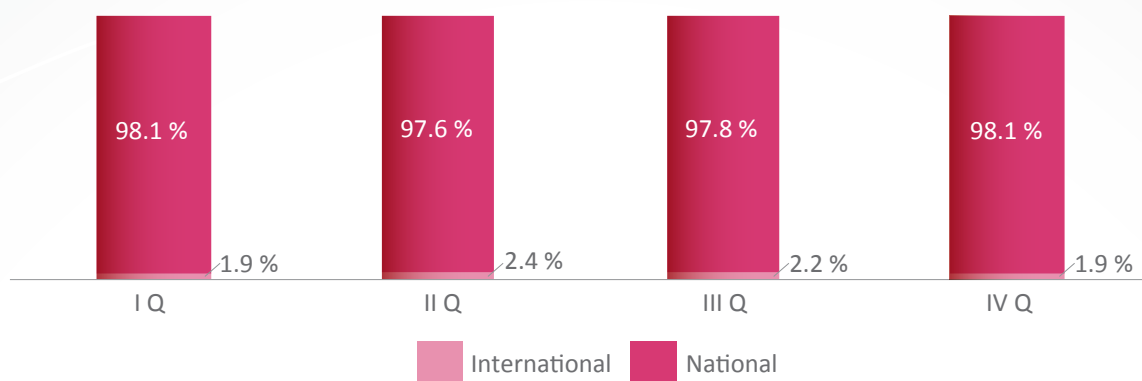
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 139. Costa Rica: Connections, leased lines, comparison by market type, 2021**  
(quarterly figures in percentage)



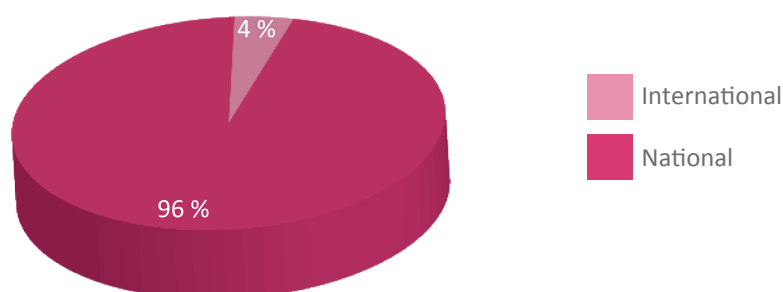
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 140. Costa Rica. Connections, leased lines, comparison per territory of service provision, 2021**  
(quarterly figures in percentage)



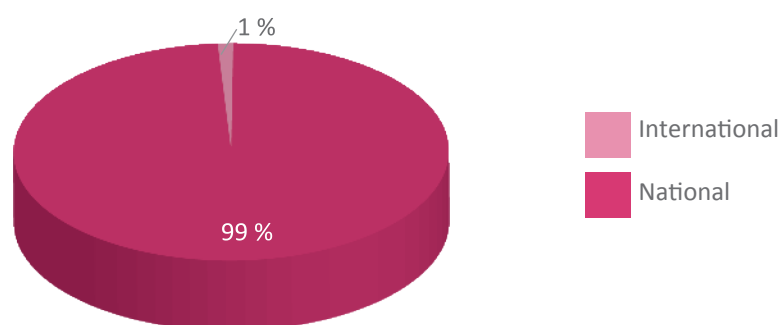
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 141. Costa Rica: Connections, leased lines, distribution per territory of service provision, wholesale market, 2021**  
(figures in percentage at year end)



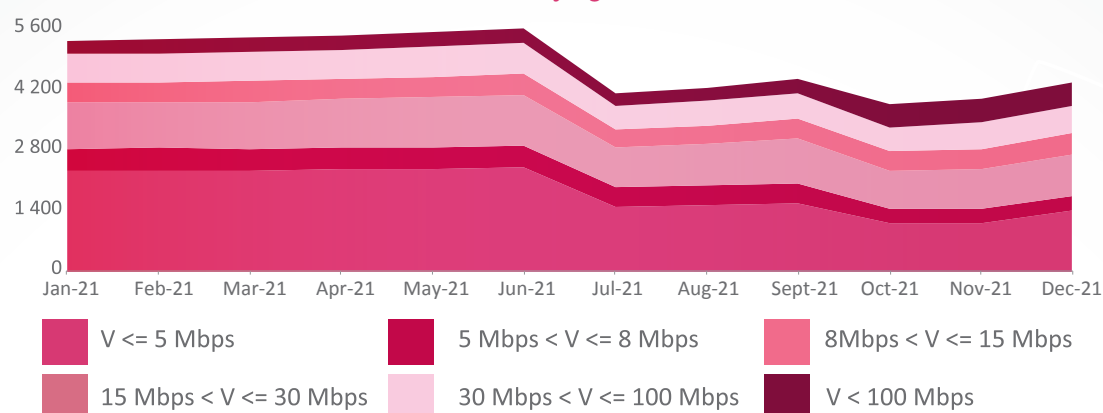
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 142. Costa Rica: Connections, leased lines, distribution per territory of provision of service, retail market, 2021**  
(figures in percentage at year end)



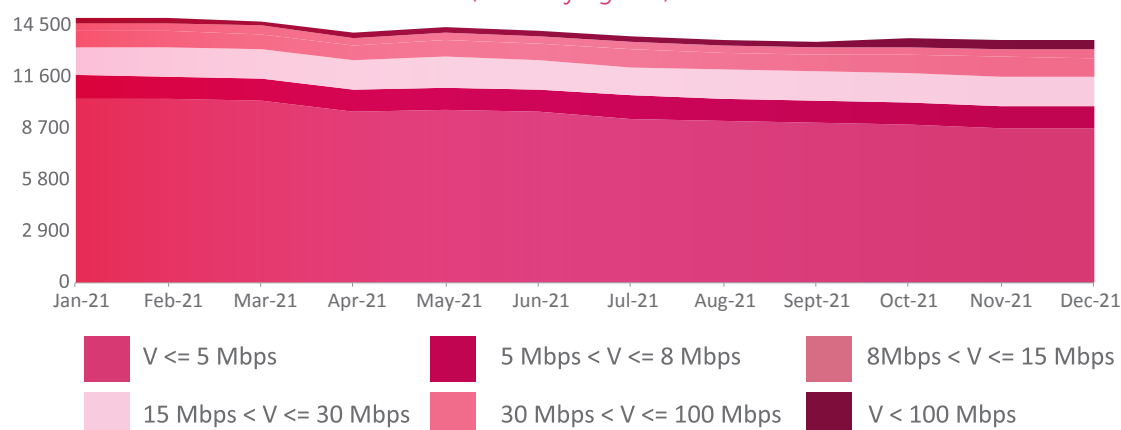
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 143. Costa Rica: Connections, leased lines, distribution per speed, wholesale market, 2021**  
(monthly figures)



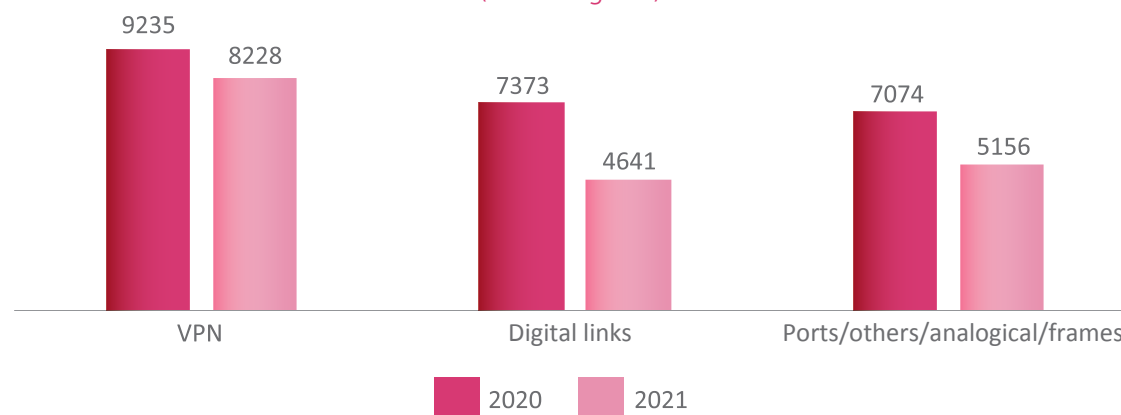
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 144. Costa Rica: Connections, leased lines, distribution per speed, retail market, 2021**  
(monthly figures)



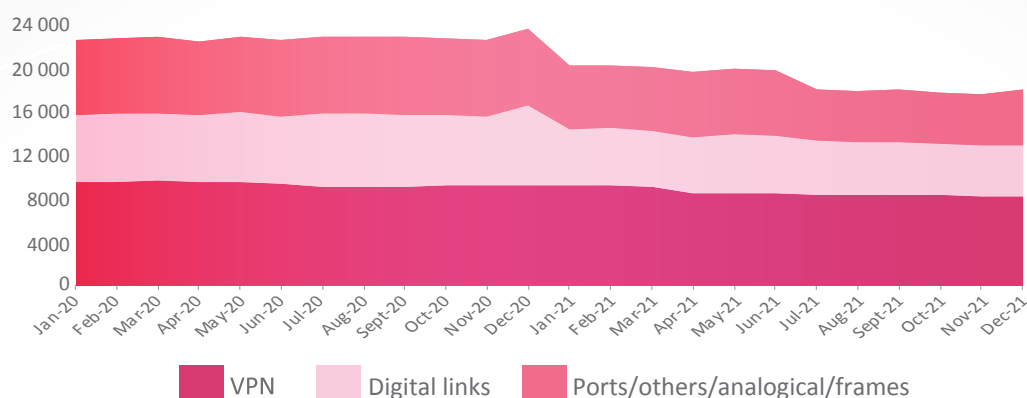
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 145. Costa Rica: Connections, leased lines, market total, distribution per technology, 2020-2021**  
(annual figures)



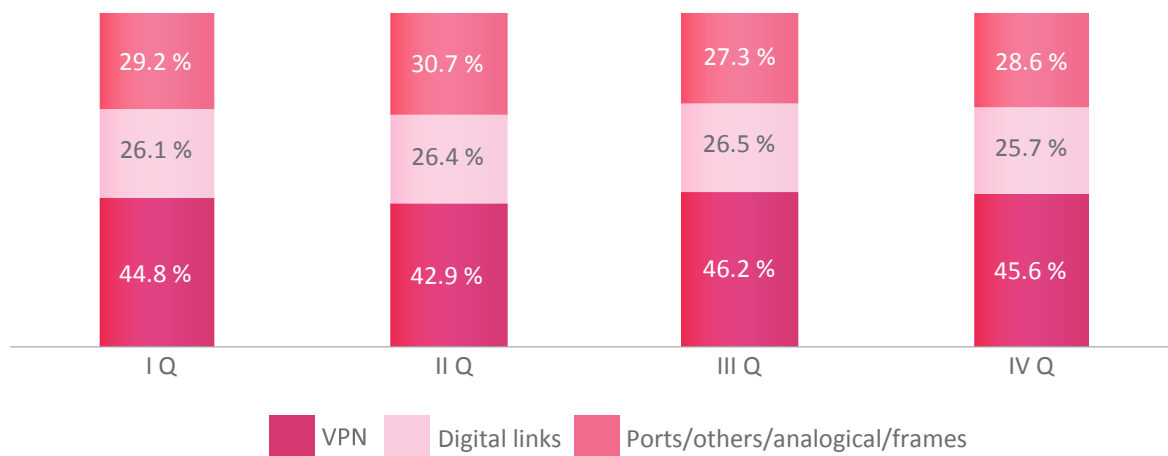
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 146. Costa Rica: Connections, leased lines, market total, distribution per technology, 2020-2021**  
(monthly figures)



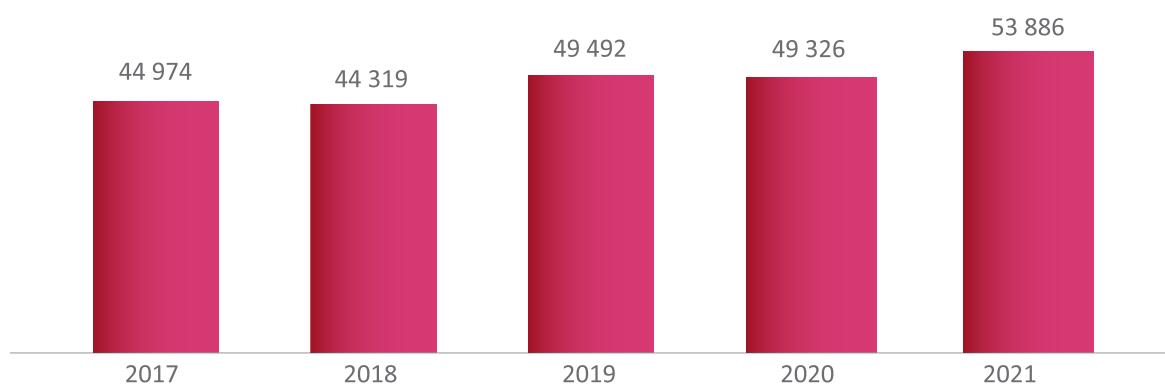
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 147. Costa Rica: Connections, leased lines, market total, distribution per technology, 2021**  
(quarterly figures)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

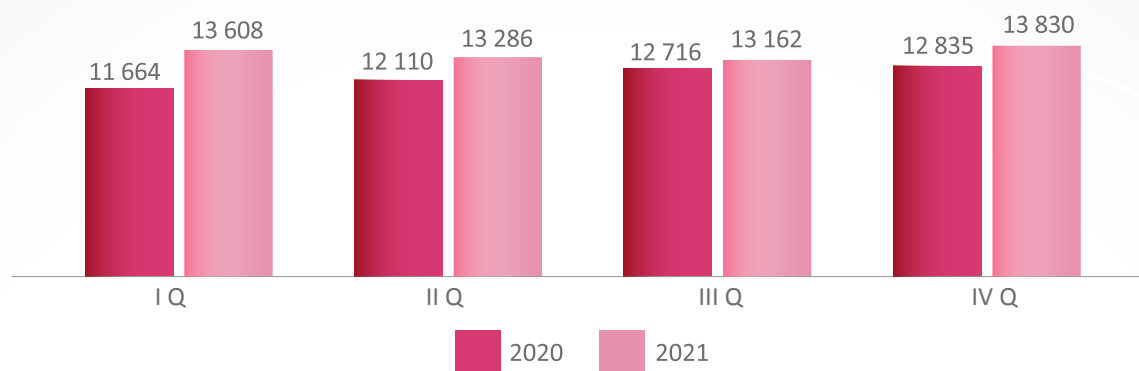
**Chart n.º 148. Costa Rica: Revenues, leased lines, 2017-2021**  
(annual figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 149. Costa Rica: Revenues, leased lines, 2020-2021**

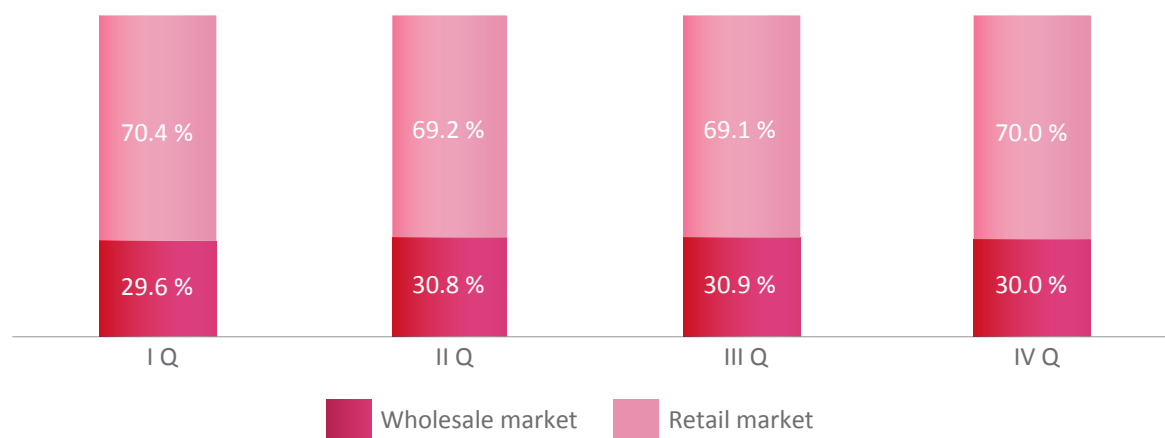
(quarterly figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 150. Costa Rica: Revenues, leased lines, comparison by market type, 2021**

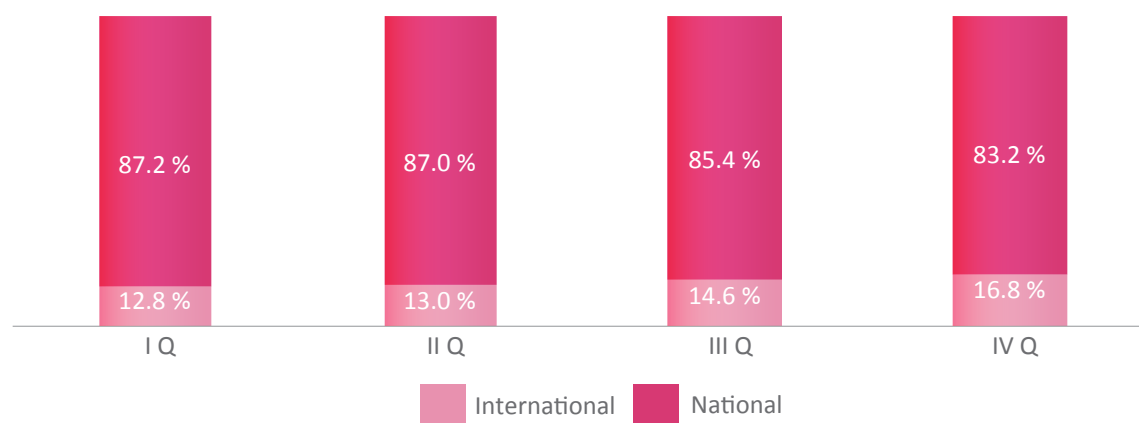
(quarterly figures in percentage)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 151. Costa Rica: Revenues, leased lines, comparison per territory of service provision, 2021**

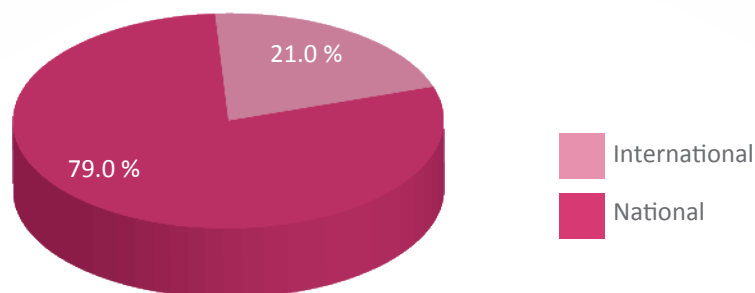
(quarterly figures in percentage)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

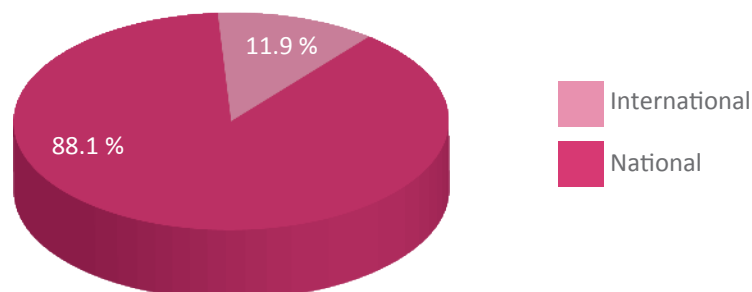


**Chart n.º 152. Costa Rica: Revenues, leased lines, distribution per territory of service provision, wholesale market, 2021**  
(figures in percentage at year end)



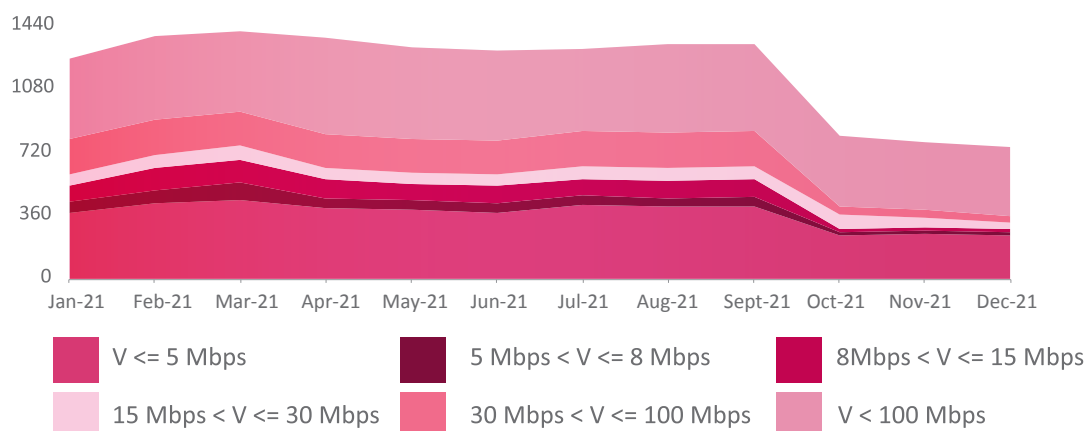
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 153. Costa Rica: Revenues, leased lines, distribution per territory of provision of service, retail market, 2021**  
(figures in percentage at year end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

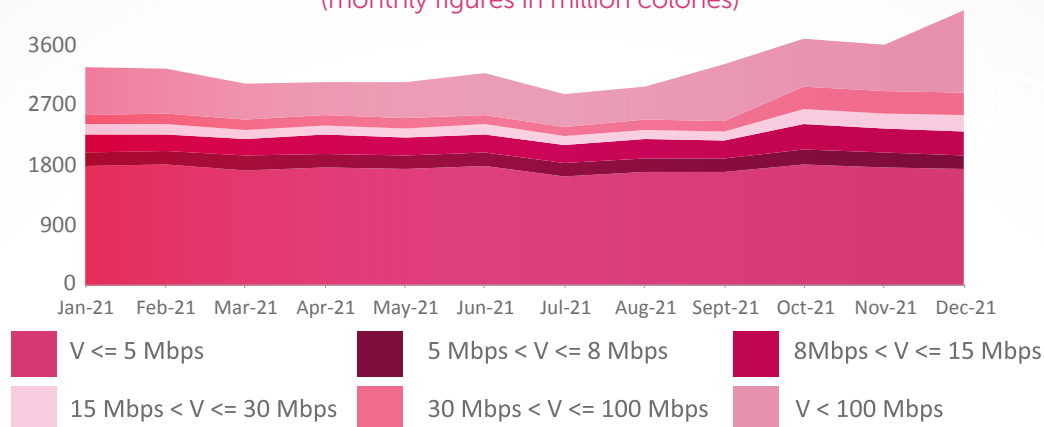
**Chart n.º 154. Costa Rica: Revenues, leased lines, distribution per speed, wholesale market, 2021**  
(monthly figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 155. Costa Rica: Revenues, leased lines, distribution per speed, retail market, 2021**

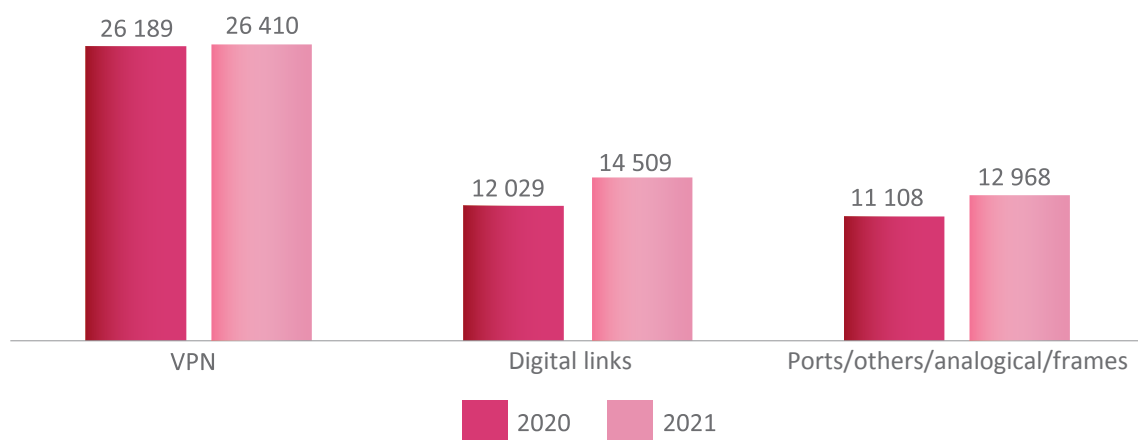
(monthly figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 156. Costa Rica: Revenues, leased lines, market total, distribution per technology, 2020-2021**

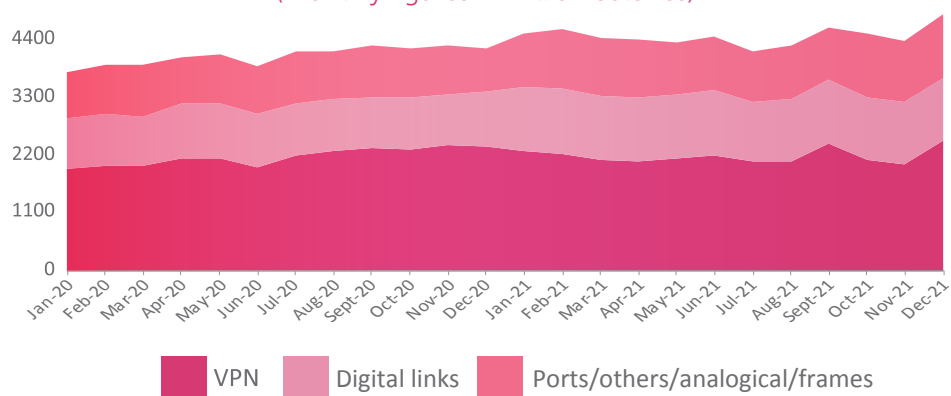
(annual figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 157. Costa Rica: Revenues, leased lines, market total, distribution per technology, 2020-2021**

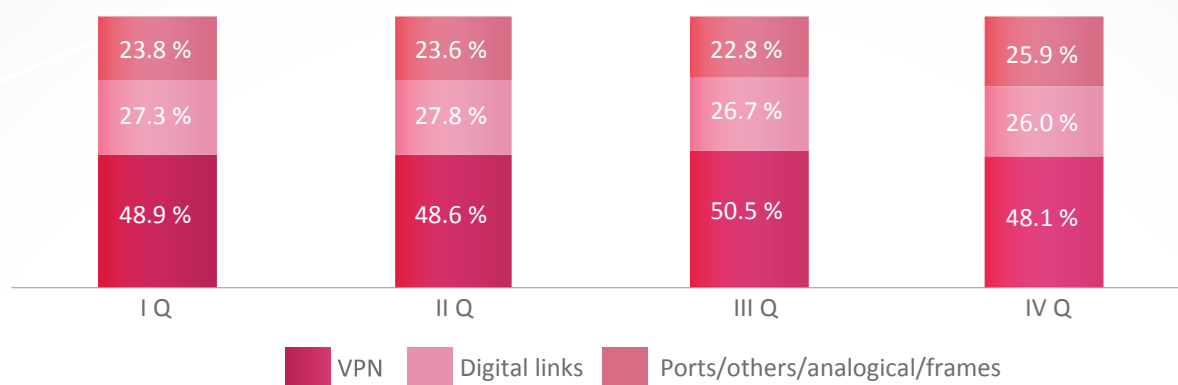
(monthly figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 158. Costa Rica: Revenues, leased lines, market total, distribution per technology, 2021**

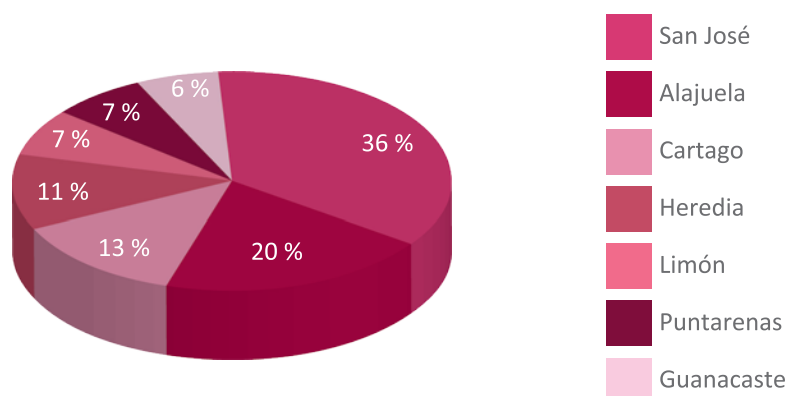
(quarterly figures in percentage)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 159. Costa Rica: Subscriptions for fixed Internet, percentage distribution per province, 2020**

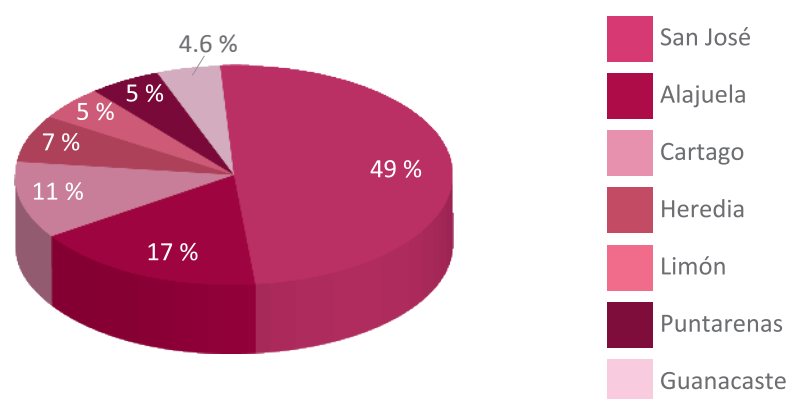
(figures at year end)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

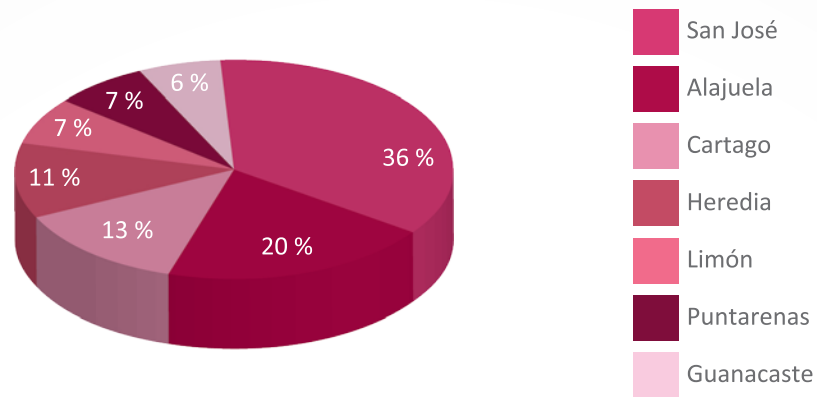
**Chart n.º 160. Costa Rica: Subscription for fixed telephony, percentage distribution by province, 2020**

(figures at year end)



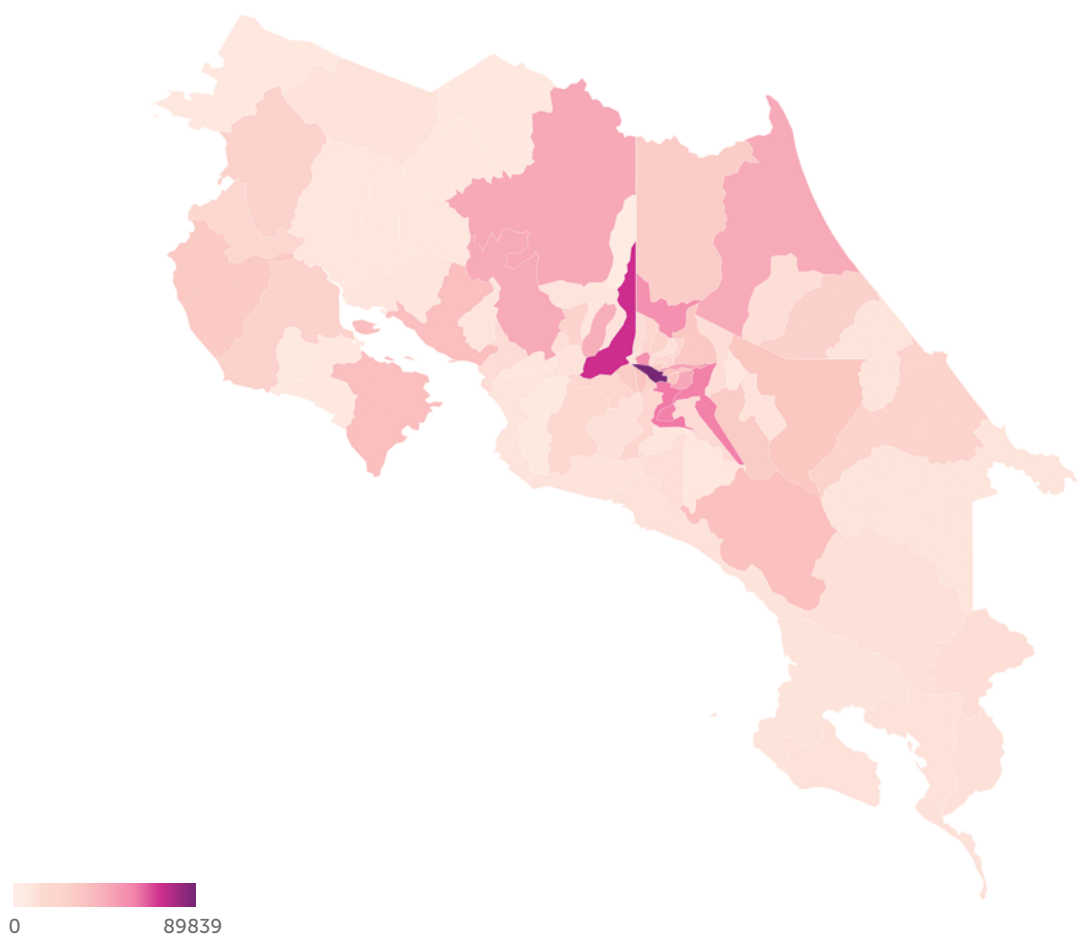
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 161. Costa Rica: Subscriptions, pay television, percentage distribution by province, 2020  
(figures at year end)



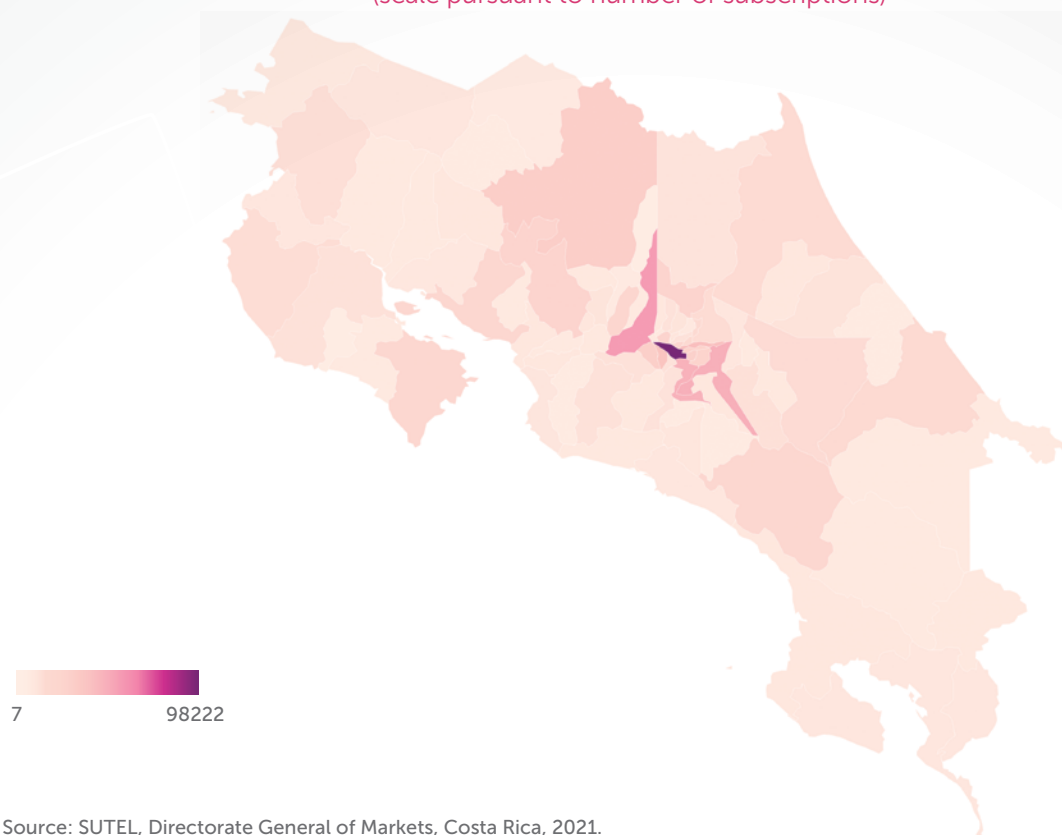
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Map n.º 1. Costa Rica: Subscriptions, fixed Internet, heat map per canton, 2020  
(scale pursuant to number of subscriptions)



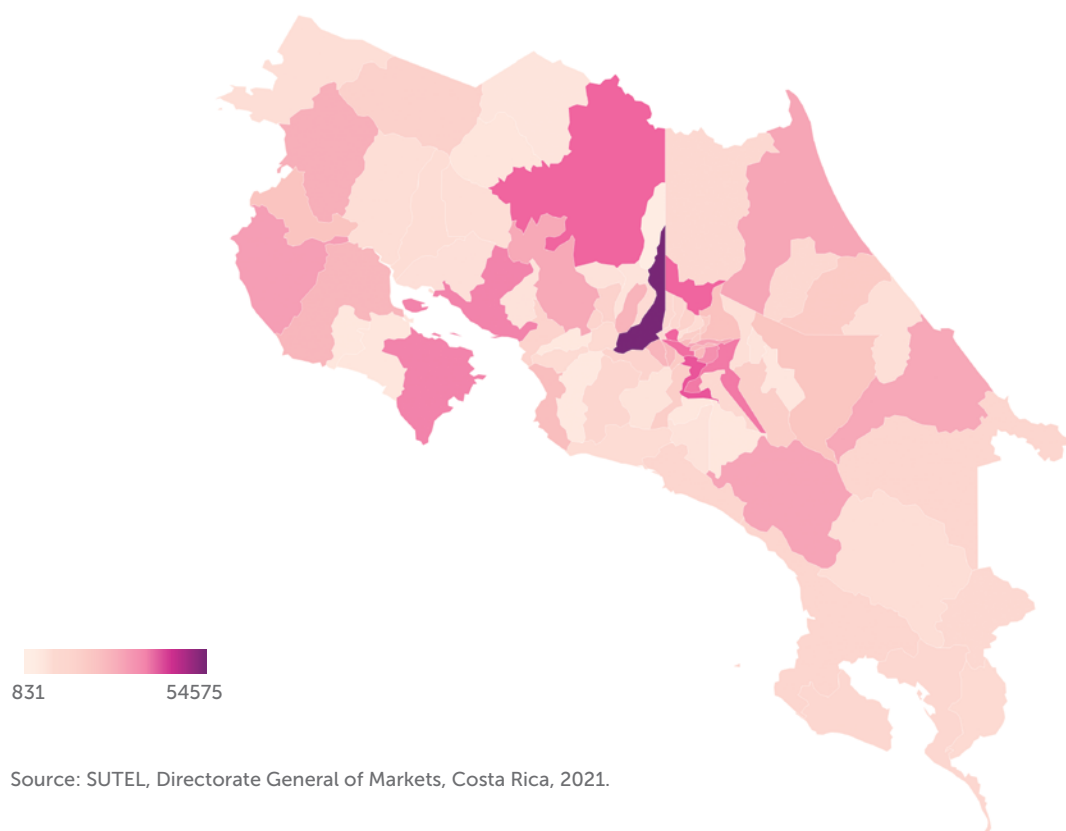
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Map n.º 2. Costa Rica: Subscriptions, fixed telephony, heat map per canton, 2020**  
(scale pursuant to number of subscriptions)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Map n.º 3. Costa Rica: Subscriptions, pay television, heat map per canton, 2020**  
(scale pursuant to number of subscriptions)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 15. Costa Rica: Subscriptions, fixed Internet, canton penetration, 2020**

(figures per 100 inhabitants)

Canton	Penetration on canton population	Canton	Penetration on canton population	Canton	Penetration on canton population	Canton	Penetration on canton population	Canton	Penetration on canton population
Mora	32.7	Turrialba	23.4	Montes de Oro	19.2	Puntarenas	14.7	Buenos Aires	9.9
San Ramón	31.9	Garabito	23.1	Siquirres	18.7	Coto Brus	14.3	Alvarado	9.6
Montes de Oca	31.0	Dota	23.0	Esparza	18.5	Pérez Zeledón	13.9	Corredores	9.2
Grecia	30.1	Vásquez de Coronado	22.9	Santo Domingo	18.4	Palmares	13.8	Golfito	9.1
Tarrazú	30.0	Santa Cruz	22.8	Parrita	18.3	Orotina	13.6	Bagaces	8.8
Unión	28.4	Curridabat	22.1	Flores	18.0	Atenas	13.3	Tilarán	8.7
Heredia	28.2	Jiménez	22.0	León Cortés Castro	17.9	Aguirre	13.2	Guatuso	7.8
Cartago	28.0	Alajuela	21.9	Tibás	17.8	Alajuelita	12.3	Upala	7.3
San Mateo	27.8	Zarco	21.6	Sarapiquí	17.2	Oreamuno	12.0	Talamanca	7.0
San José	25.9	Barva	21.4	Moravia	16.7	Valverde Vega	11.6	Matina	6.5
Escazú	25.8	San Isidro	21.2	Turrubares	16.3	Limón	11.6	Cañas	6.4
Paraíso	24.4	Nicoya	20.8	El Guarco	16.2	Abangares	11.4	La Cruz	5.1
Santa Ana	24.3	Carrillo	20.6	Aserri	15.9	Poás	11.3	Los Chiles	4.5
Goicoechea	24.3	Pococí	19.9	San Carlos	15.4	Osa	11.1		
Puriscal	24.2	San Pablo	19.8	Santa Bárbara	15.3	Guácimo	10.9		
Naranjo	23.7	San Rafael	19.8	Liberia	15.3	Nandayure	10.7		
Acosta	23.6	Desamparados	19.7	Belén	15.0	Hojancha	10.0		

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 16. Costa Rica: Subscriptions, fixed telephony, canton penetration, 2020**

(figures per 100 inhabitants)

Canton	Penetration on canton population	Canton	Penetration on canton population	Canton	Penetration on canton population	Canton	Penetration on canton population	Canton	Penetration on canton population
San José	28.3	Garabito	11.1	Liberia	8.3	San Isidro	6.0	La Cruz	4.1
Escazú	28.0	Vásquez de Coronado	11.1	San Pablo	8.3	Pococí	5.6	Flores	4.0
Santa Ana	23.9	Turrialba	11.0	Heredia	8.2	Esparza	5.6	Guácimo	3.9
Montes de Oca	20.8	Santa Cruz	10.7	Naranjo	7.9	Carrillo	5.4	Coto Brus	3.7
Cartago	18.6	Unión	10.6	Puntarenas	7.4	Turrubares	5.3	Valverde Vega	3.7
Mora	17.0	Nandayure	10.3	Pérez Zeledón	7.4	Santa Bárbara	5.2	Cañas	3.6
Curridabat	16.9	Zarco	10.1	San Carlos	7.4	Golfito	5.2	Poás	3.5
Goicoechea	16.3	Tilarán	10.0	Aguirre	7.4	Alajuelita	5.0	Talamanca	2.6
Moravia	14.5	Santo Domingo	9.7	Parrita	7.4	Bagaces	5.0	Los Chiles	2.4
Tarrazú	14.1	Barva	9.7	Alvarado	7.2	Oreamuno	4.9	Guatuso	2.3
Puriscal	13.6	Orotina	9.5	Aserri	7.0	Atenas	4.9	Buenos Aires	1.9
Alajuela	12.8	Abangares	9.3	Osa	7.0	Sarapiquí	4.9	Hojancha	1.0
San Mateo	12.6	Jiménez	9.2	Palmares	7.0	Dota	4.7	Matina	0.9
Tibás	12.5	Montes de Oro	9.1	Acosta	6.8	El Guarco	4.7		



San Ramón	12.5	Paraíso	8.9	Siquirres	6.8	León Cortés Castro	4.7		
Grecia	11.8	Limón	8.9	San Rafael	6.8	Corredores	4.6		
Desamparados	11.8	Nicoya	8.9	Belén	6.7	Upala	4.6		

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 17. Costa Rica: Subscriptions, pay television, canton penetration, 2020**  
(cifras por cada 100 habitantes)

Canton	Penetration on canton population	Canton	Penetration on canton population	Canton	Penetration on canton population	Canton	Penetration on canton population	Canton	Penetration on canton population
Garabito	51.8	Osa	22.7	Curridabat Santo Domingo	18.7	Upala	15.0	El Guarco	13.4
Santa Cruz	32.3	Unión	22.6		18.4	Goicoechea	14.9	Pococí	13.3
Nicoya	27.7	Belén	22.5	Tarrazú	18.3	Desamparados	14.7	Jiménez	13.3
Santa Ana	26.3	San Isidro	22.1	Palmares	18.2	Cañas	14.7	San Pablo	12.6
Carrillo	26.0	Aguirre	21.8	Cartago	18.1	Acosta	14.6	Guácimo	11.3
Dota	25.6	Escazú	21.4	Puriscal	17.6	San Rafael	14.5	Corredores	11.0
Montes de Oca	25.2	Tilarán	21.2	Vásquez de Coronado	17.5	Pérez Zeledón	14.4	Alajuelita	10.6
Parrita	25.1	San Ramón	20.4	Alajuela	17.4	Paraíso	14.3	Matina	9.2
Mora	24.7	Abangares	20.4	Grecia	17.4	Santa Bárbara	14.3	San José Buenos Aires	9.2
Hojancha	24.4	Esparza	20.2	Tibás	17.0	Moravia	14.2		8.5
Heredia	23.4	Alvarado	20.1	San Carlos	16.8	Coto Brus	14.1	Oreamuno	8.5
Liberia	23.4	Puntarenas	19.9	Talamanca	16.4	León Cortés Castro	14.1	Los Chiles	8.1
Montes de Oro	23.2	Atenas	19.6	La Cruz	16.4	Golfito	14.1	Sarapiquí	7.6
Turrubares	23.1	Nandayure	19.5	Naranjo	16.1	Aserri	14.0		
Zarcero	23.1	Limón	19.5	Poás	15.7	Barva	14.0		
San Mateo	23.0	Flores	18.9	Turrialba	15.5	Guatuso	13.7		
Orotina	22.8	Bagaces	18.9	Siquirres	15.2	Valverde Vega	13.5		

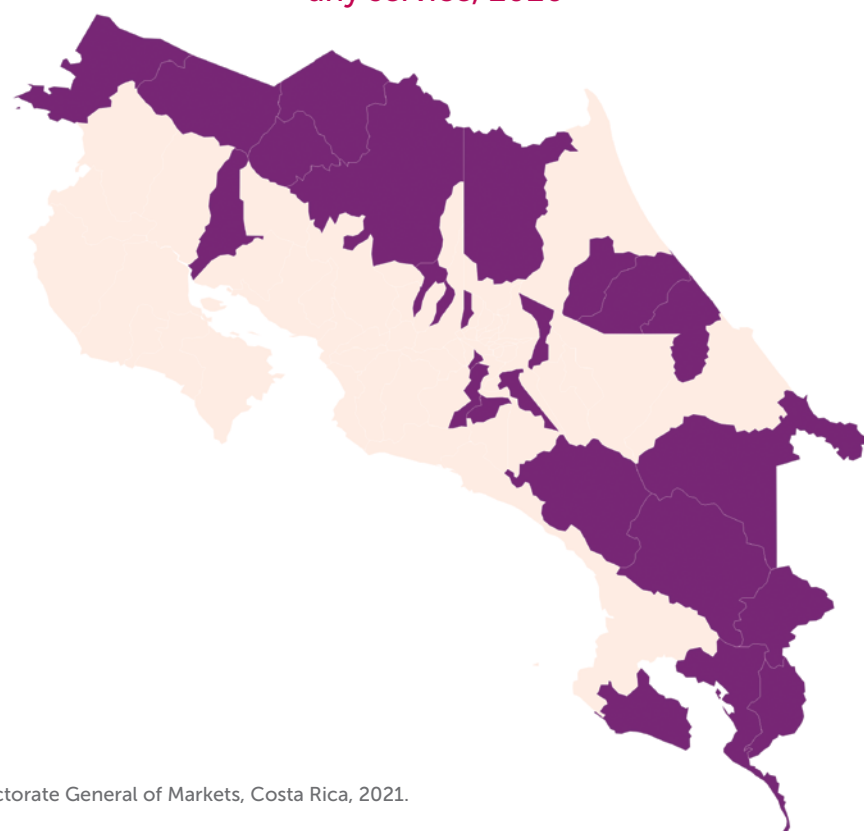
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Map n.º 4 . Costa Rica: Subscriptions, fixed services (Internet, telephony and television) cantons where canton penetration exceeds the national value for each service, 2020



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Map n.º 5 . Costa Rica: Subscriptions, fixed services (Internet, telephony and television) cantons where canton penetration does not exceed the national value for any service, 2020



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.



PAY

**TELEVISION**





The pay television service, as of December 2021, continues with its transformation in its commercial offer, registering for the second consecutive year a reduction in the number of operators, for a total of 21<sup>36</sup> suppliers compared to 26 in 2019.

This offer is presented mainly in three modalities: pay cable television (18 providers), subscription television by wireless means including satellite (3 providers) and finally, 4 companies that offer the service of pay Internet television (IPTV).

As for the wireless television service by multipoint distribution (MMDS), it is important to indicate that this modality ceased to be offered as of September 2019, due to landslides in the area of the Irazú volcano, which caused the loss of infrastructure essential for the provision of the service. Therefore, this service is not included in the analysis of statistics for this year.

## • Subscriptions

In relation to the total number of subscriptions to this service, in 2021 there are 17,643 fewer subscriptions than the previous year, for a total of 848,950, which implies a decrease of 1 % for the third consecutive year as presented in [Chart n.° 162](#).

Regarding the year-on-year behavior, of the total subscriptions disaggregated on a quarterly basis and when comparing each quarter of 2020 with its counterpart of 2021, a dynamic similar to that exposed for the analysis of the last three years. That is, there are relatively constant growth rates with a downward trend of less than 1 % during these periods ([see Chart n.° 163](#)).

Regarding the distribution of subscriptions according to access technology for 2021, the latter maintains the historically presented dynamics, in which the predominance in the market of the provision of the service by means of coaxial cable continues, with

60 %, followed by satellite television with 23 % and, finally, television over IP with the remaining 17 % ([see Chart n.° 164](#)).

The disaggregation by technology during the period 2017-2021 reaffirms the transformation that the service has presented in the last six years, mainly because the coaxial cable service decreases its market share and continues to be presented. an increase for the marketing of pay television over the IP modality ([see Chart n.° 165](#)).

In this regard, as noted in previous reports,

**the television service provided over IP has shown a constant growth, both in the number of subscribers and in the number of operators that offer this technology.**

[Table n.° 18](#) presents, for 2021, the highest increase since the beginning of the commercialization of this technology in absolute terms with 52,983 subscriptions, representing a 56 % increase compared to 2020.

In relation to the indicator of penetration of the pay television service with respect to the population, this decreases to 16.4 % by 2021. In turn, the relationship between the total number of subscriptions to the pay television service and the number of homes for 2021 registers a total of 51 subscriptions to the service per hundred homes ([see Chart n.° 166](#) and [n.° 167](#)).

In relation to the level of market concentration associated with the pay television service, the estimate of the Herfindahl-Hirschman Index (IHH)<sup>37</sup> for 2021 presents a decrease of 4 points for a value of 1721, which denotes that the absence of relevant structural changes is maintained. As the estimate of this is below 3000 points, but above 1500, the pay television market is a moderately concentrated market<sup>38</sup> ([see Chart n.° 168](#)).

Likewise, the indicators linked to the pay television service, estimated by the National Institute of Statistics and Censuses, through the National

<sup>36</sup> This total amounts to 21 because a provider of telecommunications services can offer it under several modalities.

<sup>37</sup> See definition in the Methodology section.

<sup>38</sup> Resolution RCS-082-2015 provides that markets with an IHH greater than 3000 points are concentrated markets.



Household Survey (ENAH0 for its Spanish acronym) of the year 2021, allow to derive the calculation of the ownership of the pay television service in homes, in which it is estimated for the second consecutive year that 71.4 % of homes (1 178 198) have access to the pay television service in any of its technologies. This means, compared to 2017, 146 373 more homes with the service (3 % growth). In contrast, the ENAH0 notes that the percentage of homes using the free-to-air television signal decreases to 24 % ([see Chart n.° 169](#)).

## • Revenues

In terms of revenue

**generated by the provision of the pay television service, these reached the sum of 167 722 million,**

of colones, which implies an increasing trend compared to 2020 in absolute terms (690 million colones). However, in relative terms this change from one year to the next is not significant. If the revenues generated by the service in 2017 are taken as a reference and compared with those of 2021, there is an annual increase rate of 4 % and an absolute positive difference of 16.214 million additional colones in the period ([see Chart n.° 170](#)).

On the behavior of revenues disaggregated by quarter, as explained in previous reports, the fourth quarter is reaffirmed as the period with the highest quarterly income. That is, 41 614 million colones in 2020 and 41 309 million colones in 2021 compared to other quarters complementarily, the average quarterly variation rate for the period 2020-2021 has to be constant, the value remains constant at a 0 % ([see Chart n.° 171](#)).

Taking into account the percentage composition of revenue according to technology and consistent with the distribution of subscriptions, the revenue indicator confirms the predominance of cable service coaxial. However, as in the case of subscriptions, this modality presents a decrease.

By 2021, 62 % of total revenue was generated by coaxial service, followed by satellite service at 24 % and the rest of the technologies accounting for 14 % ([see Chart n.° 172](#)).

That having being said, by presenting the percentage composition of income for the period 2017-2021, it can be confirmed that the income associated with the television service has registered a percentage redistribution. This can be seen in [Chart n.° 173](#), which shows a percentage decrease in revenues associated with coaxial cable service from 70 % in 2017 to 62 % in the 2021. In contrast, the percentages presented by satellite technology and other technologies (IPTV and MMDS-multichannel multipoint) show an increasing trend from 30 % to 38 %.

Associated with the above, [Table n.° 19](#) indicates in absolute terms the detail of the recomposition of the income associated with the service. Specifically for the period 2019-2020, it can be seen that the revenues of the coaxial cable service decrease 6759 million colones and also the revenues in the service Satellite decrease 964 million colones. The opposite happens with the IPTV service, which for that period increases its income by 8474 million colones.

Finally, relative to the average revenue per subscriber for the overall service, it increased to 16 169 colones (396 more colones per subscriber per year) in 2021, representing a 3 % increase over 2020. This indicator continues to present an uneven behavior according to access technology, in particular for 2021 compared to 2020, the income of cable service increases approximately 255 colones per year, as does the satellite modality that increases (1794 colones), the IPTV service of 73 colones per year ([see Chart n.° 174](#) and [Table n.° 20](#)).

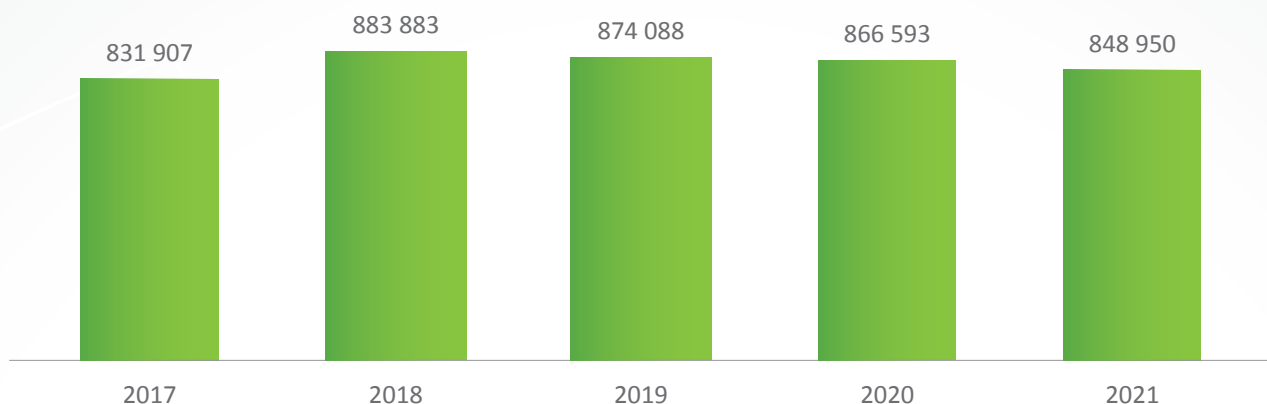






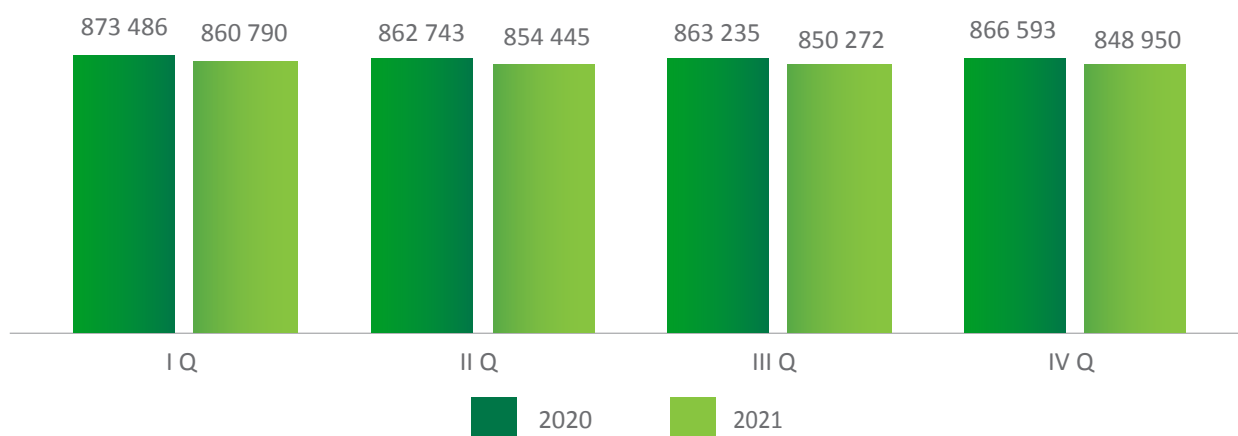


Chart n.º 162 Costa Rica: Total subscriptions for pay television service, 2017 - 2021  
(annual figures)



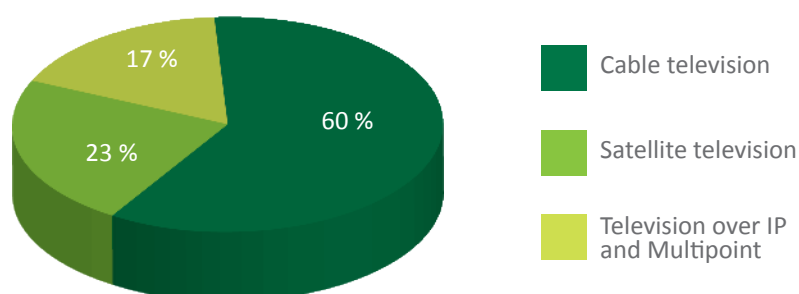
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 163. Costa Rica: Subscription for pay television service per quarter, 2020 - 2021  
(annual figures)



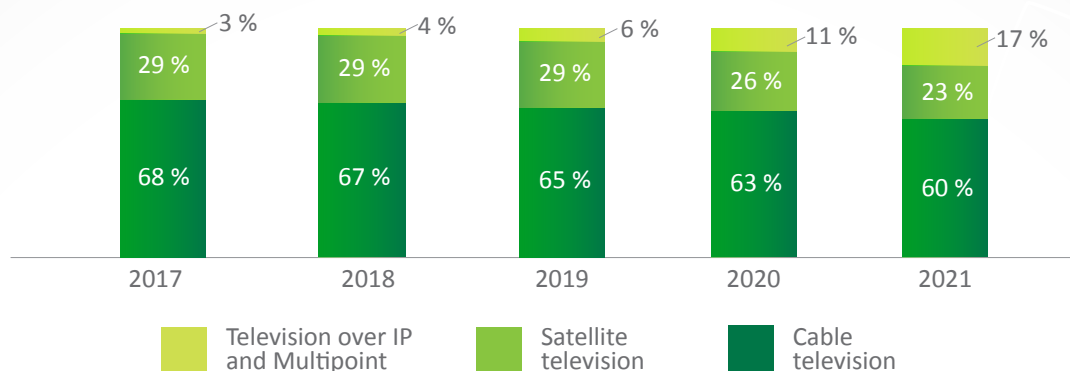
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 164. Costa Rica: Percentage distributions of subscriptions for pay television service per access technology, 2021



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 165. Costa Rica: Evolution of the percentage participation of the pay television service per type of technology, 2017 - 2021  
(figures in percentages)



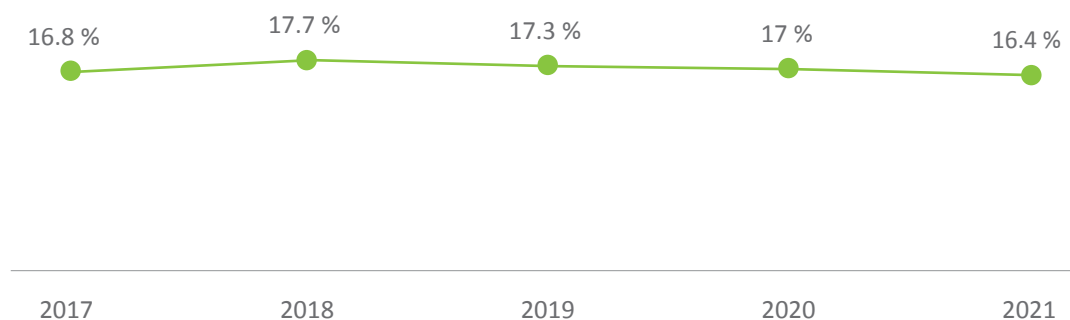
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Table n.º 18. Costa Rica: Total subscriptions for pay television service per access technology, 2017-2021  
(annual figures)

Technology	2017	2018	2019	2020	2021
Cable television	563 607	594 508	570 176	548 052	506 169
Satellite television	244 881	255 193	248 269	224 465	195 722
Television over IP	22 054	33 075	54 476	94 076	147 059
MMDS	1365	1107	1167	0	0
<b>Total</b>	<b>831 907</b>	<b>883 883</b>	<b>874 088</b>	<b>866 593</b>	<b>848 950</b>

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

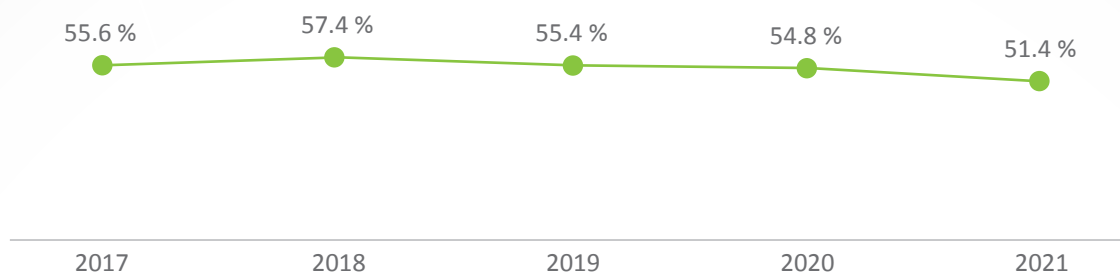
Chart n.º 166. Costa Rica: Subscription for pay television service per 100 inhabitants, 2017 - 2021  
(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

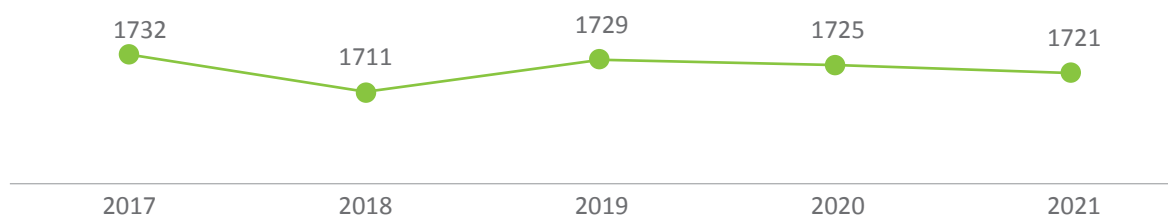
Chart n.º 167. Costa Rica: subscriptions for pay television service per 100 homes, 2017 - 2021

(figures in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

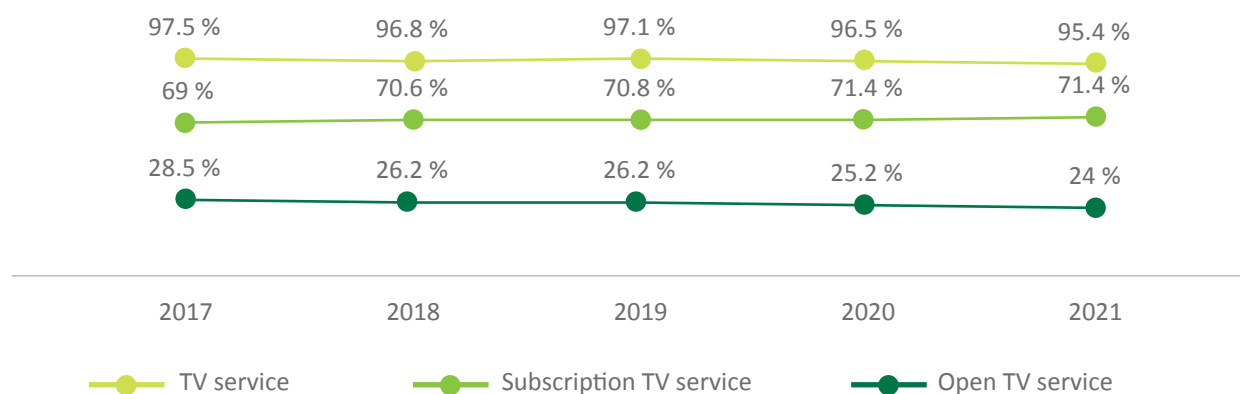
Chart n.º 168. Costa Rica: IHH Evolution per year , 2017 - 2021



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 169. Costa Rica: Percentage of homes with any television service, 2017 - 2021

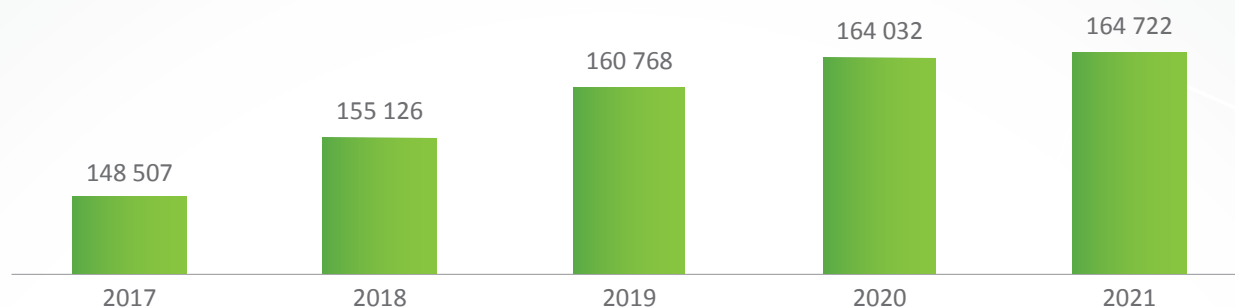
(cifras en porcentajes)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n.º 170. Costa Rica: Total revenue for pay television, 2017 - 2021

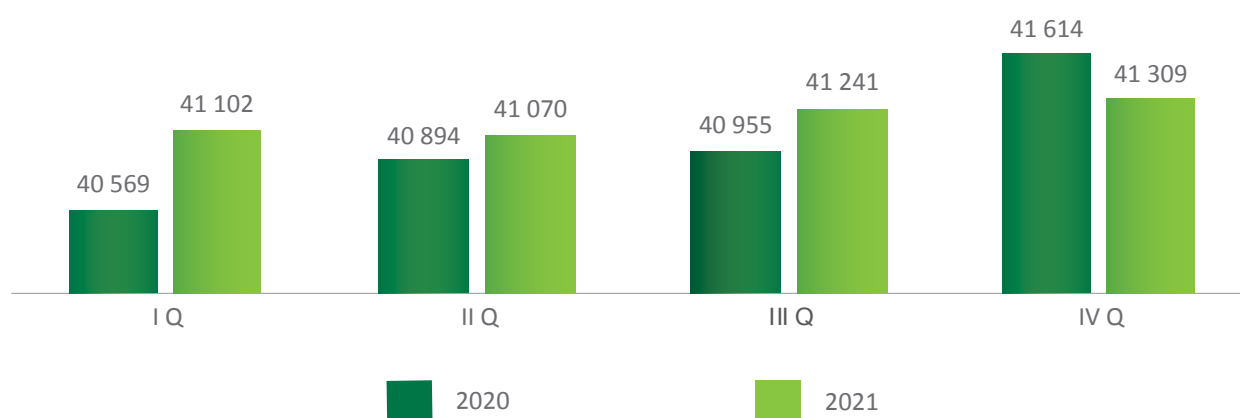
(annual figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

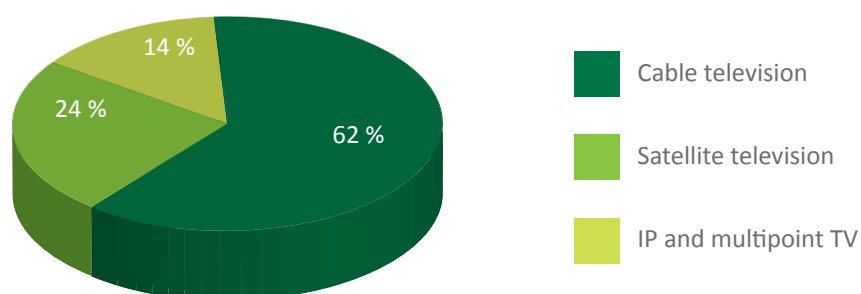
Chart n.º 171. Costa Rica: Total revenue for pay television service per quarter, 2020 - 2021

(Figures in million colones)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

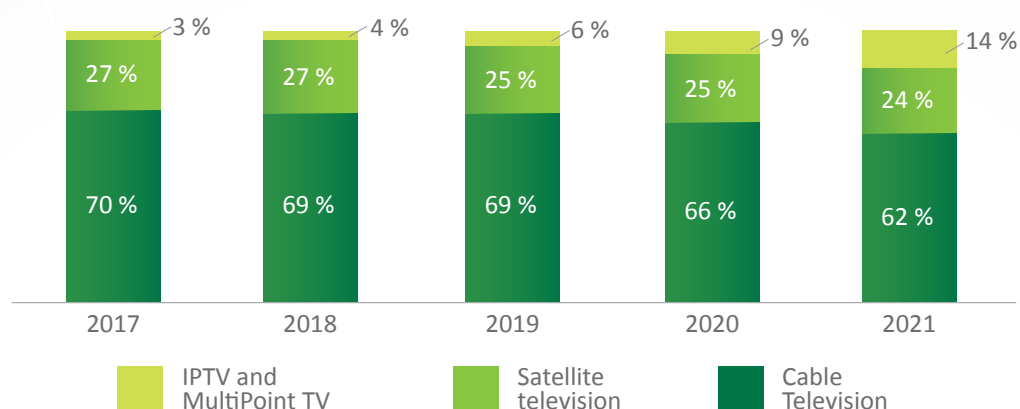
Chart no. 172. Costa Rica: Distribution of pay television per access technology, 2021



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.



**Chart n.º 173. Costa Rica: Evolution of the percentage distribution of revenue for pay television service per technology, 2017 - 2021**  
(annual figures in percentages)



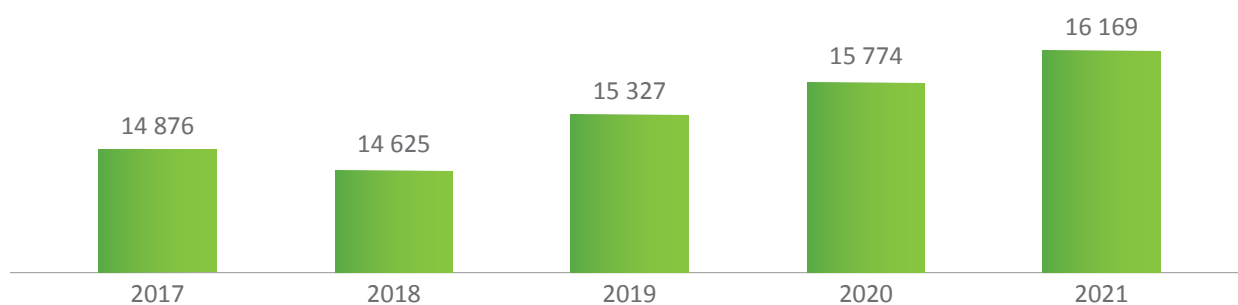
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 19. Costa Rica: Total revenue for the concept of pay television per access technology per quarter, 2017-2020**  
(figures in million colones)

Technology	2017	2018	2019	2020	2021
Cable television	103 471	107 843	110 463	108 724	101 966
Satellite television	40 870	41 191	41 004	40 428	39 464
IPTV	4 117	6 045	9 256	14 818	23 292
MMDS	50	47	45	61	0
<b>Total</b>	<b>148 507</b>	<b>155 126</b>	<b>160 768</b>	<b>164 032</b>	<b>164 722</b>

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 174. Costa Rica: Average monthly income per subscriber of pay television, 2017 - 2021**  
(monthly figures based on quarterly data in colones per user)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Table n.º 20. Costa Rica: ARPU for pay television service per access technology,  
2017 - 2021

(annual figures in colones)

Technology	2017	2018	2019	2020	2021
Cable television	15 299	15 117	16 145	16 532	16 787
Satellite television	13 908	13 451	13 763	15 009	16 803
IPTV	15 555	15 231	14 159	13 126	13 199
MMDS	3033	3569	3247	0	0
<b>Total</b>	<b>14 876</b>	<b>14 625</b>	<b>15 327</b>	<b>15 774</b>	<b>16 169</b>

Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.



# COMMERCIAL OFFERING **AND PRICES**



The Superintendency of Telecommunications monitors from a qualitative and quantitative point of view the commercial offers and prices offered in the Costa Rican market, in order to guarantee users continuity and variety of the different fixed and mobile telecommunications options, so that they can choose, among the market operators, the alternative that best suits their needs in terms of quality, price and coverage, between other aspects.

Given the above, this chapter is segmented into two parts, the first corresponds to a qualitative approach, called “Commercial Offers”, whose purpose is to understand the dynamism of consumer tastes and preferences of the telecommunications market through the adjustments made by operators to their commercial offers (characteristics and composition) to adapt to the needs of users. To do the above, the mobile telecommunications packages of all the operators of this market as of December 2021 are considered and compared with those offered in 2020, as well as with the packages of fixed telecommunications in their various combinations (fixed telephony, fixed Internet and pay TV), corresponding to the four main operators in the country as of December 2021 (depending on subscription market share) and are compared with what was offered in December 2020.

The second part, called “Prices”, comprises an analysis from the quantitative point of view, whose objective is to verify the trend of the prices offered in the market in order to monitor its evolution and provide inputs for regulatory and consumer decision-making. For this, the average prices of fixed telecommunications packages offered to consumers are analyzed; in addition, a price index is calculated for mobile telecommunications, fixed Internet and as a novelty for this year, a price index for international calls. The averages used are weighted averages with the number of packages offered for each price.

## Commercial offering •

This section compares the plans and packages of mobile and fixed telecommunications services, offered in December 2021 with respect to those existing in December 2020, in such a way that the differences in the compositions and characteristics of these<sup>39</sup>.

### Mobile Telecommunications Commercial Offerings

Mobile telecommunications are understood as the mobile voice, messaging and mobile data services offered to the user in the postpaid and prepaid modalities, so the analysis is carried out separately.

#### • Prepaid

For the prepaid modality ([see Annexes n.º 64 and n.º 65](#)), in 2021 the number of commercial offers increased from 44 (year 2020) to 47 offers (7 %). Of these offers, 8 % correspond to offers that only include voice service, 8 % only messaging, 12 % voice and Internet minutes, 20 % minutes, Internet and messaging and 52 % only Internet. At this point it should be noted that the new offers are the combination packages between voice minutes and the Internet, which did not exist in 2020.

At the operator level, Claro (it continues to be the operator with the largest number of prepaid offers in the market) and ICE with its Kölbi trademark kept their commercial offers the same as 2020, both in quantity and composition (19 and 11 respectively), also supporting prices.

Telefónica, with its Movistar brand, increased the number of offers by 22 % in relation to 2020 (3 new offers, reaching a total of 17 packages in the market), maintaining 12 of the existing ones in 2020 and incorporating 5 packages focused on the combination of minutes and Internet. In addition, 42 % of packages kept in 2021 the capacity to download data was increased at the maximum contracted speed, preserving the price.

<sup>39</sup> This information is taken from the “Mi comparador” web platform.



In conclusion, the prepaid commercial offer increased by 7 %, improving the prices received by users, since, although prices remained in the majority, there were commercial offers that increased their data capacity to maximum speed at the same price, so the implicit price went down in general terms.

#### • Postpaid

Offers for postpaid plans ([see Annexes n.º 66 and n.º 67](#)) remained at a total of 22 for both periods.

Claro maintained the 6 plans of 2020, called “Connection”, however, for the year 2021 increased the data capacity at the highest speed contracted in three of the five possible plans, since the “Connection 6” plan has capacity unlimited, also maintained value-added services (royalties), such as unlimited minutes to numbers of the same operator through “America without borders”, which allows the user to be in some countries of the American continent, consuming at no additional cost the contracted package. It is important to note in [Annexes n.º 66 and n.º 67](#) that these six plans fit different user profiles, as prices range from ¢10 400 to ¢44.000, vary depending on the combinations of minutes, messages and data of each plan.

ICE (Kölbi) maintained its commercial offer in 10 packages, with the same characteristics, however it continues to be the operator that has the greatest variety of options to the user, because in its offer there are packages focused on users that mainly use short messaging to communicate (SMS), as these are composed of a small number of voice and data minutes and a large number of messages for the user, followed by the “Conversion” plans whose focus is minutes, few messages and data, up to the “4GK” plans, which offer six combinations between minutes and messages, focusing on a greater data capacity. Finally, the benefits of using certain social networks at no cost are maintained.

Telefónica (Movistar), like the other operators, maintained its commercial offer in six packages, however, it increased the capacity of download data

in three of them, translating into a pure benefit for the user, because for the same price it has at its disposal more capacity of use of data at the highest contracted speed.

In conclusion, for 2021, the number of postpaid plans offered was maintained, maintaining the prices and benefits in terms of unlimited social networks or with limited free capacity, calls at local price abroad and unlimited numbers in the same operator, among others. In addition, in 30 % of commercial offers, the amount of data download was increased at maximum speed and at the same price, so that in general terms the implicit price received by users decreased.

### Fixed telecommunications commercial offers

Telecommunications services, which at some point in time had individually designed infrastructure, are now offered through a single converged network to homes; these services are: Internet, fixed telephony and subscription TV. This evolution becomes a great facility for operators in the telecommunications market because it allows them to offer the user packaged services. This service market has seen the number of competitors increase over time. Likewise, it registers improvements in the prices and services offered as a result of the packaged sale, but without ceasing to exist the possibility for users to obtain the services individually, according to their needs.

Packaged commercial offerings correspond to the different combinations of fixed Internet, subscription TV and fixed telephony services, each package offering a range of value added (high, medium, and low speeds), unlimited social networks, favorite numbers with unlimited consumption, HD channels, among others), which seek to capture the user before the competition of operators in the market through strategies of adaptation to the user and differentiation of services.



The following analysis identifies the evolution of the characteristics of fixed telecommunications commercial offers through the amount and characterization of these based on information from SUTEL ([see Annexes n.º 68](#) and [n.º 69](#)). For this, the packages offered by the four main fixed telecommunications operators were selected in terms of their participation in the number of subscriptions for December 2021 against those offered by them. operators in December 2020. These operators are: ICE (Kölbi), Cabletica, Telecable and TIGO. The description is made in two sections, a general one on the commercial offers offered in this market and another where a descriptive analysis of each of the existing types of packaging and their evolution is carried out.

In general, when analyzing the fixed telecommunications market in Costa Rica, it is possible to notice the relevance acquired from one of these services in the homes of our country and, this importance can be analyzed. both from the point of view of supply and demand. This service is the Internet. From the perspective of consumption (demand), according to INEC statistics, (2021), as of November 2021, 81 % of homes in the country have Internet access. From the perspective of the offer of commercial services, the packaged services offered in the country are double and triple play combinations between three types of services: TV by subscription, Internet and fixed telephony, and of all these commercial packages, the service that is most present is that of fixed Internet. In fact, only one package offered does not have this service. In both December 2021 and December 2020, 99 % of the packages offered contain fixed Internet service.

Regarding the type of technology of these packages, in Costa Rica, the use of cable in fixed broadband services represents 12.3 % of total subscriptions, and in the last year the increase in total subscriptions of fixed broadband services in fiber has been the largest in the region among OECD countries, according to OECD. Stat (2021). Along the same

lines, it is important to note that the growth rate of fiber subscriptions in fixed broadband services in the second quarter of 2021 compared to the same quarter of the previous year is 74 % for Costa Rica, 71 % for Chile, 43 % for Colombia and, finally, 26 % for Mexico, according to OECD. Stat (2021).

This greater use of fiber optic technology in commercial offerings responds to users' needs for higher download speeds, hand in hand with needs for education or work. In our country, all the packages of the operators analyzed are characterized by having fiber optic technology in their commercial offers; in fact, this is the only technology that is offered individually, since the other commercial offers offered are hybrids between cable and fiber or between copper and fiber. In December 2020, the operators under analysis offered 76 commercial packages that include fiber-only technology, and in December 2021 19 were offered. There was a decrease in the number of commercial offers with this feature by 75 %; however, this decrease responds more to a specialized supply in the demand received than to a lower use of the technology by users.

From the analysis of the commercial offers offered in the fixed telecommunications market, it is possible to conclude that in the year of analysis a decrease is experienced, since by December 2021 the user had at his disposal 68 offers, while one user the previous year had 137 commercial offers (-50 %). The operator that presented the greatest decrease between the periods was Telecable, which goes from providing 80 commercial offers in 2020 to 7 in 2021.

In that sense, the fact that one of the services was integrated into all packages is highlighted: HD and that, in addition, said operator continues to offer speeds and channels similar to the other operators, but with fewer disaggregation or combinations among the services, that is, in 2021 this operator has a more specialized commercial offer.

On the specific analysis, the types of packages that exist in Costa Rica for fixed telecommunications services are grouped into:

### **1. Double play packages:**

- Fixed Internet + subscription TV
- Fixed telephony+ Internet
- Fixed telephony + subscription TV

### **2. Triple play package:**

- Fixed Internet + Subscription TV + Fixed telephony

Next, a detailed analysis of these types of commercial offerings and a characterization of the evolution of these bundles is presented.

The biggest change presented in the commercial offers is presented in the first type of telecommunications services (double play), which combines fixed Internet + subscription TV, which decrease both in quantity and percentage of representation of the total of fixed commercial offers in December 2021 compared to the previous year. In December 2021 there are 37 offers, while in 2020 there were 106 offers, that is, the decrease was 83 %.

Regarding the percentage that represents each year the total of these offers with respect to the total of package services, in December 2021 the representation is 54 % of the total and in the year 2020 the offers of this type of service packages accounted for 77 % of the total. In December 2020 the total number of packages offered in this double play is distributed in: 3 packages from Cabletica, 19 of ICE (Kölbi), 4 from Tigo and 79 from Telecable. On the other hand, in 2021, the distribution is 18 from ICE (Kölbi), 7 from Telecable, 6 from Cabletica and 6 from TIGO.

The weighted average download speed<sup>40</sup> offered in this double play package consisting of subscription

TV and fixed Internet has decreased compared to the previous year. In December 2021 it was 111 Mbps, while the previous year it was 136 Mbps. The speeds offered in both periods are the same, except in the case of 13 packages of commercial offers that were offered by Telecable and TIGO in 2020, and that in 2021 ceased to be offered; which consisted of a Internet download speed of 15 Mbps. The perceived decrease in the average is due to a decrease in the number of commercial offers for each speed, reducing, in the last year, by more than half, the number of offers for each of the different speeds. This offered download speed ranges from 1 Mbps to 500 Mbps, in both periods.

In this same type of packets, the weighted average upload speed in December 2021 is 29 Mbps, and in 2020 it was 53 Mbps, with speeds ranging from 512 Kbps to 500 Mbps. In this sense, it is important to note that Telecable in 2021 stops offering four packages in which the upload speed offered was 300 Mbps, which affects the differences in the weighted average, as well as the decrease in offers by this operator.

The second type of double play service package offered in Costa Rica is constituted by the combination between fixed telephony and Internet; however, both in 2020 and in 2021 this type of package is only offered by ICE (Kölbi) and this offer has decreased the number of packages marketed in the last year, by one. The total number of commercial offers in this regard is 12 in December 2021, representing 18 % of the offers in this period. In the case of fixed telephony, a duo plan is offered and in the case of Internet the download speed varies between 1 Mbps and 500 Mbps and the weighted average upload speed is around 7 Mbps in both periods, which ranges between 0.5 Mbps and 20 Mbps, and there is a difference on the total offers offered that lies in the decrease of a commercial offer of 12 Mbps in December 2021 compared to the previous year.

<sup>40</sup> El promedio ponderado de velocidad del Internet, tanto de carga como de descarga, se pondera según la cantidad de paquetes que se ofrece con cada nivel de velocidad.

The third type of double play package offered in Costa Rica is the one that combines fixed telephony + subscription TV services, which is only offered by ICE (Kölbi), and only offers one package, both in 2020 and in the year 2021. It represents 1 % of the commercial offer of December 2021.

The fourth type of package is the triple play and is only offered by ICE (Kölbi). This package combines all fixed telecommunications services: fixed telephony, subscription TV and the Internet and its commercial offer increased by one more package in December 2021, compared to the previous year (6 %). This type of packages represent 28 % of the number of packages offered and is the second with the most commercial offers. Regarding browsing speeds, in this case the weighted average download speed is 98 Mbps in December 2021, being higher than the year previous and this speed ranges from 1 to 500 Mbps. Regarding the upload speed of this type of commercial package, the weighted average in December 2021 is 6 Mbps, similar to the previous year and ranges between 0.5 Mbps and 20 Mbps. 30 % of the packages offered have browsing speeds of 100 Mbps and 200 Mbps

## • Prices

Next, we will proceed with the quantitative analysis. To this end, the prices of packaged services will be addressed in the first instance, in such a way that the changes in prices experienced by users when making the purchase at two points in time, December 2020 and December 2021.

And in the second instance, and in order to monitor the evolution of the prices of mobile telecommunications services, fixed Internet and international calls, these will be addressed with the methodology of price indices<sup>41</sup> already explained above (see methodology section).

## Average prices of commercial offers of packaged services

To perform this analysis, the weighted average prices are used with the number of packages offered of the packaged services, 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 2021 and December 2020.

The first package to analyze is the double play consisting of fixed Internet and pay television. This case, as mentioned above, is the group that registers the largest decrease in terms of the number of commercial offers registered between December 2021 and the previous year. Additionally, the weighted average price in this type of packaging also presents this behavior.

The double play commercial offers consisting of fixed Internet and pay television represent more than half of the total packaging offered (55.5 %). When analyzing all the speeds offered in this type of packaging, they range between 1 Mbps and 500 Mbps. Regarding the weighted average of the prices of these packages, this decreased in December 2021, compared to the previous year (-18.7 %); in December 2021 the price average was 51 143 colones against 62 966 colones the previous year.

Taking as a starting point the highest and lowest speeds, on the price of packages with lower speeds, there is no important difference between 2020 and 2021, when these range between 1 Mbps and 20 Mbps; over the highest speeds, after the 50 Mbps, the largest price differences are between operators and depending on the number of channels available for the pay television service. In browsing speeds less than 20 Mbps, prices range from 25 900 colones to 31 900 colones with an average of 28 200 colones in December 2021, compared to an average of 30 294 colones in December 2020 (-7 %).

<sup>41</sup> A retail price index measures the evolution (trend) of consumer prices in a specific market on a monthly basis based on a given figure of product, user and consumption levels. This is how SUTEL has two methodologies that allow monitoring this behavior particularly in the mobile telecommunications market and the one corresponding to fixed Internet.

The second package to be analyzed is the double play constituted by fixed telephony and Internet. This type of packaging is only offered by one of the operators. The decrease between December 2021 and the previous year is one less commercial offer (-8 %) and an increase in the weighted average price due to the change in supply, but the packages that were maintained have the same prices as the previous year. At browsing speeds less than 20 Mbps prices range from 11 900 colones to 24 900 colones with a simple average of 17 733 colones. When analyzing the speeds greater than 20 Mbps offered in this type of packaging, prices range from 24 900 colones to 207 900 colones. The weighted average of the prices of these packages increased in December 2021 compared to the previous year (1.4 %), since one less package is offered in December 2021; however, the prices offered for each speed are maintained.

The third package to be analyzed is the double play constituted by fixed telephony and subscription TV, which represents a single commercial package offered, and, in this case, the price provided in December 2021 is greater than the offered in December 2020 (6 %). The name of this package is the Duo Advanced TV + Telephony Plan and in 2021 it has 4 more channels than in the previous year and the same number of minutes of telephony to fixed operators.

The last package of which a price analysis is carried out is the triple play, consisting of the three fixed telecommunications services: TV, telephony and fixed Internet. This type of packaging represents the second most important in terms of percentage of total commercial offers (28 %) and the only one in which the number of packages offered is increased (one more) and the weighted average price decreases. The weighted average price is 49.165 colones for 2021, against 59 180 colones in December 2020 (-17 %).

It is important to note that when comparing the TV and Internet double play packages and the triple play package, the average additional cost for including telephone service is 3574 colones. Additionally, the speeds offered in the double play amount to up to 200 Mbps and in the triple play it is possible to acquire download speed of up to 500 Mbps. For packages with speeds below 100 Mbps, the average additional cost for including fixed telephony service increased against the fixed Internet + subscription TV package. This average is around 3472 colones in 2021 against 2758 colones in 2020 (26 %). When comparing the other double play that includes Internet and fixed telephony, the available browsing speeds are the same and the additional average cost for including subscription TV is 14 257 colones.

In summary, the average prices of fixed Internet + subscription TV packages had a decrease (- 18 %), as did commercial triple play packages (fixed Internet + subscription TV + fixed telephony), which decreased, on average, by 17 %. It should be noted that although many of the packages maintain a constant price, operators offer in some cases a number of additional benefits, such as subscriptions to popular channels included in the price, HD channels, free content applications, unlimited on net minutes, among others, that are not taken into account in the analysis of average prices, but positively affect the benefit of the consumer.

## Mobile telecommunications price indexes

The Mobile Telecommunications Price Index -MTPI- includes voice, messaging and mobile data and is aimed at monitoring the average prices by payment method faced by users since July 2017 (base month) from the information related to the plans in force in the market for each modality. Specifically, in

the case of the calculation for the postpaid modality, the plans that have the largest market share for each operator in each month are taken (at least 80 % of the subscriptions, that is, current and non-current plans can enter), and for the case of the prepaid modality it is calculated to start from the packages and prices offered in each month by operator.

Based on the results ([see Chart n.° 175](#)) in 2021 at the postpaid level at the end of the first half of the year, the index closed at 86.7 % (+0.03 percentage points in relation to its counterpart 2020), while, at the end of 2021, 84.8 % (-1.3 percentage points compared to 2020), maintaining its trend towards casualty. It is important to note that this year-on-year decrease is greater than that presented with its counterpart in 2020 (-0.6 percentage points compared to 2019)

In the case of the MTPI for the prepaid modality ([see Chart n.° 176](#)), for the first half of 2021 it reached 92.23 %, representing a decrease of -3.1 percentage points compared to semester I of 2019. In the case of the end of 2021, the index reached 92.29 %, a slight decrease of 0.20 % compared to the end of 2020.

This results in the IPTM at the national level ([see Chart n.° 177](#)) in the first half of 2021 closing at 87.62 % (-0.023 % compared to its counterpart in 2020) and at the end of 2021 in 86.26 % (-1.13 % to that of 2020).

In conclusion, in 2021 the IPTM maintains its decreasing trend, where, compared to the data of 2020, prices decreased to a greater extent in the first half than at the end of the year.

## Fixed Internet price index

The Fixed Internet Price Index (FIPI) measures the price behavior of the Mbps offered by operators in their commercial offer compared to July 2018 (base month). The results of the latest IPIF measurement continue to show a decline ([see Chart n.° 178](#)). For the first semester an index of 51.3 % was registered, with a decrease of 9.2 percentage points compared to the I semester 2020, and at the end of 2021 a value of 50.6 % is registered, also with a decrease of 7.4 percentage points compared to the closing of the 2020.

## International calls price index

Part of the objectives set by the Directorate General of Markets is to continue with the implementation of methodologies to measure the behavior of prices in the telecommunications market, in 2021 corresponds to the turn of the international call service.

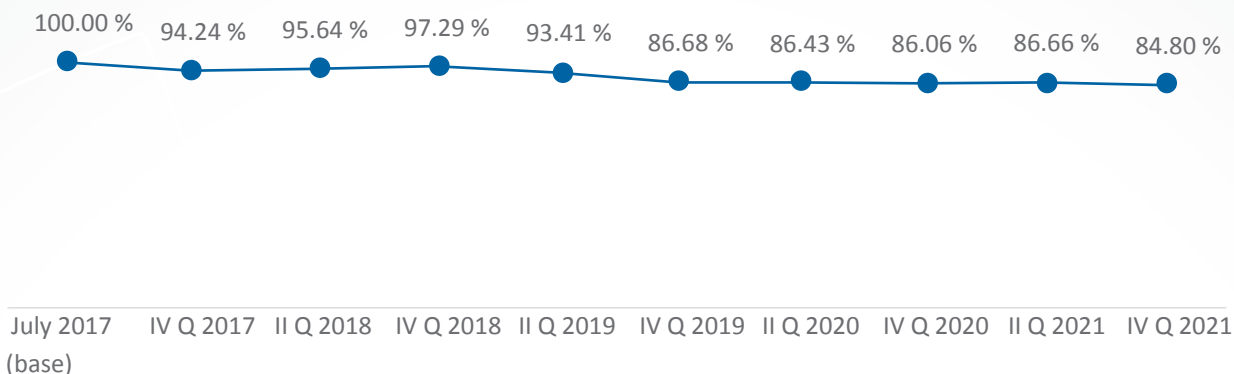
The International Calls Price Index (IPLInt) measures the behavior of minute prices offered by operators in their commercial offer with international termination compared to July 2021 (base month). The results of the first measurement are as follows: during the second half of 2021 there is a trend in the decrease in international minutes, for the end of 2021, 99.32 % is registered, being the trend during this period ([see Chart n.° 179](#)).





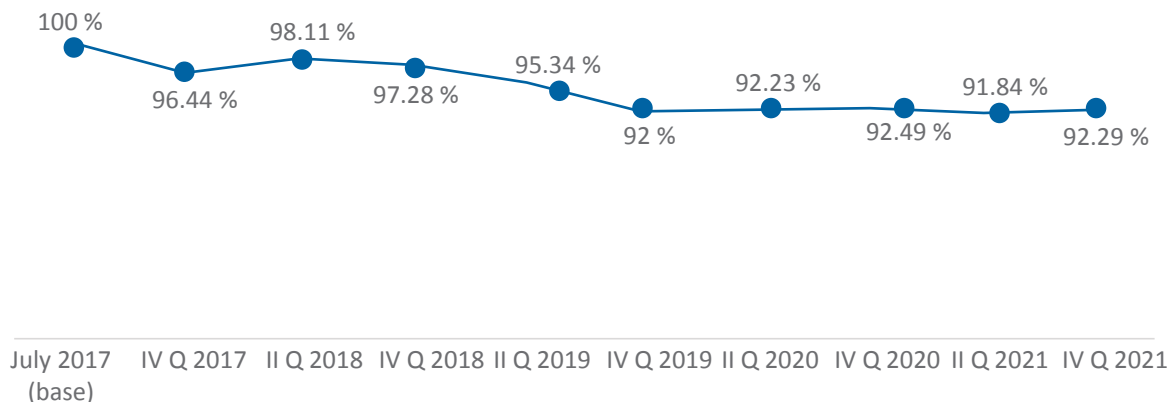


**Chart n.º 175. Costa Rica: Evolution per semester of the postpaid mobile telephony price index, July 2017 (base), 2017-2021**  
(figures per semester in percentages)



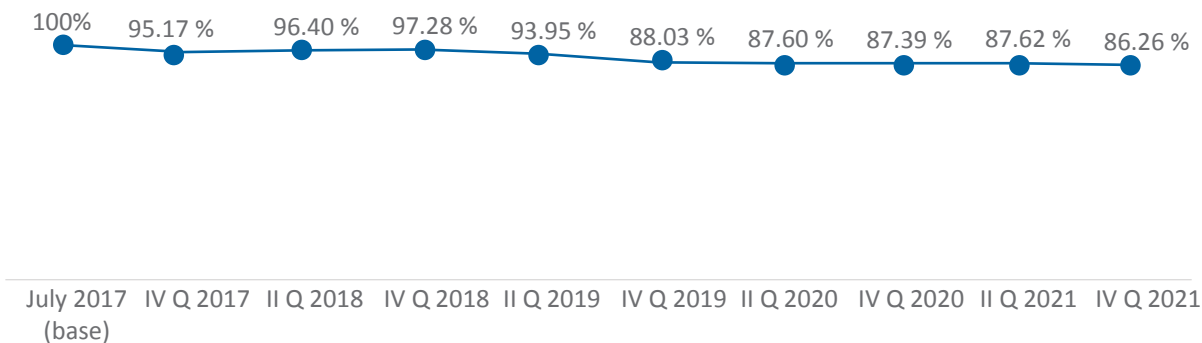
Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

**Chart n.º 176. Costa Rica: Evolution per semester of the prepaid mobile telephony price index, July 2017 (base), 2017-2021**  
(figures per semester in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

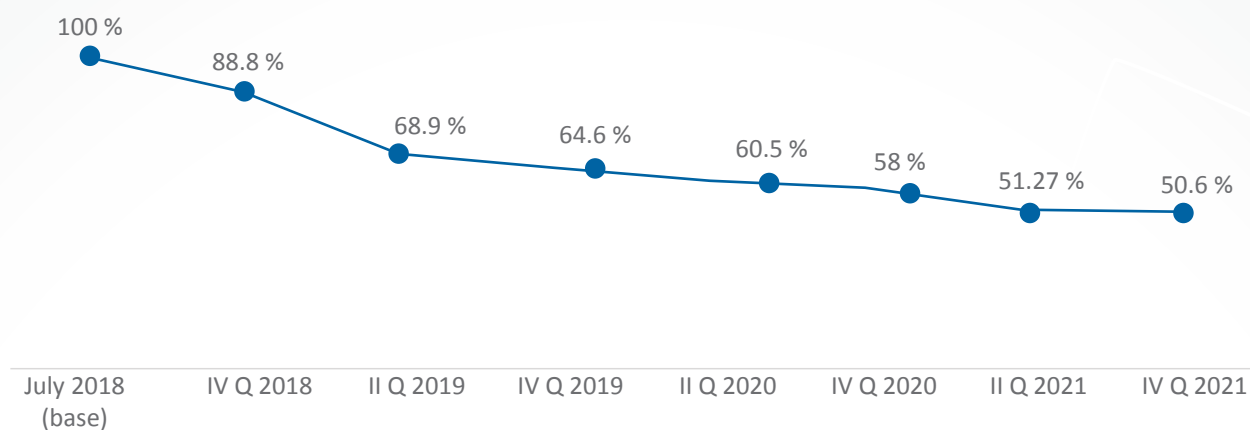
**Chart n.º 177. Costa Rica: Evolution per semester of the national mobile telecommunications price index, July 2017 (base), 2017-2021**  
(figures per semester in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n. ° 178. Costa Rica: Evolution of the fixed Internet price index,  
July 2018 (base), 2018-2021

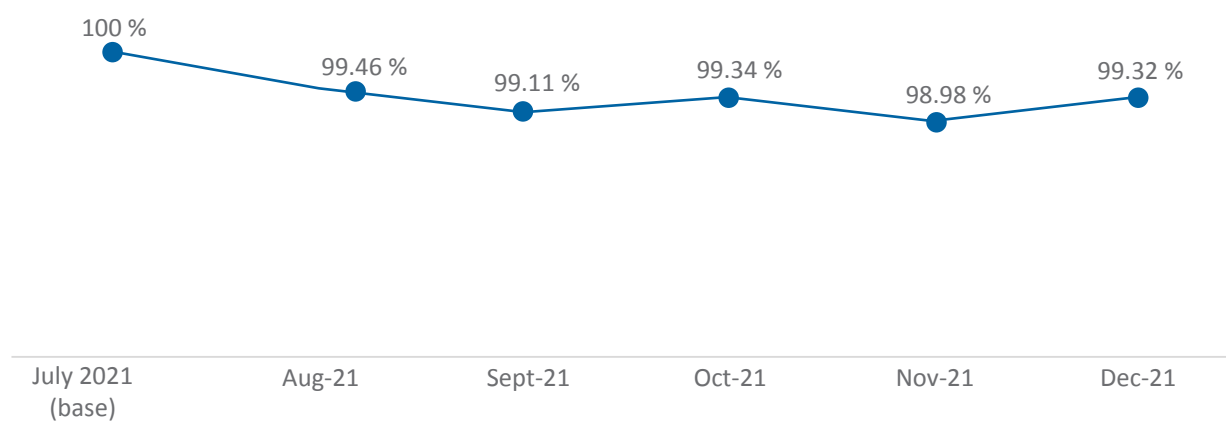
(figures per semester in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.

Chart n. ° 179. Costa Rica: Evolution of the international calls price index,  
July 2021 (base), 2021

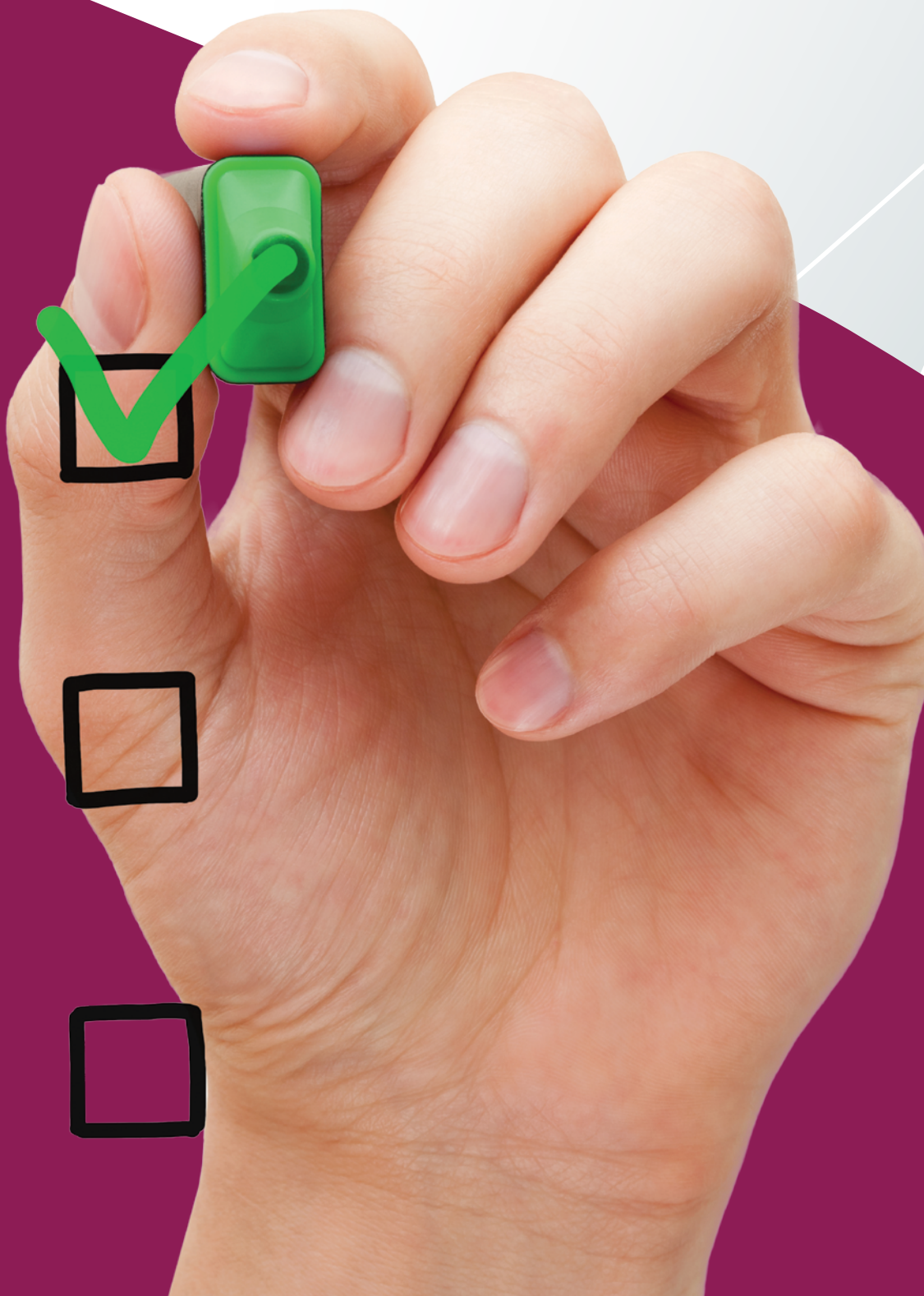
(figures per semester in percentages)



Source: SUTEL, Directorate General of Markets, Costa Rica, 2021.



NETWORK  
**QUALITY**  
AND PERFORMANCE



## • 1. Quality of fixed Internet access services

This section describes the results of the fixed Internet access service quality assessments carried out in the periods 2018, 2019, 2020 and 2021. The results of the measurements carried out in the field are shown through the system of specialized measuring equipment (probes) that incorporates a total of 234 Internet access services evaluated at the national level<sup>42</sup> and their respective comparison against the threshold (target value to be achieved) established by SUTEL<sup>43</sup> and in accordance with the provisions of the Regulations on the Provision and Quality of Services in force<sup>44</sup>.

The measurements are carried out as indicated in the methodology section described in the chapter Methodology and description of services of this document and complying with the provisions of the Resolution of the Council of SUTEL 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 quality of service indicators evaluated.

### 1.1. International Latency Indicator

[Chart n.° 180](#) shows the results of the measurements made during the years 2018, 2019, 2020 and 2021, considering all the services evaluated throughout the market. 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 packets of information are moved over 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 a maximum value that in no case is reached and therefore all operators included in this study meet this threshold. In this indicator, all operators showed an improvement over the previous year: Cabletica went from 66.0 ms to 57.4 ms; ICE went from 72.9 ms to 61.9 ms; Telecable went from 79.6 ms to 79.4 ms; and the operator Tigo went from 78.5 ms to 70.7 ms. For the year 2021, the simple average of the four annual results of these operators was 67.3 ms, a value that is below half of the regulatory threshold established by this Superintendence. Thus, the results per operator and aggregates turn out to be positive in terms of compliance.

The results shown in [Chart n.° 180](#) reflect an almost constant performance for this quality indicator. Note that the lowest value recorded in the last 4 years was 57.4 ms, while the highest was 79.6 ms; a difference of 22.1 ms in an indicator whose threshold is 150 ms, representing less than 15 % of that threshold.

[Chart n.° 181](#) shows the result of the international latency disaggregated by province for 2018, 2019, 2020 and 2021. The operator Cabletica showed a decrease in its international delay values, being particularly notable the results obtained in the provinces of San José and Cartago, in the first going from 65.0 ms in 2020 to 55.6 ms in 2021, and in the second going from 79.3 ms in 2020 to 55.4 ms in 2021. Regarding the history of the four years shown in [Chart n.° 181](#), there is a tendency to improve in this specific indicator, because with the exception of the results of 2020, the other years show a progressive reduction in the values of delay and accentuated in 2021 for all Provinces.

<sup>42</sup> SUTEL makes available to users the results of the verifications carried out with the measurement probes system, that allows the simultaneous and continuous evaluation of the main telecommunications services' providers of the country, in a scheme of 24 hours for 7 days a week, with 249 measurement probes distributed in the main traffic point nationwide.

<sup>43</sup> The thresholds were established by SUTEL Council Resolution RCS-152-2017.

<sup>44</sup> The *Regulations for the provision and quality of services* (RPQS) was published on the Official Journal n.° 36 of 17 February 2017 and entered into force as of February 17, 2018.

In this same [Chart n.° 181](#), the 2021 results of the operator ICE show significant improvements in the international delay for all the provinces of the country when compared to the previous year.

When reviewing the history of the last 4 years, it is evident in 2021 a return to the values of 2018 and 2019, and even improving them, with the exception of 2020 that showed results with higher delay values compared to the other years.

The operator Telecable in 2021 also showed an improvement in its international delay values in all provinces, with the exception of Heredia, where it obtained the highest delay of the last 4 years with an average of 85.0 ms for that province, which corresponds to an increase of close to 8 %, as evidenced in [Chart n.° 181](#). Las mejoras para este operador se dan en las provincias de San José, Cartago y Guanacaste.

In the case of the Tigo operator, the historical data shown in [Chart n.° 181](#) shows a general improvement in all provinces for this indicator of international delay when comparing the data of 2021 with those of 2020. Notable are the cases of the results achieved in the provinces of San José -with 61.7 ms- and Cartago -with 61.9 ms-, which not only improve, but achieve the best result of the last four evaluations.

[Chart n.° 182](#) shows the behavior of the international delay indicator throughout the 24 hours of the day, from 00 hours to 23 hours, for the four operators included in this study. [Chart n.° 182](#) is specific for the year 2021 and it shows results that remain stable for the four operators, except for two specific cases: the first corresponds to the Cabletica curve that shows an atypical maximum at 10:00 hours, and the second case a tendency of the Tigo operator to register increases at international latency levels in the time range between 8:00 a.m. (8 a.m.) and 3:00 p.m. (3 p.m.)

As far as ICE and Telecable operators are concerned, they show fairly flat trends 24 hours a day.

The following four graphs show the detailed behavior throughout the 24 hours of the day for each of the operators included, comparing their evolution from 2018 to 2021.

[Chart n.° 183](#) shows the 24-hour behavior of the cable operator's international delay indicator, in which it highlights the year 2021 with a curve of lower delay at a general level when compared with the three periods above, with the exception of a maximum around 10:00 a.m. The curve of 2021 shows an improvement over the previous three periods by maintaining a flat trend without the presence of progressive increases as it approached the hours of maximum traffic that happened in years Previous.

In the case of the ICE operator, in [Chart n.° 184](#) the 2021 data are distinguished from previous years with two main characteristics: i) they are the most stable results of the last four years evaluated and ii) are the best results also of the last four years of this operator. It is also notable that for 2021 there are no variations in afternoon and evening time slots that were evident in 2020.

[Chart n.° 185](#) corresponds to the operator Telecable and presents for 2021 a curve that has been progressively more stable year after year, especially for the time ranges of 5:00 p.m. and until 5:00 hours, which initially showed higher levels of delay.

The operator Tigo presents in 2021 a much flatter 24-hour curve that resembles the best trend of this operator achieved in 2019, being that for 2021 an improvement is evidenced compared to 2020 throughout the day, both in stability and in lower hour-by-hour delay values, as evidenced in [Chart n.° 186](#).



## 1.2. Download speed performance indicator

The download speed performance indicator corresponds to the percentage ratio of the download speed measured in the field and the download speed provisioned by the operator.

[Chart n.° 187](#) shows the results of the measurements made during the years 2018, 2019, 2020 and 2021 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 speed configured (bandwidth corresponding to the data download) for that service in particular. In this way, this 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, setting a 100 % limit. It should be noted that the threshold established in a regulatory manner by SUTEL is 80 %, which is exceeded in the most recent year of measurement, 2021, by two of the four operators included in the study.

In this indicator Cabletica shows a decrease throughout the years 2018, 2019, 2020 and 2021, going from 100 % to 97.2 %, then to 92.7 % and recently to 77.5 %. For its part, the ICE presented an improvement compared to 2020, going from 83.3 % to 84.0 % in 2021, and maintaining very similar percentages during the four years evaluated. In the case of Telecable, the result shows a decrease for the first time below the national threshold, with a result of 78.6 % in 2021. The operator Tigo decreased its trend of high percentages of the previous three years, standing just above the threshold with a result of 81.6 % in 2021.

[Chart n.° 188](#) shows the result of download speed performance disaggregated by province for 2018, 2019, 2020 and 2021 and for all operators analyzed. In the case of the operator Cabletica, it showed deterioration throughout the country, being its lowest performance that of the province of Limón where the result was 72.8 %; followed by

Puntarenas with 74.5 %, Guanacaste with 75.8 %, Alajuela with 76.5 % and San José with 77.4 %. Only in the provinces of Heredia and Cartago was the regulatory threshold exceeded, with results of 80.2 % and 83.5 %; respectively in 2021.

In this same [Chart n.° 188](#), the ICE operator in 2021 records a decrease in the performance of the provinces of San José, Cartago and Puntarenas, when compared to previous years. In the particular case of Cartago, this is the only province where the result of 77.5 % is below the regulatory threshold. The provinces of Alajuela, Heredia, Guanacaste and Limón show improvements over previous years, in particular Heredia with an average of 91.3 % and Limón with a performance of 89.2 %.

The operator Telecable showed in 2021 a decrease in its download speed performance values in all the provinces of the country, with results below the regulatory minimum in the provinces of San José with 78.5 % and Heredia with 73.5 %; while the provinces of Alajuela, Guanacaste and Puntarenas obtain the three average values around 81 % and evidencing for the province of Cartago the highest value in 2021, corresponding to 83.9 %, according to chart data [n.° 188](#). In the case of the province of Limón, there is no data because the operator does not provide services in that province.

In the case of the operator Tigo, it also lowered its performance, in particular for the province of Guanacaste with a result of 71.6 %, followed by Alajuela with 79.4 % as shown in [Chart n.° 188](#). The remaining provinces remain above the regulatory threshold, with the best result in San José, reaching 86.9 % in 2021.

[Chart n.° 189](#) shows the behavior of the download speed performance indicator throughout the 24 hours of the day, from 00 hours until 23 hours, for the four operators included in this study. [Chart n.° 189](#) is specific for the year 2021 and in this one the case of the Operator Telecable stands out, whose service remains at high values during the first hours of the day and begins a decrease from 67.2

% at 6:00 p.m. and from there it decreases to a minimum of 52.2 % at 9:00 p.m., returning again to values above 86 % from 00:00 hours. This case of Telecable is evidenced in [Chart n.° 189](#); however, for the operator Cabletica a similar behavior can also be seen with a decrease that reaches its lowest value at 20:00 hours, which corresponds to 68.3 %.

The ICE and Tigo operators show services generally stable for the download speed, with slight variations in some time ranges, which in the case of ICE are practically indistinguishable from the rest of the day and consistently above the regulatory threshold. However, for the operator Tigo there is a decrease below the 80 % threshold in the time range from 6:00 p.m. to 10:00 p.m., as seen in [Chart n.° 189](#).

The following four charts show the detailed behavior throughout the 24 hours of the day for each of the included operators, comparing their evolution from 2018 to 2021.

[Chart n.° 190](#) shows the 24-hour performance indicator of the cable operator's download speed performance indicator, which highlights a year 2021 with lower results than previous periods, but with a trend very similar to previous years, characterized by high values during the early mornings and until 7:00 a.m., progressively decreasing until reaching a minimum around 8:00 p.m. with a result of 68.3 % and then increasing until reaching values above 80 % at midnight and maintaining stable during the early morning.

In the case of the ICE operator, in [Chart n.° 191](#) the 2021 data show an intermediate result between the results of the previous three years, characterized by a trend of high stability throughout the 24 hours of the day with an average value of 84.0 % in this last evaluation (see also [Chart n.° 187](#)).

[Chart n.° 192](#), corresponding to the operator Telecable presents for 2021 a curve similar in its trend to that of previous years, but with lower results at all hours of the day. The 2021 curve begins its

descent earlier than in previous years, standing below 80 % from 2:00 p.m. to 11:00 p.m.

The operator Tigo presents in 2021 a remarkably stable 24-hour curve, similar to a horizontal straight, but very close to the margin of 80 % and even with values below this threshold between 18:00 hours and 22:00 hours, as evidenced in [Chart n.° 193](#).

### 1.3.Upload Speed Performance Indicator

The upload speed performance indicator corresponds to the percentage ratio of the upload speed measured in the field to the upload speed provisioned by the operator. In this sense, the performance indicator of the upload speed evaluates the ability to transfer data from the user to the network, and compares it against the speed configured bandwidth corresponding to the sending of data) for that service by the individual. Thus, this 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 .

It should be noted that the threshold established by regulation by SUTEL is 80 %, which is exceeded by all operators included in this study.

[Chart n.° 194](#) shows the results of measurements made during the years 2018, 2019, 2020 and 2021, considering all the services evaluated throughout the country.

This indicator, according to the results of [Chart n.° 194](#), shows that for the year 2021 the operators ICE and Telecable presented a decrease in their performance compared to previous years, with decreases of approximately 8.7 percentages points and 3 percentage points, while Cabletica and Tigo showed increases over the previous year, improving by 8.9 percentage points in the first and by 6.5 percentage points in the second.

[Chart n.° 195](#) shows the result of shipping speed performance disaggregated by province for 2018, 2019, 2020 and 2021. The operator Cabletica presents an improvement in all the provinces of the country when comparing the results of 2021 with the previous year; the most notable cases are: San José, which goes from 86.7 % to 99.4 %, and Cartago, which goes from 89.3 % to 99.8 %. The case of the province of Limón also stands out, which reaches a performance of 99.9 % in 2021.

In this same [Chart n.° 195](#), it is observed that the ICE operator also increased its performance, but only in 2 of the 7 provinces of the country: Cartago, which goes from 79.2 % to 80.1 %, and Heredia, which goes from 86.4 % to 88.8 %. In the other provinces, the most notable change between 2020 and 2021 is that of San José, which decreases by 11.5 percentage points and that of Limón, which decreases by 10.9 percentage points.

The operator Telecable showed in 2021 decreases with respect to 2020 in its performance values of the sending speed in three provinces: San José (- 3.8 pp), Cartago (-9.3 pp) and Puntarenas (-2.3 pp), and evidenced an increase of 3.4 pp in Guanacaste. The provinces of Alajuela and Heredia remained stable with slight variations of -0.3 pp and 0.1 pp respectively, according to [Chart n.° 195](#).

In the case of the Tigo operator, the data history shown in [Chart n.° 195](#) evidences for 2021 a recovery in all provinces, except Guanacaste with a variation of -0.2 pp compared to 2020, but with a notable performance of 98.6 %. In the remaining provinces the increases are greater and in some cases very close to achieving the levels of the 2018 and 2019 periods. The most notable case is that of Cartago, which increases 18.8 percentage points, reaching in 2021 a result of 99.3 % for that province. The lowest of the results is for the province of Puntarenas with 92.4 % in 2021, with the other regions of the country above that value.

[Chart n.° 196](#) shows the behavior of the shipping speed performance indicator throughout the 24

hours of the day, from 00 hours to 23 hours, for the four operators included in this study. This chart allows to know the pattern of behavior throughout the day for this indicator, which is characterized by a high stability for the four operators evaluated, maintaining all curves that resemble a horizontal and, in all the cases, always above the threshold of 80 %.

The following four charts show the detailed behavior throughout the 24 hours of the day for each of the included operators, comparing their evolution from 2018 to 2021.

[Chart n.° 197](#) shows the behavior throughout 24 hours of the international latency indicator of the operator Cabletica, in which stands out a 2021 that recovers the stability characteristic of previous years 2018 and 2019, moving away from the performances of 2020, year in which it had registered a deterioration.

In the case of the ICE operator, in [Chart n.° 198](#) the 2021 data shows a result that is below the behavior recorded for previous years and with a slight decrease of less than 2 percentage points around 9:00 p.m. with respect to performance. the rest of the day.

[Chart n.° 199](#) which corresponds to the operator Telecable shows for 2021 a much flatter curve in which the decrease in night hours is no longer appreciated as it happened in previous years, but with values in general lower when compared with those periods from 2018 to 2020, averaging 91.3 % for 2021.

The results of [Chart n.° 200](#) correspond to the operator Tigo that presents in 2021 a curve of 24 hours with an improved performance if compared to the year 2020, improving both in stability throughout the day and when registering higher percentages of compliance, achieving results similar to those of 2018 and 2019.

## 2. Quality of mobile services

As part of the continuous process of national evaluation of the quality of service of the 2G, 3G and 4G mobile networks of the operators ICE, Claro and Telefónica, SUTEL carried out the measurements corresponding to the year 2020 in the period between January 1 and December 31, 2020 (with measurement times allowed between 6:00 a.m. and 11:00 p.m., in accordance with the resolution of measurement methodologies RCS-019-2018).

The following sections describe the operator- and technology-specific results obtained for the following quality indicators:

- Percentage of unsuccessful calls (RPQS article 35).
- Percentage of dropped calls (Article 40 of the RPQS).
- Mobile service coverage areas (Article 41 of the RPQS).
- Local latency (Article 44 of the RPQS).
- Relationship between the local or international data transfer speed with respect to the provisioned speed (Article 46 of the RPQS).

In this section, the results of the evaluation of the indicators perceptible by end users are shown: percentage of unsuccessful calls<sup>45</sup>, percentage of interrupted calls<sup>46</sup> and coverage area (accuracy of coverage).

It should be noted that the data of 2020 are presented and not those of 2021, since at the closing date of this report the results of 2021 are still in the data processing stage.

### 2.1. Unsuccessful call ratio indicator

First of all, it should be noted that the threshold defined for this indicator is 3.5 %, i.e. the allowed percentage of unsuccessful calls is a maximum of 3.5 % of total call attempts.

Based on the analysis of the results obtained ([see Chart n.° 201](#)), for the 2G network by 2020, Claro registers a percentage of unsuccessful calls of 2.9 %, ICE 1.3 % and Telefónica 2.6 %.

Regarding the 3G network ([see Chart n.° 202](#)) for the year 2020, Claro registers a percentage of unsuccessful calls of 5.9 %, ICE 2.4 % and Telefónica 1.6 %.

Taking into account that the maximum quality threshold for both 2G and 3G networks corresponds to 3.5 %, it is possible to conclude that only the Claro operator exceeds the quality threshold allowed for the 3G network.

### 2.2. Dropped call ratio indicator

For this indicator the maximum threshold defined is, for both 2G and 3G networks, 2 %, so that calls that are interrupted before their normal termination must be a maximum of 2 % of the total number of calls made.

According to the figures derived from the processing of information on this indicator ([see Chart n.° 203](#)), for the 2G network by 2020, Claro registers a percentage of samples that do not meet the threshold of interrupted calls of 4.3 %, the ICE of 3.2 % and Telefónica of 5 %.

Regarding the 3G network for the year 2020, Claro registers a percentage of calls that do not meet the threshold of interrupted calls of 2.7 %, ICE 3.9 % and Telefónica 1.9 % ([see Chart n.° 204](#)).

<sup>45</sup> This indicator makes it possible to assess the accessibility of the telephone service.

<sup>46</sup> This indicator makes it possible to assess the retainability of the telephone service.

Therefore, it can be concluded that only the Telefónica operator in 3G technology meets the maximum quality threshold. This means that Claro and ICE fail to comply with it for 3G networks and that all operators fail to comply with it for the case of the 2G network.

### 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: inside buildings, inside motor vehicles, only outside and outside the coverage area. Compliance by type of coverage required as input the layers of coverage provided by the operators Claro, ICE and Telefónica for February 2020.

By applying the Geographic Information System (GIS) held by SUTEL, the data filtering procedure was carried out, which consists of checking the signal strength level obtained in the field, with respect to the delimitation of each type of coverage reported by the operators, which in turn they make public on their respective websites<sup>47</sup>. The minimum quality threshold for 2G, 3G and 4G networks corresponds to 90 %.

For the 2G network and for the year 2020, the operator Claro registers a percentage of coverage area (coverage accuracy) of 93.7 %, the ICE 87.4 %, and Telefónica registers 73.5 % ([see Chart n.° 205](#)).

On its behalf, in the case of the 3G network for the year 2020, Claro registers a percentage of coverage area (coverage accuracy) of 89 %, the ICE and Telefónica register both for that same indicator 99.3 % ([see Chart n.° 206](#)).

Finally, regarding the 4G network ([see Chart n.° 207](#)), for the year 2020 Claro registers a percentage of coverage area (coverage accuracy) of 77.9 %, ICE 83.8 % and Telefónica 98.1 %.

Thus, for the year 2020 only the operator Claro complies for 2G technology, the operators ICE and Telefónica comply for the 3G network and only the operator Telefónica complies for the 4G network. In other words, Claro does not exceed the regulatory threshold for 3G and 4G networks, the ICE does not reach the regulatory threshold for 2G and 4G networks, and Telefónica does not exceed the regulatory threshold in its 2G network.

### 2.4. Local latency indicator

The latency indicator is evaluated by performing ping tests. In each of these, 100 ICMP Echo 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 latency indicator is carried out by performing ping tests against a server dedicated for that purpose and located within Costa Rican territory, specifically at the Neutral Traffic Exchange Point (IXP), managed by NIC Costa Rica, called CRIX, this in accordance with the provisions of article 44 of the RPQS. In this case, the minimum quality threshold for the local latency of 3G and 4G networks corresponds to 95 %.

For the 3G network and for the year 2020, the operator Claro registers a local latency compliance percentage of 49.5 %, the ICE 95.5 %, and Telefónica registers 90.6 % ([see Chart n.° 208](#)).

For its part, in the case of the 4G network for the year 2020, Claro registers a local latency compliance percentage of 97.1 %, the ICE registers 97.6 % and Telefónica 96.1 % ([see Chart n.° 209](#)).

<sup>47</sup> Claro <http://mapas-claro.addax.cc/map.php?sucursales>, ICE: <http://mapas.ice.go.cr/MapasCobertura/> and Telefónica: <http://movistar.cr/cobertura-movil>



According to the above, for the year 2020, in the 3G network only the operator Claro failed to comply with the regulatory threshold, while for the 4G network all operators exceeded the established threshold.

### 2.5. Average download speed performance indicator (measured vs. provisioned-hired speed)

The evaluation of the indicator called relationship between the local or international data transfer speed with respect to the provisioned speed, was carried out from the application of the *“Measurement methodology applicable to the Internet access services of the regulation of provision and quality of services”*<sup>48</sup>. The measurements were made in motion along the routes (at the outdoor level), thus collecting the samples of instantaneous speed of downloading packages of data for each operator.

For the calculation procedure of this quality indicator, all instantaneous velocity samples collected within the coverage layers of each operator and corresponding to two types of cover: interior and inside vehicles<sup>49</sup>. The results presented in [DGC graphs n.° 210](#) and [DGC n.° 211](#) correspond to the average performance of the download speed measured with respect to the provisioned (contracted) download speed, for the 3G and 4G networks of the operators Claro, ICE and Telefónica, as well as its evolution between 2015 and 2020.

The results obtained at the national level for the 3G network, which threshold is 50 %, show that Claro registers a percentage of download speed performance of 86.8 %, the ICE registers a performance percentage of 88.6 % and Telefónica of 58.9 % ([see Chart n.° 210](#)).

As mentioned, [Chart n.° 211](#) details the results obtained at the national level for the 4G network, whose threshold for the year 2020 is 70 %. 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 2020. The results of this analysis for the year 2020 are: Claro with 91.9 %, registering an increase of 19.2 percentage points compared to the result of 2019; the ICE with 85.7 %, thus decreasing 14.3 percentage points compared to the perfect result of the year 2019; and Telefónica with 67.3 %, registering in the same way a decrease of 32.7 percentage points with respect to the ideal result registered in 2019.

## 3. Quality of experience for mobile Internet access service

This section presents the results corresponding to the evaluations of the quality of service experience from the user's perspective, which are collected through the OpenSignal mobile application, which collects quality of service data from the users they install. the application voluntarily and free of charge on their mobile phones. The data therefore comes from a wide variety of terminal devices and plans, according to the variety of services subscribed by users.

Since 2016, OpenSignal has provided SUTEL with reports on the quality of service, taking advantage of data collected through the company's collaborative tool, which allows to evaluate the quality of service from a user experience (QoSE) perspective.

This collaborative tool allows you to collect data from the terminal (cell phone) of the users.

The data used for the preparation of the reports are collected regardless of the place and conditions of the user at any given time, whether indoors or outdoors, in rural or urban areas, statically or on the move, in population centers or along routes or roads, capturing network performance variables in a wide variety of situations, as experienced by the user when making use of mobile services.

[Chart n.° 212](#) shows how 3G speeds have evolved in Costa Rica from 2016 to 2021 for each of the

<sup>48</sup> According to resolution RCS-019-2018.

<sup>49</sup> In accordance with Article 46(4) of the Regulations for the provision and quality of services in force.



country's mobile operators. In this [Chart n.º 212](#) the names of the trademarks of 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 5.2 Mbps at the end of 2021, this being its highest value. A similar behavior exhibits Claro to go from 1.8 Mbps to 6.6 Mbps in the same period, which corresponds to the highest 3G speed recorded in the last 6 years at the country level for this technology. Kölbi, meanwhile, has shown an increase from 1.3 Mbps in 2016 to 4.4 Mbps at the end of 2021.

[Chart n.º 213](#) also shows the evolution of download speeds, but for 4G technology, evidencing significant increases when compared to its equivalent in 3G. As in the previous case, in [Chart n.º 213](#) the names of the trademarks of mobile services have been used instead of the names of the operators. From 2016 to 2021 Movistar went from 7.1 Mbps to 10.0 Mbps, maintaining values of 10 Mbps or more in a sustained manner since the second half of 2019. Claro has tripled its speed in the last 4 years, starting in 2017 with 6.5 Mbps and ending 2021 with 22.3 Mbps, the latter being the highest figure recorded for this operator. The ICE with its



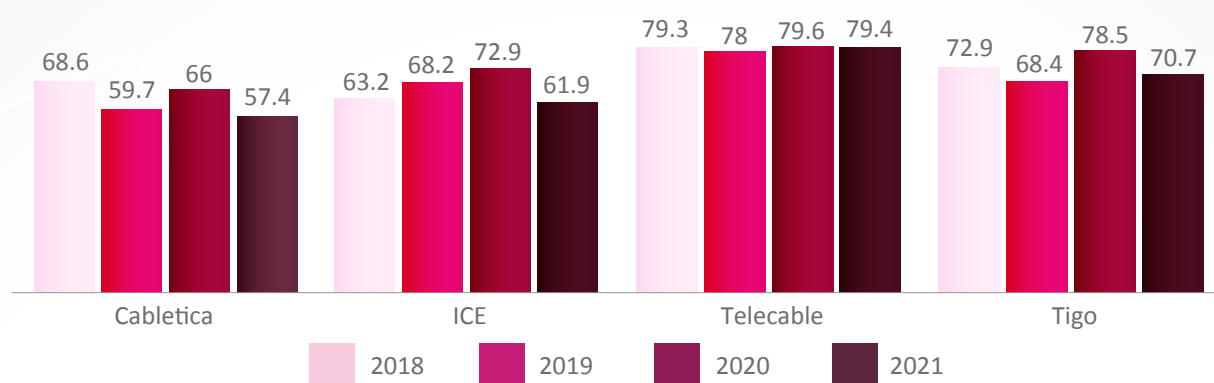
Kölbi brand has shown an evolution from 4.9 Mbps at the beginning of 2016 and achieving 30.7 Mbps at the end of 2021.

The availability of the 4G network shown in [Chart n.º 214](#) provides a measure of the percentage of time that users of a specific operator will remain connected to the network with 4G technology. In this [Chart n.º 214](#), the names of the trademarks of mobile services have also been used instead of the names of the operators. In the case of Movistar, the increase has been 17 percentage points from the first half of 2016 to the second half of 2021, going from

63.8 % to 80.6 %. In the case of the operator Claro, the increase is denoted by the change between 41.8 % in 2017 to 84.8 % in 2021, that is, an increase of 43 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 2021, an evolution from 44.4 % to 67.2 % is shown, presenting an increasing trend, but with a decrease that is around 7 percentage points compared to the previous immediate periods.

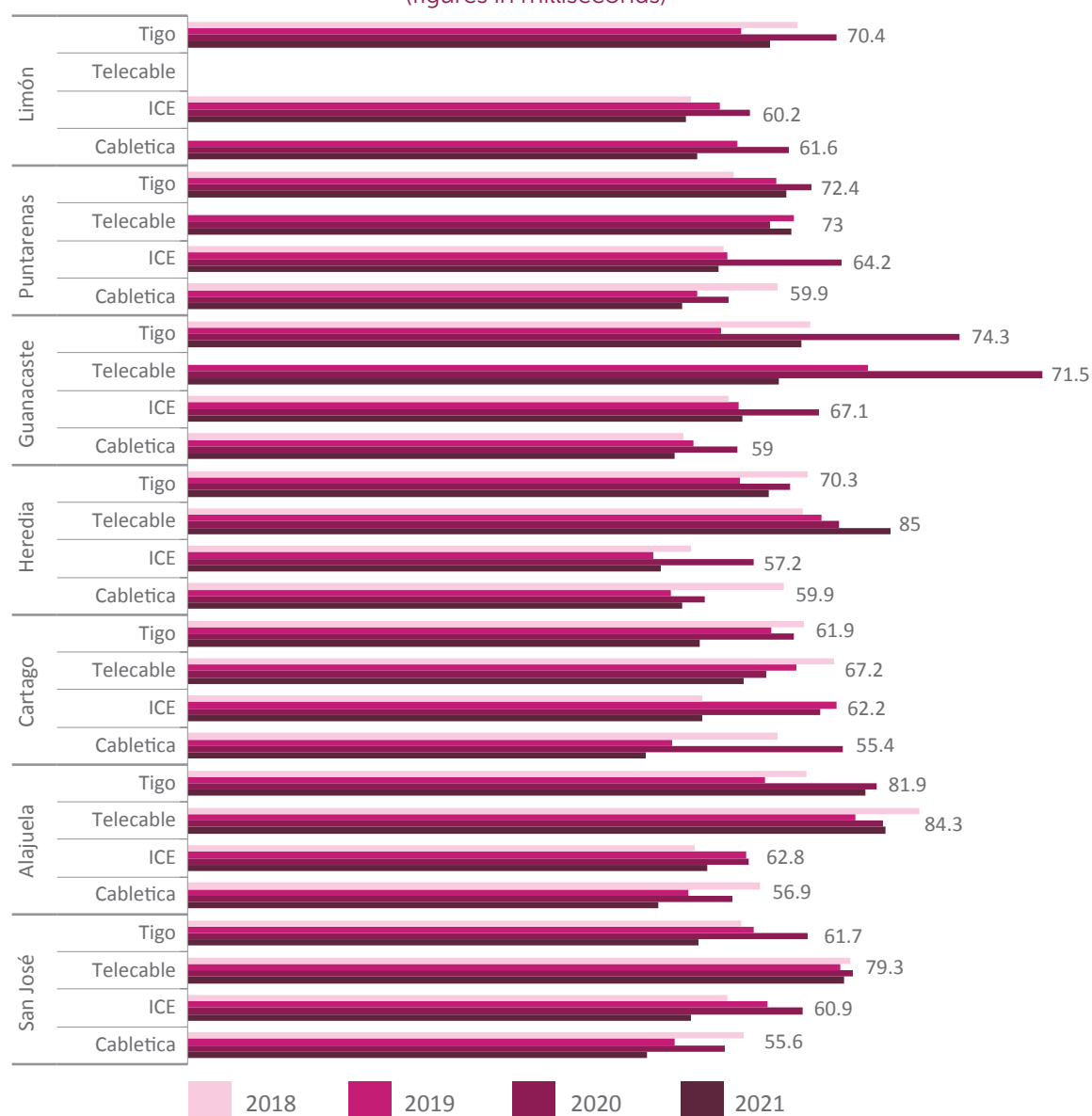


Chart n.º 180. Costa Rica: Evolution of the international latency indicator for whole country 2018-2021  
(figures in milliseconds)



Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

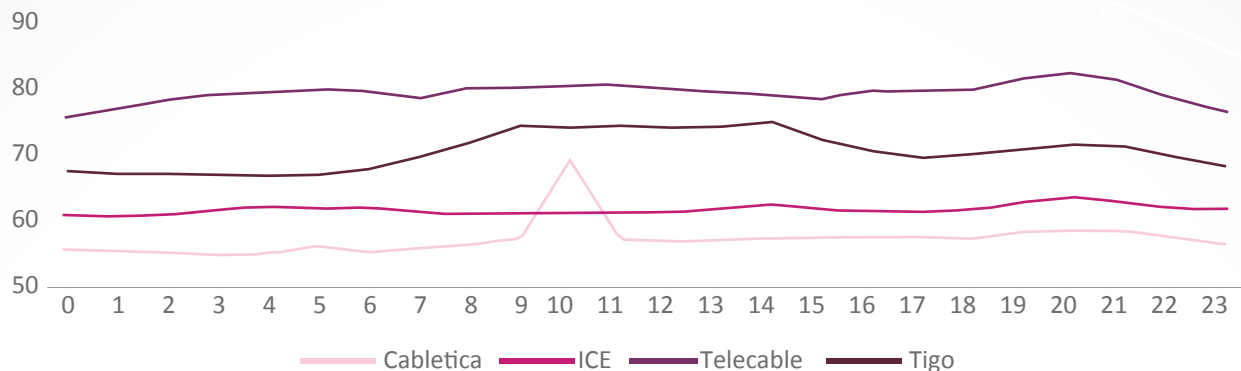
Chart n.º 181 Costa Rica: Evolution of the international delay indicator by province 2018-2021  
(figures in milliseconds)



Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

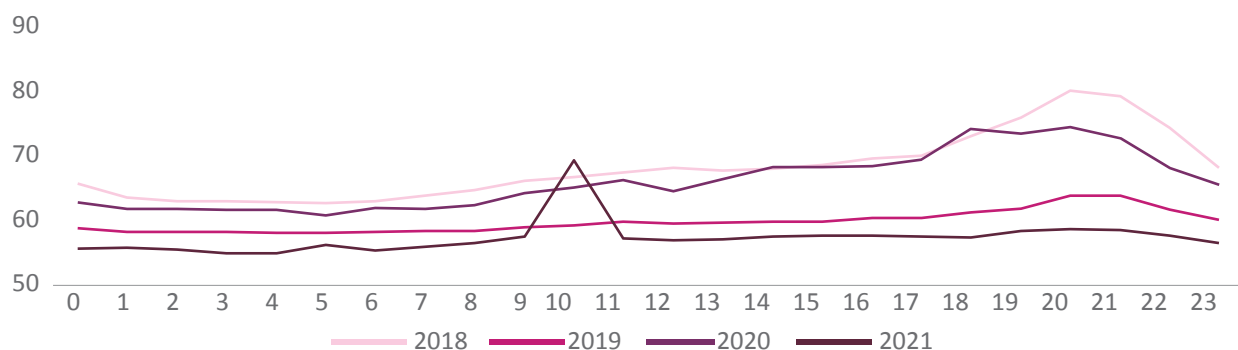


**Chart n.º 182. Costa Rica: 24-hour behavior of the international latency indicator for the whole country, 2021**  
(figures in milliseconds)



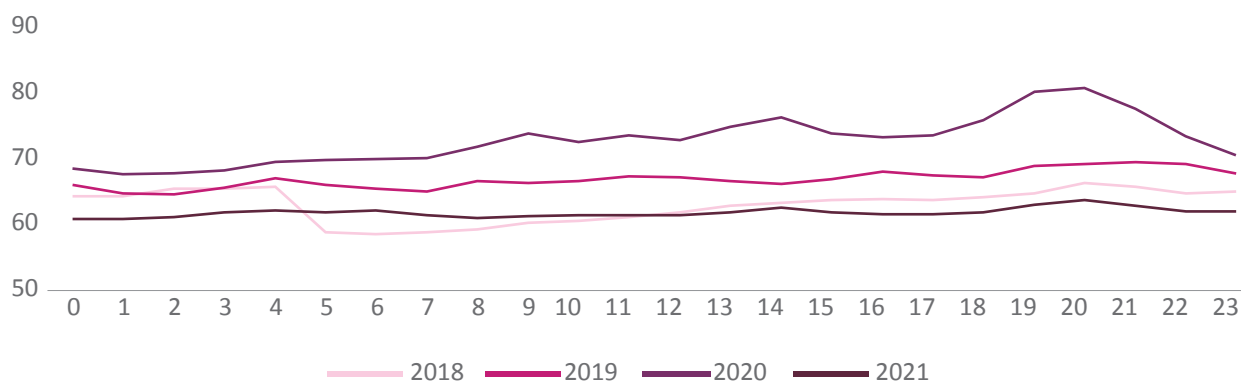
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

**Chart n.º 183. Costa Rica: Evolution of the 24-hour behavior of the international latency indicator for the operator Cabletica 2018-2021**  
(figures in milliseconds)



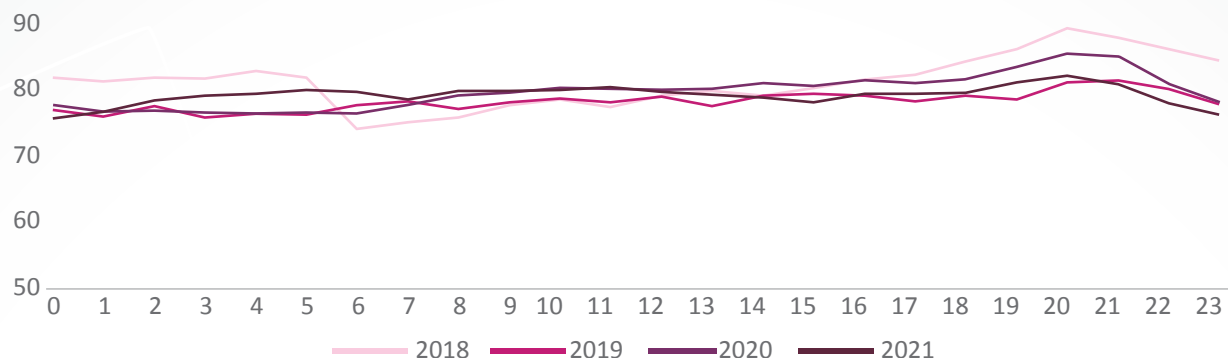
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

**Chart n.º 184. Costa Rica: Evolution of the 24-hour behavior of the international latency indicator for the operator ICE 2018-2021**  
(figures in milliseconds)



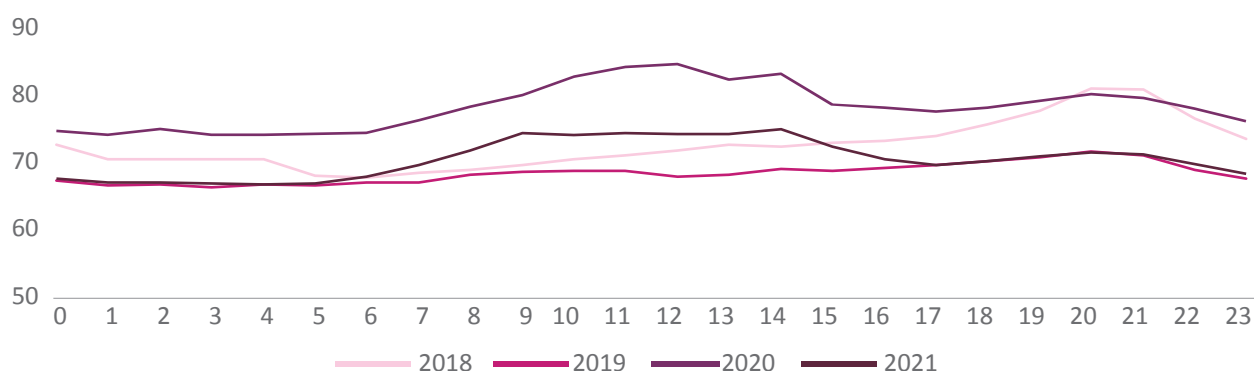
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 185 Costa Rica: Evolution of the 24-hour behavior of the international latency indicator for the operator Telecable 2018-2021  
(figures in milliseconds)



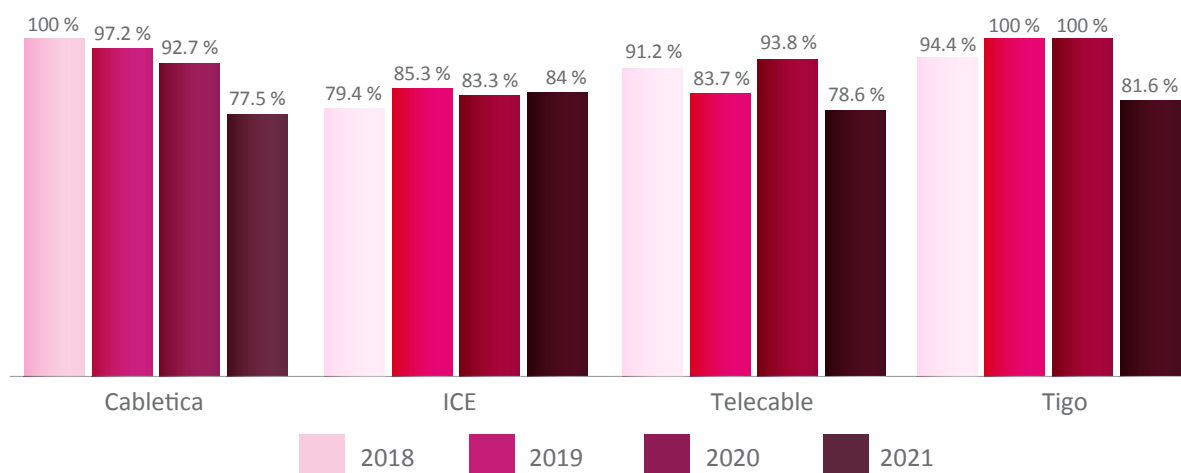
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 186. Costa Rica: Evolution of the 24-hour behavior of the international latency indicator for the operator Tigo 2018-2021  
(figures in milliseconds)



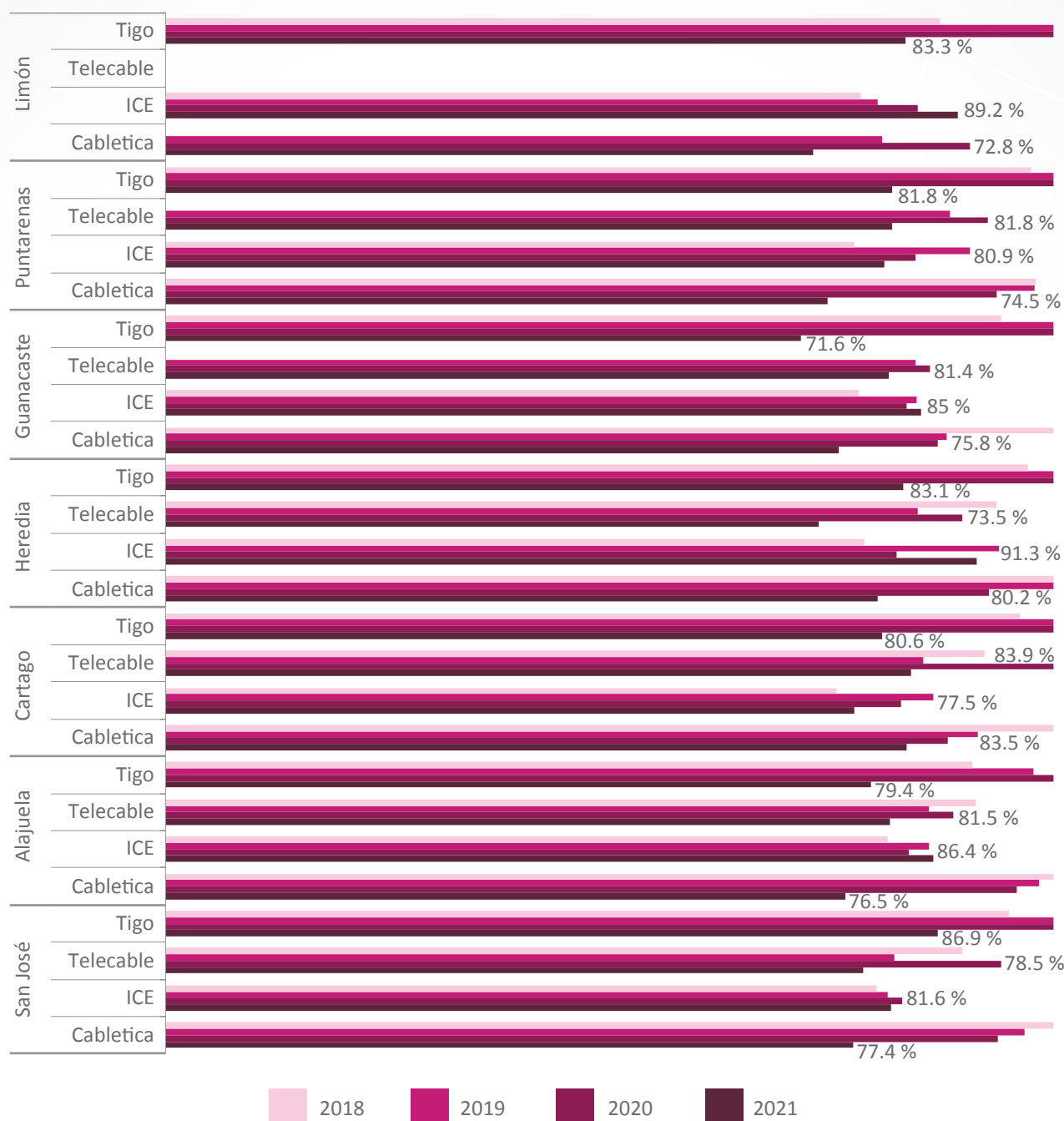
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 187. Costa Rica: Evolution of the download speed performance indicator for the whole country, 2018-2021  
(figures in percentage)



Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

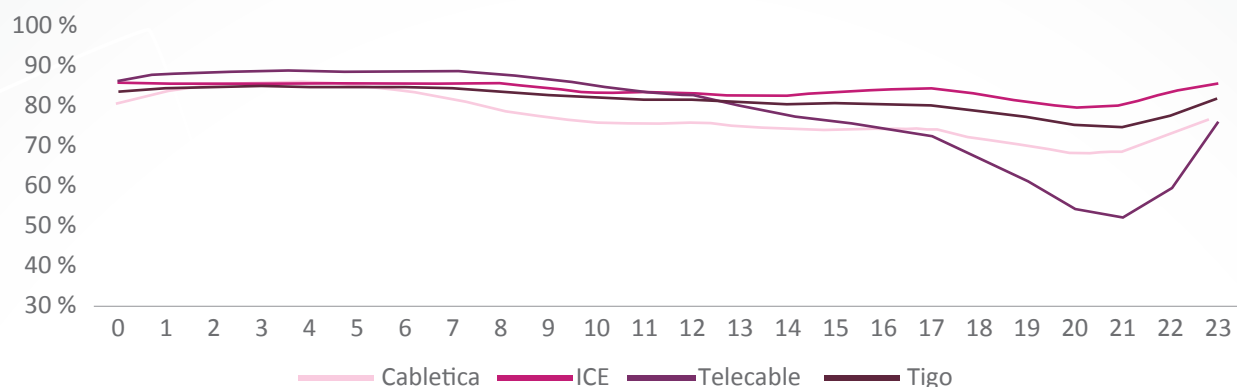
Chart n.º 188. Costa Rica: Evolution of the download speed performance indicator  
by province, 2018-2021  
(figures in percentage)



Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

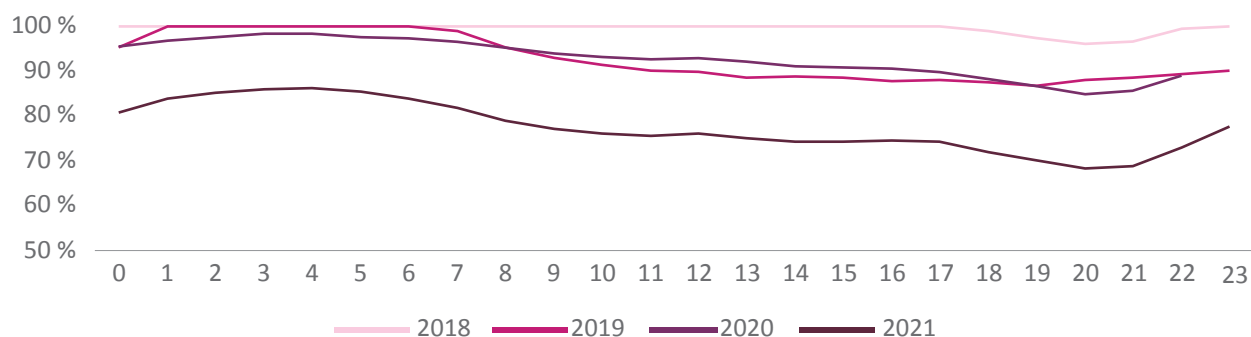


Chart n.º 189. Costa Rica: 24-hour behavior of the download speed performance indicator for the whole country, 2021  
(figures in percentage)



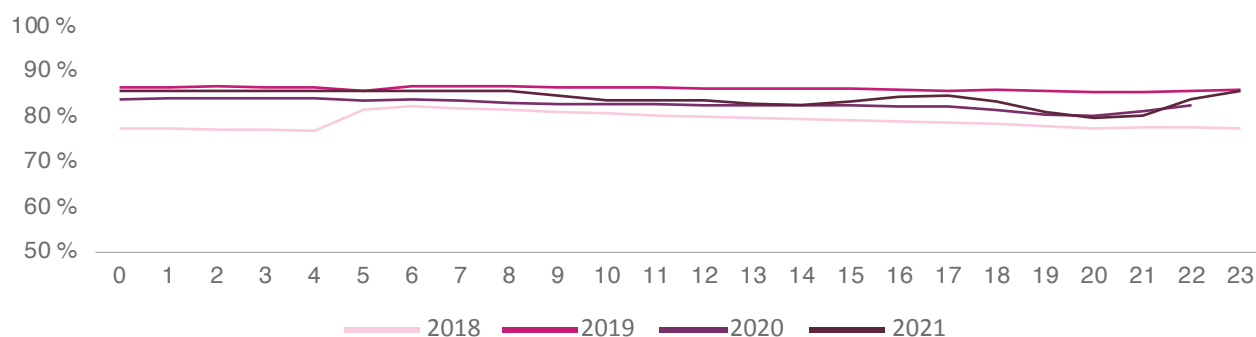
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 190. Costa Rica: Evolution of the 24-hour behavior of the download speed performance indicator for the operator Cabletica, 2018-2021  
(figures in percentage)



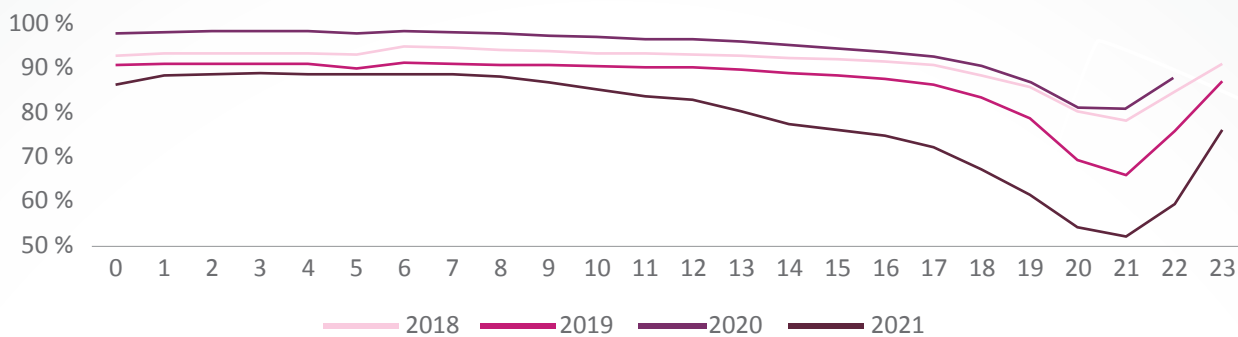
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 191. Costa Rica: Evolution of the 24-hour behavior of the download speed performance indicator for the operator ICE, 2018-2021  
(figures in percentage)



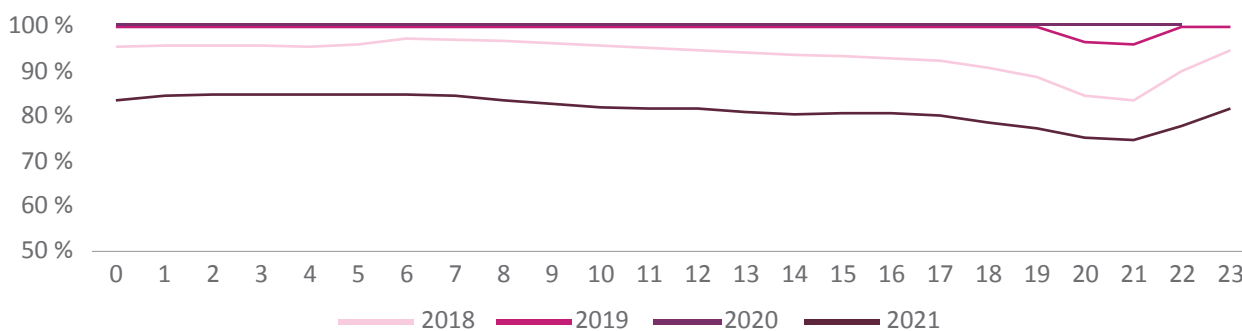
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 192. Costa Rica: Evolution of the 24-hour behavior of the download speed performance indicator for the operator Telecable, 2018-2021  
(figures in percentage)



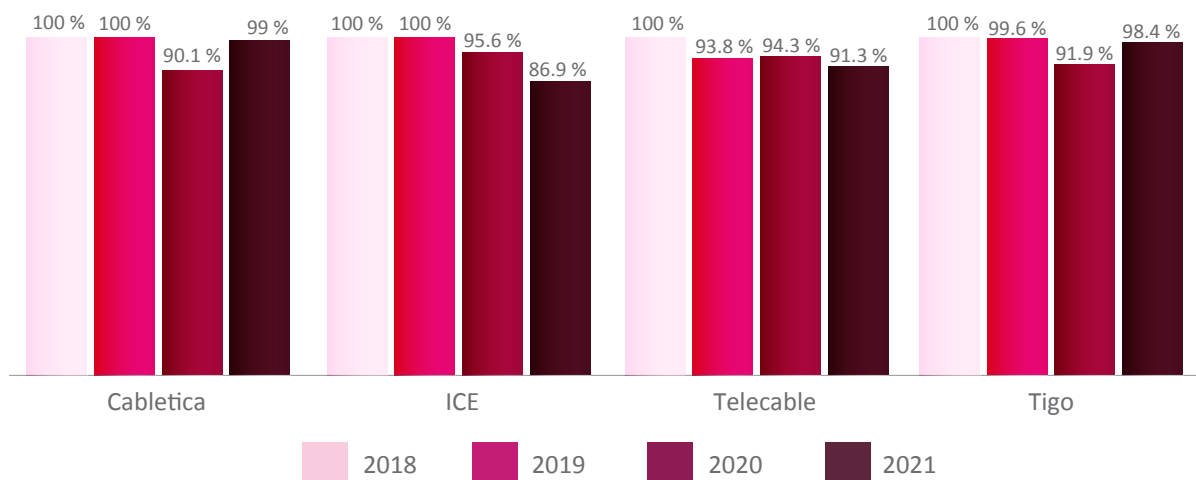
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 193. Costa Rica: Evolution of the 24-hour behavior of the download speed performance indicator for the operator Tigo, 2018-2021  
(figures in percentage)



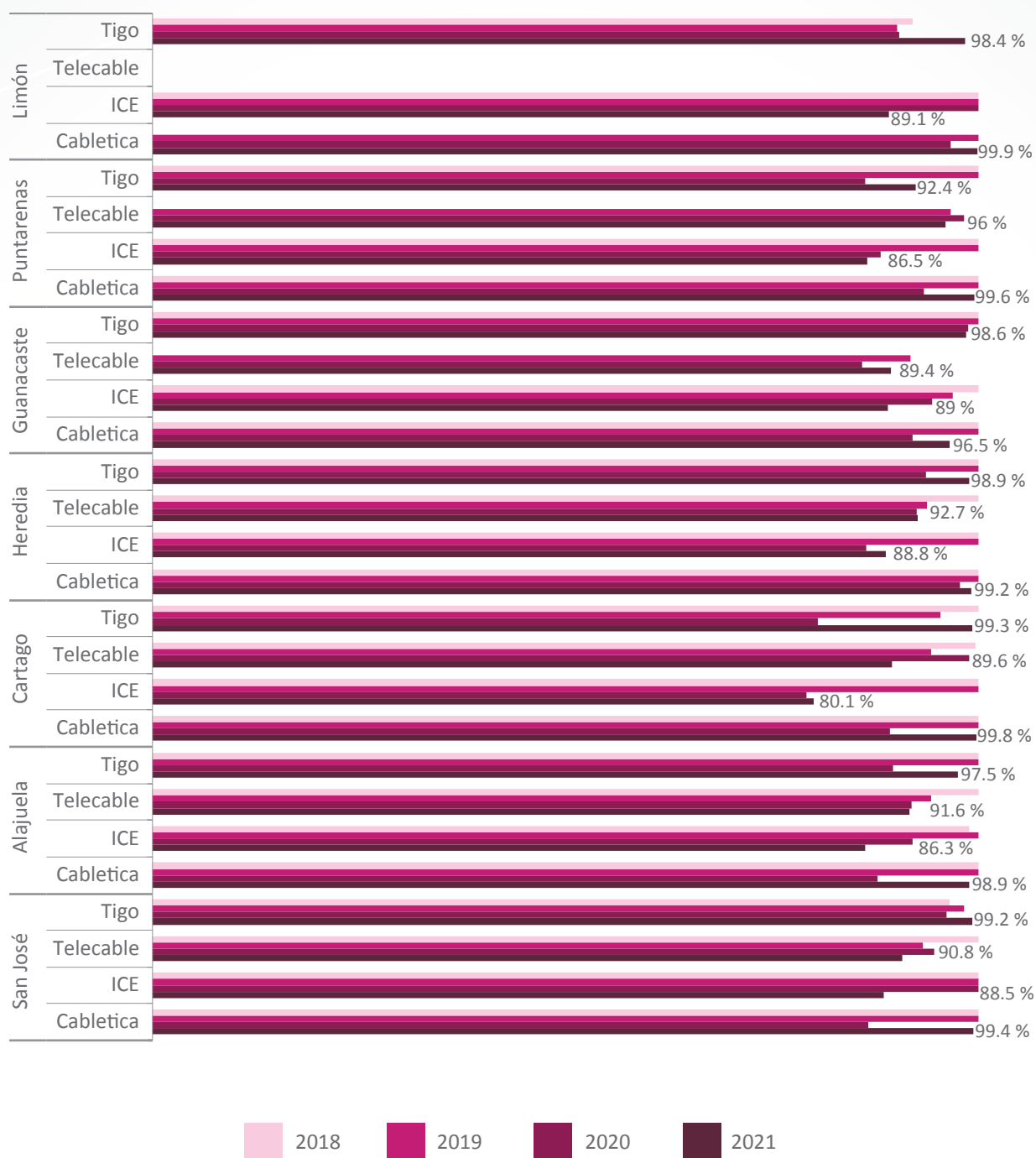
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 194. Costa Rica: Evolution of the upload speed performance indicator for the whole country, 2018-2021  
(figures in percentage)



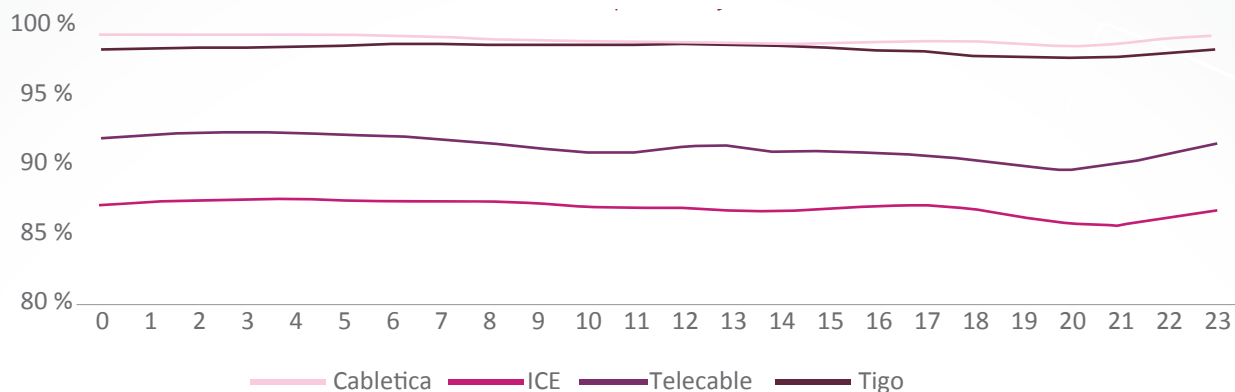
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 195. Costa Rica: Evolution of the upload speed performance indicator  
by province, 2018-2021  
(figures in percentage)



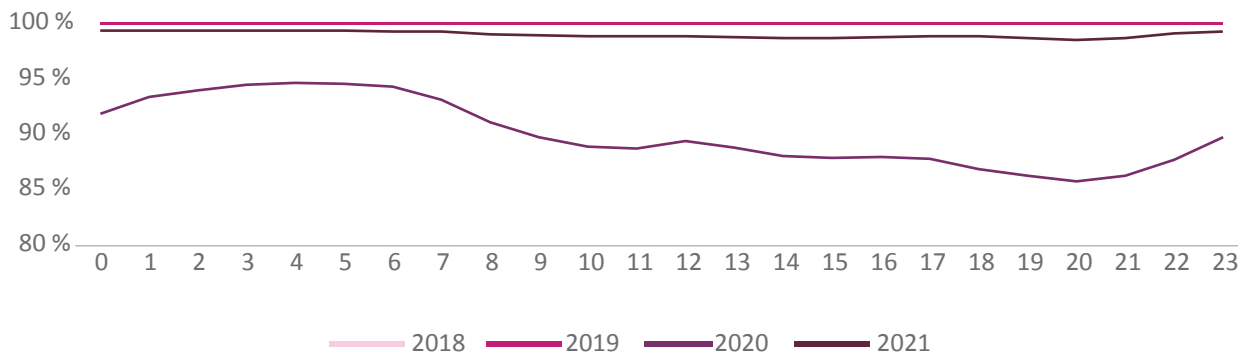
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

**Chart n.º 196. Costa Rica: Evolution of the 24-hour behavior of the upload speed performance indicator for the whole country, 2018-2021**  
(figures in percentage)



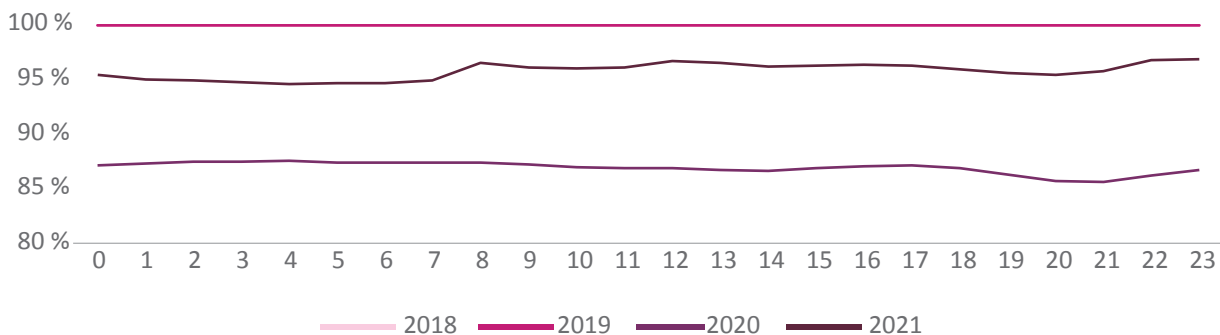
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

**Chart n.º 197. Costa Rica: Evolution of the 24-hour behavior of the upload speed performance indicator for the operator Cabletica, 2018-2021**  
(figures in percentage)



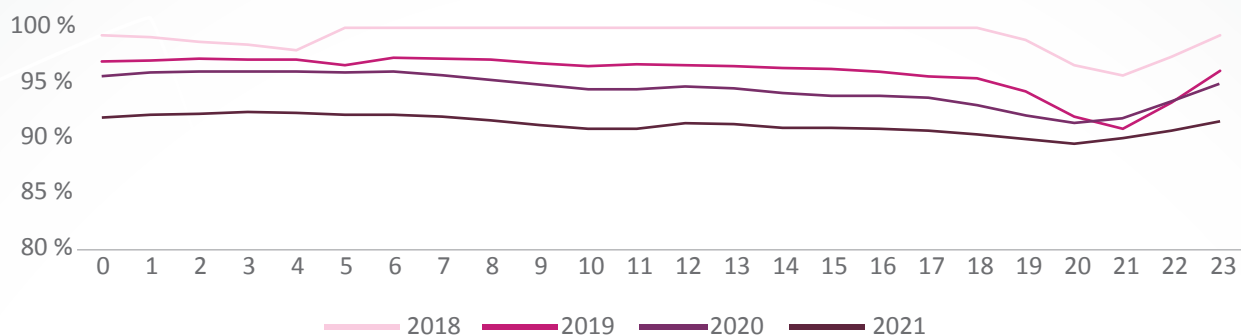
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

**Chart n.º 198. Costa Rica: Evolution of the 24-hour behavior of the upload speed performance indicator for the operator ICE, 2018-2021**  
(figures in percentage)



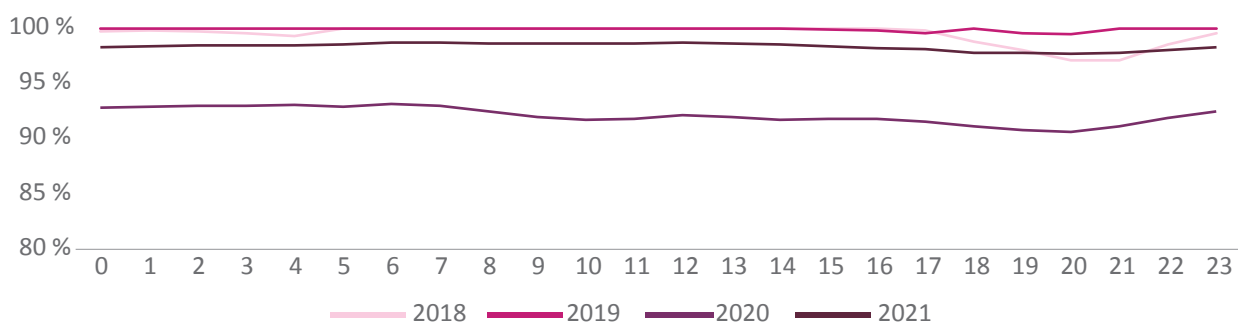
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 199. Costa Rica: Evolution of the 24-hour behavior of the upload speed performance indicator for the operator Telecable 2018-2021  
(figures in percentage)



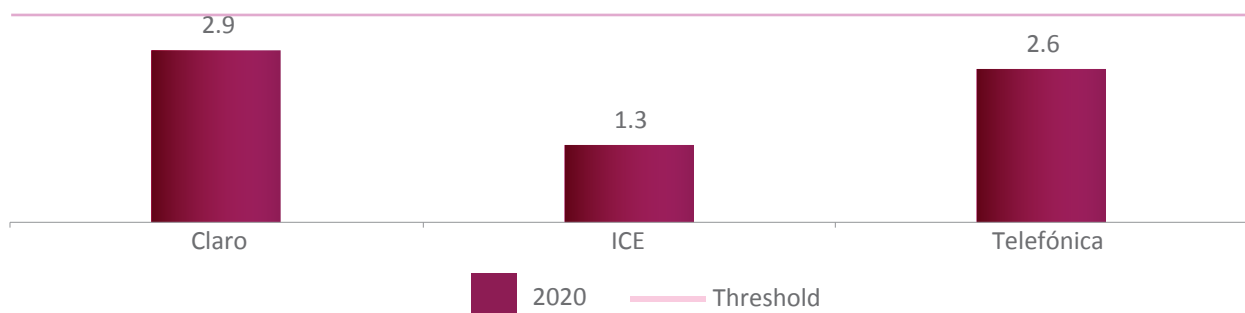
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 200. Costa Rica: Evolution of the 24-hour behavior of the upload speed performance indicator for the operator Tigo, 2018-2021  
(figures in percentage)



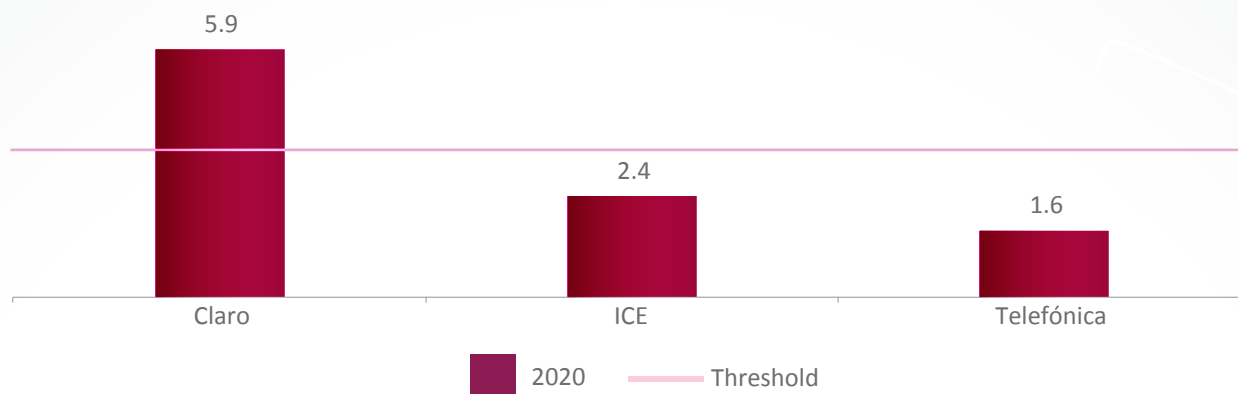
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 201. Costa Rica: Unsuccessful call ratio per operator for the mobile phone service on the 2G network, 2020  
(figures in percentage)



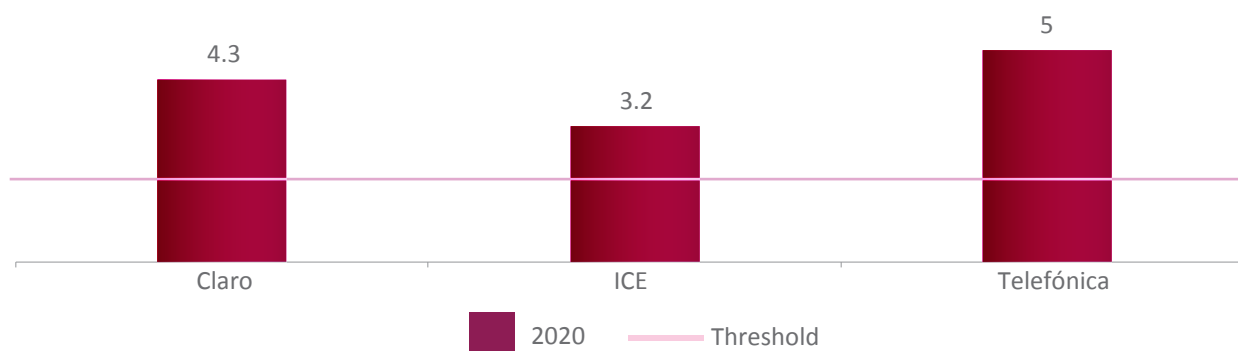
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 202. Costa Rica: Unsuccessful call ratio per operator for the mobile phone service on the 3G network, 2020  
(figures in percentage)



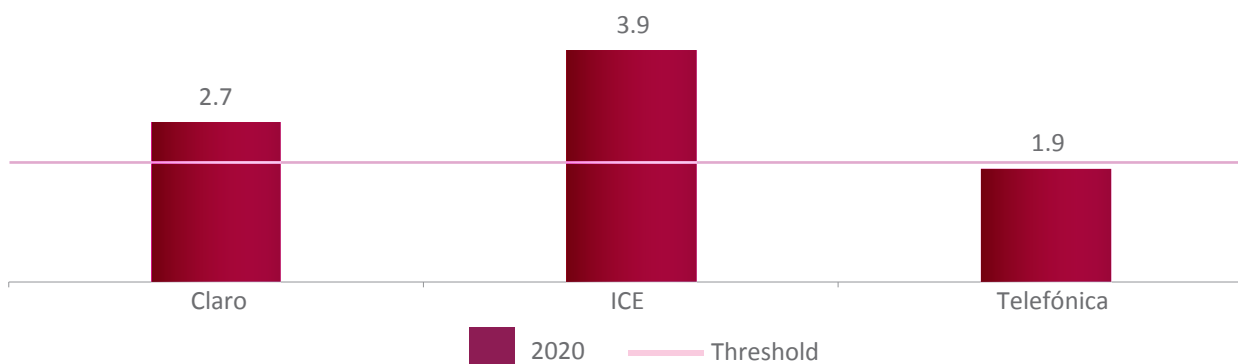
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 203. Costa Rica: Dropped call ratio per operator for the mobile phone service on the 2G network, 2020  
(figures in percentage)



Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

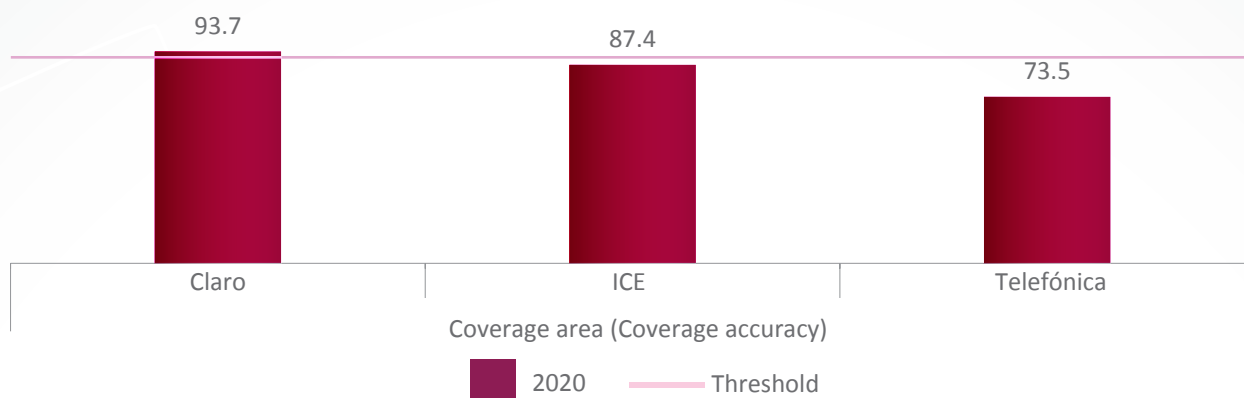
Chart n.º 204. Costa Rica: Dropped call ratio per operator for the mobile phone service on the 3G network, 2020  
(figures in percentage)



Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

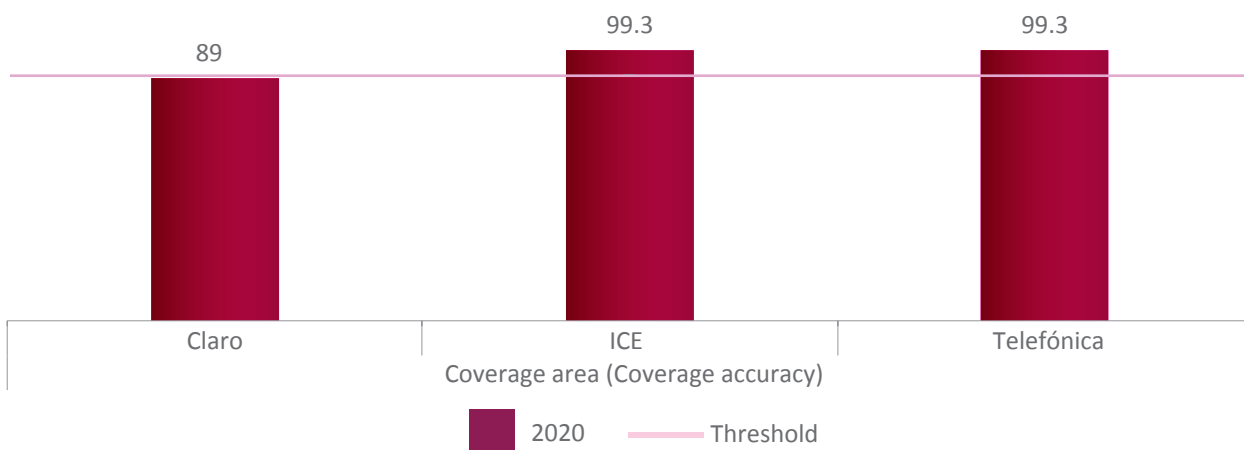


Chart n.º 205. Costa Rica: Percentage of samples from each operator that comply with the coverage area (coverage accuracy) of the 2G network, 2020  
(figures in percentage)



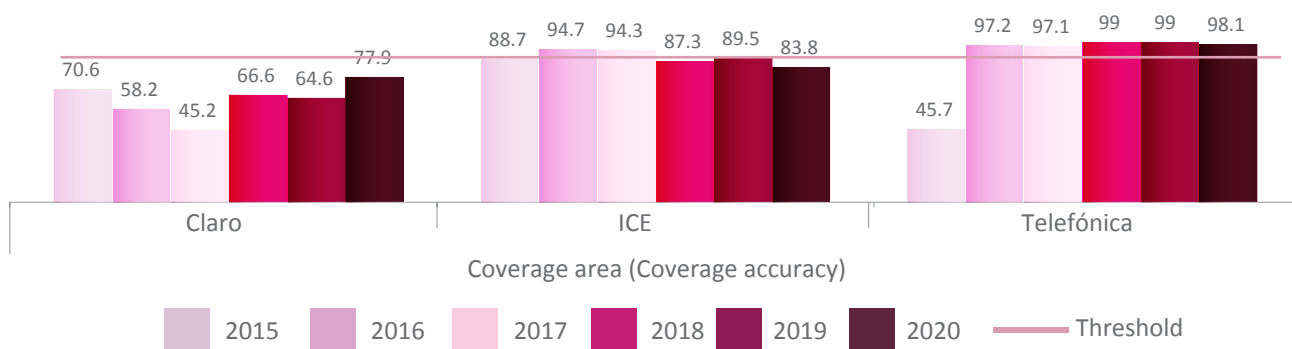
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 206. Costa Rica: Percentage of samples from each operator that comply with the coverage area (coverage accuracy) on the 3G network, 2020  
(figures in percentage)



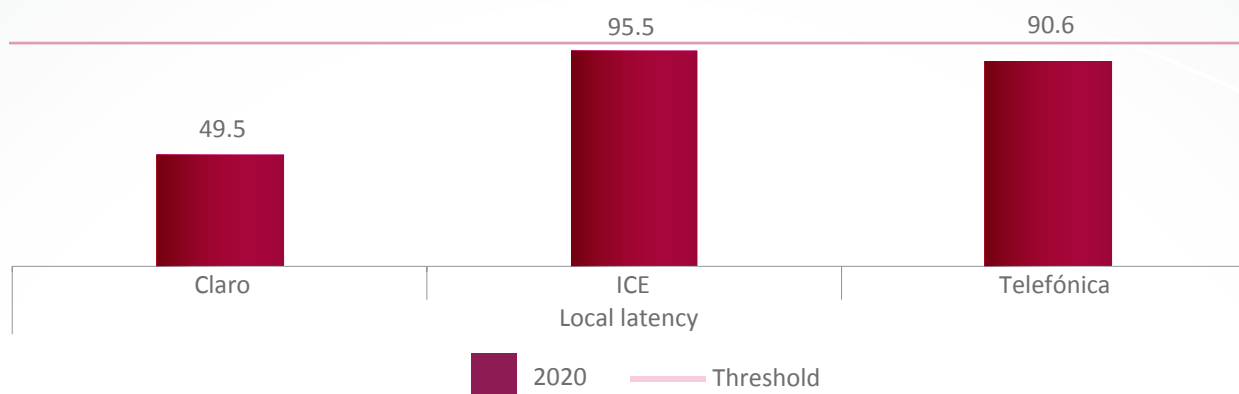
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 207. Costa Rica: Percentage of samples from each operator that comply with the coverage area (coverage accuracy) on the 4G network, 2020  
(figures in percentage)



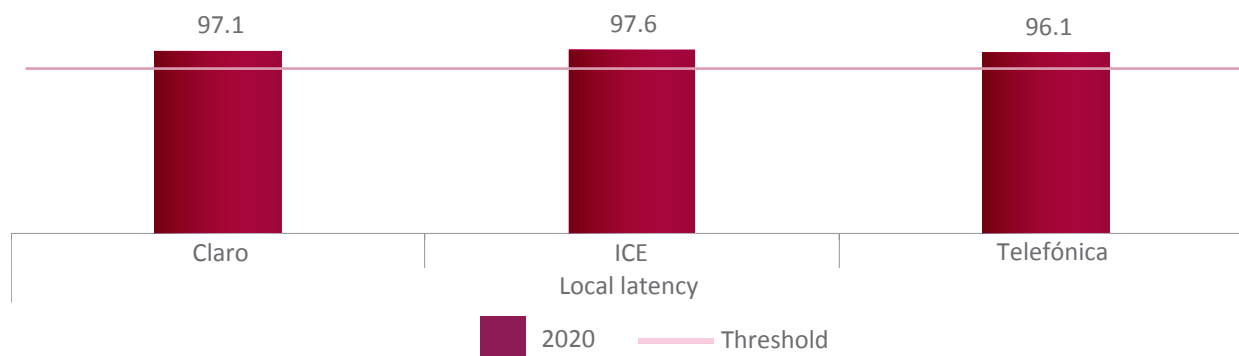
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 208 Costa Rica: Percentage of samples collected that meet the local latency threshold established for the 3G network by operator, 2020  
(figures in percentage)



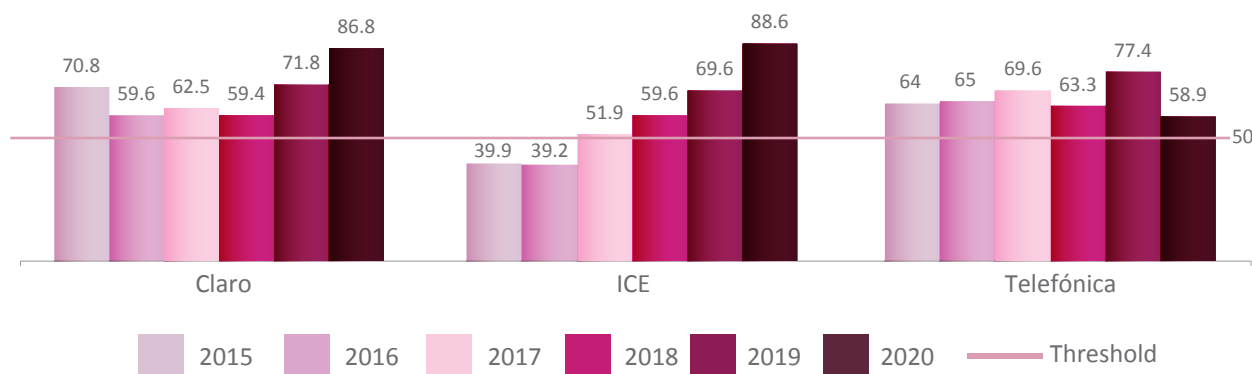
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 209. Costa Rica: Percentage of samples collected that meet the local latency threshold established for the 4G network by operator, 2020  
(figures in percentage)



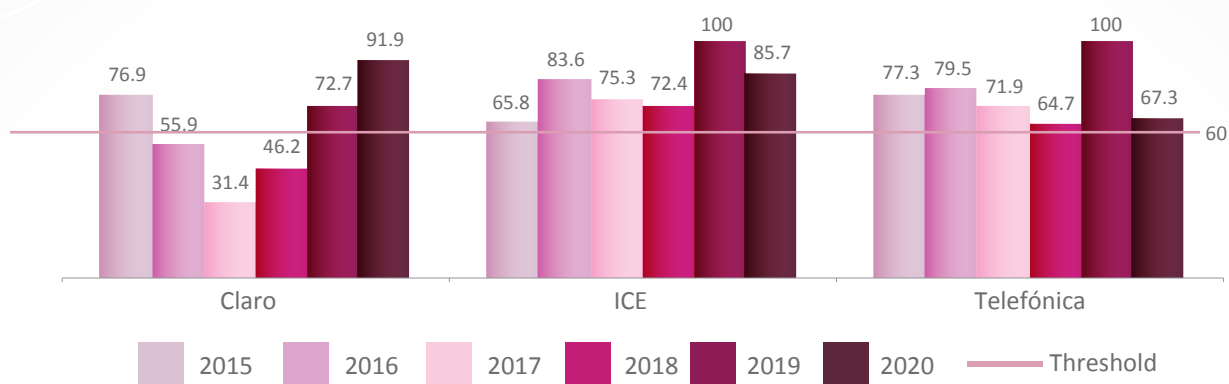
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 210 Costa Rica: Evolution of average download speed performance measured with respect to the speed provisioned (contracted) for the 3G network by operator, 2015-2020  
(figures in percentage)



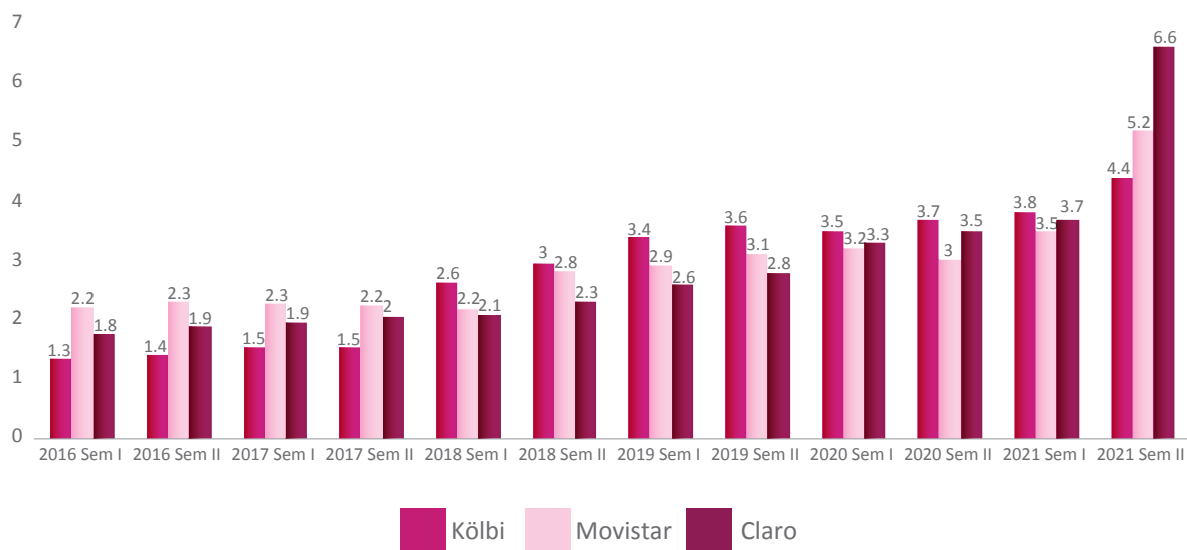
Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 211 Costa Rica: Evolution of average download speed performance measured with respect to the speed provisioned (contracted) for the 4G network by operator, 2015-2020  
(figures in percentage)



Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

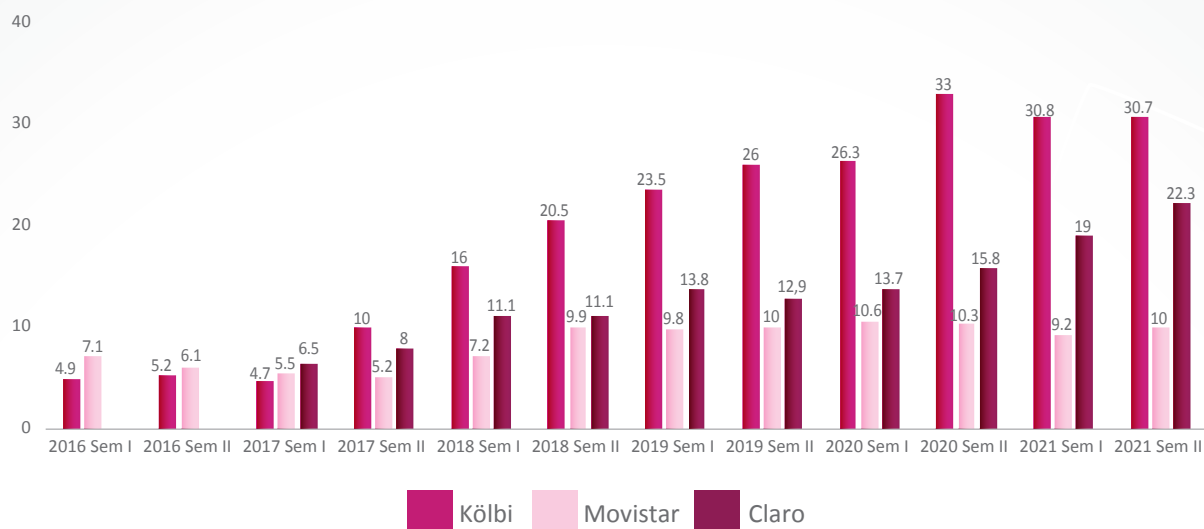
Chart n.º 212. Costa Rica: Evolution of 3G download speed, 2016-2020  
(figures in Mbps)



Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 213. Costa Rica: Evolution of 4G download speed, 2016-2020

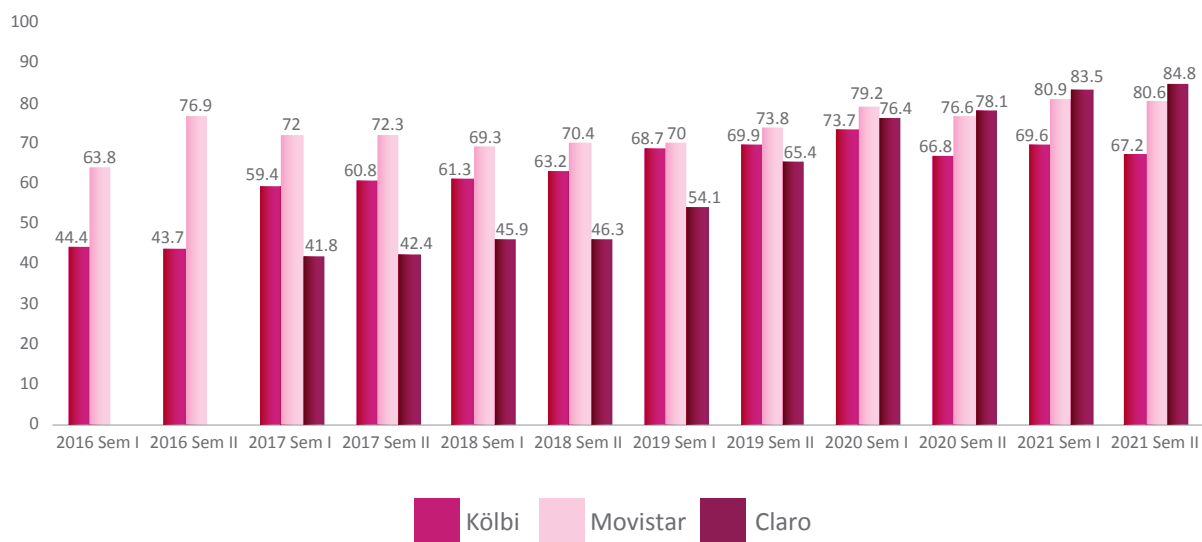
(figures in Mbps)



Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.

Chart n.º 214. Costa Rica: Evolution of 4G access availability, 2016-2020

(figures in percentage)



Source: SUTEL, Directorate General of Quality, Costa Rica, 2021.



# FONATEL





## Attainment of Goals of the National Telecommunications Development Plan and execution of FONATEL resources

## Goal achievement indicator for the National Telecommunications Development Program (NTDP)

### • Aggregate Results

The following are the main aggregate results of the joint implementation of the programs financed and developed under the National Telecommunication Development Plan (NTDP) with Fonatel resources during the period 2015-2021<sup>50</sup>, according to type of indicator<sup>51</sup>. These programs seek to meet the goals defined in the public policy on universal access, universal service and solidarity assigned to SUTEL as administrator of FONATEL. At the end of 2021, the FONATEL<sup>52</sup> Trust has a portfolio of five programs in the execution phase: Connected Communities Program, Connected Households Program, Equipped Public Centers Programs, Connected Public Spaces Program and Bicentennial Educational Network Program.

The following is the progress made during 2021 in meeting the public policy goals established in the NTDP 2015-2021 updated to 2021<sup>53</sup>, associated with the programs in execution of FONATEL<sup>54</sup>. 2021 was characterized by the update of the NTDP 2015-2021, specifically, the inclusion of goal 14 associated with the Bicentenary<sup>55</sup> Educational Network Program.

At the end of 2021, 7 active goals included in the NTDP 2015-2021 associated with the programs executed with FONATEL resources were counted, with a compliance between 12 % and 100 % and an average of 56 %, this taking into account that goal n.º5 was increased<sup>56</sup> in July 2020 and goal n.º9 was also increased<sup>57</sup> in September 2020, along with the addition of new goals: n.º43 in September 2020<sup>58</sup> and n.º14 from February 2021<sup>59</sup>. Likewise, it is highlighted that in 2021 it was possible to comply<sup>60</sup> to the goals defined for the Connected Households

<sup>50</sup> This report presents the results from 2015 to 2021 in correspondence to the NTDP in force 2015-2021.

<sup>51</sup> To see more details of the formulation of 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 compliance with Goals of the National Telecommunications Development Plan".

<sup>52</sup> Contract of the "Fideicomiso de Gestión de los Proyectos y Programas SUTEL - BNCR".

<sup>53</sup> The results presented in this report are contrasted with the latest update of the goals included in the NTDP 2015-2021, published by the Ministry of Science, Technology and Telecommunications (MICITT) in February 2021.

<sup>54</sup> This Report includes only the results of the NTDP targets 2015-2021 assigned to SUTEL/FONATEL for which data are available for follow-up, under the responsibility of SUTEL/FONATEL. The report of goals n.º 3, n.º 6, n.º 7 and n.º 8 is excluded from this report because the responsibility for its fulfillment exceeds SUTEL/FONATEL and is shared with other institutions (MICITT, IMAS, MIVAH, MEIC) that are in charge of the report of the respective information, entities that have pending the delivery of said reports, so you can't calculate your progress. In this regard, refer to the agreement of the Council of SUTEL 028-058-2020, notified by means of the letter 07532-Sutel-SCS-2020 of August 24, 2020. With respect to targets n.º 7 and n.º 8, in the Second Biennial Evaluation Report of the Goals of the NTDP 2015-2021 (Technical Report n.º 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](https://www.micit.go.cr/sites/default/files/ii_informe_de_evaluacion_bienal_del_pndt_2015-2021_final_web_1.pdf)) it is indicated that these goals are met.

<sup>55</sup> During 2020 SUTEL worked alongside MICITT and the Ministry of Public Education (MEP) on the amendment of goal 14 of the NTDP 2015-2021 associated to the program initially named Solidary Bandwidth Network. The goal that is being met with Fonatel resources was defined and published by MICITT in February 2021, within the framework of the Bicentenary Educational Network Program, thus modifying the initial name of the program.

<sup>56</sup> Goal n.º 5 of the NTDP 2015-2021 was updated in July 2020, increasing by 46 492 the number of households to benefit, from 140 496 to 186 958 households by 2021.

<sup>57</sup> Goal no. 9 NTDP 2015-2021 was updated in September 2020, increasing the reach of the Equipped Public Centers Programs by 83.643 devices to be delivered, from 40.000 devices and support products by 2020 to 123 643 devices and support products by 2021.

<sup>58</sup> In September 2020, MICITT incorporated target 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 education system, with subsidy for Internet connectivity, by 2021."

<sup>59</sup> In February 2021, the MICITT updated and published goal n.º 14 to the NTDP 2015-2021 within the framework of the Bicentennial Educational Network Program: "39.6 % progress in the execution of the Bicentennial Educational Network FONATEL Axis to 2021"

<sup>60</sup> According to the NTDP classification of goals, included in the "Methodology of Monitoring, Evaluation and Modification of goals of the NTDP 2015-2021" published by MICITT in November 2020.

(goal n.º 5) and Connected Public Spaces programs (target n.º 13), obtaining fulfillments greater than 97 %, also, it was possible to partially comply with the goals associated with the Connected Communities (goal n.º 1) and Bicentenary Educational Network programs (goal n.º 14) with compliance rates between 50 % and 70 % ([see Table n.º 21](#)).

## Management indicators

On the progress of the management of projects and programs financed with FONATEL resources, the following results concerning the coverage of services, infrastructure development and provision of support devices and products are highlighted<sup>61</sup>, based on the intervention of these projects.

During 2021, a new project was added to the portfolio of programs and projects developed and financed with FONATEL resources, based on the inclusion of goal n.º 14 associated with the Bicentennial Educational Network Program. At the end of 2021, a total of 38 projects were reported in the different phases of the life cycle of each<sup>62</sup>.

Most of these projects (84 %) belong to the Connected Communities Program, which is responsible for bringing connectivity to rural and low-profit areas ([see Chart n.º 215](#)). This has led to a cumulative execution as of December 2021 of 136 113 million colones.

Another relevant aspect of 2021 is that two of projects of the Connected Communities Program that reached their closing phase in 2020, corresponding to tenders n.º 005-2013<sup>63</sup> and n.º 006-2013<sup>64</sup>, both awarded to the operator

Telefónica, were extended for an additional year from the month of May 2021<sup>65</sup>. These projects bring connectivity to 8 districts of the cantons of Guatuso and Los Chiles, through the installation of 24 radio bases and the connection of 132 Public Service Provision Centers (CPSP), ensuring that 53 901 inhabitants of these districts have access to voice services and data. In total, there are 2 projects in the closing phase by 2021.

The four programs under implementation with FONATEL resources, together, were present in 484 districts<sup>66</sup> of the 488 in the country, representing 99 % of the country's total districts ([see Chart n.º 216](#)). Of the districts with the presence of FONATEL programs, 13 % have the presence of a single program in execution, which implies that about 9 out of 10 of the total districts have the presence of 2 or more programs. 36 % of districts benefit from 2 programs, 38 % of 3 programs, 7 % can access the benefits of the 4 programs in implementation and the 5 programs in execution have a presence in 6 % of the country's districts ([see Map n.º 6](#)).

As of 2021, the Connected Homes and Equipped Public Centers programs together delivered 218 475 devices for access and use of ICTs, which meant an increase of 18 % compared to 2020<sup>67</sup> ([see Chart n.º 217](#)), generating greater broadband technological solutions for the reduction of the digital divide in an integral way. Likewise, at the end of 2021, it was possible to bring the benefits of the Connected Communities, Equipped Public Centers and Bicentennial Educational Network programs to a total of 5714 Public Service Provision Centers (CPSP), this means a 9 % increase (459 more) in the number of CPSPs benefited ([see Chart n.º 218](#)).

<sup>61</sup> Support devices and products are defined as devices, equipment and instruments that allow access to and use of Information and Communication Technologies (ICT), as well as technologies, software and products designed to promote the personal autonomy of the people with disabilities.

<sup>62</sup> For 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 fulfillment of the Goals of the National Telecommunications Development Plan".

<sup>63</sup> Guatuso Project.

<sup>64</sup> Los Chiles Project.

<sup>65</sup> Addenda to the initial contracts, signed on 17 May 2021, extend the Guatuso and Los Chiles projects for an additional year.

<sup>66</sup> Districts with the presence of at least one program developed with FONATEL resources, with connectivity (total or partial) with access to voice and data services or with at least one household benefiting from subsidy for Internet service and a device for use or a CPSP with devices for access and use of ICT or a digital zone of free Internet access in service or a center educational connected to the Bicentenary Network.

<sup>67</sup> The devices delivered in 2021 correspond only to the Connected Households Program.

## Beneficiary indicators

The Connected Communities and Connected Households programs have contributed to increasing connectivity in areas with low profitability for the provision of telecommunications services for operators and service providers, and with low-income populations, covering in 2021, 468 419 households and 463 947 housing units<sup>68</sup>, which translates into 1 695 417 inhabitants<sup>69</sup> beneficiaries with access to voice and data services in districts with presence of the programs developed with FONATEL resources ([see Chart n.° 219](#)). This implies an increase compared to 2020, of 12 % in households and homes with access to voice and data services and 24 % in the case of inhabitants.

FONATEL resources allocated to the programs in execution have been invested in universalizing telecommunications services, expanding access to these services throughout the national territory. With the resources invested since the beginning of the projects and until 2021, it has been possible to cover 5000 subscriptions to the fixed telephone service and 226 867 subscriptions to the fixed Internet service. These results represent a 49 % increase in fixed telephony subscriptions and a 29 % increase in fixed Internet subscriptions compared to 2020 ([see Chart n.° 220](#)).

Mobile subscriptions generated through the Connected Communities Program reached 32 925 in 2021. In total, at the end of 2021, it was possible to benefit 977 165 people with the use of voice and data services provided through the programs executed with FONATEL resources, 55 % more than the population benefited in 2020.

## Financial indicators

The value of the Fund's total equity as of December 2021 was 204 683 million colones, 6505 million colones less than in 2020 ([see Chart n.° 221](#)), which means a 3.1 % reduction in the value of the fund, this due to a lower collection of the Special Parafiscal Contribution (CEPF) with respect to 2020 and an outflow of resources via investment executed during 2021 greater than in 2020. The Fund's commitments for the implementation of the portfolio of programs and projects under implementation amounted to 379 718 million colones (with an exchange rate of 642.6 colones per dollar).

In this regard, it is important to note that the CEPF decreased by 2.8 % compared to 2020, reaching 13 890 million colones in 2021<sup>70</sup> ([see Chart n.° 222](#)). On the other hand, the investment made by the programs in execution was 33 178 million colones in 2021, which meant a positive difference of 1213 million colones (4 %) more than the investment executed in 2020, with 2021 being the year with the highest investment executed in the period analyzed ([see Chart n.° 223](#)).

<sup>68</sup> The number of households and homes per district with access to voice and data services from the Connected Communities Program is estimated by dividing the population of districts with connectivity (total or partial) with access to voice and data services provided by this program, obtained from district population projections published by the National Institute of Statistics and Censuses (INEC), by the number of people per household or household estimated in the National Household Survey (ENAH0), namely: persons per dwelling: 3.37 (2015), 3.34 (2016), 3.31 (2017), 3.25 (2018), 3.21 (2019), 3.23 (2020) and 3.13 (2021), and persons per household: 3.31(2015), 3.27 (2016), 3.24 (2017), 3.20 (2018), 3.16 (2019), 3.19 (2020) and 3.10 (2021). The number of homes benefiting from the Connected Households Program is estimated by dividing the number of households benefiting from the program by the number of households per household estimated in the National Household Survey (ENAH0), namely: 1.022 (2016), 1.019 (2017), 1.014 (2018), 1.014 (2019), 1.015 (2020) and 1.010 (2021). In districts with the presence of both programs, the Connected Communities Program criterion applies (only the total number of homes and households in the district is considered).

<sup>69</sup> 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 these districts, obtained from the district population projections published by INEC. The number of people with Internet access in 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 ENAH0. The population with access to the provided through the Connected Public Spaces Program corresponds to users connected in the free Internet access zones (ZAIG). In districts with the presence of several programs including the Connected Communities Program, only the total number of inhabitants of the district is considered.

<sup>70</sup> It refers to the CEPF of the fiscal period of 2020 payable during 2021, which corresponds to 1.5 % of the gross revenues reported by operators and telecommunications services providers available to the public and that have an authorization certificate to operate.

The investment executed cumulatively during the last 9 years (2013-2021) in the management of programs and projects developed with FONATEL resources reached the figure of 136 113 million colones, since each year larger disbursements are made. In the last 4 years the investment executed for the maintenance of the programs has increased by an average of 32 % per year, accumulating 85 % of the total investment executed during the entire term of the programs ([see Chart n.° 223](#)).

If the investment executed by program is analyzed, the Connected Households Program is the one that has executed the largest amount of resources at the total level since its inception in 2016. Thus, the investment made by this program corresponds to 63 % of the total resources of the Fund executed in 2021. The investment made in the Connected Communities and Connected Households programs is equivalent to 84 %, of the total executed accumulated since 2013 ([see Chart n.° 224](#)). In 2021, no resources were executed for the Equipped Public Centers Programs because the first project of this program completed its execution in 2019, and the authorization by the MICITT of an extension of this was given in September 2020<sup>71</sup>, whose award process ended in December 2021, so its execution will be carried out during 2022<sup>72</sup>.

The resources executed from the Fund for 2021 were distributed among the 12<sup>73</sup> operators and service providers awarded through public tenders, which are responsible for the execution of the projects and programs.

In 2021, the Electrification Cooperative of the canton of Alfaro Ruiz was registered as a service provider within the Connected Households Program. The operators Telecable, Cabletica, ICE-

RACSA and Tigo all together account for 79 % the investment executed by FONATEL in 2021 ([see Chart n.° 225](#)).

## Program Results •

Below are the main results on the performance in the execution of each of the programs in which the portfolio of projects financed and developed within the framework of FONATEL is distributed. These results reflect the status and progress of each intervention or program in execution, during the period 2015-2021, in accordance with the period of validity of the current NTDP.

### Connected Communities Program (CCP)

#### Goal achievement indicators for the National Telecommunications Development Plan (NTDP)

The current NTDP 2015-2021<sup>74</sup> sets as total goals for this program: 183 districts (goal n.° 1) and 20 indigenous territories (goal n.° 2) in geographic areas without connectivity or with partial or partial connectivity extended to the country with access to voice and data services, by 2021. The advancement of the Connected Communities Program during 2021 allowed to bring connectivity to 128 districts and 6 indigenous territories of the country, achieving a fulfillment of 70 % of goal n.° 1 ([see Chart n.° 226](#)) and a fulfillment of 30 % in goal n.° 2<sup>75</sup> ([see Chart n.° 227](#)), expanding the geographic areas with greater connectivity and access to voice and data services.

On the fulfillment of goal n.° 2, it is important to emphasize that for the attention of the indigenous territories an authorization is required on behalf of

<sup>71</sup> Goal n.° 9 NTDP 2015-2021 was updated in September 2020, increasing the reach of the Equipped Public Centers Programs by 83.643 devices to be delivered, from 40.000 devices and support products by 2020 to 123.643 devices and support products by 2021, that is, the goal was increased by 209 %.

<sup>72</sup> During 2021, work was carried out on the award process to execute the extension of goal n.° 9 associated with the first project of this program. In 2021, no deliveries of devices were made, maintaining the progress achieved in 2019.

<sup>73</sup> Telecable, Cabletica, ICE, Tigo, RACSA, Coopeguanacaste, Claro, Telefónica, Coopesantos, Coopelesca, Cable Pacayas and Coopealfaroruiz.

<sup>74</sup> According to NTDP Goal Matrix 2015-2021, updated to February 2021.

<sup>75</sup> In October 2019, tenders 001-2018 and 002-2018 were awarded, which contemplate the coverage of 14 indigenous territories. It is currently in the process of analyzing a contest for the attention of 6 additional territories.



the Integral Development Associations (ADI for its Spanish acronym) and there were inconveniences in obtaining said authorization, as well as during the process of awarding the respective tenders and in the beginning of their execution at the end of the year 2020 and the beginning of 2021<sup>76</sup>.

The districts with connectivity (partial or total) with access to voice and data services benefited through this program are located in 5 regions of the periphery of the country, covering the 7 provinces ([see map n.º 8](#)). On the other hand, the indigenous territories that have connectivity (partial or total) with access to voice and data services are located in the northern and southern regions of the country ([see map n.º 8](#)). In 2021 there was a 1 % increase in the number of districts with connectivity (partial or total) with access to voice and data services compared to 2020<sup>77</sup>, while indigenous territories with connectivity (partial) or total) with access to voice and data services doubled, from 3 to 6, compared to 2020.

The planning regions with the largest number of districts with the presence of this program correspond to the Chorotega (31 %), Brunca (23 %) and Huetar Norte (20 %) Regions, adding 95 districts ([see Chart n.º 228](#)). As for the indigenous territories served through the Connected Communities Program, they are located in the regions Huetar Norte (1), Chorotega (1), Brunca (1) and Huetar Caribe (3).

## Management indicators

The Connected Communities Program consists of a portfolio of 32 projects, which has remained unchanged since 2017. In 2021, the execution of 27<sup>78</sup> projects that had reached the closing phase in 2020 was extended for an additional year. This caused the number of projects in the execution phase to increase by 8 % compared to 2020 and the number of projects in the closing phase to be reduced by half. The number of projects in the planning phase remains constant<sup>79</sup> ([see Chart n.º 229](#)). Projects in the implementation phase continue to be the majority (81 % of the total project portfolio of this program).

During 2021, within the framework of the Connected Communities Program, 41 telecommunications towers were put into operation, reaching a total of 628<sup>80</sup>, with which it is carried out connectivity to 128 districts and 6 indigenous territories of the country. The deployment of infrastructure carried out in 2021 meant an increase of 7 % in relation to the towers put into operation in 2020. This increase was mainly due to the progress of projects located in the Chorotega, Huetar Caribbean and Central Pacific regions, in which 37 towers were put into production (90 % of the total towers put into operation in 2021). It is important to note that in all regions there was an increase in the number of towers put into production, reporting increases of 5 % in the projects of the Huetar Norte and Brunca regions, which means 2 additional towers in each region compared to 2020 ([see Chart n.º 230](#)).

<sup>76</sup> In 2018, public tenders 001-2018 and 002-2018 were published for the attention of 16 indigenous territories of the Caribbean and southern zone, these being the only ones that had the authorization of the corresponding Integral Development Association (ADI). The only contractor that participated in the tender offered to cover 4 of these territories, which were awarded in October 2019. The execution of these projects suffered a significant delay due to the activation of a suspensive clause included in paragraph 20 of the contract signed between the Fiduciary and contractor, for the issue of the pandemic. The execution of the projects began in September 2020 after the lifting of the aforementioned clause. The contractor has experienced several problems in the execution, such as: delays in permit approvals, problems with the owners of the land, possessory procedures, lack of approval of the ADI agreement, delays in the processing for the use of frequencies, problems for land use for the installation of infrastructure. These problems are evidenced in the offices 00529-SUTEL-DGF-2022 of January 19, 2022, MICITT-DCNT- DNPT-OF-068-2021, 02975-SUTEL-DGC-2021, 7121-88-2021, 0264-1558-2020 and Minute FTI-UGP-002-2022 of February 3, 2020. The Territory of China Kichá will be served by means of an extension to the contract of the operator Claro, which requested an extension of 6 months for its attention, transferring the execution by 2022.

<sup>77</sup> It refers to the inclusion of the Cabeceras district of the canton of Tilarán, segregated from the Quebrada Grande district, within the Administrative Territorial Division of the country.

<sup>78</sup> Guatuso (contest no. 005-2013) and Los Chiles (contest no. 006-2013).

<sup>79</sup> It concerns projects to serve the Central Region of the country.

<sup>80</sup> This value includes new built towers and suitable existing towers with new equipment.

The scope of the projects of this program also includes the connectivity of Public Service Provision Centers (CPSP), which increased by 23 % from 2020 to 2021, which means 331 additional CPSPs with connectivity, reaching a total of 1777<sup>81</sup> CPSPs with access to fixed services telephony and Internet. These CPSPs correspond mostly (92 %) to educational centers of the Ministry of Public Education (MEP), but also include the Education and Nutrition Centers and Children's Centers for Comprehensive Care (CEN-CINAI) administered by the Ministry of Health (5 %), as well as 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 CPSPs with access to fixed telephone and Internet services ([see Chart n.° 231](#)). 1 % of the total CPSPs with connectivity (18), are located in indigenous territories, this implies an increase of 6 CPSP (50 % more) compared to 2020.

## Beneficiary indicators

The infrastructure deployed within the framework of the Connected Communities Program has made it possible to increase the universalization of access to telecommunications services, expanding the number of inhabitants with access to voice and data services in the districts and indigenous territories where the cost of installation and maintenance of Telecommunications infrastructure makes the provision of these services unprofitable for operators and service providers.

By 2021, it was possible to cover 943.896 inhabitants of 128 districts with connectivity (total or partial) with access to voice and data services provided through this program, which represents an increase of 1 % over the previous year, that is, 11 422 more inhabitants with access to these services. At the same time, access to voice and data services was provided to 301 721 homes in 2021, 5 % more than in 2020 ([see Chart n.° 232](#)).

In 2021, the beneficiary population of this program amounted to 136 934 direct users of the services provided. At the end of 2021, 5000 subscriptions to the fixed telephone service were counted, which implies an increase of 49 % compared to 2020. For its part, the fixed Internet access service reports 33 078 subscriptions in December 2021, this means an increase of 23 % between 2020 and 2021 ([see Chart n.° 233](#)). This increase is mainly due to the 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 2021 about half (48 %) of subscriptions to the fixed Internet access service of the Connected Communities Program were registered in the Huetar Norte region, in which 5 projects awarded to the operators Telefónica and Claro are executed. This region saw the largest increase in the number of subscriptions (2350) between 2020 and 2021. In 2021, an increase in the number of subscriptions was reported compared to 2020, in all regions, with the increases concentrated in the Huetar Norte, Huetar Caribe and Brunca regions, which cover 95 % of the total subscriptions reported in 2021 ([see Chart n.° 234](#)).

As for the subscriptions to the fixed telephone service of this program, they were concentrated in the Brunca region (35 %), followed by the Huetar Caribe region (29 %) and Chorotega region (21 %), which means that more than 8 out of 10 subscriptions to the fixed telephony service were made in these three Regions during 2021.

The Chorotega region also experienced the highest absolute growth, increasing by 806 subscriptions between 2020 and 2021 ([see Chart n.° 235](#)).

It is important to clarify that initially the projects tendered under the Connected Communities Program include as a contractual object the extension of the coverage of the fixed voice and

<sup>81</sup> This figure includes 15 CPSPs of the projects that are in a state of closure (Pacuarito de Siquirres and Roxana de Pococi), the which keep services active. Additionally, it includes 44 CPSPs to which fixed telephone and Internet services were installed, but were subsequently disconnected at the request of the governing institutions.



Internet services. 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 these operators, therefore, they are considered as a positive externality of this program. As of September 2020, SUTEL requested to carry out the necessary studies and adjustments in the contracts for the commercialization of mobile services within the scope of the projects of this program<sup>82</sup>. In this regard, for 2021 there is a positive variation of 5 % in the number of subscriptions to mobile services compared to 2020, reaching 32 925 subscriptions ([see Chart n.° 236](#)).

Mobile subscriptions are marketed in the Huetar Norte, Huetar Caribe and Brunca regions. In 2021, these subscriptions were concentrated in the Huetar Norte region, covering 56 % of total subscriptions. This region saw the highest year-on-year growth in mobile subscriptions, increasing 6 % between 2020 and 2021. On the other hand, the Huetar Caribe and Brunca regions presented a growth in the number of subscriptions corresponding to 4 %, compared to 2021 ([see Chart n.° 237](#)).

In accordance with the modification made by the MICITT to the NTDP, in compliance with the provision 4.5 of the report DFOE-IFR-IF-0001-2020, the SUTEL Council instructed the Trustee and its management units to include mobile services as part of the access and universal service projects, a process that is being implemented.

## Financial indicators

In 2021, an investment of 4 609 million colones of the Fund was reported attributable to the execution of the projects of the Connected Communities Program (14 % of the investment executed by FONATEL in that year).

This implies a negative variation of 58 % compared to the investment executed in 2020. This investment was distributed among the three mobile operators participating in the implementation of this program (ICE, Claro and Telefónica), all of which showed a year-on-year decrease between 26 % and 79 % compared to 2020 ([see Chart n.° 238](#)). The cumulative investment made in this program since its inception in 2013 amounts to a total of 30 588 million colones, this corresponds to 22 % of the investment total accumulated, implemented in the Program Maintenance Fund.

## Connected Households Program (PHC)

### Goal Attainment Indicators for the National Telecommunications Development Plan

This program comprises two projects: the first, associated with goal n.° 5 and the second, goal n.° 43, both contemplated in the NTDP 2015-2021 in force<sup>83</sup>. Goal n.° 5 associated with the first project of this program was established in 186 958 households<sup>84</sup> distributed in the national territory, which receive a subsidy for Internet service and a device for their use, by 2021. For its part, goal n.° 43, corresponding to project 2, was set at 100 684 households<sup>85</sup> in a condition of socioeconomic vulnerability and with students in the Costa Rican public education system, with a subsidy for Internet connectivity, by 2021. The implementation of the Connected Households Program during 2021 resulted in 97 % meeting goal n.° 5<sup>86</sup> and 12 % of goal no. 43 ([see Chart n.° 239](#)).

By the end of 2021, there were 193 789 (93 %) households benefited in total, with a positive variation of 31 % (45 363 additional households) compared to 2020. 94 % (181 644) of these beneficiary households are attributed to the first project, associated with goal 5, which received a

<sup>82</sup> Agreement 006-061-2020 notified by means of the official letter 08067-SUTEL-SCS-2020 of September 10, 2020.

<sup>83</sup> According to NTDP Goals Matrix 2015-2021, updated to February 2021.

<sup>84</sup> Goal expanded in July 2020, from 140 496 to 186 958 households to benefit by 2021, which means an increase of 46 462 households.

<sup>85</sup> Goal incorporated to the NTDP 2015-2021 in September 2020.

<sup>86</sup> In November 2021, the efforts to contact potential beneficiaries within the framework of this project were suspended, due to the fact that the sum of the beneficiary households and the households in assigned status (households that were contacted by an Internet provider, but are at the expected to formalize the process of incorporation into this program, which correspond to 188 459 households) exceeded the scope of goal no.5 (186 958 households).

subsidy for the acquisition of fixed Internet and a computer for their use.

The remaining 6 % (12 145 households) benefited from project 2, through which they received a subsidy for the purchase of Internet (fixed or mobile). The beneficiaries of the first project increased by 22 % between 2020 and 2021. In this regard, it is important to consider that the second project, associated with goal n.º 43, began to be implemented in 2021 ([see Chart n.º 240](#)).

Of the total number of households benefited in 2021, 166 512 (86 %) have active Internet service, which present a positive variation of 32 % compared to 2020. 93 % of all households with active service belong to project 1. Non-active households<sup>87</sup> showed an increase of 22 % between 2020 and 2021, with 1 % of these belonging to project 2 ([see Chart n.º 241](#)).

The distribution of households benefited through the PHC according to income quintile, a variable used as a criterion for the definition of the target population of the program, reflects that, during 2019 and 2020, the distribution of beneficiary households remained constant with respect to the quintile of income. In 2021 there is a variation in this distribution: the percentage of households benefiting from quintile 1 decreased by 3 percentage points compared to 2020, reaching 81 %, while that corresponding to quintile 2, increased by 2 percentage points between 2020 and 2021, covering 16 % of total households benefited. The program continues to benefit mostly households in poverty and extreme poverty, located in the lowest quintile ([see Chart n.º 242](#)).

The Connected Households Program has the participation of 11 operators and service providers involved in attracting and serving beneficiaries. At the end of 2021, the operators Telecable, Cabletica, Tigo and Ice provided Internet service to 92 % of the beneficiary households ([see Chart n.º 243](#)).

## Management indicators

12 % of households in the country benefited from the benefits of the Connected Households Program in 2021. The provinces most benefited from this program during that year were Guanacaste and Puntarenas, which had the highest percentage of households benefited (18 % and 17 % respectively). This means a positive variation of 4 percentage points for each province, compared to 2020 ([see Chart n.º 244](#)).

The increase in the number of households benefited allowed the expansion of both of projects of the Connected Households Program in the national territory, reaching 482 districts with at least one household benefited by one of the projects, which meant a positive variation of 1 % (7 more districts) compared to 2020 ([see Chart n.º 245](#)). In turn, the number of districts with program reached 99 % of the total districts of the country, increasing by 1 percentage point compared to 2020. The first project (goal 5) is present in 482 districts (99 % of the country's total districts) ([see Map n.º 9](#)). The coverage of the second project (target 43) corresponds to 413 districts (85 % of the total districts in the country) ([see Map n.º 10](#)).

## Beneficiary indicators

In 2021, 166 512 total active subsidized subscriptions were reported<sup>88</sup>, to the fixed Internet access service, provided by the Connected Households Program (projects 1 and 2 together), 40 417 more subscriptions compared to 2020, for an increase of 32 %. Likewise, the number of net active subsidized subscriptions for 2021 was estimated at 114 893, implying an increase of 59 % between 2020 and 2021 ([see Chart n.º 246](#)).

<sup>87</sup> Households discharged from the program or in the process of changing status within the system for program management.

<sup>88</sup> Corresponds to the households benefiting from the active Internet access service.

Net penetration of the Connected Households Program's fixed Internet access service was 7.0 % in 2021<sup>89</sup>, representing an increase of 2.4 percentage points over 2020. Considering the total active subsidized subscriptions as of 2021, the total penetration of the program's fixed Internet access service rises to 10.1 % ([see Chart n.° 247](#)). This result becomes relevant considering that the penetration per 100 homes of the fixed Internet access service in the general market was 64.2 % in 2021<sup>90</sup>. It follows that the Connected Households Program contributed to the penetration of fixed Internet access service in the market by up to 15.7 % in 2021.

In total, at the end of 2021, it was possible to benefit 660 796 people with a subsidy for the acquisition of Internet service, 94 % of whom belong to project 1, also receiving a computer for use. Of the total number of households benefiting from this program in 2021, 66 % (128 767) correspond to households headed by women and 79 % (152 831) to households with minors, accumulating 314 555 children and adolescents of age school benefited by this program since its inception in July 2016.

### Financial indicators

During 2021, 21 006 million colones of the Fund were executed through this program, which represents an investment 21 % higher than that executed in 2020, a difference that translates into 3640 million colones more invested between one year and another, in this program ([see Chart n.° 248](#)).

Likewise, the annual execution during 2021 in this program represented 63 % of the amount disbursed by FONATEL in the same period for the management of the programs. Cumulatively, at the end of 2021, 83 669 million colones were executed for the development of this program, which represent 61 % of all the amounts disbursed by FONATEL since 2013, for the execution and maintenance of programs and projects.

The amounts executed in 2021 through the Connected Households Program were distributed among the 11 operators and service providers that are responsible for providing the benefits of this program to the target population. Most of the disbursements (92 %) were made in favor of the operators Telecable, Cabletica, Tigo and ICE, which also accumulate the largest number of households benefited ([see Chart n.° 248](#)).

## Equipped Public Centers Programs (EPCP)

### Goal Attainment Indicators for the National Telecommunications Development Plan

Goal n.° 9 established in the NTDP 2015-2021 in force<sup>91</sup> and associated with the first project of this program was updated in September 2020<sup>92</sup>, establishing as a total goal 123 643 connectivity devices delivered to Public Service Provision Centers (CPSPs) by 2021<sup>93</sup>. With the increase in the goal, it is expected to benefit MEP educational centers with the delivery of 86 812 devices during the implementation of the extension of the program.

<sup>89</sup> It is calculated by dividing the net active subsidized subscriptions (114 893) by the total number of homes in the country (1 650 230) obtained from district population projections and the National Household Survey (ENAH0), published by the Institute. National Statistics and Censuses (INEC). For the calculation of this indicator is divided between the homes in order to keep congruence with the indicator of penetration calculated in the market, following the definition of the International Telecommunications Union (ITU), in which penetration is defined as the proportion of the entire market in which services have been introduced. In this sense, housing corresponds to the physical infrastructure where the installation of services is carried out and which may include one or more households that have access to the installed services. Additionally, within the surveys applied by INEC, the tenure of telecommunications services is measured at the housing level.

<sup>90</sup> Data extracted from the Data transfer section of this publication of Statistics of the Telecommunications Sector, SUTEL, 2021.

<sup>91</sup> According to NTDP Goal Matrix 2015-2021, update to February 2021.

<sup>92</sup> Through official letter MICITT-DM-OF-898-2020 of September 24, 2020, MICITT approved the extension of goal 9 of the NTDP 2015-2021, updated jointly between, MICITT, MEP, IMAS and SUTEL, for the attention of students of the Costa Rican education system identified among income deciles between 1 to 5, and in social and economic vulnerability.

<sup>93</sup> The update of the target means a total increase of 83 643 connectivity devices to be delivered to CPSP and an increase of 1 year in the term of its validity, from 40 000 devices by 2020 to 123 643 devices by 2021.

The original scope of goal n.º 9 (36 831 connectivity devices delivered to CPSP) was 100 % met in 2019 ([see Chart n.º 249](#)) through the implementation of the first project of this program, corresponding to an investment of 9573 million colones. This allowed to benefit educational centers of the Ministry of Public Education (MEP), Intelligent Community Centers (CECI), Education and Nutrition Centers and Children's Centers of Integral Care (CEN-CINAI) and hospitals, health areas and clinics of the Costa Rican Fund Social Security (CCSS).

To meet the expanded scope of goal n.º 9, SUTEL defined a new project under this program (project 2). The management of this project began with the publication of the tender poster by the trustee of the FONATEL trust on October 30, 2020, however, it was not possible to advance to the execution phase and the fulfillment of goal n.º 9, due to the filing of three appeals before the Comptroller General of the Republic (CGR): two on May 18 and one on August 23, 2021; the latter was resolved by the CGR on November 2, 2021. On November 19, 2021, the re-award of tender 001-2020 was finalized and on December 16, 2021, SUTEL received a copy of the contract signed between the trust and the company awarded for the execution of the project. The delivery of equipment and the budget execution associated with this new project will be reflected in the indicators from 2022. As of 2021, cumulative execution of previous years for this program is maintained ([see Chart n.º 250](#)).

## Management indicators and financial indicators

In September 2020, the MICITT approved the adjustment of target n.º 9, which enabled the development of the formulation and initiation of the tendering process for the delivery of 86 812 laptops and tablets to the Ministry of Public Education, equipment that will be delivered during the year 2021.

The delivery of equipment and the budget execution associated with this new project will be reflected in the indicators for 2021. As of 2020, the cumulative execution of previous years for this program is maintained.

## Connected Public Spaces Program (PEPC)

### Goal Attainment Indicators for the National Telecommunications Development Plan

This program is associated with goal n.º 13 of the NTDP 2015-2021 in force<sup>94</sup>, which establishes as a scope 513 digital zones of free Internet access for the population in public spaces, by 2021. This goal reached 100 % compliance in January 2021 ([see Chart n.º 251](#)). For December 2021, 513 digital zones were put into service, 3 zones (1 %) more than in 2020, corresponding to the digital zones that in 2020 were reported pending reception. On average, 103 zones were put into service per semester from 2019 to 2021 ([see Chart n.º 252](#)).

The 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 Institute Costa Rican Railways (INCOFER) and public areas of free access administered by the Municipalities, among which are parks, squares and community centers, among others.

In 2020, the commissioning of 3<sup>95</sup> digital zones (2 public spaces and 1 Civic Center for Peace) that were still pending, began operations in January 2021, reaching the totality of the provisions.

<sup>94</sup> According to NTDP Goal Matrix 2015-2021, updated to February 2021.

<sup>95</sup> These zones were installed in December 2020, but were received by the trustee of the FONATEL trust on January 4, 2021.



In this way, during 2021 it was possible to put into service all digital zones, as established in tender n.° 002-2017 ([see Chart n.° 253](#)). Of the total number of digital areas put into service, 8 out of 10 correspond to public spaces managed by the Municipalities, followed by libraries, train stations and, to a lesser extent, the Civic Centers for Peace. This behavior was maintained between 2019 and 2021 ([see Chart n.° 254](#)). It should be noted that the list of 513 digital zones established in the goal of this Program includes two areas that at the same time are library and Civic Center for Peace, located in Guararí (Heredia) and Aguas Zarcas (San Carlos)<sup>96</sup>.

### Management indicators

The execution of the only project of this Program is in charge of three awarded service operators. The distribution of digital zones put into service by operator indicates that the majority (175 zones) have been put into service in areas served by Coopeguanacaste, followed by Telecable, an operator that put into operation 171 digital zones. For its part, the ICE-RACSA-PC Central consortium put 169 digital zones into service. In relative terms, each operator has enabled around 1/3 of the awarded digital zones ([see Chart n.° 255](#)).

These digital zones are distributed in the seven provinces of the country, with San José and Alajuela being the provinces that cover about half (49 %) of the digital zones put into service ([see Chart n.° 256](#)). At the district level, the program has presence<sup>97</sup> in 65 % of the country's total districts, which means an increase of 1 percentage point compared to 2020, that is, 1 additional district ([see Chart n.° 257](#)). The program's presence covers the country's six planning regions ([see Map n.° 11](#)).

The 513 digital zones put into service in 2021 involved the installation of 703 points of access, 11 access points more than 2020, as well as the deployment of 2176 kilometers of fiber optics, to bring connectivity.

On the use of the free Internet service, by the end of 2021 the figure of 2 797 967 users was reached cumulatively, counted as the number of devices that connected to the free wireless Internet network at least once in the digital zones put into service. These users started a total of 11 170 153 sessions on the Zii network with an average duration of 2.1 hours per connected user, which involved a total Cumulative data traffic of 1 332 021 gigabytes (GB).

### Financial indicators

The management, maintenance and sustainability of the PEPC during 2021 meant an investment of 6550 million colones, 2811 million colones (75 %) higher than the investment made in 2020. The cumulative execution since the beginning of the program (2019-2021) with FONATEL resources in this program, reached the figure of 11 271 million colones. These resources were distributed among the three operators awarded by means of public tender<sup>98</sup>, which were in charge of the installation of the digital zones ([see Chart n.° 258](#)).

## Bicentennial Educational Network Program (BENP)

### Goal Attainment Indicators for the National Telecommunications Development Plan

Within the NTDP 2015-2021 in force<sup>99</sup> goal n.° 14 associated with the execution of this program<sup>100</sup>, is included, whose scope for 2021 was defined in 39.6 % of progress of execution of the Bicentennial Educational Network FONATEL Axis as of 2021, which implies the installation and connection of 516 educational centers. In this regard, the execution of

<sup>96</sup> When adding the number of digital zones put into service by institution or by type of zone, the result is 512, since these zones are counted twice.

<sup>97</sup> There is at least one digital zone of free Internet access in service.

<sup>98</sup> RACSA-ICE-PC Central, Coopeguanacaste and Telecable.

<sup>99</sup> According to NTDP Goal Matrix 2015-2021, updated to February 2021.

<sup>100</sup> Goal no. 14 was updated in February 2021.

this program generated an advance of 19.8 % of the FONATEL Axis, which meant a fulfillment of 50 % of the defined goal ([see Chart n.° 259](#)). It is important to consider that this Program began execution in the second quarter of 2021. By December 2021, 133 educational centers connected to the Bicentennial Educational Network (REB) were counted, obtaining the first connected centers in the month of August 2021. On average, 27 schools were connected per month ([see Chart n.° 260](#)).

## Management indicators

The connection of each educational center to the BEN implies a standard procedure, which includes: the coordination of a visit of the contractor with the director of the center for the survey of technical requirements; the realization of the visit; the preparation, delivery and approval of the design or sketch of the solution; the implementation of the solution (WAN Internet connectivity, installation of passive, electromechanical and active infrastructure of the internal LAN network) according to approved design and, finally, the realization of technical tests and the delivery and approval of reception of the connected educational center. At the end of 2021, 94 % of the educational centers defined in the NTDP 2015-2021 to be attended in 2021 had been visited (516 educational centers). In total, 1 out of every 3 centers established to be attended in 2021 was fully implemented and it was possible to connect 26 % to the BEN network ([see Chart n.° 261](#)).

Of the total number of schools connected to the BEN, only 5 % have a bandwidth of less than 100 Mbps and 13 % were connected at a browsing speed of 300 Mbps or higher, depending on the requirements established by the Ministry of Public Education (MEP) from the enrollment of each educational center ([see Chart n.° 262](#)).

The implementation of the only project of this Program is in charge of four service operators<sup>101</sup>,

with which an addendum to the contracts in execution was negotiated corresponding to the attention of the programs Connected Communities (1 operator) and Connected Public Spaces (3 operators). All the educational centers connected to the BEN in 2021 were carried out through the extension of the Connected Public Spaces Program, since 6 out of 10 connected centers were served by Telecable ([see Chart n.° 263](#)).

The educational centers connected to the BEN are distributed in the 7 provinces of the country, most of which are located in Puntarenas, San José and Guanacaste, covering 86 % of the total number of educational centers ([see Chart n.° 264](#)). This program has presence<sup>102</sup> in 57 districts, representing 12 % of the country's total districts ([see Chart n.° 265](#)). The presence of the program covers the 6 planning regions of the country, mainly in the Brunca, Chorotega and Central Pacific regions, which accumulate 80 % of the educational centers connected to the BEN ([see Mapa.° 12](#)).

## Beneficiary indicators

The implementation of this program has managed to bring Internet connectivity to 33 643 students from educational centers connected to the BEN, providing them with greater opportunities for learning and development. On average, connectivity has been expanded to 6729 new students per month, with December being the month that reports the highest number of students benefited (53 % of the total) ([see Chart n.° 266](#)).

## Financial indicators

The execution of this program during 2021 meant an investment of 1013 million colones. These resources were distributed among 3 operators<sup>103</sup>, 2 of which were in charge of the installation of connectivity and internal network of the educational centers ([see Chart n.° 267](#)).

<sup>101</sup> To date, it is in the process of analyzing, approving and assigning the remaining educational centers to new operators.

<sup>102</sup> There is at least one educational center connected to the BEN.

<sup>103</sup> Disbursement made to the Telecable operator corresponds to an advance of CAPEX, according to the model applied in the Connected Communities Program, where the first payment is made at the time of signing the contract. The disbursements executed to the operators Telecable and Coopeguanacaste correspond to the connection of educational centers.









Table n.º 21. Costa Rica: Goal achievements established in the NTDP 2015-2021 assigned to FONATEL programs in execution, 2015-2021

Goal description*	Goal in force febrero 2021 <sup>1</sup>	Avance 2021 <sup>2</sup>	Annual compliance	Total goal achievement
GOAL 1: 83 districts in geographical areas without connectivity or with partial, or partial extended connectivity with access to voice and data services, as of 2021	2015: 12	2015: 0	2015: 0 %	2015: 0 %
	2016: 32	2016: 32	2016: 100 %	2016: 17 %
	2017: 72	2017: 72	2017: 100 %	2017: 39 %
	2018: 72	2018: 72	2018: 100 %	2018: 39 %
	2019: 125	2019: 103	2019: 82 %	2019: 56 %
	2020: 125	2020: 127	2020: 102 %	2020: 69 %
	2021: 183	2021: 128	2021: 70 %	2021: 70 %
GOAL 2: 20 of the indigenous territories without connectivity, with partial or with expanded partial coverage of the country with access to voice and Internet services, as of 2021	2016: 0	2016: NA	2016: NA	2016: NA
	2017: 0	2017: NA	2017: NA	2017: NA
	2018: 0	2018: NA	2018: NA	2018: NA
	2019: 4	2019: 1	2019: 25 %	2019: 5 %
	2020: 4	2020: 3	2020: 75 %	2020: 15 %
	2021: 20	2021: 5	2021: 30 %	2021: 30 %
GOAL 5: 186 958 households distributed in the national territory with subsidy for Internet service and a device for its use, as of 2021 <sup>3</sup>	2016: 10 089	2016: 10 089	2016: 100 %	2016: 7 %
	2017: 30 418	2017: 30 418	2017: 100 %	2017: 22 %
	2018: 63 582	2018: 84 268	2018: 132 %	2018: 60 %
	2019: 95 196	2019: 130 579	2019: 137 %	2019: 93 %
	2020: 154 496	2020: 148 426	2020: 96 %	2020: 79 %
	2021: 186 958	2021: 181 644	2021: 97 %	2021: 97 %
GOAL 43: 100 684 households in conditions of socio-economic vulnerability and with students in the system Costa Rican public education system, with subsidy for Internet connection, as of 2021 <sup>4</sup>	2020: 10 684	2020: 0	2020: 0 %	2020: 0 %
	2021: 100 684	2021: 12 145	2021: 12 %	2021: 12 %
GOAL 9: 123 643 connectivity devices delivered to CPSP, as of 2021 <sup>5</sup>	2016: 0	2016: NA	2016: NA	2016: NA
	2017: 6407	2017: 0	2017: 0 %	2017: 0 %
	2018: 18 533	2018: 18 533	2018: 100 %	2018: 46 %
	2019: 36 000	2019: 36 831	2019: 102 %	2019: 92 %
	2020: 36 831	2020: 36 831	2020: 100 %	2020: 30 %
	2020: 123 643	2020: 36 831	2020: 30 %	2020: 30 %
GOAL 13: 513 Digital Zones with free Internet access for the population, as of 2021	2017: 0	2017: NA	2017: NA	2017: NA
	2018: 15	2018: 0	2018: 0 %	2018: 0 %
	2019: 200	2019: 301	2019: 151 %	2019: 59 %
	2020: 400	2020: 510	2020: 128 %	2020: 99 %

GOAL 14. 39.6 % progress in the execution of the Bicentennial Educational Network FONATEL Axis as of 2021 <sup>6</sup>	2021: 513	2021: 513	2021: 100 %	2021: 100 %
	2018: 0	2018: NA	2018: NA	2018: NA
	2019: 0	2019: NA	2019: NA	2019: NA
	2020: 0	2020: NA	2020: NA	2020: NA
	2021: 39.6 %	2021: 19.8 %	2021: 50 %	2021: 50 %

<sup>1</sup> Goals set out in the NTDP Goal Matrix 2015-2021 updated to February 2021

<sup>2</sup> Progress data according to the reports sent by the trustee of the FONATEL trust

<sup>3</sup> Goal extended by MICITT in July 2020

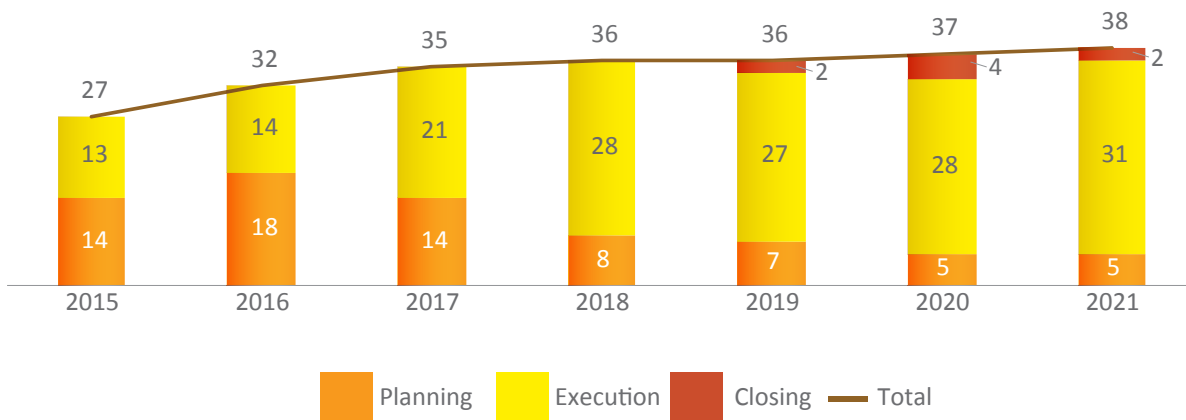
<sup>4</sup> Goal added by MICITT to NTDP 201-2021 in September 2020

<sup>5</sup> Goal extended by MICITT in September 2020 Meta extended by MICITT in September 2020

<sup>6</sup> Goal added by MICITT to NTDP 2015-2021 in February 2021

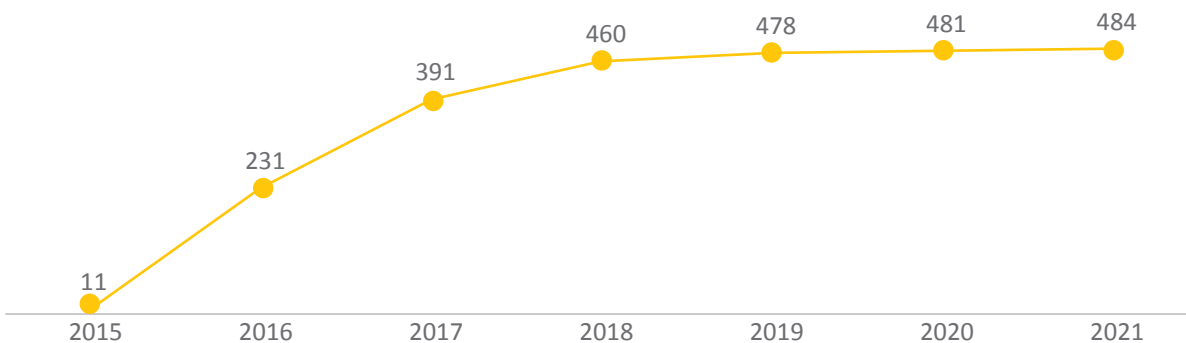
Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 215. Costa Rica: Total annual projects developed through FONATEL per project life cycle phase, 2015-2021



Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

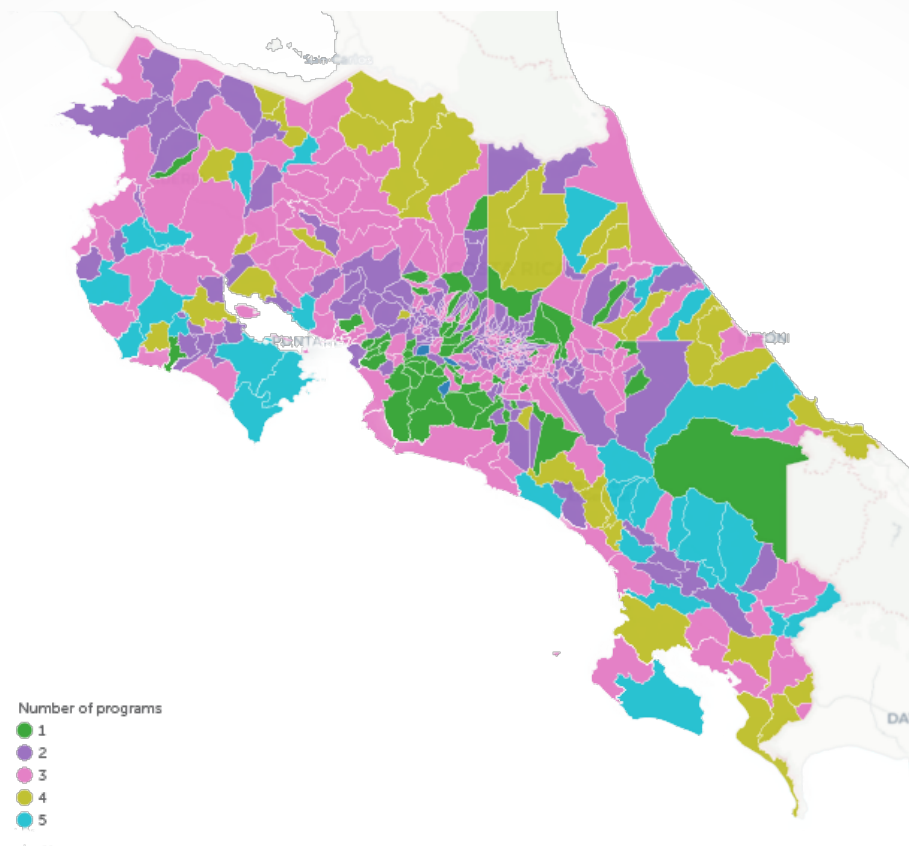
Chart n.º 216. Costa Rica: Districts with presence of at least one program developed with FONATEL funds, 2015-2021



Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

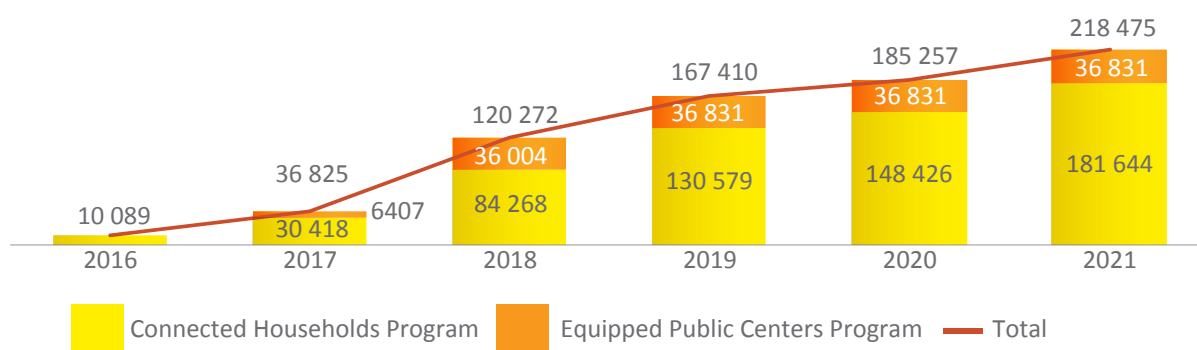


Map n.º 6. Costa Rica: Districts with presence of at least one program developed with FONATEL funds, 2021



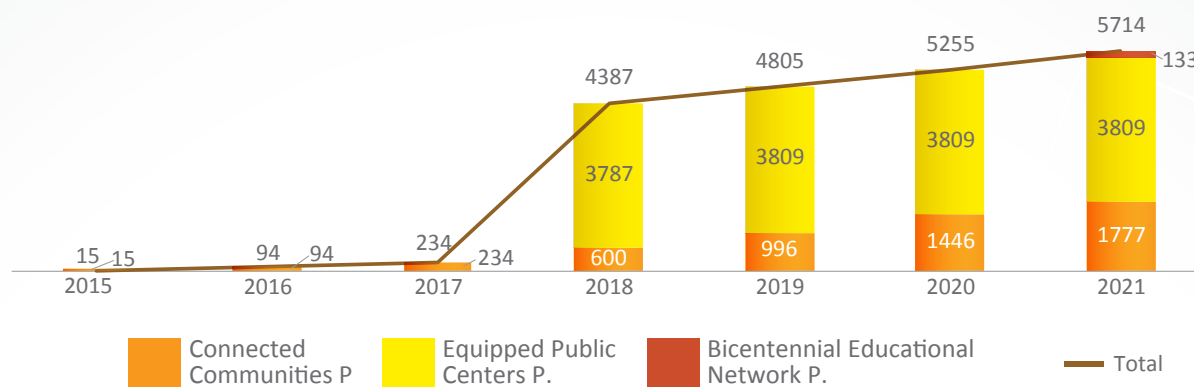
Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 217. Costa Rica: Devices delivered through the programs developed with FONATEL resources for the access and use of ICT according to program, 2016-2021 (accumulated annual figures)



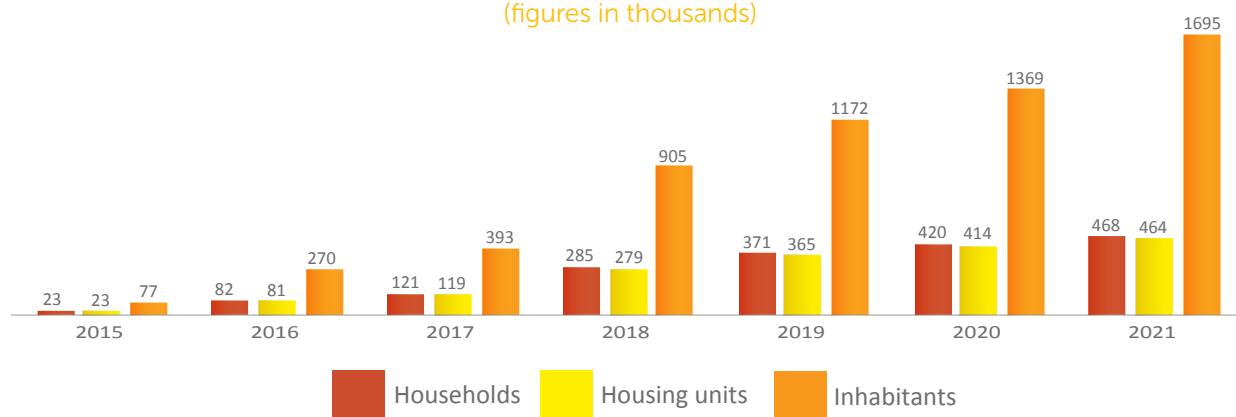
Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 218. Costa Rica: Public Service Provision Centers that have benefited from FONATEL programs, per program, 2015-2021  
(accumulated annual figures)



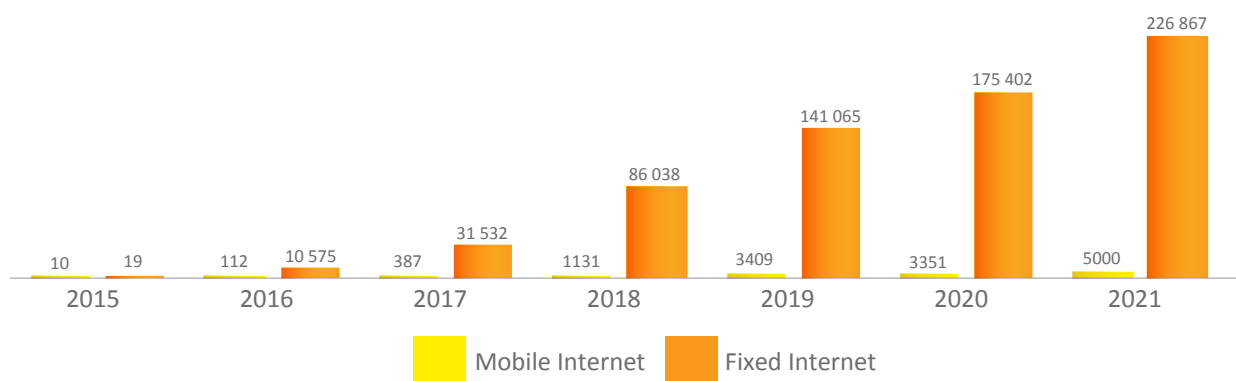
Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 219. Costa Rica: Inhabitants, housing units and households with access to voice and data services in districts with presence of programs developed with FONATEL funds, 2015-2021  
(figures in thousands)



Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 220. Costa Rica: Subscriptions to fixed telephony and fixed Internet service provided through programs developed with FONATEL funds, 2015-2021

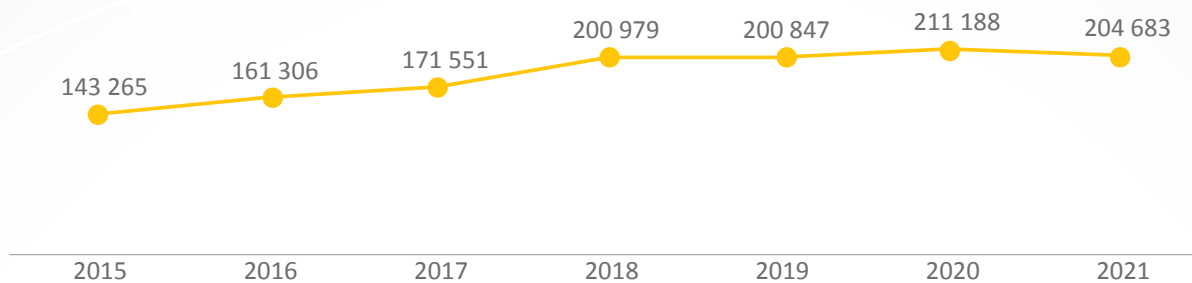


Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.



Chart n.º 221. Costa Rica: FONATEL Equity, 2015-2021

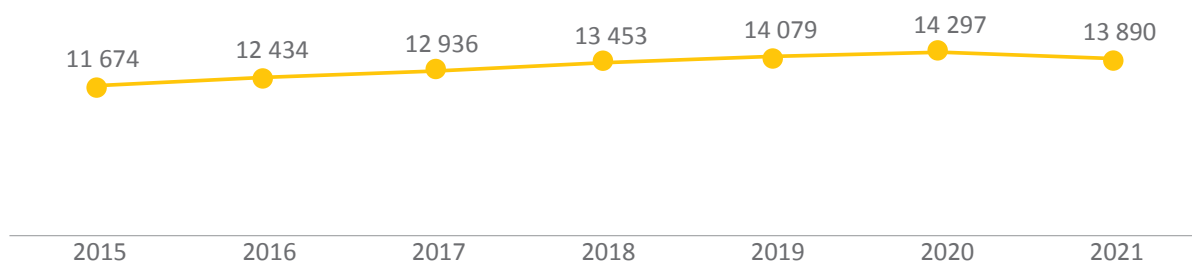
(annual figures in million colones)



Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 222. Costa Rica: Collection of parafiscal special contribution, 2015-2021

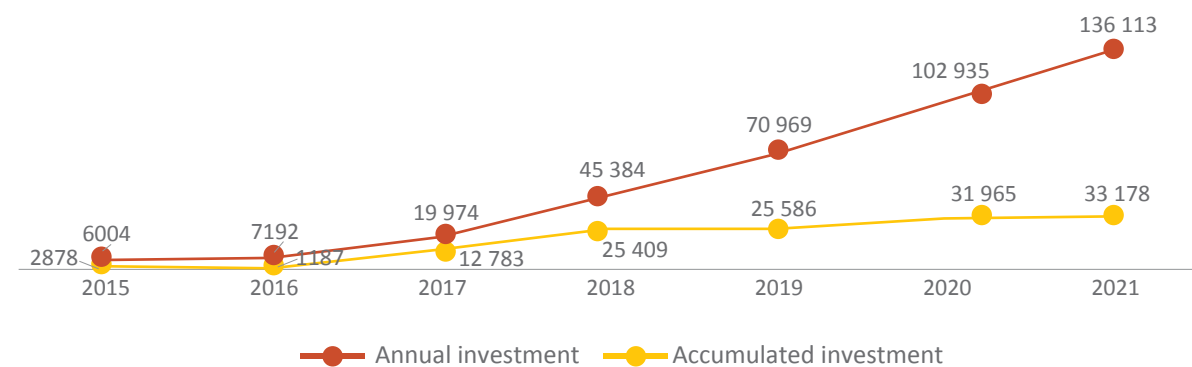
(annual figures in million colones)



Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 223. Costa Rica: Annual and accumulated investment made through FONATEL, 2015-2021

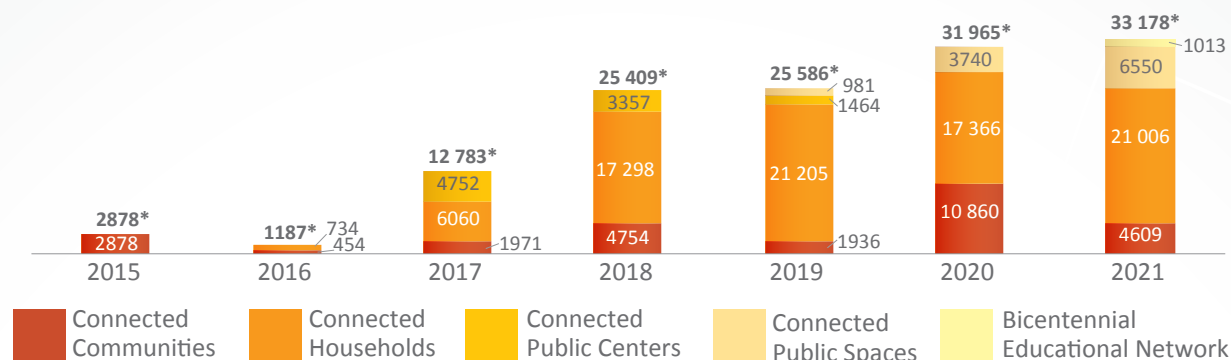
(annual figures in million colones)



Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 224. Costa Rica: Investment made through FONATEL by program, 2015-2021

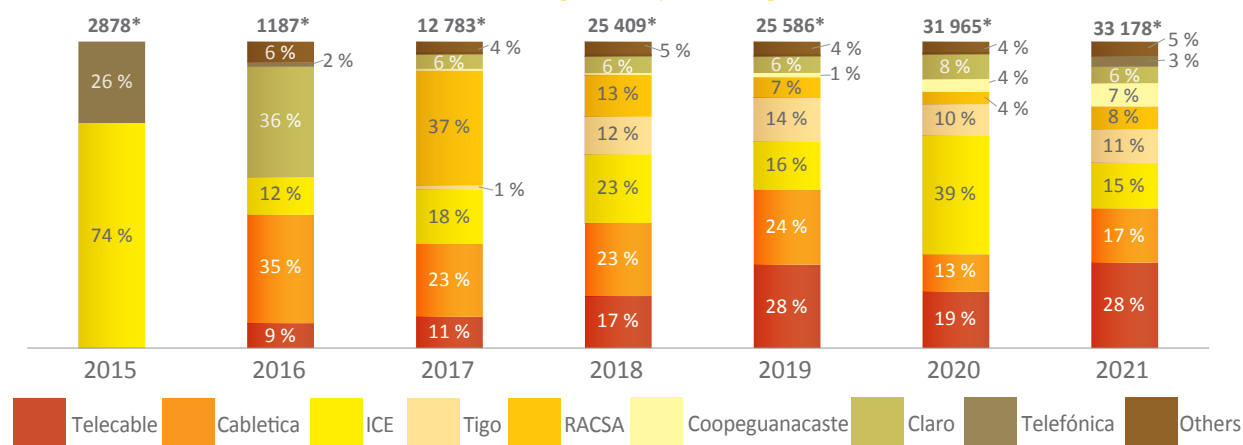
(annual figures in million colones)



Note: \*Figures correspond to annual total in million colones  
Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

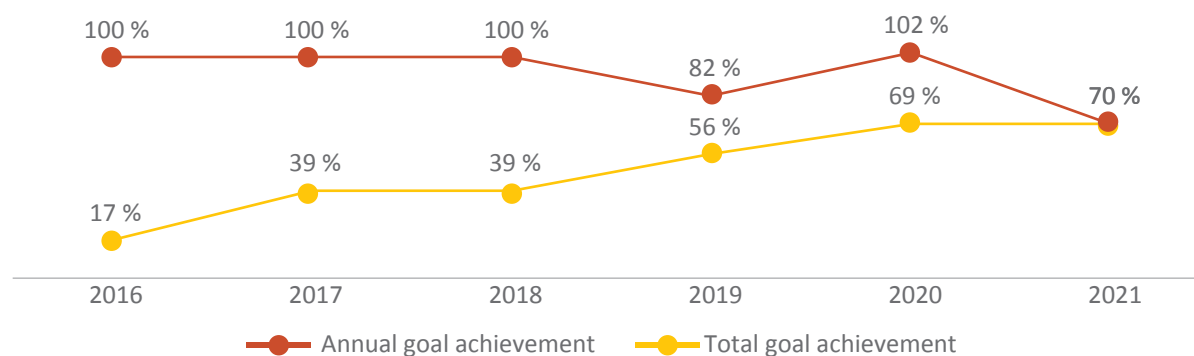
Chart n.º 225. Costa Rica: Distribution of investment made through FONATEL, by operator, 2015-2021

(annual figures in percentages)



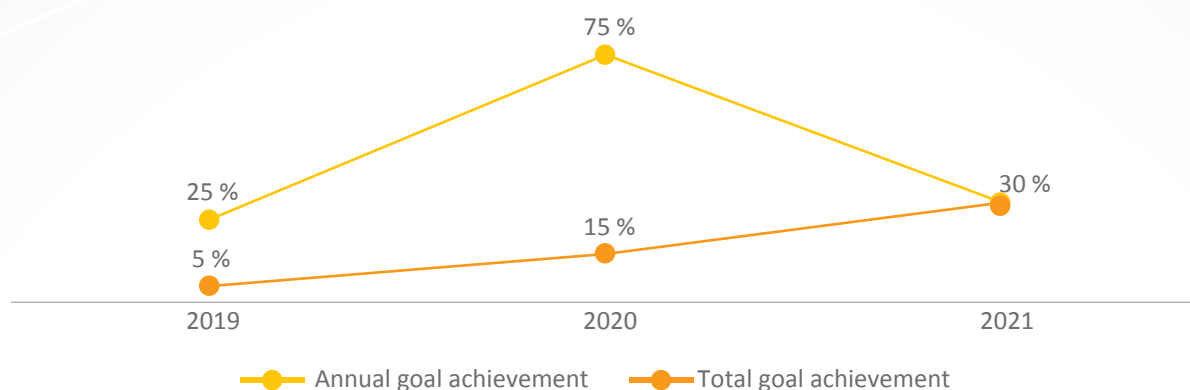
Note: \*Figures correspond to annual total in million colones  
Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 226. Costa Rica: Achievement of goal 1 of the NTDP: districts with access to voice and data services provided through the Connected Communities Program, 2016-2021



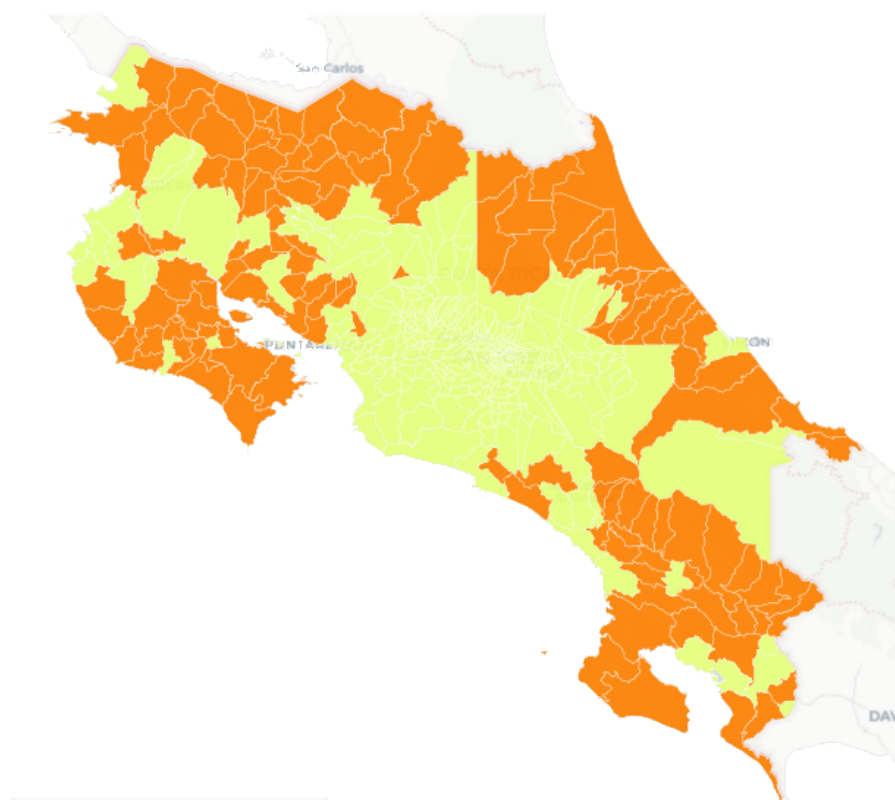
Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 227. Costa Rica: Achievement of goal 2 of the NTDP: indigenous territories with access to voice and data services provided through the Connected Communities Program, 2019-2021



Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Map n.º 7. Costa Rica: Districts with (total or partial) connectivity with access to voice and data services provided through the Connected Communities Program, 2021



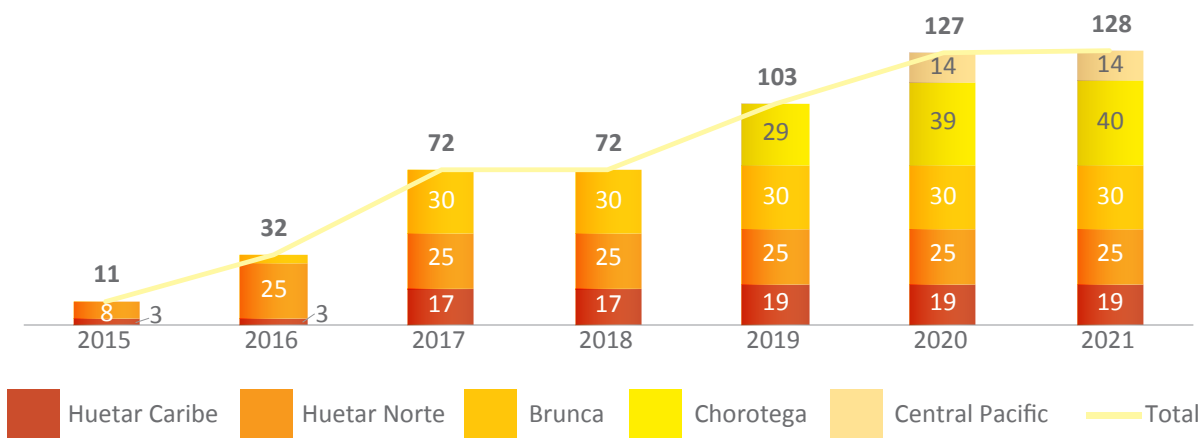
Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Map n.º 8. Costa Rica: Indigenous territories with (total or partial) connectivity with access to voice and data services provided through the Connected Communities Program, 2021



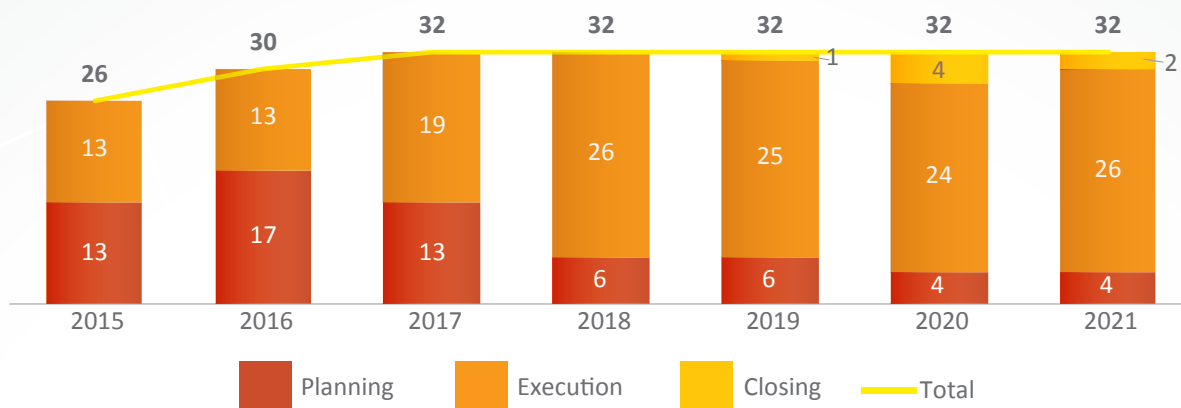
Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 228. Costa Rica: Distribution of districts with (total or partial) connectivity with access to voice and data services provided through the Connected Communities Program per region, 2015-2021  
(accumulated annual figures)



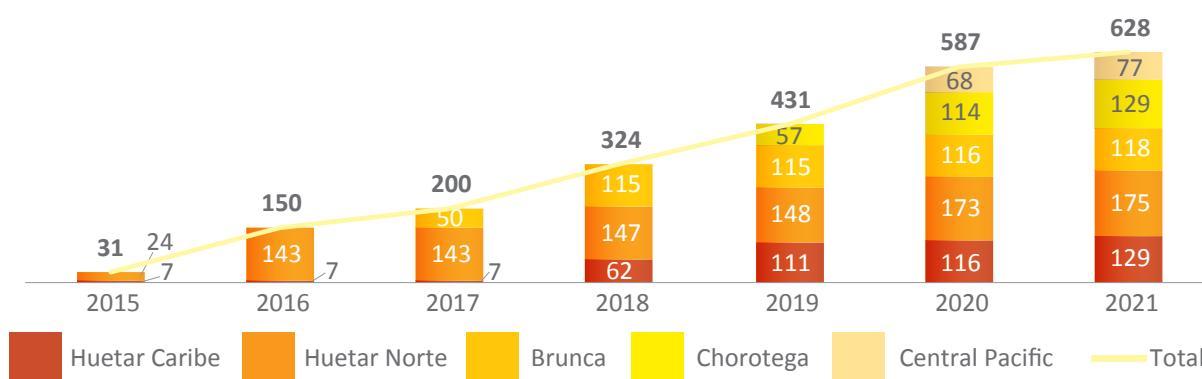
Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º 229. Costa Rica: Total annual projects of the Connected Communities Program per life cycle phase of each project, 2015 - 2021



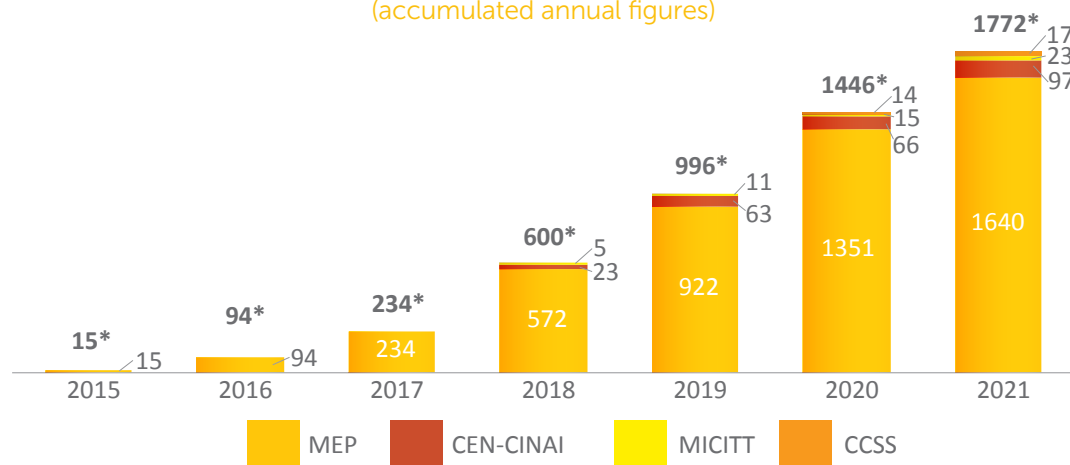
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º 230. Costa Rica: Distribution of telecommunication infrastructure towers in service in the Connected Communities Program by region, 2015-2021 (accumulated annual figures)



Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º 231. Costa Rica: Public Service Provision Centers with Internet access service enabled through the Connected Communities Program by institution, 2015-2021 (accumulated annual figures)

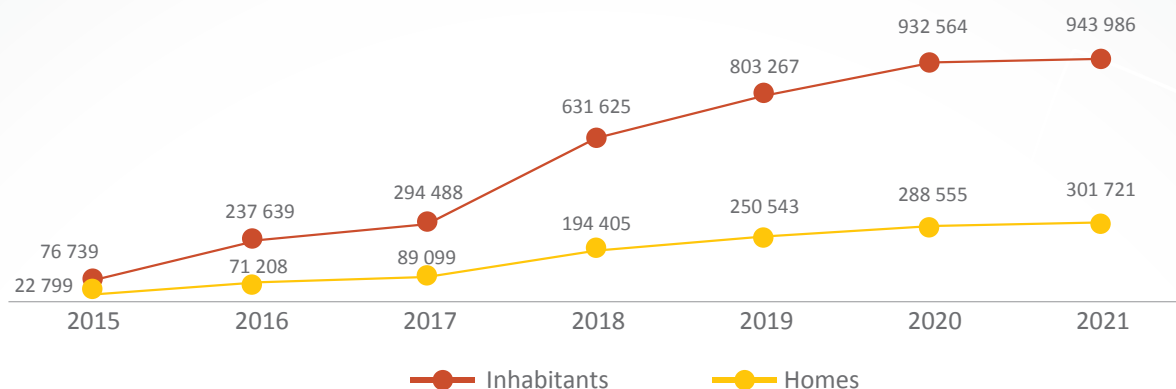


Note: \*Figures correspond to annual total.

Source, Directorate General of FONATEL, Costa Rica, 2021.



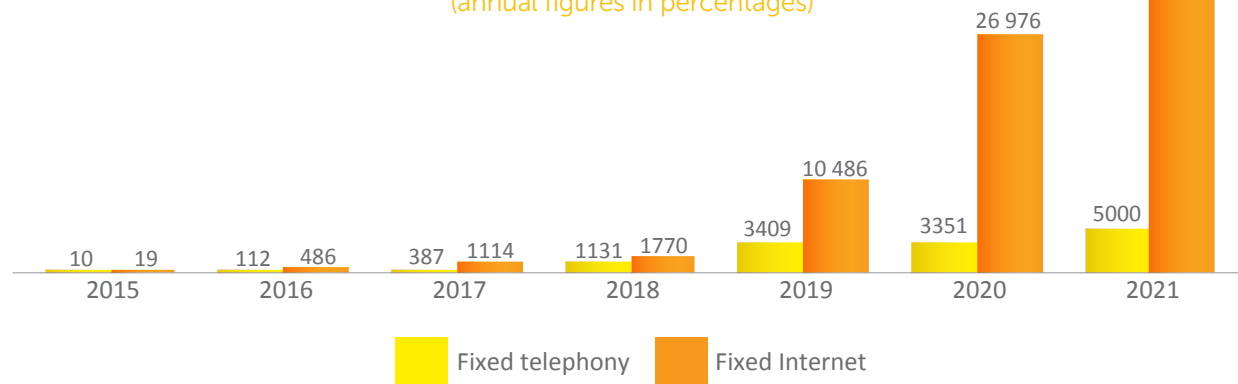
Chart n.º 232. Costa Rica: Inhabitants and homes with potential access to voice and data services in districts with (total or partial) connectivity provided through the Connected Communities Program, 2015-2021



Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º 233. Costa Rica: Subscriptions to fixed telephony and fixed Internet access services provided through the Connected Communities Program, 2015-2021

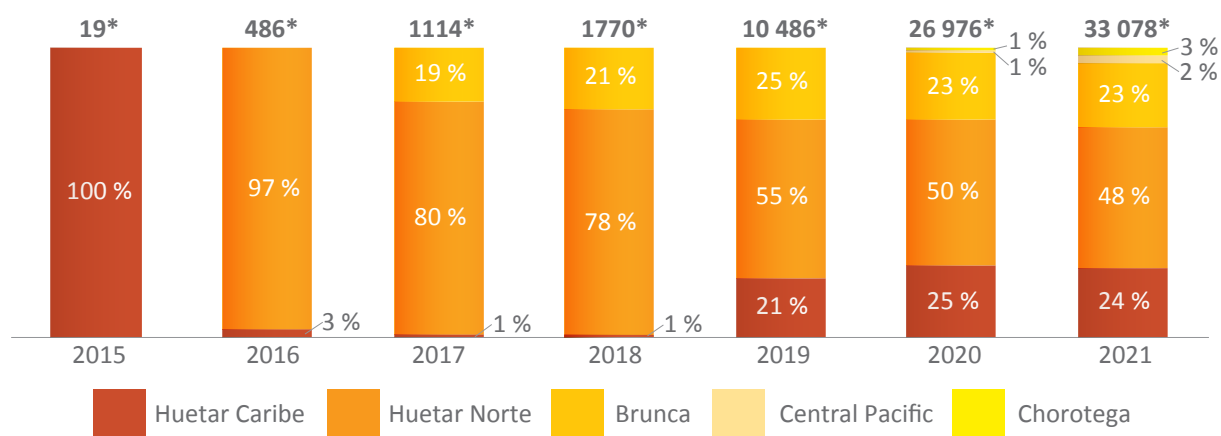
(annual figures in percentages)



Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º 234. Costa Rica: Distribution of subscriptions to fixed Internet access service provided through the Connected Communities Program, 2015-2021

(annual figures in percentages)

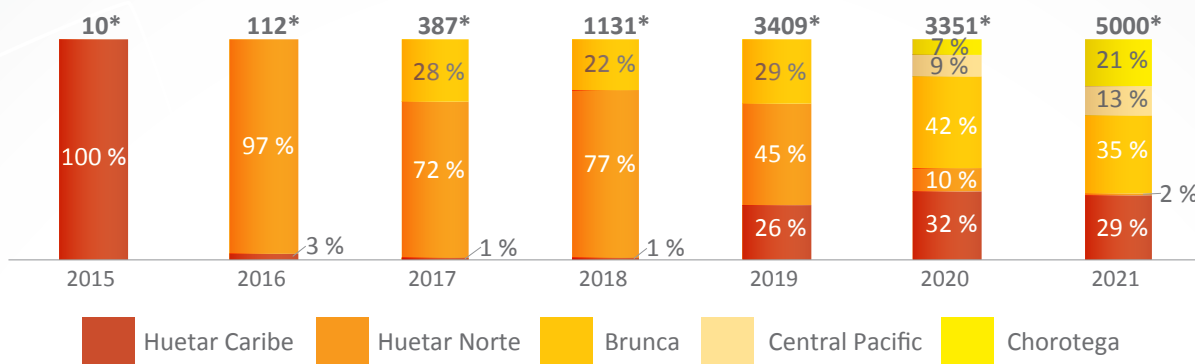


Note: \*Figures correspond to annual total.

Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º 235. Costa Rica: Distribution of subscriptions to fixed telephony service provided through the Connected Communities Program by region, 2015-2021

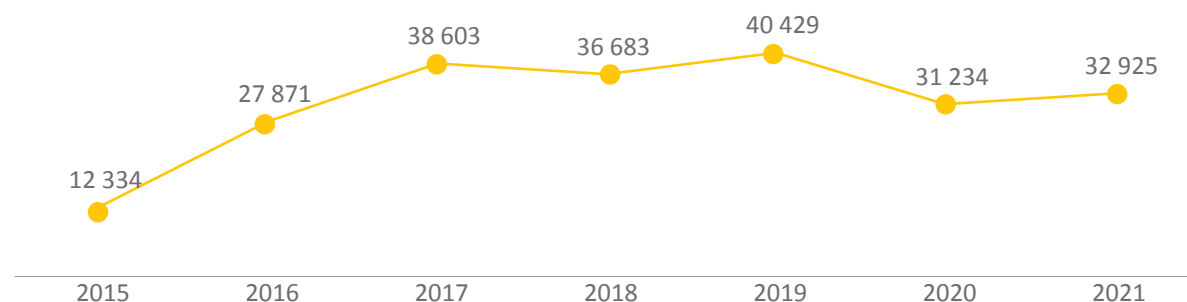
(annual figures in percentages)



Note: \*Figures correspond to annual total.

Source, Directorate General of FONATEL, Costa Rica, 2021

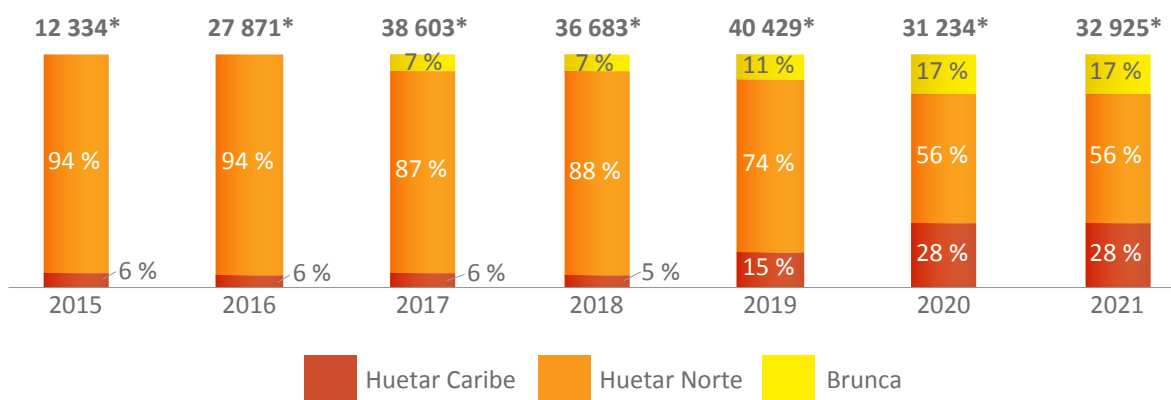
Chart N.º 236. Costa Rica: Subscriptions to mobile phone service provided through the infrastructure facilitated by the Connected Communities Program, 2015-2021



Source, Directorate General of FONATEL, Costa Rica, 2021

Chart N.º 237. Costa Rica: Distribution of subscriptions to mobile phone service provided through the infrastructure facilitated by the Connected Communities Program by region, 2015-2021

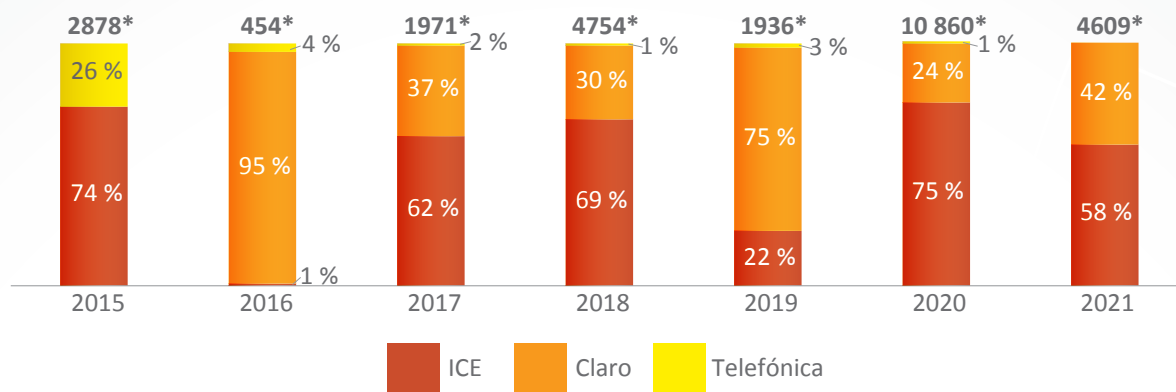
(annual figures in percentages)



Note: \*Figures correspond to annual total.

Source, Directorate General of FONATEL, Costa Rica, 2021.

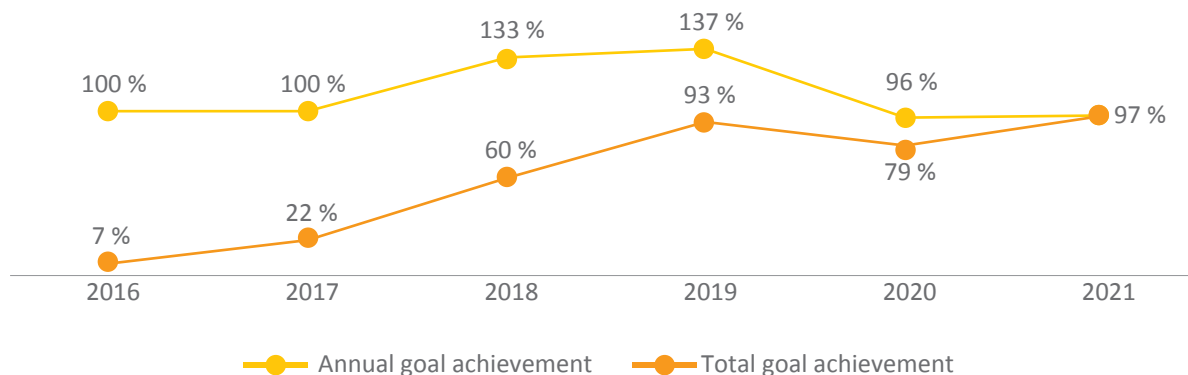
Chart N.º 238. Costa Rica: Distribution of investments carried out through the Connected Communities Program by operator, 2015-2021  
(annual figures in percentages)



Note: \*Figures correspond to annual total.

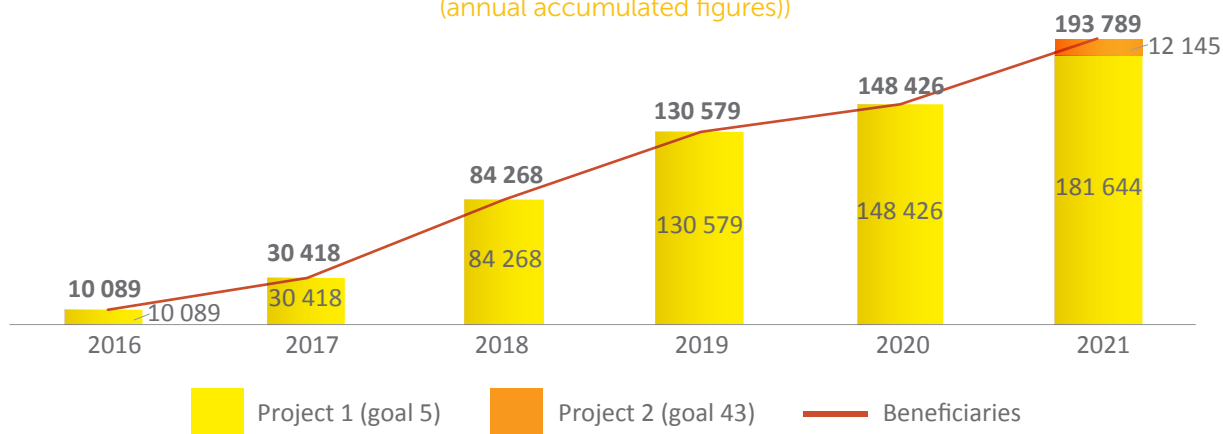
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º 239. Costa Rica: Achievement of goal 5 of the TDNP: households with subsidy for Internet service and a device for its use provided through the Connected Households Program, 2016-2021



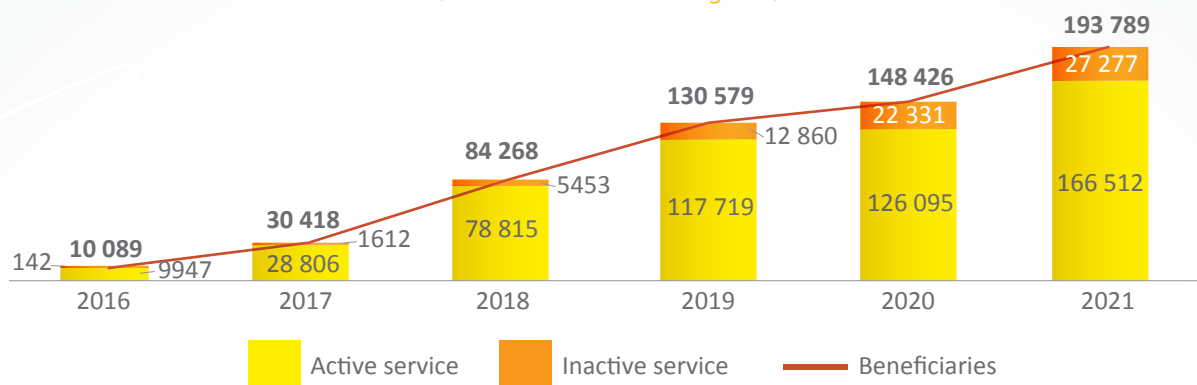
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º 240. Costa Rica: Households that benefited from the Connected Households Program by project, 2016-2021  
(annual accumulated figures)



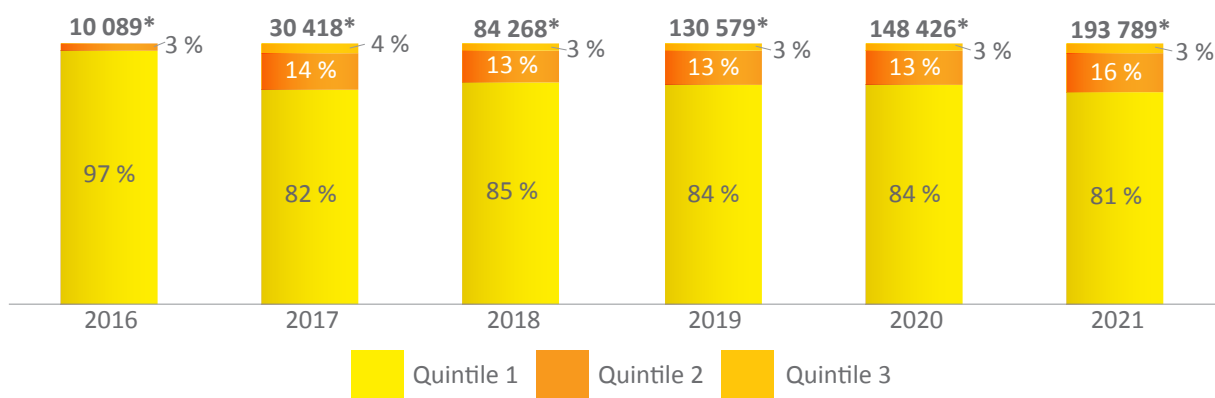
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º241. Costa Rica: Households that benefited from the Connected Households Program per service status, 2016-2021  
(annual accumulated figures)



Source, Directorate General of FONATEL, Costa Rica, 2021.

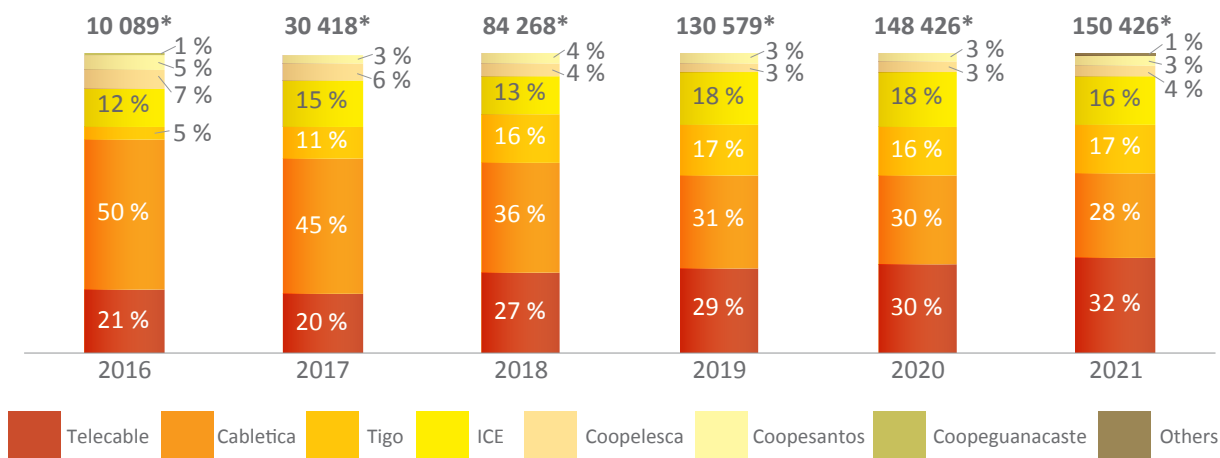
Chart N.º 242. Costa Rica: Distribution of households that benefited from the Connected Households Program by income quintile, 2016-2021  
(annual figures in percentages)



Note: \*Figures correspond to the annual total.

Source, Directorate General of FONATEL, Costa Rica, 2021.

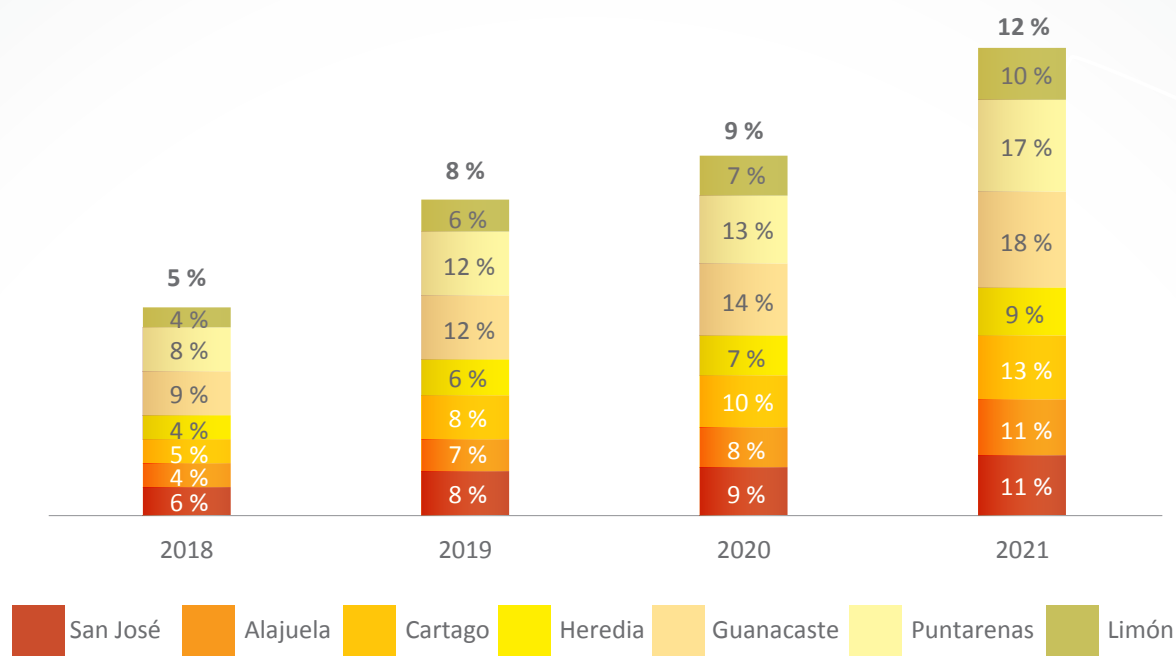
Chart N.º 243. Costa Rica: Distribution of households that benefited from the Connected Households Program by operator, 2016-2021  
(annual figures in percentages)



Note: \*Figures correspond to the annual total.

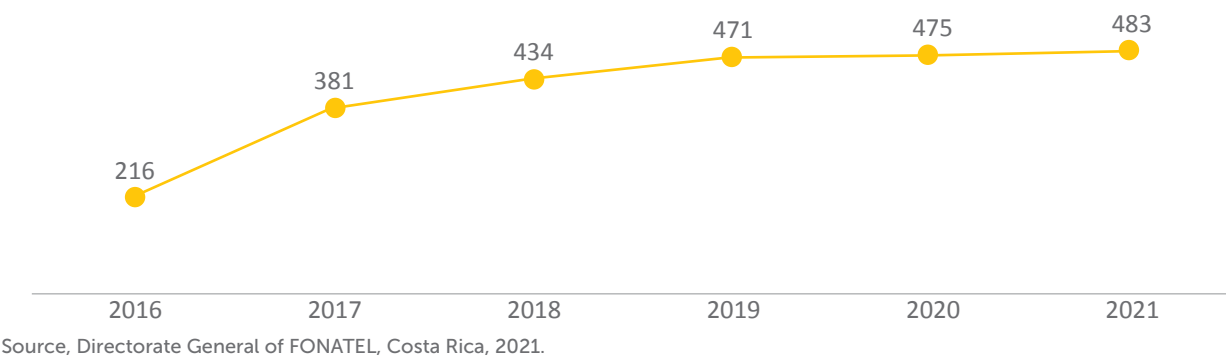
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º244. Costa Rica: Total percentage of households that benefited from the Connected Households Program by province, 2018-2021



Note: \*Cifras corresponden al porcentaje total del país.  
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart N.º 245. Costa Rica: Districts with presence of the Connected Households Program, 2016-2021  
(annual figures in percentages)



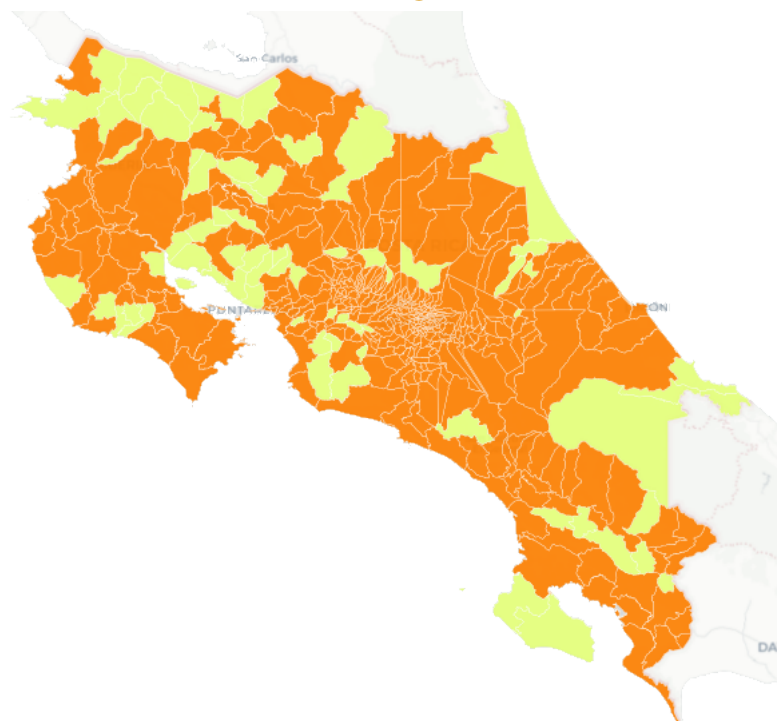
Source, Directorate General of FONATEL, Costa Rica, 2021.

Map n.º 9 Costa Rica: Districts with presence of project 1 of the Connected Households Program, 2021



Source, Directorate General of FONATEL, Costa Rica, 2021.

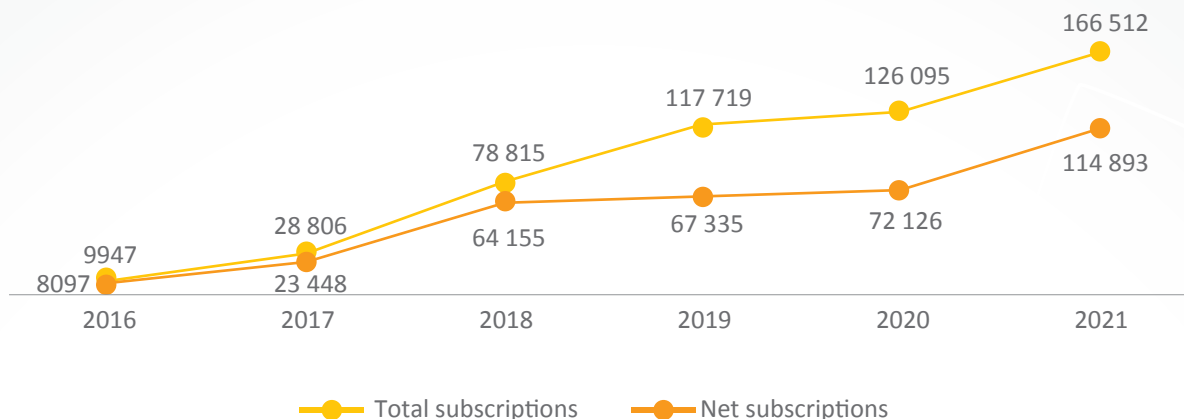
Map n.º 10 Costa Rica: Districts with presence of project 2 of the Connected Households Program, 2021



Source, Directorate General of FONATEL, Costa Rica, 2021.

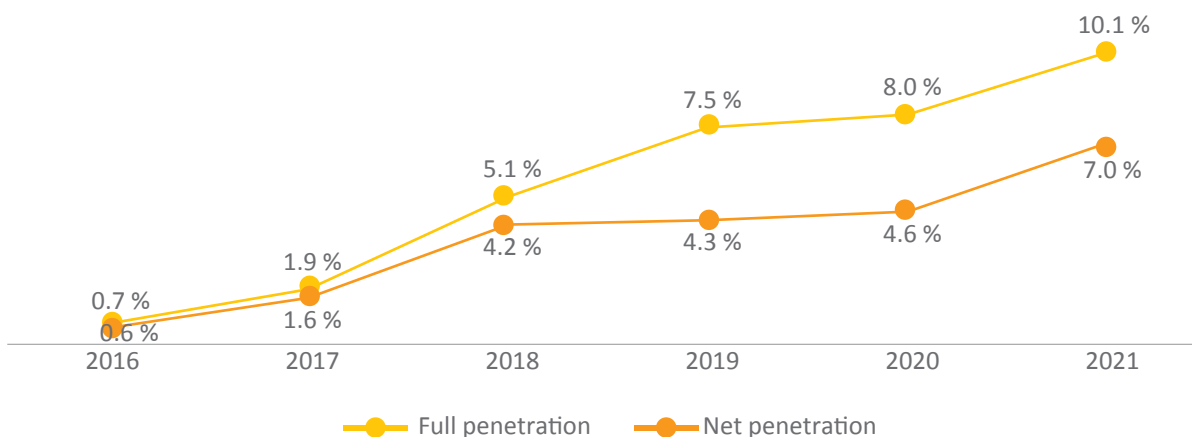


Chart n.º 246 Costa Rica: Total active subsidized and net subscriptions to Internet access service in the Connected Households Program, 2016-2021



Source, Directorate General of FONATEL, Costa Rica, 2021.

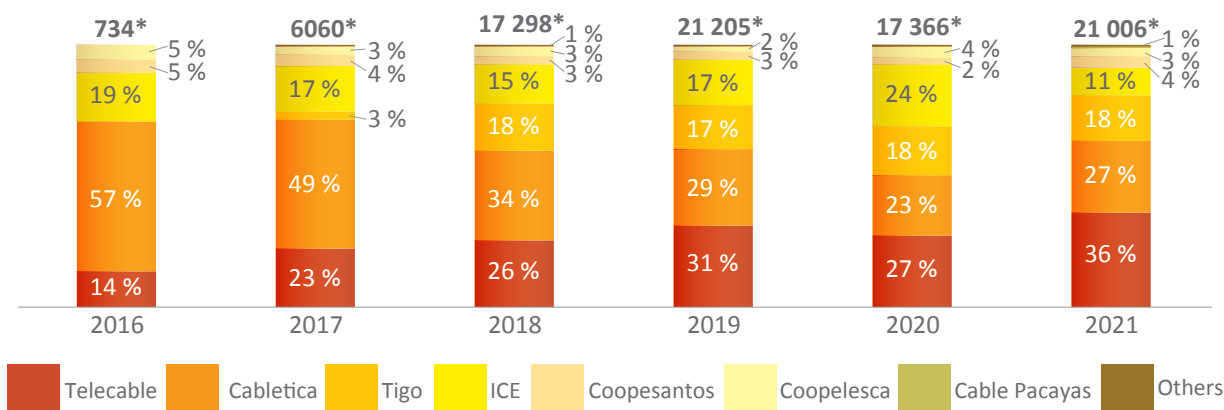
Chart n.º 247 Costa Rica: Total and net penetration of the fixed residential Internet service of the Connected Households Program, 2016-2021



Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 248 Costa Rica: Distribution of investment carried out through the Connected Households Program by operator, 2016-2021

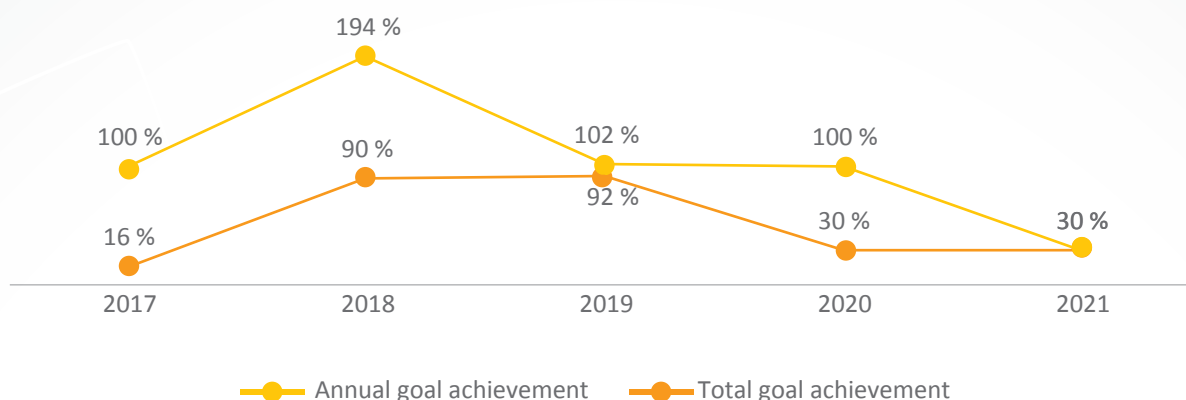
(annual figures in percentages)



Nota: \*Figures correspond to annual total in million colones.

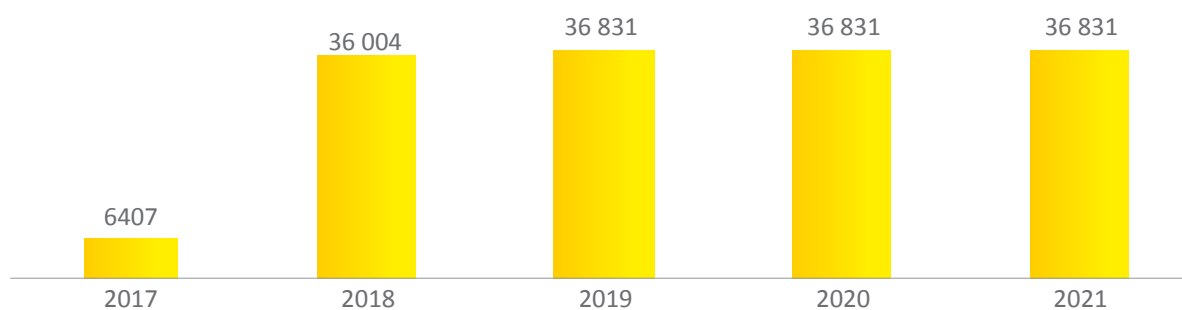
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 249 Costa Rica: Achievement of goal 9 established in the NTDP: connectivity devices delivered to CPSP through the Equipped Public Centers Program, 2017-2021



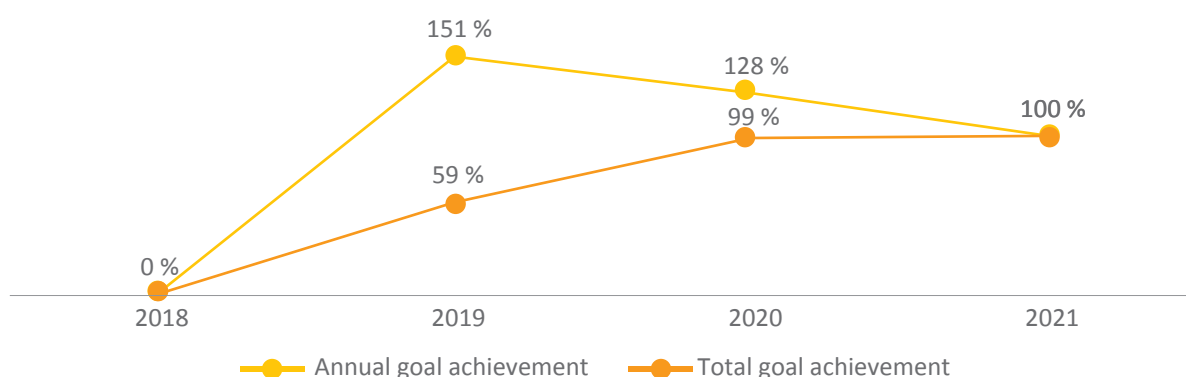
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 250. Costa Rica: Devices delivered by the Equipped Public Centers Program to CPSP for ITC access and use , 2017-2021  
(accumulated annual figures)



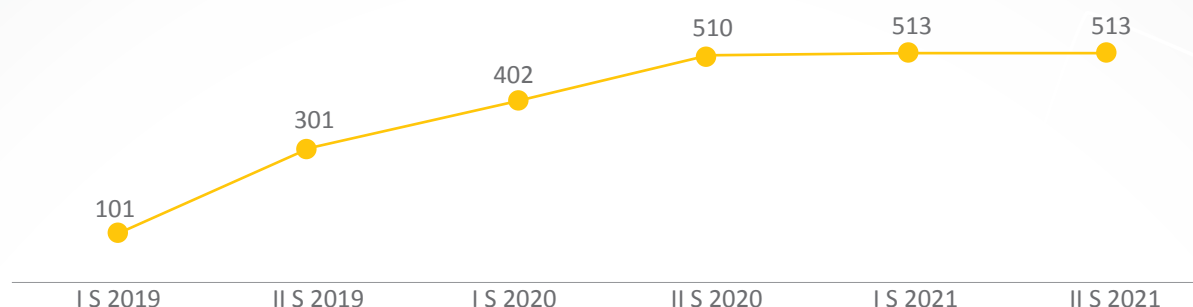
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 251. Costa Rica: Achievement of goal 13 established in the NTDP: digital zones of free Internet access for the population in public spaces, from the Connected Public Spaces Program, 2018-2021



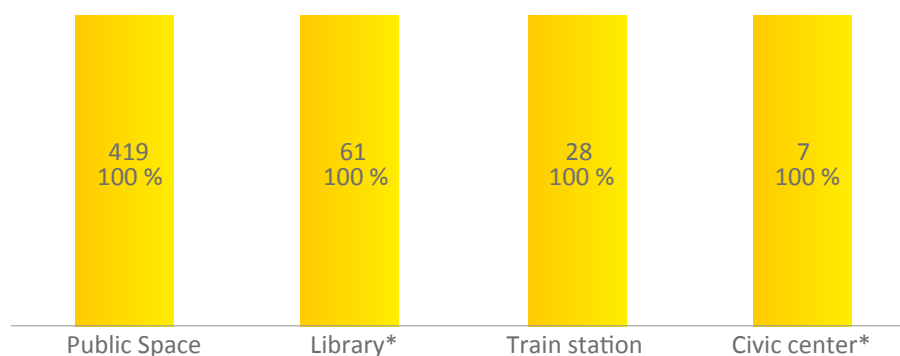
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 252. Costa Rica: Digital zones of free Internet access in service through the Connected Public Spaces Program, 2019-2021  
(accumulated biannual figures)



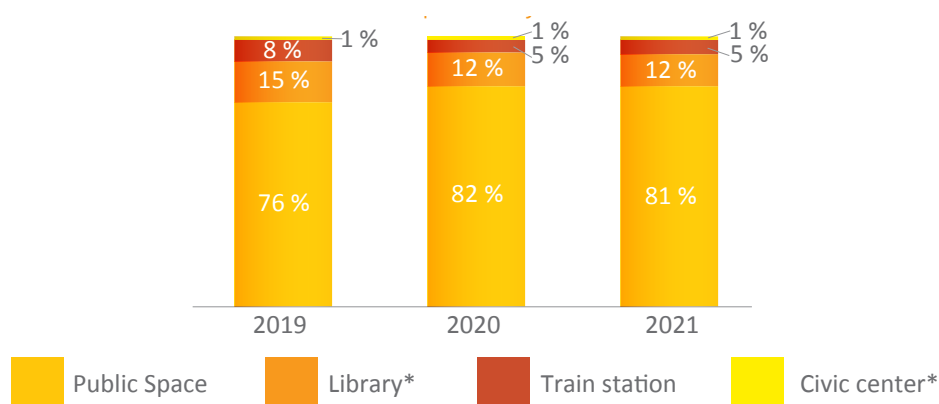
Note: \* There are two zones that are library and Civic Center at the same time, namely Guararí and Aguas Zarcas areas.  
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 253. Costa Rica: Progress rate of digital zones of free Internet access in service through the Connected Public Spaces Program by zone type, 2021



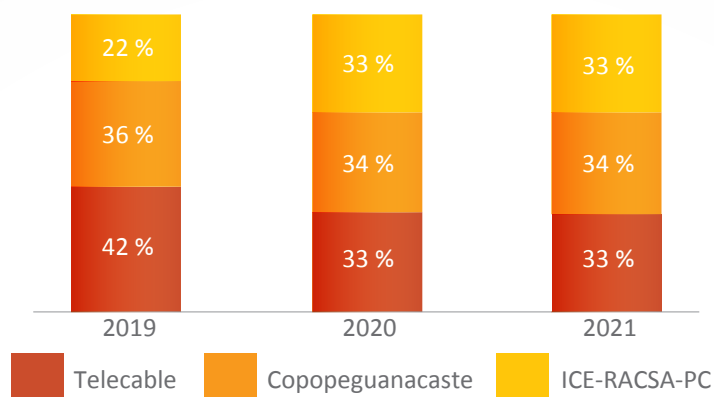
Note: \* There are two zones that are library and Civic Center at the same time, namely Guararí and Aguas Zarcas areas.  
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 254. Costa Rica: Distribution of digital zones with free Internet access in service through the Connected Public Spaces Program by zone type, 2019-2021  
(figures in percentages)



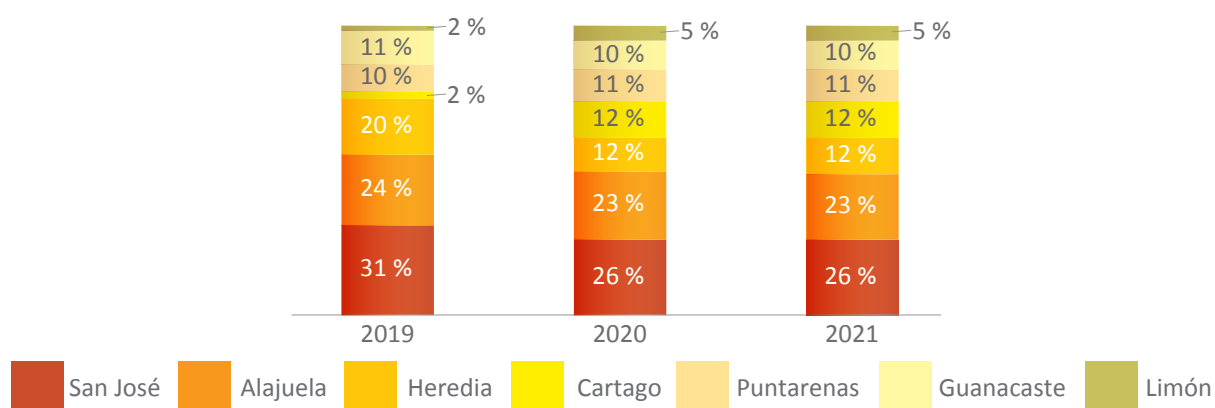
Note: \* There are two zones that are library and Civic Center at the same time, namely Guararí and Aguas Zarcas areas.  
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 255. Costa Rica: Distribution of digital zones of free Internet access in service through the Connected Public Spaces Program by operator, 2019-2021  
(figures in percentages)



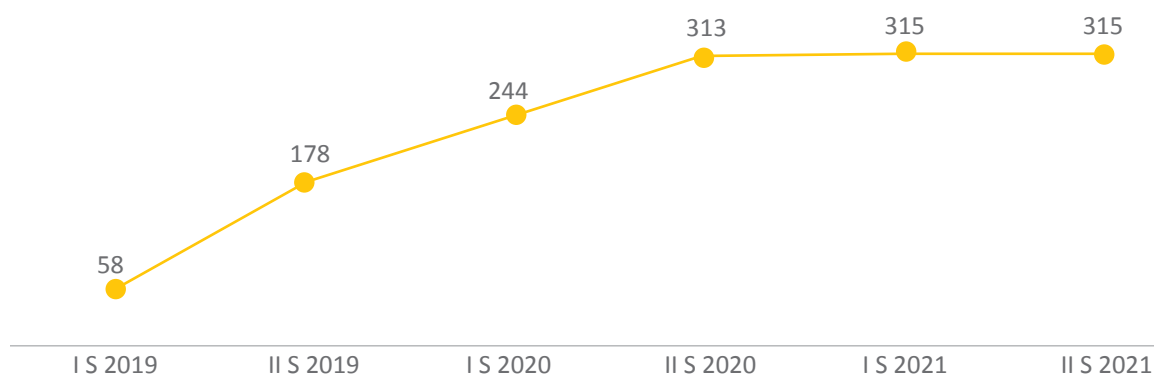
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 256. Costa Rica: Distribution of digital zones of free Internet access in service through the Connected Public Spaces Program by province, 2019-2021  
(figures in percentages)



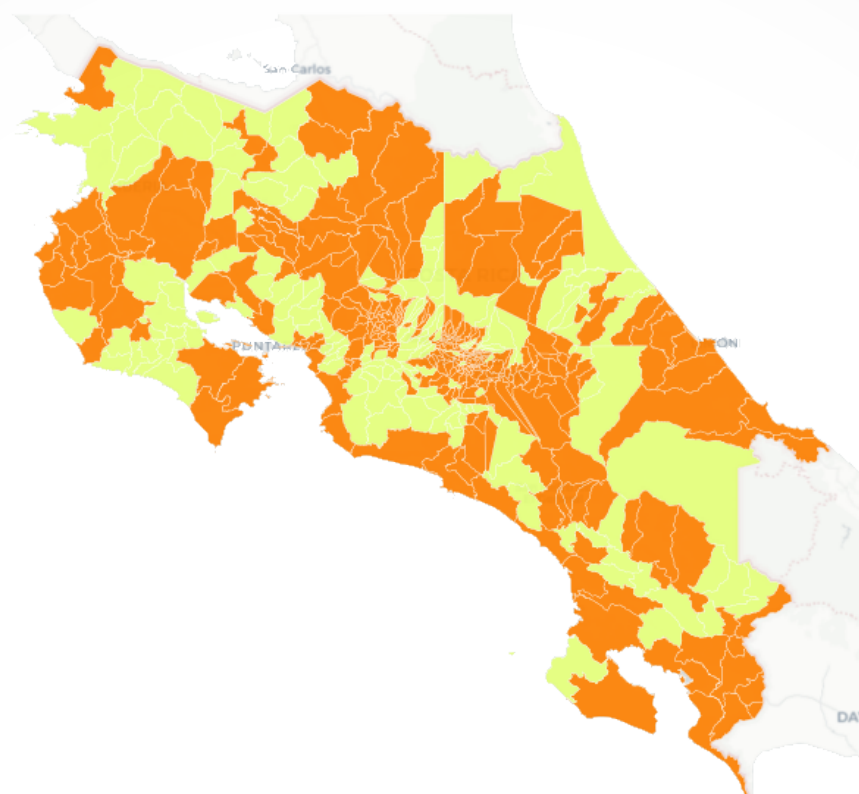
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 257. Costa Rica: Districts with presence of the Connected Publics Spaces Program, 2019-2021  
(accumulated biannual figures)



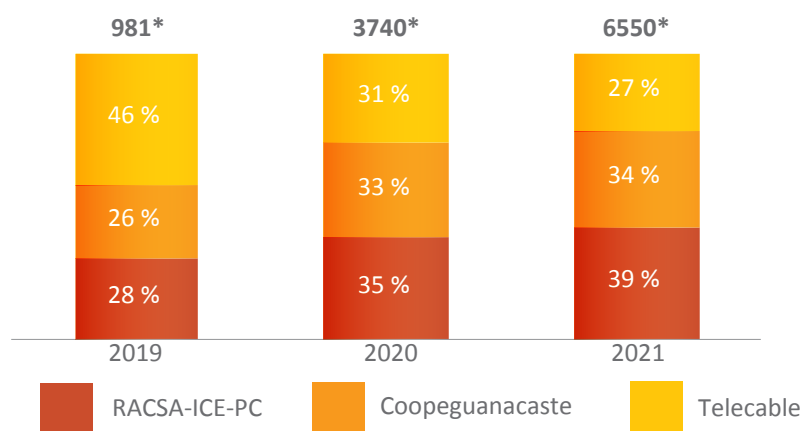
Source, Directorate General of FONATEL, Costa Rica, 2021.

Map n.º 11. Costa Rica: Districts with presence of the Connected Public Spaces Program, 2021



Source, Directorate General of FONATEL, Costa Rica, 2021.

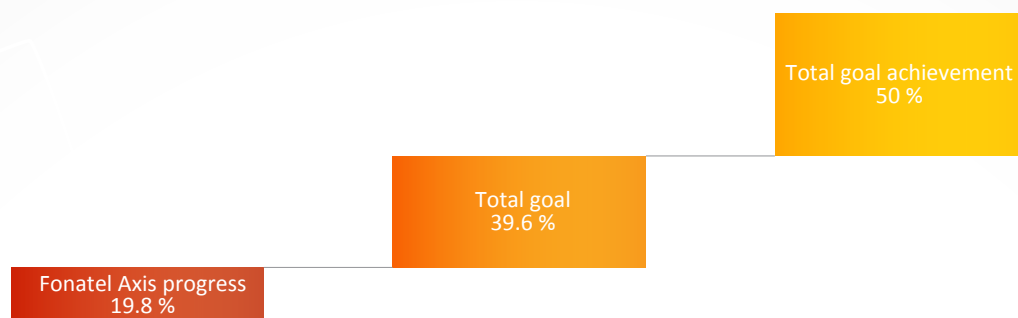
Chart n.º 258. Costa Rica: Distribution of the investment executed through the Connected Publics Spaces Program by operator, 2019-2021  
(cifras en porcentajes)



Note: \*Figures correspond to annual total in million colones

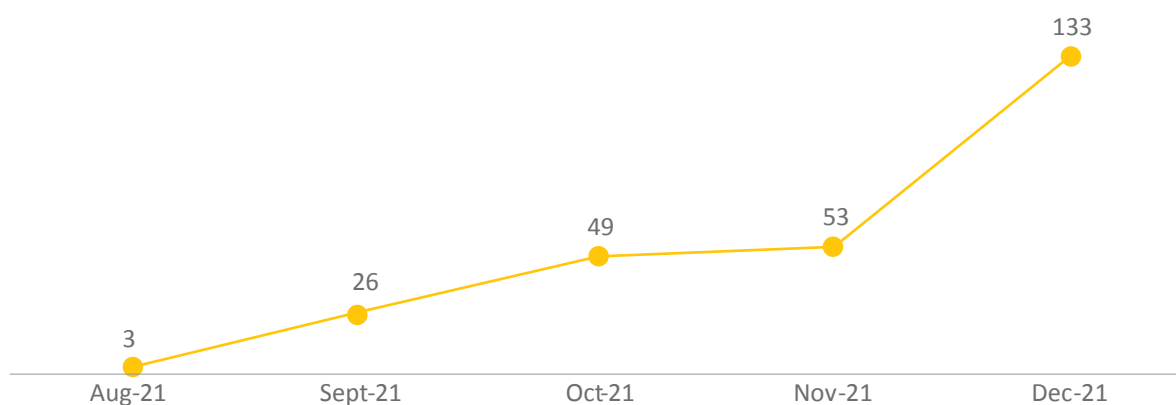
Source, Directorate General of FONATEL, Costa Rica, 2021

Chart n.º 259. Costa Rica: Achievement of goal 13 established in the NTDP: progress in the execution of the Bicentennial Educational Network FONATEL Axis, 2021



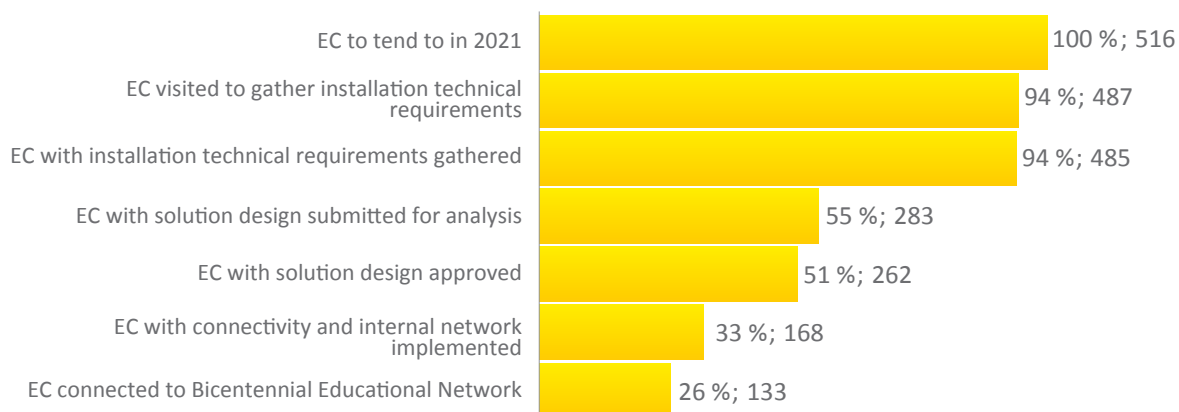
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 260. Costa Rica: Education centers connected through the Bicentennial Educational Network Program, 2021  
(accumulated monthly figures)



Source, Directorate General of FONATEL, Costa Rica, 2021.

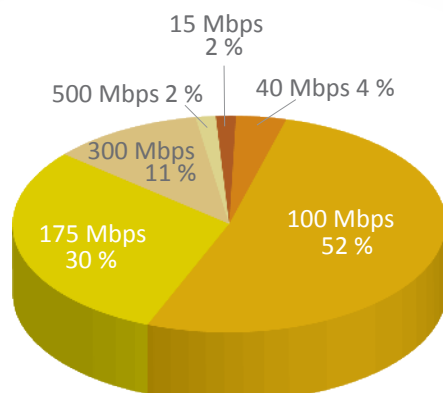
Chart n.º 261. Costa Rica: Education centers served through the Bicentennial Educational Network Program per status, 2021



Source, Directorate General of FONATEL, Costa Rica, 2021.

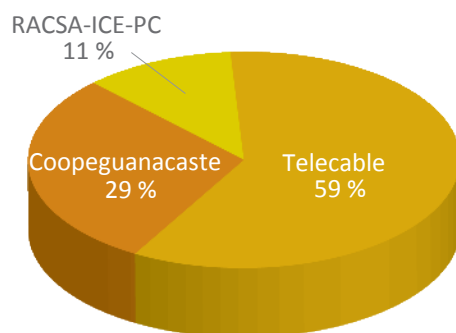


Chart n.º 262. Costa Rica: Distribution of education centers connected through the Bicentennial Educational Network Program per bandwidth in Mbps, 2021  
(figures in percentages)



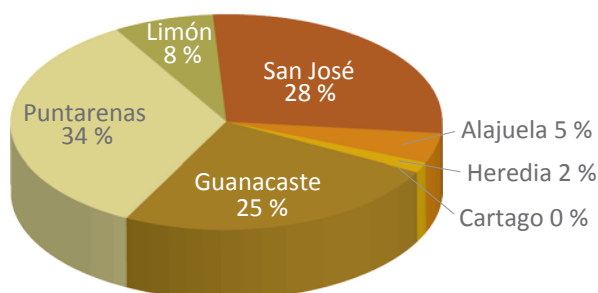
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 263. Costa Rica: Distribution of education centers connected through the Bicentennial Educational Network Program by operator, 2021  
(figures in percentages)



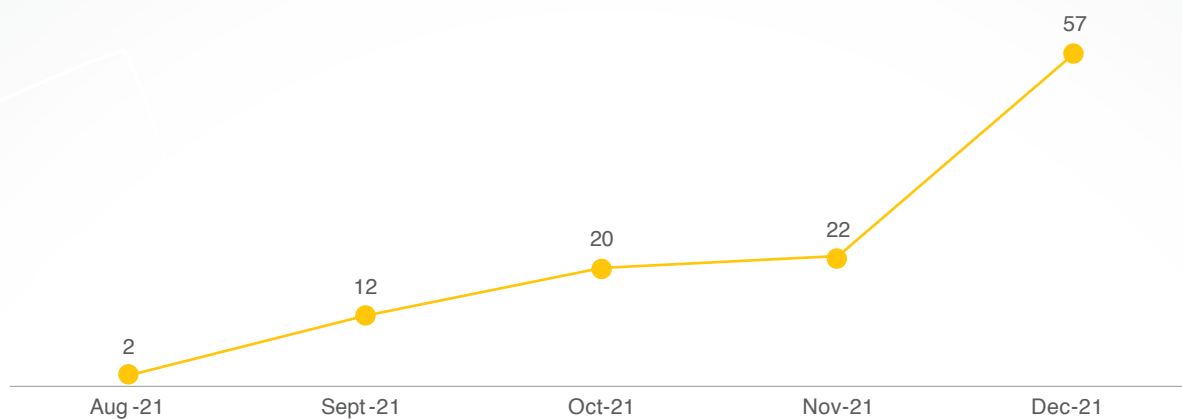
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 264. Costa Rica: Distribution of education centers connected through the Bicentennial Educational Network Program by province, 2021  
(figures in percentages))



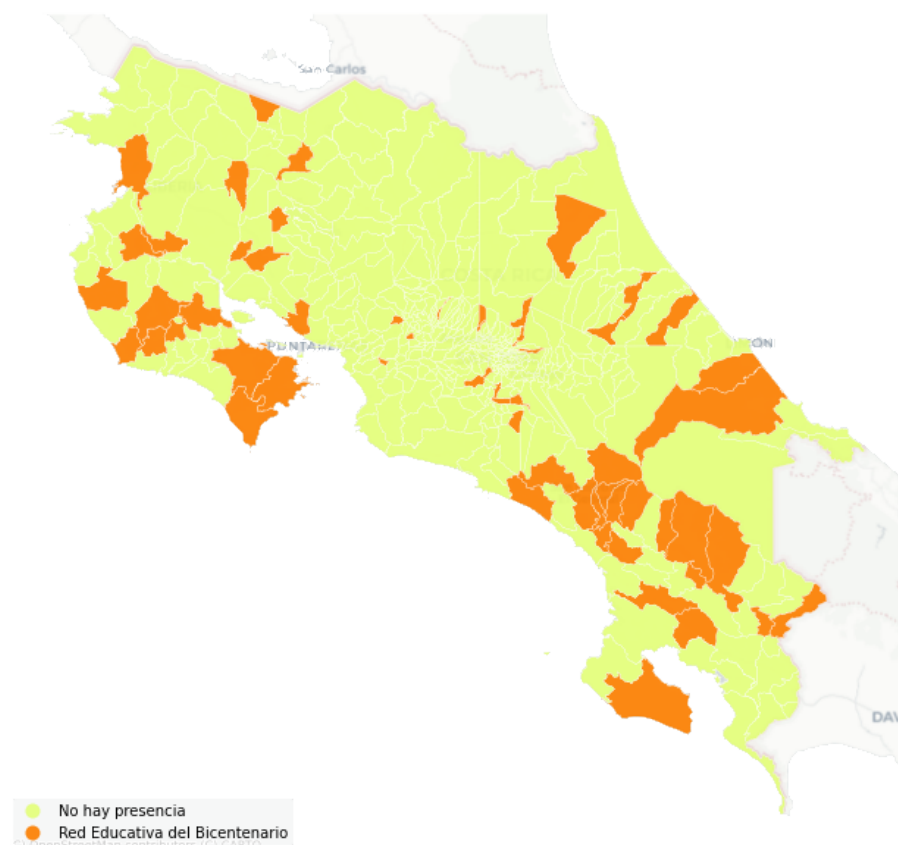
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 265. Costa Rica: Districts with presence of the Bicentennial Educational Network Program, 2021  
(accumulated monthly figures)



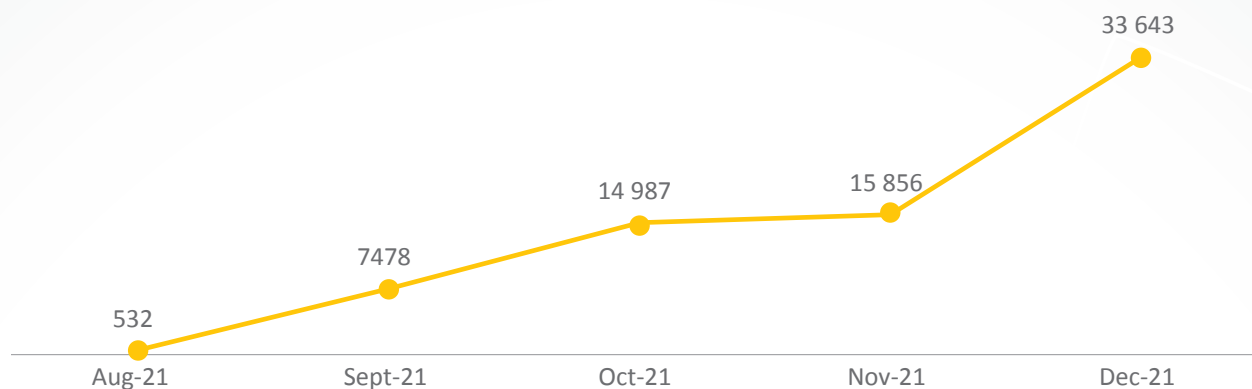
Source, Directorate General of FONATEL, Costa Rica, 2021.

Map n.º 12. Costa Rica: Districts with presence of the Bicentennial Educational Network Program, 2021



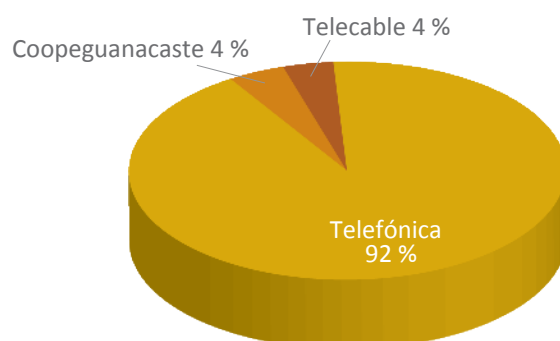
Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 266. Costa Rica: Students in education centers connected through the Bicentennial Educational Network Program, 2021  
(accumulated monthly figures)



Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 267. Costa Rica: Distribution of the investment executed through the Bicentennial Educational Network Program by operator, 2021  
(figures in percentages)



Source, Directorate General of FONATEL, Costa Rica, 2021



# INTERNATIONAL





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 how to analyze the behavior of different services in international markets and possible future trends.

For this analysis, the following topics will be developed:

- Analysis of general international indicators
- Analysis of the Driver Index of Affordability

At the time this report was prepared, the International Telecommunications Union (ITU) did not yet have public information for the period 2021, so the information corresponding to that year was not feasible to be included in this edition. Instead, figures from 2020 are used, taking ITU data as a source of information. In previous editions the Global Competitiveness Index was analyzed, calculated by the World Bank, but for 2021 this index was not calculated, for this reason the analysis of the Affordability Drivers Index<sup>104</sup> was resumed,

## • Analysis of general international indicators

This analysis allows us to know the position that Costa Rica registers in the most outstanding general indicators for the measurement of the sector with respect to leading countries in telecommunications, as well as Latin American countries. The countries that were used to compare are those with the highest development in ICT, among which European and Asian countries appear. In the case of Latin America, the countries that had information available for the years of analysis were used.

Fixed telephony, mobile telephony, fixed Internet access and mobile services are analyzed, in relation

to the evolution of the number of subscribers and the total penetration rate achieved, which allows for 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 because the number of subscriptions to this service continues to decrease also in countries such as Korea, Switzerland, The Netherlands, United States, Singapore, Sweden. This behavior is similar, but slower for Latin American countries and with different degrees or levels. For example, in Argentina, Brazil and Chile among others, the penetration of this service has remained practically unchanged; in the case of Mexico, Uruguay and Panama, on the contrary, there have been increases and in the other countries of Latin America there have been reductions in this indicator.

In 2020, according to ITU records, the countries with the highest fixed telephony penetration were the United Kingdom, the Republic of Korea and Switzerland with 47.2 %, 46.5 % and 35.5 % respectively. In the case of Costa Rica, penetration in 2020 was 14.2 %, a figure that by 2021 was reduced to 10 %, placing the country in sixth position in Latin America, behind Uruguay, Mexico, Argentina, Panama, and Brazil ([vsee Chart n.º 268](#)). It should be noted that Costa Rica rose one position compared to 2019 (seventh to sixth).

**For mobile phone service (including prepaid and postpaid modalities), Costa Rica remains among the countries with the highest penetration.**

In fact, in this measurement it is in the second place, behind El Salvador with 147.5 % and 153.4 % respectively, surpassing countries such

<sup>104</sup> It is prepared by the A4AI, which is composed of a group of international organizations where the following stand out: Google, Sweden, Sverige, Cisco, Facebook, Intel, GSMA, Microsoft, among others.



as Singapore, Korea, the United States, among others.

It should be noted that the percentage of penetration that was reached in 2021 (152 %) is consistent with the tendency to remain at the top of this penetration indicator. Even so, the figure for 2021 is higher than that registered in 2020 by the rest of the countries, as can be seen in [Chart n.º 269](#).

In the case of mobile phone service according to payment method, despite the fact that in our country the proportion of prepaid subscriptions decreased compared to 2019, Costa Rica continues to remain among the countries with the highest proportion of prepaid lines with respect to the total number of mobile lines. For 2020 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 seen in [Chart n.º 270](#).

As in the previous edition of this report, there is still an inverse relationship between the proportion of prepaid services and per capita income according to data from the ITU Report for 2019. Mobile phone users in 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 [Chart n.º 271](#).

The penetration of fixed Internet service measured by connections per 100 inhabitants has remained with slight growth close to 1 percentage point, surpassing Mexico and Brazil in the 2020. In the case of Chile, it showed a growth of 1.6 percentage points in relation to 2019, but Uruguay remains the leader in this field with 30.6 % at the Latin American level. According to ITU data from 2020, European countries have higher values that almost quadruple that of Costa Rica (19.5 % for 2020 and 19.4 % for 2021). Highlights include Switzerland, Denmark, Norway and the Netherlands with values close to 45 %.

For mobile Internet service, Costa Rica continues to show an important position in relation to the penetration of this service for 2020, remaining within the first three places, at the Latin American level and the 13th place worldwide, only surpassed by Uruguay and Chile. For 2021 it shows a slight decrease (it reaches 87 %), but maintaining the weight to remain in the first places in Latin America. The detail is seen in [Chart n.º 273](#).

To conclude this section on the international framework, the relative weight of telecommunications revenues in relation to the gross domestic product (GDP) in dollars for each country is quantified. As shown in [Chart n.º 274](#), Honduras is in first place with a relative weight of 3.6 %, surpassing the Republic of Korea and Argentina. Costa Rica, on the other hand, is in position 4 with 2.5 %. In this indicator it can be seen that in the first 10 positions, 8 correspond to Latin American countries.

## 2021 Affordability Drivers Index

For this year the index changed its name, going from being the Affordability Index to the Driver Affordability Index. This Index is built by the Alliance For Affordable Internet (A4AI), an alliance composed of a group of global institutions from the private, public-academic and civil society sectors. This index aims 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 shows a strong relationship between its scores and the price of broadband in the countries under analysis.

Therefore, countries with higher scores tend to have better prices on broadband services. Costa Rica shows a strong relationship between high index scores and low prices in Internet service.

The Affordability Driver Index is composed of two sub-indices that are operationalized internally as follows.

- **Infrastructure sub-index:** measures the degree of deployment and operations of infrastructure, along with policies, regulatory frameworks that incentivize and enable investment for the growth of future infrastructure. Some of the variables they include are the amount of international bandwidth available and spectrum policy assessment.
- **Broadband Access Sub-Index:** Measures adoption rates, policies and regulatory frameworks to foster the growth and delivery of broadband services. The variables used are Internet penetration rate and evaluation of the effectiveness of universal service funds.

The index is calculated for 72 countries divided into two groups (developing economies and underdeveloped economies) and is calculated on a scale of 0 to 100, based on penetration rates, use, political and regulatory environment.

Analysis of the index shows that high scores are correlated with low broadband prices. This means that values close to 100 in the index of countries show prices in broadband services that tend to fall.

For 2020, Costa Rica remains in position 3, behind Malaysia and Colombia, this in the case of developing economies. In the case of underdeveloped economies, Senegal moves to the first place followed by Cambodia. In the general classification Colombia and Costa Rica are in the first positions at Latin American level. The detail of the above can be seen in [Tables n.º 24](#) and [25](#)

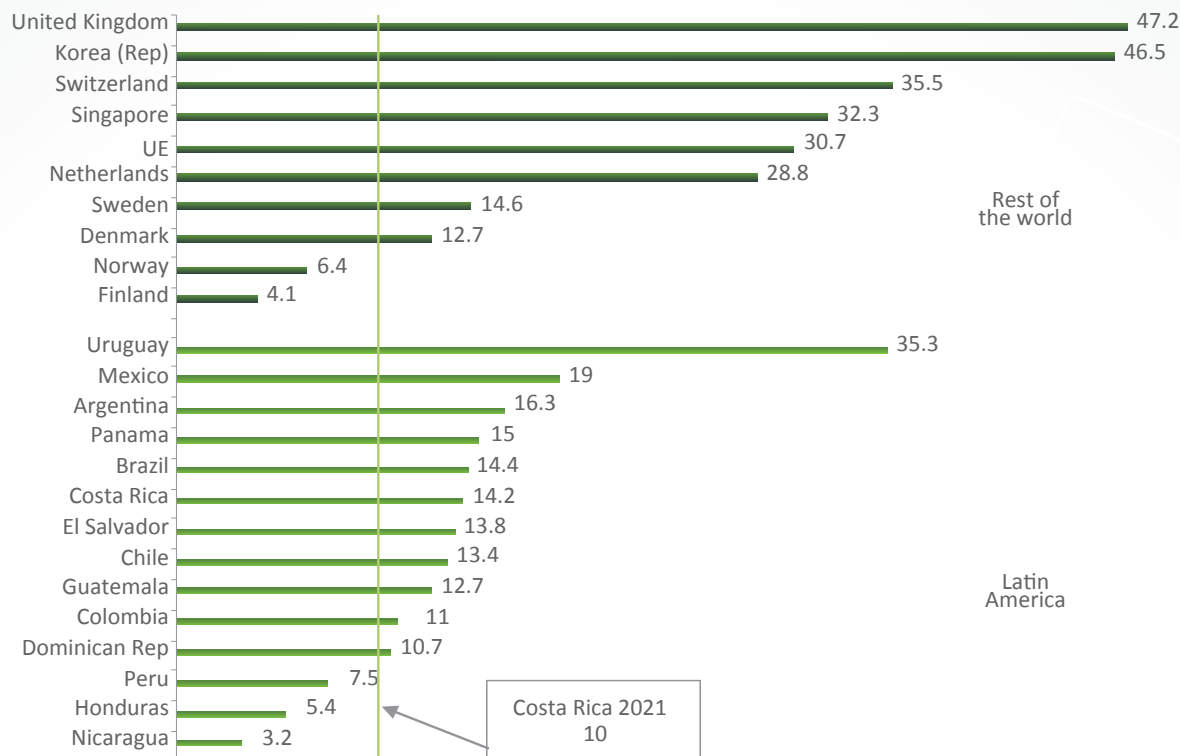
The three leading countries in this year's and 2021 indices (Malaysia, Colombia and Costa Rica) demonstrate the impact of national broadband plans on Internet affordability and the importance of iterative reviews to achieve excellence in this field. These three countries scored highest on the quality indicator of targets within their national broadband plans.

In all three countries, broadband plans included targets, led the sector and left impact evidence.

In Costa Rica, the national broadband plan details a procedure for reviewing progress; additionally the report exposes as a positive example of such political practices around the world, the existence of the Connected Households program in Costa Rica, where it shows the potential impact of a program led by the Universal Access and Service Fund.

Chart n.º 268. Subscriptions to fixed telephone service\* 100 inhabitants, 2020

(figures in percentage)

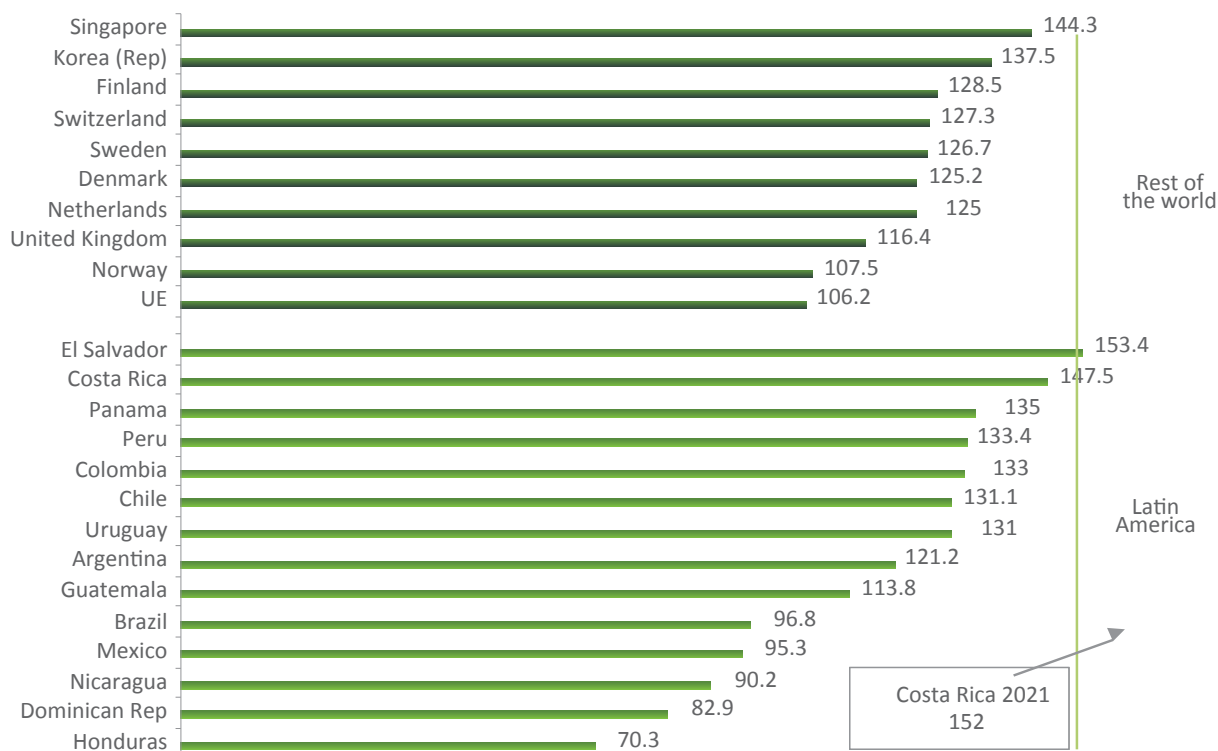


Note: \*Contemplates traditional fixed and VoIP telephony.

Source, Directorate General of FONATEL, Costa Rica, 2021.

Chart n.º 269. Subscriptions to mobile telephone service\* 100 inhabitants, 2020

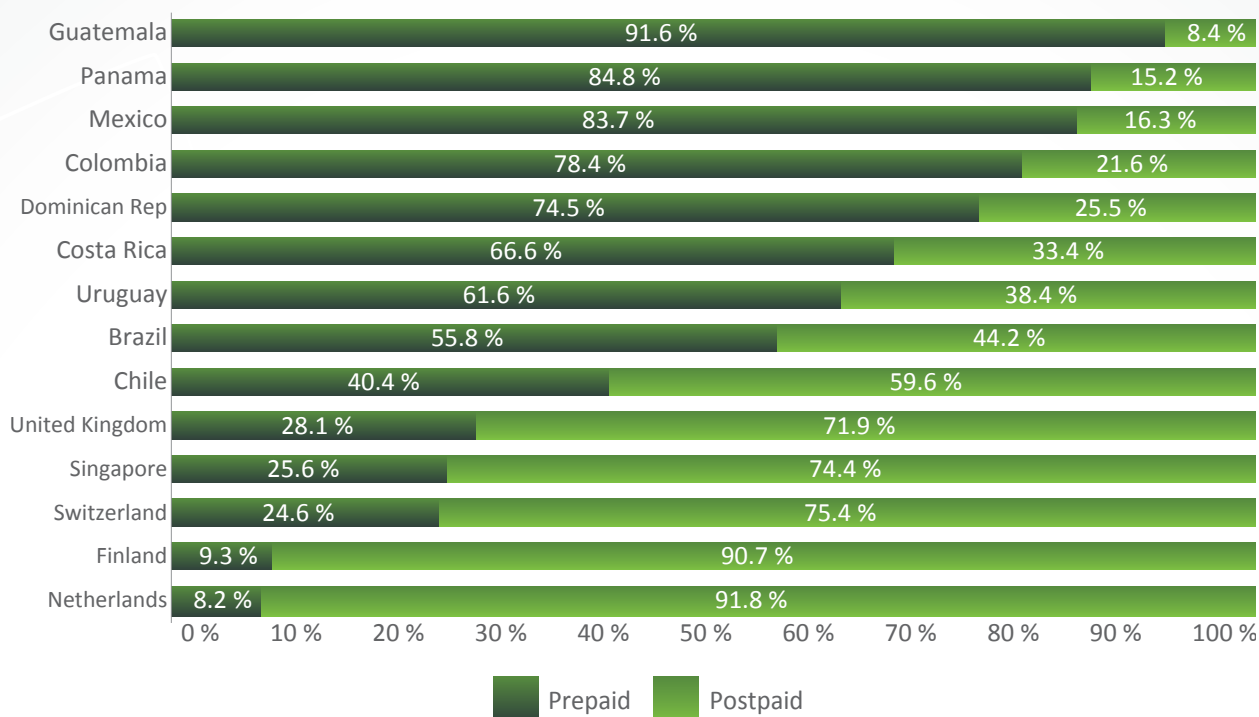
(figures in percentage)



Source: SUTEL, Directorate General of Markets, with information from the International Telecommunication union, Costa Rica, 2020-2021.

Chart n.º 270. Distribution of percentage of mobile subscriptions among postpaid and prepaid, 2020

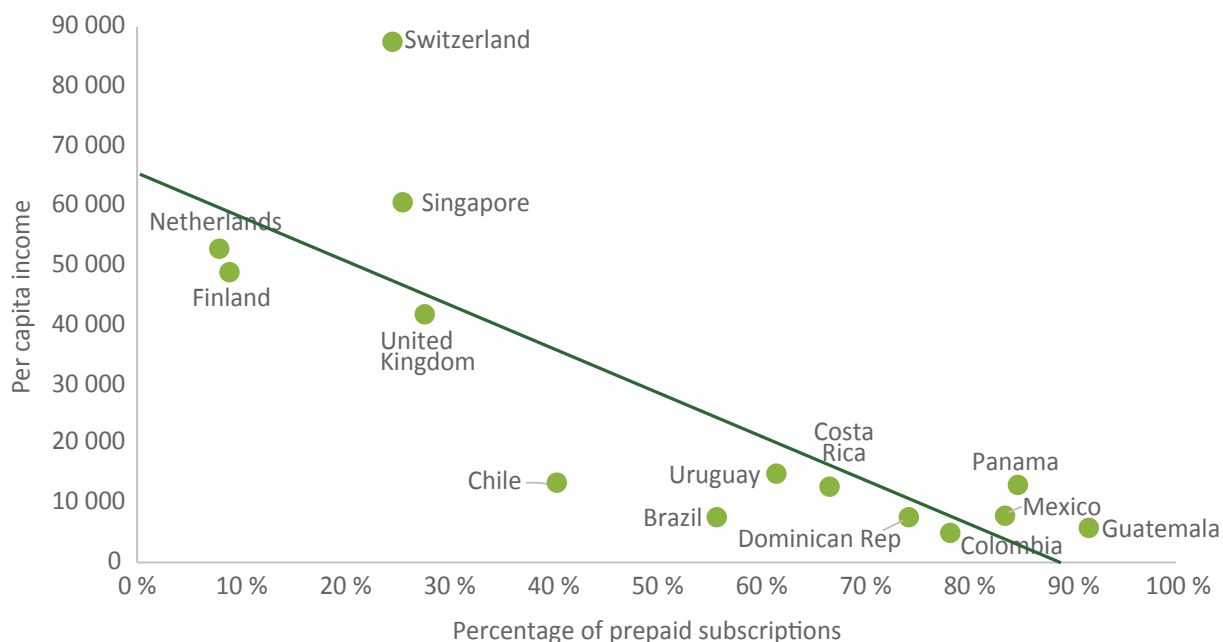
(figures in percentages)



Note: \* In Costa Rica the ratio in 2021 was 66 % prepaid and 34 % postpaid.

Source: SUTEL, Directorate General of Markets, with information from the International Telecommunication Union, Costa Rica, 2020-2021.

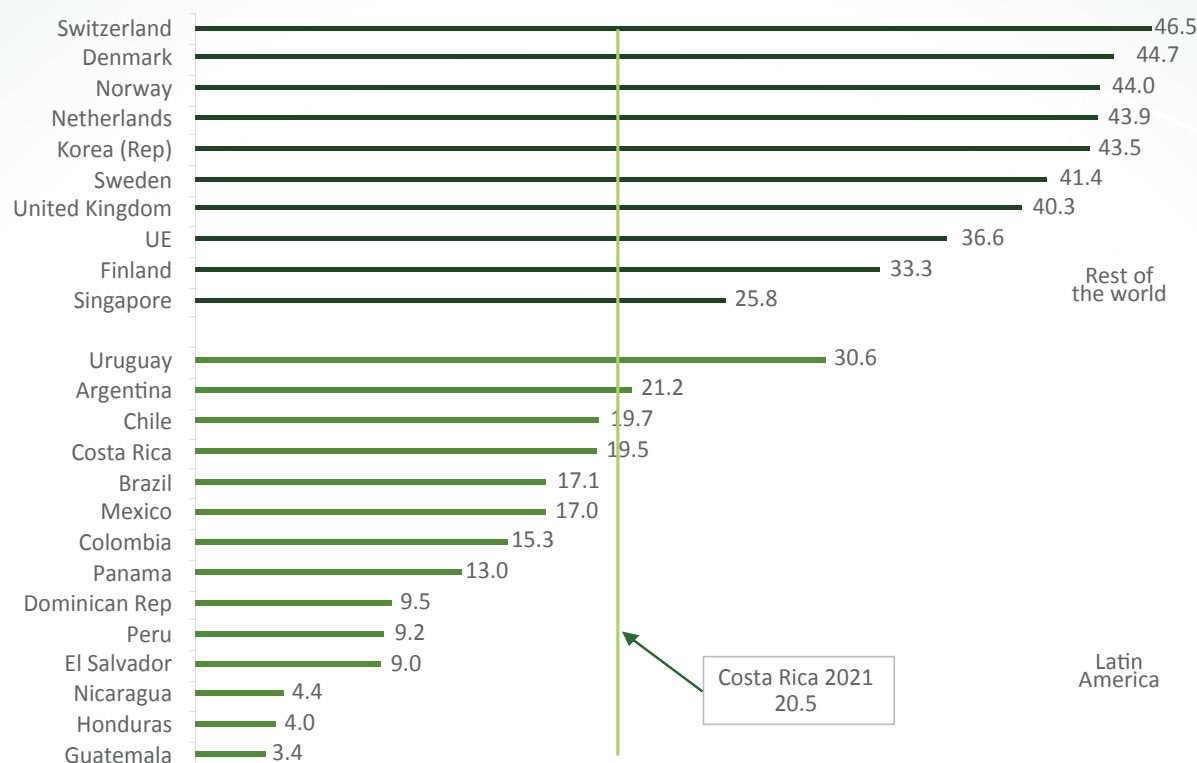
Chart n.º 271. Average revenue per inhabitant and percentage of prepaid subscriptions, 2020



Source: SUTEL, Directorate General of Markets, with information from the International Telecommunication Union, Costa Rica, 2020-2021.

Chart n.º 272. Fixed Internet access penetration per hundred inhabitants, 2020

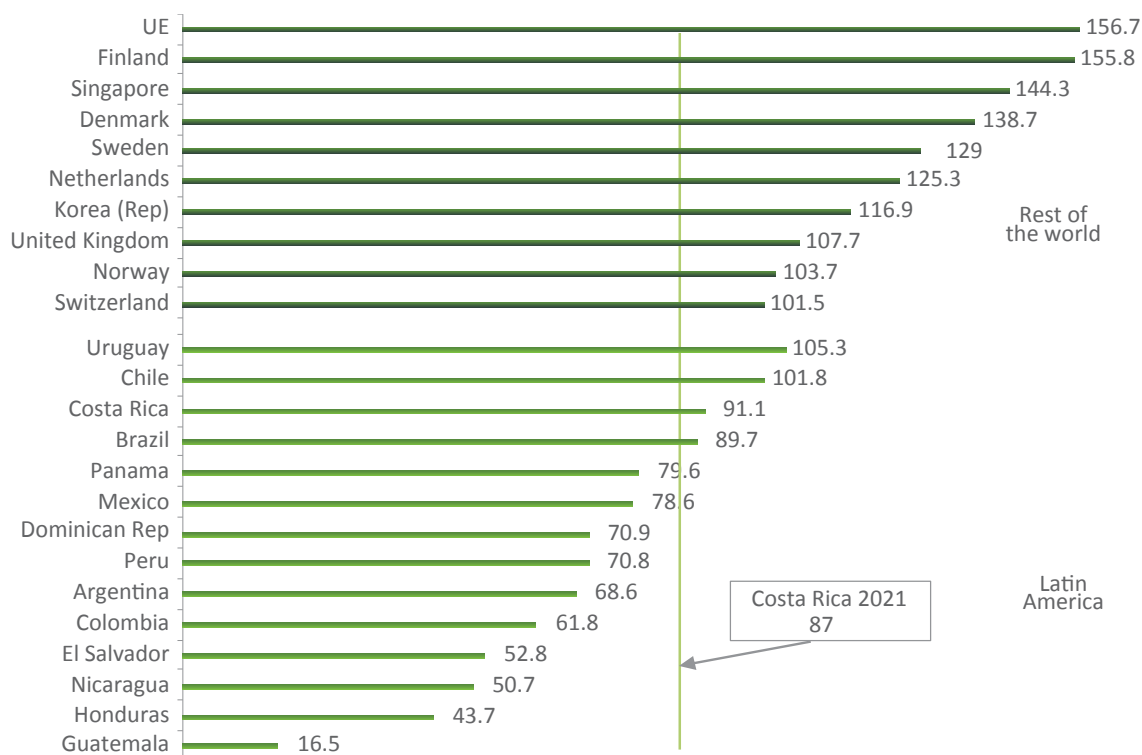
(figures in percentages)



Source: SUTEL, Directorate General of Markets, with information from the International Telecommunication Union, Costa Rica, 2020-2021.

Chart n.º 273. Mobile Internet access penetration per one hundred inhabitants, 2020

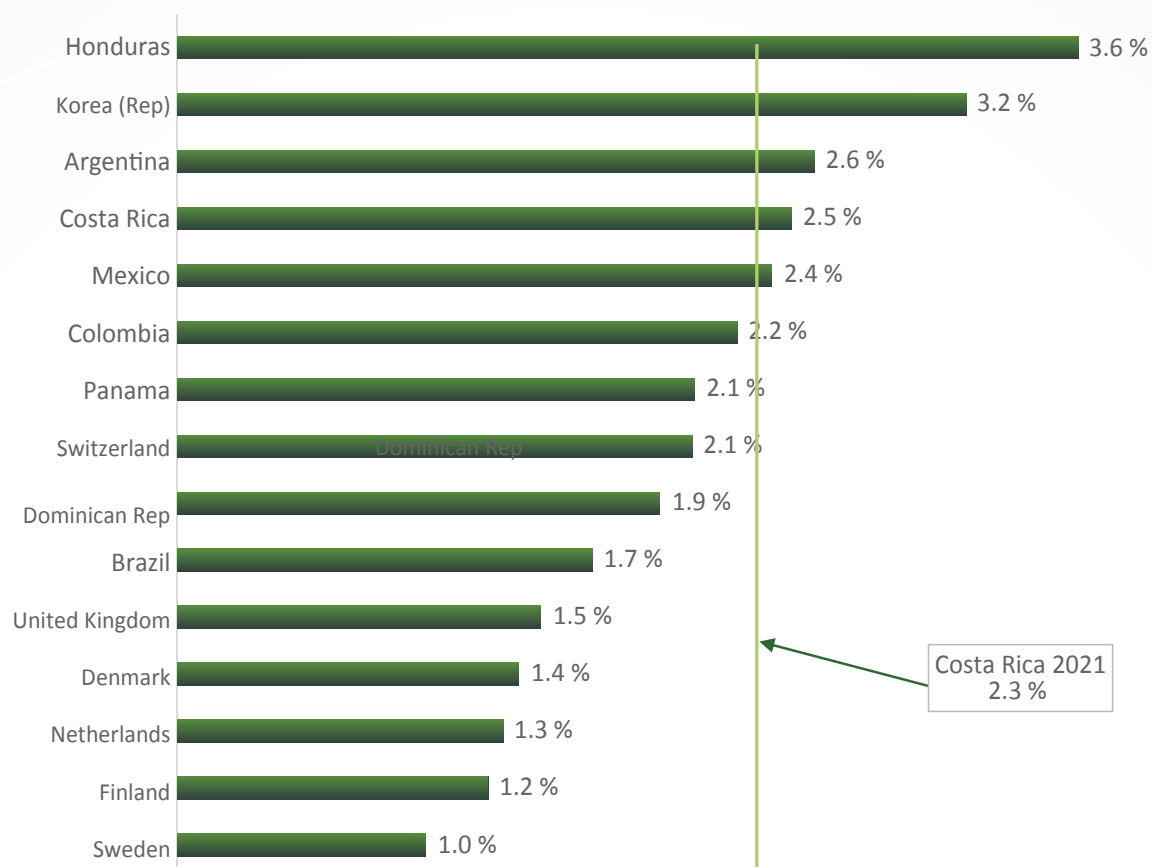
(figures in percentages)



Source: SUTEL, Directorate General of Markets, with information from the International Telecommunication Union, Costa Rica, 2020-2021.

Chart n.º 274. Costa Rica: Ratio of total income of the telecommunications sector to GDP, 2020

(figures in percentage)



Source: SUTEL, Directorate General of Markets, with information from the International Telecommunications Union, Costa Rica, 2020- 2021.

Table n.º 22. Positions of the affordability drivers index by country, according to developing economies, 2018-2021

Position	Emerging economies			
	2018	2019	2020	2021
1	Malaysia	Malaysia	Malaysia	Malaysia
2	Colombia	Colombia	Colombia	Colombia
3	Peru	Costa Rica	Costa Rica	Costa Rica
4	Costa Rica	Peru	Argentina	Peru
5	Mexico	Mexico	Peru	Argentina

Source: SUTEL, Directorate General of Markets, with information from A4AI, Costa Rica, 2021.



Table n.º 23. Scores obtained in the affordability index by country, 2018-2021

Position	Country	2018	2019	2020	2021
1	Malaysia	82.44	85.33	85.67	89.27
2	Colombia	79.12	83.06	85.26	87.82
3	Costa Rica	75.91	79.21	85.07	87.15
4	Peru	76.21	77.98	80.49	83.89
5	Argentina	68.94	72.51	80.56	81.94
6	Thailand	67.71	70.34	76.92	81.02
7	Turkey	69.33	72.66	74.5	75.89
8	Mexico	73.8	76.29	76.57	75.22
9	Morocco	62.79	63.78	71.26	73.31
10	India	71.49	72.69	69.77	72.32

Source: SUTEL, Directorate General of Markets, with information from A4AI, Costa Rica, 2021.

Table n.º 24. Scores obtained in the access sub-index per country, 2018-2021

Position	Country	2018	2019	2020	2021
1	Malaysia	95.59	98.17	95.65	98.36
2	Costa Rica	86.2	88.61	94.85	96.29
3	Thailand	77.5	79.39	85.85	89.93
4	Colombia	83.38	85.39	86.94	89.48
5	Argentina	71.99	76.1	85.51	86.37
6	Botswana	64.62	67.64	77.49	81.61
7	Peru	80.71	81.23	79.78	81.2
8	Indonesia	43.88	46.99	68.67	80.45
9	Turkey	75.26	79.15	77.21	78.15
10	Dominican Republic	71.35	74.4	76.9	77.19

Source: SUTEL, Directorate General of Markets, with information from the A4AI, Costa Rica, 2021.

Table n.º 25. Scores obtained in the infrastructure sub-index by country, 2018-2021

Position	Country	2018	2019	2020	2021
1	Peru	63.20	68.44	73.20	77.00
2	Colombia	66.02	74.05	75.08	76.13
3	México	63.30	68.21	71.02	72.78
4	Malasia	60.08	65.62	67.16	69.98
5	Argentina	58.20	63.09	67.60	68.16
6	Costa Rica	57.14	63.44	66.83	68.06
7	Jordan	57.73	62.14	58.63	65.28
8	Turkey	55.67	60.32	64.38	64.97
9	Thailand	67.71	70.34	60.34	62.85
10	Ecuador	66.00	69.24	60.96	62.49

Source: SUTEL, Directorate General of Markets, with information from the A4AI, Costa Rica, 2021.



# STATISTICAL **ANNEX**





Table n.º 26. Costa Rica: Total revenue of the Telecommunications  
Sector, 2017 - 2021

(Quarterly figures in million colones)

Indicator	2017				2018			
	I Q 2017	II Q 2017	III Q 2017	IV Q 2017	I Q 2018	II Q 2018	III Q 2018	IV Q 2018
Million colones	184 337	186 314	185 664	189 266	192 377	194 529	186 507	184 414
Variation rate	0 %	2 %	1 %	1 %	-1 %	1 %	0 %	2 %

Indicator	2019				2020			
	I Q 2019	II Q 2019	III Q 2019	IV Q 2019	I Q 2020	II Q 2020	III Q 2020	IV Q 2020
Million colones	193 959	191 410	189 424	185 497	183 967	181 146	180 693	182 391
Variation rate	1.644 %	1.118 %	-4.124 %	-1.122 %	5 %	-1 %	-1 %	-2 %

Indicator	2021				2017	2018	2019	2020	2021
	I Q 2021	II Q 2021	III Q 2021	IV Q 2021					
Million colones	183 967	181 146	180 693	182 391	745 581	757 827	760 290	728 196	728 269
Variation rate	1 %	-2 %	0 %	1 %	2.36 %	1.64 %	0.33 %	-4.22 %	0.01 %

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



**Table n.º 27. Costa Rica: Total revenue of the Telecommunications**  
**Sector per service, 2017 - 2021**  
(Quarterly figures in million colones)

	I Q 2017	II Q 2017	III Q 2017	IV Q 2017	I Q 2018	II Q 2018	III Q 2018	IV Q 2018
<b>Basic traditional and VoIP telephony</b>	20 422	20 120	19 781	19 460	19 031	18 834	18 288	17 872
<b>Mobile telephony (Voice and messaging)</b>	71 796	70 854	70 837	72 201	67 550	64 811	62 622	62 293
<b>Internet access (includes mobile Internet access)</b>	80 759	84 746	84 018	85 613	94 561	100 220	94 961	94 496
<b>Dedicated lines</b>	11 360	10 595	11 028	11 992	11 236	10 664	10 636	9 753
<b>Total</b>	184 337	186 314	185 664	189 266	192 377	194 529	186 507	184 414

	I Q 2019	II Q 2019	III Q 2019	IV Q 2019	I Q 2020	II Q 2020	III Q 2020	IV Q 2020
<b>Basic traditional and VoIP telephony</b>	16 357	15 590	14 555	13 328	12 440	12 162	11 824	11 268
<b>Mobile telephony (Voice and messaging)</b>	60 119	57 641	54 632	53 480	53 445	51 045	50 519	49 653
<b>Internet access (includes mobile Internet access)</b>	104 674	106 358	107 565	106 499	106 417	105 828	105 634	108 635
<b>Dedicated lines</b>	12 809	11 821	12 672	12 190	11 664	12 110	12 716	12 835
<b>Total</b>	193 959	191 410	189 424	185 497	183 967	181 146	180 693	182 391

	I Q 2021	II Q 2021	III Q 2021	IV Q 2021
<b>Basic traditional and VoIP telephony</b>	10 439	10 065	9382	8871
<b>Mobile telephony (Voice and messaging)</b>	49 392	48 572	46 637	45 313
<b>Internet access (includes mobile Internet access)</b>	111 048	108 992	112 091	113 581
<b>Dedicated lines</b>	13 608	13 286	13 162	13 830
<b>Total</b>	184 487	180 914	181 273	181 594

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

**Table n.º 28. Costa Rica: Total revenue of the Telecommunications Sector per service, 2017 - 2021**

(Annual figures in million colones)

	2017	2018	2019	2020	2021
<b>Mobile telephony (Voice only)</b>	285 688	257 275	225 872	204 662	189 914
<b>Basic traditional and VoIP telephony</b>	79 783	74 025	59 830	47 695	38 756
<b>Internet access (includes mobile Internet access)</b>	335 136	384 238	425 095	426 514	445 712
<b>Dedicated lines</b>	44 974	42 289	49 492	49 326	53 886
<b>Total</b>	745 581	757 827	760 290	728 196	728 269

Source: Sutel, Directorate General of Markets, Costa Rica. 2021.

**Table n.º 29. Costa Rica: Total revenue of the Telecommunications Sector per service, 2017 - 2021**

(Annual figures in percentage)

	2017	2018	2019	2020	2021
<b>Mobile telephony (Voice only)</b>	38 %	34 %	30 %	28 %	26 %
<b>Basic traditional and VoIP telephony</b>	11 %	10 %	8 %	7 %	5 %
<b>Internet access (includes mobile Internet access)</b>	44 %	51 %	56 %	59 %	61 %
<b>Dedicated lines</b>	7 %	5 %	6 %	7 %	8 %
<b>Total</b>	100 %	100 %	100 %	101 %	100 %

Source: Sutel, Directorate General of Markets, Costa Rica. 2021.

**Table n.º 30. Costa Rica: Total revenue of the Telecommunications Sector per service, 2017 - 2021**

(Annual figures in million colones)

	2017	2018	2019	2020	2021
<b>Mobile telephony and mobile Internet access</b>	493 352	492 810	490 450	460 296	443 143
<b>Basic traditional and VoIP telephony</b>	79 783	74 025	59 830	47 695	38 756
<b>Fixed Internet access</b>	127 472	148 704	160 518	170 879	192 484
<b>Dedicated lines</b>	44 974	42 289	49 492	49 326	53 886
<b>Total</b>	745 581	757 827	760 290	728 196	728 269

Source: Sutel, Directorate General of Markets, Costa Rica. 2021.



**Table n.º 31. Costa Rica: Total revenue of the Telecommunications Sector  
per service, 2017 – 2021**  
(Annual figures in percentage)

	2017	2018	2019	2020	2021
<b>Mobile telephony and mobile Internet access (mobile network)</b>	66 %	65 %	65 %	63 %	61 %
<b>Basic traditional and VoIP telephony</b>	11 %	10 %	8 %	7 %	5 %
<b>Fixed Internet access</b>	17 %	20 %	21 %	23 %	27 %
<b>Dedicated lines</b>	6 %	5 %	6 %	7 %	7 %
<b>Total</b>	100 %	100 %	100 %	100 %	100 %

Source: Sutel, Directorate General of Markets, Costa Rica. 2021.

**Table n.º 32. Costa Rica: Telecommunications Sector workforce, 2017 - 2021**  
(Biannual and annual figures in absolutes)

Indicator	2017		2018		2019		2020	
	I S	II S	I S	II S	I S	II S	I S	II S
<b>People</b>	11 691	12 186	10 939	11 804	9395	10 758	11 138	10 994
<b>Variation %</b>	-2 %	3 %	-6 %	-3 %	-14 %	-9 %	19 %	2 %

Indicator	2021		2017	2018	2019	2020	2021
	I S	II S					
<b>People</b>	10 842	10 795	12 186	11 804	10 761	10 994	10 845
<b>Variation %</b>	-3 %	-2 %	3 %	-3 %	-9 %	2 %	-1 %

Source: Sutel, Directorate General of Markets, Costa Rica. 2021.

**Table n.º 33. Costa Rica: Telecommunications Sector workforce percentage with  
respect to the economically active population, 2017 - 2021**  
(Annual figures in percentage)

Indicator	2017	2018	2019	2020	2021
<b>Country total</b>	2 274 432	2 359 644	2 448 045	2 406 533	2 453 173
<b>Telecommunications sector</b>	12 186	11 804	10 761	10 991	10 845
<b>Percentage</b>	0.54 %	0.50 %	0.44 %	0.46 %	0.44 %
<b>Variation %</b>	0 %	-7 %	-12 %	4 %	-3 %

Source: Sutel, Directorate General of Markets and INEC (Continuous Employment Survey), Costa Rica.

Table n.º 34. Costa Rica: Telecommunications Sector workforce percentage with respect to total population, 2017 - 2021

(Annual figures in percentage)

Indicator	2017	2018	2019	2020	2021
Total population	4 947 490	5 003 402	5 058 007	5 111 238	5 163 038
Telecommunications sector workforce	12 186	11 804	10 761	10 991	10 845
Percentage	0.25 %	0.24 %	0.21 %	0.22 %	0.21 %

Source: Sutel, Directorate General of Markets er INEC (Continuous employment survey), Costa Rica. 2021.

Table n.º 35. Costa Rica: Female workforce in the Telecommunications Sector, 2017 – 2021

(Biannual figures in absolutes)

Indicator	2017		2018		2019		2020		2021	
	I S	II S	I S	II S	I S	II S	I S	II S	I S	II S
People	3178	3344	3062	3258	2504	3244	3230	3279	3261	3227
Biannual variation %		5 %	-8 %	6 %	-23 %	30 %	0 %	2 %	0 %	2 %
Annual variation %		9 %	-4 %	-3 %	-18 %	0 %	29 %	1 %	1 %	-2 %

Source: Sutel, Directorate General of Markets, Costa Rica. 2021.

**Table n.º 36. Costa Rica: Subscriptions for basic traditional and VoIP telephony, 2017 - 2021**

(Figures at year end)

Indicator	2017	2018	2019	2020	2021
<b>Total</b>	808 967	763 254	636 504	556 617	500 550
<b>Basic Traditional Telephony</b>	747 428	695 518	571 808	504 276	443 684
<b>VoIP</b>	61 539	67 736	64 696	52 341	56 866

Fuente: Sutel, Dirección General de Mercados, Costa Rica, 2021.

**Table n.º 37. Costa Rica: Subscriptions for basic traditional and VoIP telephony, 2020 - 2021**

(Figures at each quarter end)

Indicator	2020				2021			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
<b>Total</b>	604 881	593 774	577 230	556 617	542 168	525 818	503 025	500 550
<b>Basic traditional fixed telephony</b>	545 468	537 214	523 853	504 276	491 208	470 337	448 249	443 684
<b>VoIP</b>	59 622	56 782	53 377	52 341	50 960	55 481	54 776	56 866

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 38. Costa Rica: Number of public phones in service, 2017-2021**

(Figures at each year-end)

Indicator	2017	2018	2019	2020	2021
<b>Public phones</b>	4674	4581	3798	3265	3265

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 39. Costa Rica: Fixed telephony traffic completed within the network and outbound traffic, 2017-2021**

(Annual figures in millions of minutes and variation percentages)

Indicator	2017	2018	2019	2020	2021
<b>Minutes</b>	2683	2402	1871	1647	1353
<b>Variation %</b>		-10.5 %	-22.1 %	-12.0 %	-17.8 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 40. Costa Rica: Basic traditional and VoIP traffic completed between the network and outbound traffic, 2020 - 2021**

(Quarterly figures in thousands of minutes and variation percentages)

Indicator	2020				2021			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Minutes	410	423	423	391	362	352	330	309
Variation %		3.3 %	-0.1 %	-7.6 %	-7.3 %	-2.9 %	-6.0 %	-6.5 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 41. Costa Rica: Basic traditional and VoIP traffic completed within the network and outbound traffic, 2017-2021**

(Annual figures in thousands of minutes and variation percentages)

Indicator	2017	2018	2019	2020	2021
Minutes	393 596	395 056	241 348	183 232	177 117
Variation %		0.4 %	-38.9 %	-24.1 %	-3.3 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 42. Costa Rica: Basic traditional and VoIP traffic completed within the network and outbound traffic, 2020 - 2021**

(Quarterly figures in millions of minutes and variation percentages)

Indicator	2020				2021			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Minutes	47	50	44	42	43	42	45	47
Variation %		5.7 %	-12.9 %	-3.7 %	2.7 %	-3.0 %	6.5 %	6.4 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 43. Costa Rica: Outbound national fixed telephony traffic to fixed and mobile networks, 2017-2021**

(Annual figures in thousands of minutes and variation percentages)

Indicator	2017	2018	2019	2020	2021
Fixed networks	1503	1866	1244	911	756
Mobile networks	11 410	10 448	8593	7766	6601
Total Outbound	12 914	12 313	9837	8677	7357

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 44. Costa Rica: Total inbound fixed telephony traffic, 2017-2021**

(Annual figures in millions of minutes and variation percentages)

Indicator	2017	2018	2019	2020	2021
<b>Thousands of minutes</b>	15 017	14 109	12 931	12 864	11 711
<b>Variation %</b>		-6.0 %	-8.3 %	-0.8 %	-9.0 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 45. Costa Rica: Total revenue for fixed telephony service, 2017 - 2021**

(Annual figures in million colones and variation percentages)

Indicator	2017	2018	2019	2020	2021
<b>Amount</b>	79 783	73 240	58 996	46 884	37 982
<b>Variation %</b>		-8.2 %	-19.4 %	-20.5 %	-19.0 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 46. Costa Rica: Total revenue for VoIP telephony, 2017 - 2021**

(Annual figures in million colones and variation percentages)

Indicator	2017	2018	2019	2020	2021
<b>Amount</b>	6006	6906	6856	6261	6174
<b>Variation %</b>		15.0 %	-0.7 %	-8.7 %	-1.4 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 47. Costa Rica: Total revenues for basic traditional and VoIP telephony, 2020 - 2021**

(Quarterly figures in million colones and variation percentages)

Indicator	2020				2021			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
<b>Amount</b>	12 229	11 961	11 627	11 067	10 239	9873	9191	8680
<b>Variation %</b>		-2.2 %	-2.8 %	-4.8 %	-7.5 %	-3.6 %	-6.9 %	-5.6 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 48. Costa Rica: Revenue for VoIP telephony, 2020 - 2020**

(Quarterly figures in million colones and variation percentages)

Indicator	2020				2021			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
<b>Amounts</b>	1564	1526	1540	1632	1571	1560	1544	1499
<b>Variation %</b>		-2.4 %	0.9 %	6.0 %	-3.8 %	-0.7 %	-1.0 %	-2.9 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 49. Costa Rica: Average revenue per subscriber of basic traditional and VoIP telephony, 2017-2021**

(Annual figures in thousands of colones and variation percentages)

Year	Average revenue			Percentage variation		
	Trad. Basic	VOIP	Fixed Tel.	Trad. Basic	VOIP	Fixed Tel.
<b>2017</b>	98 708	97 602	98 624			
<b>2018</b>	95 373	101 957	95 958	-3 %	4 %	-3 %
<b>2019</b>	91 184	105 980	92 688	-4 %	4 %	-3 %
<b>2020</b>	80 556	119 624	84 230	-12 %	13 %	-9 %
<b>2021</b>	71 692	108 566	75 881	-11 %	-9 %	-10 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 50. Costa Rica: Average revenue per minute completed on traditional basic and VOIP telephony, 2017-2021**

(Figures in colones and percentage variations)

Year	Average revenue			Variation percentage		
	VOIP	Trad. Basic	Fixed Tel.	VOIP	Trad. Basic	Fixed Tel.
<b>2017</b>	15	32	30			
<b>2018</b>	17	33	30	15 %	3 %	3 %
<b>2019</b>	28	32	32	63 %	-3 %	3 %
<b>2020</b>	34	28	28	20 %	-13 %	-10 %
<b>2021</b>	35	27	28	2 %	-3 %	-1 %

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.



**Table n.º 51. Costa Rica: Total subscriptions to mobile telephony per operator, 2017-2021**

(Figures at each quarter end in thousands of subscriptions and variation percentages)

TOTAL	2017				2018				2019			
	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	3496	3381	3369	3514	3409	3261	3217	2981	3039	3076	2928	3135
Variation %	-2 %	-3 %	0 %	4 %	-3 %	-4 %	-1 %	-7 %	2 %	1 %	-5 %	7 %
Claro	1772	1888	1891	1883	1868	1705	1577	1629	1704	1644	1598	1616
Variation %	8 %	7 %	0 %	0 %	-1 %	-9 %	-8 %	3 %	5 %	-4 %	-3 %	1 %
Movistar	2181	2223	2237	2324	2347	2347	2382	2262	2298	2287	2429	2552
Variation %	2 %	2 %	1 %	4 %	1 %	0 %	2 %	-5 %	2 %	0 %	6 %	5 %
Fullmóvil	110	106	95	52	43	50	53	46	22	9	7	7
Variation %	9 %	-3 %	-11 %	-45 %	-18 %	16 %	6 %	-14 %	-53 %	-60 %	-22 %	0 %
Tuyo Móvil	7	7	5	4	4	4	2	2	0	0		
Variation %	-1 %	-1 %	-37 %	-11 %	-2 %	0 %	-44 %	-21 %	-72 %	-100 %		
TOTAL	7567	7605	7597	7778	7671	7367	7232	6920	7063	7016	6962	7310
Variation %		0 %	0 %	2 %	-1 %	-4 %	-2 %	-4 %	2 %	-1 %	-1 %	5 %

TOTAL	2020				2021			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
ICE	3150	3300	3131	3084	3057	3029	3025	3022
Variation %	0 %	5 %	-5 %	-1 %	-1 %	-1 %	0 %	0 %
Claro	1581	1484	1615	1524	1512	1485	1469	1496
Variation %	-2 %	-6 %	9 %	-6 %	-1 %	-2 %	-1 %	2 %
Movistar	2702	2635	2716	2897	3044	3112	3186	3316
Variation %	6 %	-2 %	3 %	7 %	5 %	2 %	2 %	4 %
Fullmóvil	7	7	7	7				
Variation %	0 %	0 %	0 %	0 %				
Tuyo Móvil								
Variation %								
TOTAL	7440	7426	7468	7512	7613	7626	7680	7834
Variation %	2 %	0 %	1 %	1 %	1 %	0 %	1 %	2 %

Note: Historical prepaid subscriptions were modified and notified by a operator to Sutel, after the publication of the Telecommunications Sector 2020 Statistics.

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 52. Costa Rica: Total subscriptions to the mobile telephony service per payment modality, 2017-2021**

(Figures at the end of each quarter in thousands of subscriptions and variation percentages)

TOTAL	2017				2018				2019			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
<b>Prepaid</b>	5625	5603	5614	5734	5614	5251	5069	4710	4885	4714	4597	4892
<b>Variation %</b>		0 %	0 %	2 %	-2 %	-6 %	-3 %	-7 %	4 %	-4 %	-2 %	6 %
<b>Postpaid</b>	1942	2002	1983	2045	2057	2115	2164	2210	2178	2302	2366	2418
<b>Variation %</b>		3 %	-1 %	3 %	1 %	3 %	2 %	2 %	-1 %	6 %	3 %	2 %
<b>Total</b>	7567	7605	7597	7778	7671	7367	7232	6920	7063	7016	6962	7310
<b>Variation %</b>		0 %	0 %	2 %	-1 %	-4 %	-2 %	-4 %	2 %	-1 %	-1 %	5 %

TOTAL	2020				2021			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
<b>Prepaid</b>	4923	4866	4936	5006	5088	5065	5062	5140
<b>Variation %</b>	1 %	-1 %	1 %	1 %	2 %	0 %	0 %	2 %
<b>Postpaid</b>	2517	2560	2532	2506	2525	2561	2618	2695
<b>Variation %</b>	4 %	2 %	-1 %	-1 %	1 %	1 %	2 %	3 %
<b>Total</b>	7440	7426	7468	7512	7613	7626	7680	7834
<b>Variation %</b>	2 %	0 %	1 %	1 %	1 %	0 %	1 %	2 %

Note: Historical prepaid subscriptions were modified and notified by an operator to Sutel, after the publication of the Telecommunications Sector 2020 Statistics.

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 53. Costa Rica: Mobile phone service penetration per 100 inhabitants, 2017-2021**

(annual figures in percentages)

	2017	2018	2019	2020	2021
<b>Mobile penetration</b>	157.2 %	138.3 %	144.5 %	147.0 %	151.7 %

Note: Historical prepaid subscriptions were modified and notified by an operator to Sutel, after the publication of the Telecommunications Sector 2020 Statistics.

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 54. Costa Rica: Mobile phone subscriptions share per operator according to payment modality, 2017-2021**  
(Annual figures in percentage)

	2017	2018	2019	2020	2021
<b>Prepaid</b>					
<b>ICE</b>	38 %	35 %	36 %	35 %	34 %
<b>Claro</b>	26 %	25 %	22 %	20 %	17 %
<b>Movistar</b>	35 %	39 %	42 %	45 %	50 %
<b>Fullmóvil</b>	0.9 %	1.0 %			
<b>Tuyo Móvil</b>	0.1 %	0.0 %			
<b>Postpaid</b>					
<b>ICE</b>	64 %	61 %	57 %	53 %	48 %
<b>Claro</b>	20 %	20 %	22 %	21 %	24 %
<b>Movistar</b>	15 %	19 %	21 %	25 %	28 %
<b>Fullmóvil<sup>1</sup></b>				0 %	

<sup>1</sup> Fullmóvil began to market business SMS in the second half of 2019 under the postpaid modality.

Note: Historical prepaid subscriptions were modified and notified by an operator to Sutel, after the publication of the Telecommunications Sector 2020 Statistics.

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 55. Costa Rica: Total revenue associated with the telephone service and mobile network (includes Internet) according to component<sup>1</sup>, 2017-2021**  
(Annual figures in million colones)

	2017	2018	2019	2020	2021
<b>Mobile network</b>	493 358	492 823	490 450	460 275	443 143
<b>Mobile telephony</b>	285 688	257 275	225 872	204 662	189 914
<b>Voice</b>	274 336	247 645	218 257	198 835	184 245
<b>SMS/MMS</b>	11 352	9631	7615	5827	5669
<b>Mobile data</b>	207 670	235 548	264 578	255 613	253 228

<sup>1</sup> Does not include roaming revenue. Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 56. Costa Rica: Total revenue associated to the mobile network per payment modality<sup>1</sup>, 2017-2021**  
(Annual figures in million colones)

	2017	2018	2019	2020	2021
<b>TOTAL</b>	493 358	492 823	490 450	460 275	443 143
<b>Prepaid</b>	202 185	168 503	136 439	104 074	90 315
<b>Postpaid</b>	291 173	324 321	354 011	356 201	352 828

<sup>1</sup> Does not include roaming revenue.

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 57. Costa Rica: Average revenue per minute of mobile telephony (ARPM)<sup>1</sup>, 2017-2021**

(Annual figures in colones and minutes)

	2017	2018	2019	2020	2021
<b>Voice revenue</b>	274 335 682 956	247 644 535 707	218 257 214 206	198 835 062 005	184 244 932 704
<b>Total traffic</b>	6 827 569 387	6 298 697 425	6 066 215 036	5 911 248 885	5 274 994 691
<b>ARPM</b>	40	39	36	34	35

<sup>1</sup>Only includes domestic and international voice traffic and revenue.

Note: Two operators modified traffic data for the years 2019 and 2020 which were notified to Sutel after the publication of the Sector Statistics 2020.

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 58. Costa Rica: Total traffic and share per payment modality per year, 2017-2021**

(Figures in millions of minutes and percentages)

	2017	2018	2019	2020	2021
<b>Total traffic</b>	6828	6299	6066	5911	5275
<b>Prepaid</b>	3331	2839	2239	1606	1691
<b>Postpaid</b>	3502	3459	3827	4305	3584
<b>Prepaid</b>	49 %	45 %	37 %	27 %	32 %
<b>Postpaid</b>	51 %	55 %	63 %	73 %	68 %

Note: Two operators modified traffic data for the years 2019 and 2020, which were notified to Sutel after the publication of the Sector Statistics 2020.

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

**Table n.º 59. Costa Rica: Relative distribution of mobile telephony traffic per destination with respect to total traffic, 2017-2021**

(figures in millions of minutes and percentages)

	2017	2018	2019	2020	2021
<b>Total traffic</b>	6834	6299	6066	5911	5275
<b>Mobile-mobile (On net)</b>	51 %	50 %	51 %	51 %	51 %
<b>Mobile-mobile (Off net)</b>	27 %	28 %	28 %	28 %	28 %
<b>Mobile-fixed</b>	18 %	17 %	17 %	18 %	18 %
<b>Mobile-international</b>	4 %	4 %	4 %	4 %	4 %

Note: Two operators modified traffic data for the years 2019 and 2020, which were notified to Sutel after the publication of the Sector Statistics 2020.

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Table n.º 60. Costa Rica: Subscriptions, revenue and total traffic, fixed Internet access, 2014-2021  
(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
Variation %		1.10 %	0.30 %	2.40 %	2.20 %	1.90 %	1.90 %	2.00 %
Revenue (million 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
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
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
Variation %	2.20 %	4.60 %	2.80 %	3.60 %	3.40 %	5.60 %	3.60 %	3.50 %
Revenue (million 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
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
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
Variation %	5.20 %	2.90 %	1.50 %	2.10 %	3.70 %	0.60 %	2.70 %	1.08 %
Revenue (million 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
% de variación	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
Variation %	3.20 %	11.00 %	13.70 %	9.50 %	4.60 %	8.30 %	8.50 %	-1.68 %

	2020				2021			
	I Quarter	II Quarter	III Quarter	IV Quarter	I Quarter	II Quarter	III Quarter	IV Quarter
Subscriptions	926 362	950 278	969 498	992 725	1 020 653	1 024 865	1 044 185	1 058 767
Variation %	2.40 %	2.60 %	2.00 %	2.40 %	2.81 %	0.41 %	1.89 %	1.40 %
Revenue (million colones)	40 781.0	42 420.0	42 823.0	44 855.0	46 363.0	48 246.0	48 585.0	49 290.0
Variation %	1.80 %	4.00 %	1.00 %	4.70 %	3.40 %	4.10 %	0.70 %	1.50 %
Traffic (TB)	412 239	562 481.0	610 840.0	626 711.0	749.694	814 389	865 976	849 765
Variation %	35.50 %	36.40 %	8.60 %	2.60 %	19.62 %	8.63 %	6.33 %	-1.87 %

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

**Table n.º 61. Costa Rica: Subscriptions, revenue and total traffic, mobile Internet access, 2014-2021**  
(Quarterly figures)

	2014				2015			
	I Quarter	II Quarter	III Quarter	IV Quarter	I Quarter	II Quarter	III Quarter	IV Quarter
<b>Subscriptions</b>	3 465 856	3 536 075	3 551 430	3 796 619	3 832 819	3 829 223	3 981 967	4 154 419
<b>Variation %</b>		2.00 %	0.40 %	6.90 %	1.00 %	-0.10 %	4.00 %	4.30 %
<b>Revenue (million colones)</b>	29 050.2	31 489.7	31 713.5	34 944.2	39 569.2	42 080.1	44 499.3	44 273.0
<b>Variation %</b>		8.40 %	0.70 %	10.20 %	13.20 %	6.30 %	5.70 %	-0.50 %
<b>Traffic (TB)</b>	8 268.6	8 426.2	9 956.3	11 316.8	14 663.1	16 821.4	19 945.1	23 503.6
<b>Variation %</b>		1.90 %	18.20 %	13.70 %	29.60 %	14.70 %	18.60 %	17.80 %

	2016				2017			
	I Quarter	II Quarter	III Quarter	IV Quarter	I Quarter	II Quarter	III Quarter	IV Quarter
<b>Subscriptions</b>	4 180 219	4 172 235	4 178 455	4 336 084	4 636 451	4 644 695	4 637 919	4 788 964
<b>Variation %</b>	0.60 %	-0.20 %	0.10 %	3.80 %	6.90 %	0.20 %	-0.10 %	3.30 %
<b>Revenue (million colones)</b>	45 977.6	47 693.7	49 985.3	50 846.4	51 553.1	52 779.2	51 752.9	51 578.8
<b>Variation %</b>	3.90 %	3.70 %	4.80 %	1.70 %	1.40 %	2.40 %	-1.90 %	-0.30 %
<b>Traffic (TB)</b>	24 737.1	28 953.1	31 875.2	36 623.5	37 588.7	33 458.5	31 940.4	32 015.2
<b>Variation %</b>	5.20 %	17.00 %	10.10 %	14.90 %	2.60 %	-11.00 %	-4.50 %	0.20 %

	2018				2019			
	I Quarter	II Quarter	III Quarter	IV Quarter	I Quarter	II Quarter	III Quarter	IV Quarter
<b>Subscriptions</b>	5 251 701	4 983 176	4 953 143	5 089 506	4 630 498	4 523 109	4 577 597	4 664 073
<b>Variation %</b>	9.70 %	-5.10 %	-0.60 %	2.80 %	-9.02 %	-2.30 %	1.20 %	1.90 %
<b>Revenue (million colones)</b>	56 958.5	57 002.3	59 230.4	62 343.0	64 384.2	66 516.8	67 241.9	66 434.9
<b>Variation %</b>	10.40 %	0.10 %	3.90 %	5.30 %	3.30 %	3.30 %	1.10 %	-1.20 %
<b>Traffic (TB)</b>	32 545.3	34 476	35 980.7	36 362.0	36 100.0	37 201.4	42 028.9	45 349.1
<b>Variation %</b>	1.70 %	5.90 %	4.40 %	1.10 %	-0.70 %	3.10 %	13.00 %	7.90 %

	2020				2021			
	I Quarter	II Quarter	III Quarter	IV Quarter	I Quarter	II Quarter	III Quarter	IV Quarter
<b>Subscriptions</b>	4 668 757	4 721 074	4 571 174	4 641 694	4 594 224	4 456 379	4 432 914	4 501 028
<b>Variation %</b>	0.10 %	1.10 %	-3.20 %	1.54 %	-1.02 %	-3.00 %	-0.53 %	1.54 %
<b>Revenue (million colones)</b>	65 636.0	63 408.0	62 811.0	63 780.0	64 685	60 746	63 506	64 291
<b>Variation %</b>	-1.20 %	-3.40 %	-0.90 %	1.50 %	1.40 %	-6.10 %	4.50 %	1.20 %
<b>Traffic (TB)</b>	51 003.0	57 147.0	55 326.0	59 340.0	62 082.00	64 970.00	69 727.00	72 391.00
<b>Variation %</b>	12.50 %	12.00 %	-3.20 %	7.26 %	4.62 %	4.65 %	7.32 %	3.82 %

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



Table n.º 62. Costa Rica: Total subscriptions for pay television service per access technology per quarter, 2017-2021  
(figures at the end of each quarter)

Technology	2017				2018			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Cable television	552 115	556 100	559 012	563 607	568 037	577 288	582 261	594 508
Satellite television	255 434	252 209	247 199	244 881	246 810	256 207	252 979	255 193
Television over IP	16 635	18 302	20 260	22 054	24 460	27 247	30 242	33 075
MMDS	1306	1193	1257	1365	1247	1073	1022	1107
Total	825 490	827 804	827 728	831 907	840 554	861 815	866 504	883 883

Technology	2019				2020			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Cable television	578 997	575 525	571 102	570 176	565 779	555 727	550 758	548 052
Satellite television	257 100	255 423	255 862	248 269	245 831	232 702	227 821	224 465
Television over IP	37 350	42 429	48 763	54 476	61 627	74 061	84 656	94 076
MMDS	1027	1015	1217	1167	249	253	0	0
Total	874 474	874 392	876 944	874 088	873 486	862 743	863 235	866 593

Technology	2021			
	I Q	II Q	III Q	IV Q
Cable television	536 266	527 937	515 454	506 169
Satellite television	216 871	206 242	201 313	195 722
Television over IP	107 653	120 266	133 505	147 059
MMDS	0	0	0	0
Total	860 790	854 445	850 272	848 950

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

Table n.º 63. Costa Rica: Total revenue for the concept of pay TV per access technology per quarter, figures in million, 2017-2021  
(Quarterly figures in million colones)

Technology	2017				2018			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Cable television	25 637	25 707	25 524	26 604	26 933	26 871	26 762	27 277
Satellite television	10 076	10 149	10 521	10 123	10 244	10 419	10 115	10 412
Television over IP	866	996	1084	1171	1287	1421	1592	1745
MMDS	12	12	12	13	12	12	11	12
<b>Total</b>	<b>36 591</b>	<b>36 864</b>	<b>37 142</b>	<b>37 911</b>	<b>38 477</b>	<b>38 723</b>	<b>38 481</b>	<b>39 446</b>

Technology	2019				2020			
	I Q	II Q	III Q	IV Q	I Q	II Q	III Q	IV Q
Cable television	27 643	27 425	27 586	27 809	27 506	27 388	26 885	26 946
Satellite television	10 425	10 163	9 949	10 466	10 062	10 068	10 071	10 227
Television over IP	1945	2168	2417	2725	2972	3416	3988	4442
MMDS	12	13	12	9	29	20	12	0
<b>Total</b>	<b>40 026</b>	<b>39 768</b>	<b>39 965</b>	<b>41 009</b>	<b>40 569</b>	<b>40 894</b>	<b>40 955</b>	<b>41 614</b>

Technology	2021			
	I Q	II Q	III Q	IV Q
Cable television	25 455	25 921	25 555	25 036
Satellite television	10 111	9 617	9 733	10 003
Television over IP	5537	5532	5954	6270
MMDS	0	0	0	0
<b>Total</b>	<b>41 102</b>	<b>41 070</b>	<b>41 241</b>	<b>41 309</b>

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

Table n.º 64. Costa Rica: Characteristics of prepaid mobile telecommunications bundle offered in December 2020

Operator	Name	Price	Services included	Minutes to all operators	Minutes to another operator	Minutes to same operator	SMS to all operators	SMS to other operator	SMS to same operator	Total download speed (Gigabytes)	Other additional services
Claro	M@s Navego 30MB	₡100	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.03	The Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit.
Claro	M@s Mensajeo100	₡250	Message	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.
Claro	AMIGO FAVORITO	₡250	Minutes	N/A	N/A	Unlimited	N/A	N/A	N/A	N/A	Minutes work for unlimited calls to a Claro number in Costa Rica. Available for Prepaid. Unlimited WhatsApp for 1 day.
Claro	M@s Navego 150MB	₡300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.15	-Unlimited WhatsApp* - Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit. - The validity of WhatsApp is the same as the package.
Claro	M@s Mensajeo200	₡300	Message	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
Claro	NOCHES ILIMITADAS	₡400	Internet	N/A	N/A	N/A	N/A	N/A	N/A	Unlimited	-Unlimited browsing from 22:hrs to 6:00 hrs -The Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit.
Claro	IlimitadoCLARO	₡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
Claro	M@s Navego 300MB	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.30	-Unlimited WhatsApp*. -Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit. -The validity of WhatsApp is the same as the package.
Claro	M@s Hablo Costa Rica25	₡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
Claro	Paquete M@s 3	₡1.000	Minutes, Internet and messages	10	N/A	50	20	N/A	N/A	0.30	-Unlimited WhatsApp -500 MB Internet capacity for social media, includes Facebook, Instagram, Pinterest, Twitter and Waze.

Continues...

...Continued

Operator	Name	Price	Services included	Minutes to all operators	Minutes to another operator	Minutes to same operator	SMS to all operators	SMS to other operator	SMS to same operator	Total download speed (Gigabytes)	Other additional services
Claro	M@s Navego 400MB	€1.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.40	-Unlimited WhatsApp* -The Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit. - The validity of WhatsApp is the same as the package.
Claro	M@s Hablo Costa Rica60	€1.500	Minutes	60	N/A	N/A	N/A	N/A	N/A	N/A	Minutes works for call in Costa Rica only. Available for Prepaid and Control Account
Claro	Paquete M@s7	€2.000	Minutes, Internet and messages	20	N/A	200	50	N/A	N/A	1	-Unlimited WHATSAPP -500 MB Internet capacity for social media, includes Facebook, Instagram, Pinterest, Twitter and Waze.
Claro	M@s Navego 1GB	€2.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	1	-Unlimited WhatsApp* -The Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit. -The validity of WhatsApp is the same as the package.
Claro	Paquete M@s10	€3.000	Minutes, Internet and messages	30	N/A	200	100	N/A	N/A	2	-Unlimited WhatsApp* -500 MB Internet capacity for social media, includes Facebook, Instagram, Pinterest, Twitter and Waze. - The validity of WhatsApp and social media is the same as the package.
Claro	Paquete M@s 15	€4.500	Minutes, Internet and messages	45	N/A	200	200	N/A	N/A	3	-Unlimited WhatsApp* -700 MB Internet capacity for social media, includes Facebook, Instagram, Pinterest, Twitter and Waze.
Claro	M@s Navego 3GB	€4.500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	3	-Unlimited WhatsApp* -The Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit. - The validity of WhatsApp is the same as the package.
Claro	Paquete M@s 15+	€6.000	Minutes, Internet and messages	70	70	200	200	N/A	N/A	4	-Unlimited WhatsApp* -700 MB Internet capacity for social media, includes Facebook, Instagram, Pinterest, Twitter and Waze.
Claro	Paquete M@s 30	€10.000	Minutes, Internet and messages	85	N/A	200	300	N/A	N/A	5	Unlimited WhatsApp* -700 MB Internet capacity for social media, includes Facebook, Instagram, Pinterest, Twitter and Waze.
Kólibi	Paquete SMS Básico	€100	Messages	N/A	N/A	N/A	N/A	N/A	50	N/A	

Continues...

...Continued

Operator	Name	Price	Services included	Minutes to all operators	Minutes to another operator	Minutes to same operator	SMS to all operators	SMS to other operator	SMS to same operator	Total download speed (Gigabytes)	Other additional services
Kölbi	Paquete SMS Día Plus	€200	Messages	N/A	N/A	N/A	N/A	N/A	100	N/A	
Kölbi	Paquete Internet Prepaid En Todas 1	€200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.05	1- These are auto-renewal packages. 2- Includes WhatsApp, Instagram and Facebook with a consumption cap of 100 Mbyte. 3 - On the 4.5G network you can reach speeds of up to 50 Mbps.
Kölbi	Paquete Internet Prepaid En Todas 3	€600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.20	1- These are auto-renewal packages. 2- Includes WhatsApp, Instagram and Facebook with a consumption cap of 100 Mbyte. 3 - On the 4.5G network you can reach speeds of up to 50 Mbps.
Kölbi	Paquete Internet Prepaid En Todas Plus 5	€1.300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.30	1- These are auto-renewal packages. 2- It includes WhatsApp, Instagram, Facebook, Snapchat, Pinterest and Twitter with a consumption cap of 200 Mbyte. 3 - On the 4.5G network you can reach speeds of up to 50 Mbps.
Kölbi	Paquete Internet Pre pago 1 GIGA	€2.500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	1	These are auto-renewal packages. On the 4.5G network you can reach speeds of up to 50 Mbps.
Kölbi	Paquete Internet Prepaid En Todas Plus 10	€2.500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.50	1- These are auto-renewal packages. 2-Includes WhatsApp, Instagram, Facebook, Snapchat, Pinterest and Twitter with a consumption cap of 400 Mbyte. 3 - On the 4.5G network you can reach speeds of up to 50 Mbps.
Kölbi	Paquete Internet Prepaid 2 GIGAS	€4.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	2	These are auto-renewal packages. On the 4.5G network you can reach speeds of up to 50 Mbps.
Kölbi	Plan Dominio Pre pago 1	€5.000	Minutes, Internet and messages	35	N/A	N/A	30	N/A	N/A	2	FREE WhatsApp for 30 days
Kölbi	Plan Dominio Pre pago 2	€8.000	Minutes, Internet and messages	50	N/A	N/A	30	N/A	N/A	4	FREE WhatsApp for 30 days
Kölbi	Plan Dominio Prepaid 3	€12.000	Minutes, Internet and messages	100	N/A	N/A	30	N/A	N/A	5	FREE WhatsApp, Instagram, Facebook and Waze GRATIS for 30 days
Movistar	Paquete Básico Prepaid	€200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.03	

Continues...

...Continued

Operator	Name	Price	Services included	Minutes to all operators	Minutes to another operator	Minutes to same operator	SMS to all operators	SMS to other operator	SMS to same operator	Total download speed (Gigabytes)	Other additional services
Movistar	Daily Prepaid Package	₡300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.10	WhatsApp Free for the validity of the package.
Movistar	Súper Bono 150MB	₡550	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.15	
Movistar	2-Day Prepaid Package	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.40	WhatsApp Free for the validity of the package.
Movistar	Unlimited Night Package	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.10	It is unlimited at night, that is, from 23:00 to 7:00, during the day it grants 100 MB. WhatsApp Free for the validity of the package.
Movistar	Súper Bono 500MB	₡1.150	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.50	
Movistar	4-Day Prepaid Package	₡1.200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.44	WhatsApp Free for the validity of the package.
Movistar	Preplan 7	₡2.000	Minutes, Internet and messages	20	N/A	40	20	N/A	N/A	0.63	Recharges from ₡1.000 to ₡1.999: Duplicate calls and SMS to Movistar CR Recharges from ₡2.000 and above: Duplicate calls and SMS to all operators in CR Includes 5GB free social media (WhatsApp, Facebook, Instagram, Twitter, Waze)"
Movistar	Prepaid Week Package	₡2.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.54	WhatsApp Free for the validity of the package.
Movistar	Prepaid CONNECTED Plan	₡2.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	5	
Movistar	Preplan 7 Plus	₡2.900	Minutes, Internet and messages	30	N/A	60	30	N/A	N/A	1	N/A
Movistar	Prepaid Video Package	₡3.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	25	
Movistar	Preplan 15	₡4.000	Minutes, Internet and messages	45	N/A	90	45	N/A	N/A	1.40	Recharges from ₡1.000 to ₡1.999: Duplicate calls and SMS to Movistar CR Recharges from ₡2.000 and above: Duplicate calls and SMS to all operators in CR Includes Free (WhatsApp, Facebook, Instagram, Twitter, Waze)
Movistar	Free Prepaid Plan	₡5.900	Minutes, Internet and messages	70	N/A	140	70	N/A	N/A	4	Recharges from ₡2.000 and above: Duplicate calls and SMS to Movistar CR Includes 5GB free Social Media (WhatsApp, Twitter, Waze).

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.



Table n.º 65. Costa Rica: Characteristics of prepaid mobile telecommunications bundle offered in December 2021

Operator	Name	Price	Services included	Minutes to all operators	Minutes to another operator	Minutes to same operator	SMS to all operators	SMS to another operator	SMS to same operator	Total download capacity (Gigabytes)	Other additional services
Claro	M@s Navego 30MB	₡100	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.3	The Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit.
Claro	M@s Mensajeo100	₡250	Messaging	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
Claro	AMIGO FAVORITO	₡250	Minutes	N/A	N/A	Unlimited	N/A	N/A	N/A	N/A	Minutes work for unlimited calls to a Claro number in Costa Rica Available for Prepaid. Unlimited WhatsApp for 1 day
Claro	M@s Navego 150MB	₡300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.12	Unlimited WhatsApp*. The Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit.
Claro	M@s Mensajeo200	₡300	Messaging	N/A	N/A	N/A	200	N/A	N/A	N/A	
Claro	NOCHES ILIMITADAS	₡400	Internet	N/A	N/A	N/A	N/A	N/A	N/A	Unlimited	Unlimited browsing from 22:hrs to 6:00 hrs. The Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit.
Claro	IlimitadoCLARO	₡500	Minutes	N/A	N/A	Unlimited	N/A	N/A	N/A	N/A	
Claro	M@s Navego 300MB	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.3	Unlimited WhatsApp. The Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit.
Claro	M@s Hablo Costa Rica25	₡700	Minutes	25	N/A	N/A	N/A	N/A	N/A	N/A	
Claro	Paquete M@s 3	₡1.000	Minutes, Internet and Messaging	10	N/A	50	20	N/A	N/A	0.3	Unlimited WhatsApp
Claro	M@s Navego 400MB	₡1.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.4	Unlimited WhatsApp* The Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit.
Claro	M@s Hablo Costa Rica60	₡1.500	Minutes	60	N/A	N/A	N/A	N/A	N/A	N/A	
Claro	Paquete M@s7	₡2.000	Minutes, Internet and Messaging	20	N/A	200	50	N/A	N/A	1	Unlimited WhatsApp

Continues...

...Continued

Operator	Name	Price	Services included	Minutes to all operators	Minutes to another operator	Minutes to same operator	SMS to all operators	SMS to another operator	SMS to same operator	Total download capacity (Gigabytes)	Other additional services
Claro	M@s Navego 1GB	€2.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	1	Unlimited WhatsApp* Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit.
Claro	Paquete M@s10	€3.000	Minutes, Internet and Messaging	30	N/A	200	100	N/A	N/A	2	Unlimited WhatsApp* Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit.
Claro	Paquete M@s 15	€4.500	Minutes, Internet and Messaging	45	N/A	200	200	N/A	N/A	3	Unlimited WhatsApp*
Claro	M@s Navego 3GB	€4.500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	3	Unlimited WhatsApp* Internet package works in CR, Central America and Panama with the Prepaid Without Borders benefit.
Claro	Paquete M@s 15+	€6.000	Minutes, Internet and Messaging	70	70	200	200	N/A	N/A	4	Unlimited WhatsApp*
Claro	Paquete M@s 30	€10.000	Minutes, Internet and Messaging	85	N/A	200	300	N/A	N/A	5	Unlimited WhatsApp*
Kölbi	Paquete SMS Básico	€100	Messaging	N/A	N/A	N/A	N/A	N/A	50	N/A	
Kölbi	Paquete SMS Día Plus	€200	Messaging	N/A	N/A	N/A	N/A	N/A	100	N/A	
Kölbi	Paquete Internet Prepaid En Todas 1	€200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.05	It includes WhatsApp, Instagram and Facebook with a consumption cap of 100 Mbyte.
Kölbi	Paquete Internet Prepaid En Todas 3	€600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.2	It includes WhatsApp, Instagram and Facebook with a consumption cap of 100 Mbyte.
Kölbi	Paquete Internet Prepaid En Todas Plus 5	€1.300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.3	Includes WhatsApp, Instagram, Facebook, Snapchat, Pinterest and Twitter with a consumption cap of 200 Mbyte.
Kölbi	Paquete Internet Prepago 1 GIGA	€2.500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	1	
Kölbi	Paquete Internet Prepaid En Todas Plus 10	€2.500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.5	Includes WhatsApp, Instagram, Facebook, Snapchat, Pinterest and Twitter with a consumption cap of 400 Mbyte.
Kölbi	Paquete Internet Prepaid 2 GIGAS	€4.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	2	

Continues...

...Continued

Operator	Name	Price	Services included	Minutes to all operators	Minutes to another operator	Minutes to same operator	SMS to all operators	SMS to another operator	SMS to same operator	Total download capacity (Gigabytes)	Other additional services
Kölbi	Plan Dominio Prepaid 1	₡5.000	Minutes, Internet and Messaging	35	N/A	N/A	30	N/A	N/A	2	3GB free for WhatsApp
Kölbi	Plan Dominio Prepaid 2	₡8.000	Minutes, Internet and Messaging	50	N/A	N/A	30	N/A	N/A	4	3GB free for WhatsApp
Kölbi	Plan Dominio Prepaid 3	₡12.000	Minutes, Internet and Messaging	100	N/A	N/A	30	N/A	N/A	5	5GB free for WhatsApp, Instagram, Facebook and Waze
Movistar	Paquete Básico Prepaid	₡200	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.03	
Movistar	Paquete Diario Prepaid	₡375	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.15	
Movistar	Súper Bono 150MB	₡375	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.15	
Movistar	2-Day Prepaid Package	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.4	
Movistar	Unlimited Night Package	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.15	Unlimited at night, from 23:00 to 7:00, offers 150 MB during the day.
Movistar	Súper Bono 200MB	₡600	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.2	
Movistar	Super Recarga 1000	₡1.000	Minutes, Internet	10	N/A	N/A	N/A	N/A	N/A	0.3	Includes unlimited WhatsApp
Movistar	4-Day Prepaid Package	₡1.300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.6	
Movistar	Súper Bono 600MB	₡1.300	Internet	N/A	N/A	N/A	N/A	N/A	N/A	0.6	
Movistar	Paquete CONECTADOS Prepaid	₡2.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	10	
Movistar	Paquete Música Prepaid	₡2.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	Unlimited Mb	Unlimited bonus for music apps
Movistar	Super Recarga 2000	₡2.000	Minutes, Internet	15	N/A	N/A	N/A	N/A	N/A	1	Includes unlimited social media (WhatsApp, Facebook, Instagram, Twitter, Waze)
Movistar	Paquete Semana Prepaid	₡2.500	Internet	N/A	N/A	N/A	N/A	N/A	N/A	1	
Movistar	Super Recarga Plus 2500	₡2.500	Minutes, Internet	20	N/A	N/A	N/A	N/A	N/A	1.2	Includes unlimited social media (WhatsApp, Facebook, Instagram, Twitter, Waze)
Movistar	Paquete Video Prepaid	₡3.000	Internet	N/A	N/A	N/A	N/A	N/A	N/A	25	
Movistar	Super Recarga Plus 4500	₡4.500	Minutes, Internet	45	N/A	N/A	N/A	N/A	N/A	2	Includes unlimited social media (WhatsApp, Facebook, Instagram, Twitter, Waze)
Movistar	Plan Libre Prepaid	₡5.900	Minutes, Internet and Messaging	70	N/A	140	70	N/A	N/A	4	Includes unlimited social media (WhatsApp, Twitter, Waze).

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Table n.º 66. Costa Rica: Characteristics of postpaid mobile telecommunications plans offered in December 2020

Operator	Name	Price	Minutes to same operator	Minutes to another operator	Minutos a todos los operadores	SMS to same operator	SMS to other operator	SMS to all operators	Number at Gigas at maximum speed contracted	Observations
Movistar	Plan Postpago LTE PRO @1 ST	€10.500	300	N/A	150	300	N/A	150	8	5GB free Social Media (WhatsApp, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @2 ST	€15.500	Unlimited	N/A	200	Unlimited	N/A	200	10	5GB free Social Media (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @3 ST	€21.500	Unlimited	N/A	300	Unlimited	N/A	300	14	5GB free Social Media (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @4 ST	€26.500	Unlimited	N/A	600	Unlimited	N/A	600	16	5GB free Social Media (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @5 ST	€32.500	Unlimited	N/A	1000	Unlimited	N/A	1000	22	5GB free Social Media (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @6 ST	€41.500	Unlimited	N/A	1500	Unlimited	N/A	1500	30	5GB free Social Media (WhatsApp, Facebook, Instagram, Twitter, Waze).
Kölbi	Especial 1	€4.250	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 conversión K1	€7.000	N/A	N/A	120	N/A	N/A	50	0.49	
Kölbi	Plan conversión K2	€15.000	N/A	N/A	400	N/A	N/A	300	0.49	
Kölbi	Plan Kölbi Postpago 4G k1	€9.000	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
Claro	Conexión 1	€9.800	Unlimited	140	140	Unlimited	140	140	10	Unlimited Claro to Claro calls (Only Costa Rica) America without Borders included. See "Terms & Conditions for America without Borders" WhatsApp & Waze free & unlimited, see "Terms & Conditions for Connection Plans"

Continues...

...Continued

Operator	Name	Price	Minutes to same operator	Minutes to another operator	Minutos a todos los operadores	SMS to same operator	SMS to other operator	SMS to all operators	Number at Gigas at maximum speed contracted	Observations
Claro	Conexión 2	₡13.200	Unlimited	200	200	Unlimited	200	200	12	Unlimited Claro to Claro calls (Only Costa Rica). America without Borders included. See "Terms & Conditions for America without Borders". WhatsApp & Waze free & unlimited, see "Terms & Conditions for Connection Plans"
Claro	Conexión 3	₡18.500	Unlimited	300	300	Unlimited	300	300	14	Unlimited Claro to Claro calls (Only Costa Rica). America without Borders included. See "Terms & Conditions for America without Borders". WhatsApp & Waze free & unlimited, see "Terms & Conditions for Connection Plans"
Claro	Conexión 4	₡24.500	Unlimited	600	600	Unlimited	600	600	16	Unlimited Claro to Claro calls (Only Costa Rica). America without Borders included. See "Terms & Conditions for America without Borders". WhatsApp & Waze free & unlimited, see "Terms & Conditions for Connection Plans"
Claro	Conexión 5	₡34.900	Unlimited	1.500	1500	Unlimited	1.500	1500	22	Unlimited Claro to Claro calls (Only Costa Rica). America without Borders included. See "Terms & Conditions for America without Borders". WhatsApp & Waze free & unlimited, see "Terms & Conditions for Connection Plans"
Claro	Conexión 6	₡44.000	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited Claro to Claro calls (Only Costa Rica). America without Borders included. See "Terms & Conditions for America without Borders". WhatsApp & Waze free & unlimited, see "Terms & Conditions for Connection Plans". Unlimited Internet

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Table n.º 67. Costa Rica: Characteristics of postpaid mobile telecommunications bundle offered in December 2021

Operator	Name of Plan	Cost without terminal	Minutes to same operator	Minutes to another operator	Minutes to all operators	SMS to same operator	SMS to another operator	SMS to all operators	Number of Gigas at maximum speed contracted	Observations
Claro	Conexión 1	₡10.400	Unlimited	140	140	Unlimited	140	140	10	Unlimited Claro to Claro calls (Only in Costa Rica) America Without Borders included. See "America without borders terms and conditions". Free and unlimited WhatsApp and Waze, see "Connection plans terms and conditions"
Claro	Conexión 2	₡13.200	Unlimited	200	200	Unlimited	200	200	12	Unlimited Claro to Claro calls (Only in Costa Rica) America Without Borders included. See "America without borders terms and conditions". Free and unlimited WhatsApp, Waze, Facebook, Instagram and Twitter, see "Connection plans terms and conditions"
Claro	Conexión 3	₡18.500	Unlimited	300	300	Unlimited	300	300	16	Unlimited Claro to Claro calls (Only in Costa Rica) America Without Borders included. See "America without borders terms and conditions". Free and unlimited WhatsApp, Waze, Facebook, Instagram and Twitter, see "Connection plans terms and conditions"
Claro	Conexión 4	₡24.500	Unlimited	600	600	Unlimited	600	600	20	Unlimited Claro to Claro calls (Only in Costa Rica) America Without Borders included. See "America without borders terms and conditions". Free and unlimited WhatsApp, Waze, Facebook, Instagram and Twitter, see "Connection plans terms and conditions"
Claro	Conexión 5	₡34.900	Unlimited	1500	1500	Unlimited	1500	1500	25	Unlimited Claro to Claro calls (Only in Costa Rica) America Without Borders included. See "America without borders terms and conditions". Free and unlimited WhatsApp, Waze, Facebook, Instagram and Twitter, see "Connection plans terms and conditions"
Claro	Conexión 6	₡44.000	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited Claro to Claro calls (Only in Costa Rica) America Without Borders included. See "America without borders terms and conditions". Free and unlimited WhatsApp, Waze, Facebook, Instagram and Twitter, see "Connection plans terms and conditions"
Kölbi	Especial 1	₡4.250	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 conversión K1	₡7.000	N/A	N/A	120	N/A	N/A	50	0.49	
Kölbi	Plan conversión K2	₡15.000	N/A	N/A	400	N/A	N/A	300	0.5	

Continues...



...Continued

Operator	Name of Plan	Cost without terminal	Minutes to same operator	Minutes to another operator	Minutes to all operators	SMS to same operator	SMS to another operator	SMS to all operators	Number of Gigas at maximum speed contracted	Observations
Kölbi	Plan kölbi Postpago 4G k1	₡9.000	N/A	N/A	35	N/A	N/A	30	5	Includes 3GB FREE for WhatsApp.
Kölbi	Plan kölbi Postpago 4G k2	₡13.000	N/A	N/A	150	N/A	N/A	150	10	Includes FREE 5GB for 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 FREE 5GB for 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 FREE 5GB for 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 FREE 5GB for 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 FREE 5GB for WhatsApp, Facebook, Instagram and Waze
Movistar	Plan Postpago LTE PRO @1 ST	₡10.500	300	N/A	150	300	N/A	150	8	5GB free Social Media (WhatsApp, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @2 ST	₡15.500	Unlimited	N/A	200	Unlimited	N/A	200	10	5GB free Social Media (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @3 ST	₡21.500	Unlimited	N/A	300	Unlimited	N/A	300	14	5GB free Social Media (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @4 CT	₡26.500	Unlimited	N/A	600	Unlimited	N/A	600	22	30GB free social media (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @5 CT	₡32.500	Unlimited	N/A	1000	Unlimited	N/A	1000	28	5GB free Social Media (WhatsApp, Facebook, Instagram, Twitter, Waze).
Movistar	Plan Postpago LTE PRO @6 CT	₡41.500	Unlimited	N/A	1500	Unlimited	N/A	1500	50	5GB free Social Media (WhatsApp, Facebook, Instagram, Twitter, Waze).

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Table n.º 68. Costa Rica: Characteristics of fixed mobile telecommunications bundle offered in December 2020

Operator	Name of package	Cost	Services	Download Speed	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Cabletica	DOBLE PLAY MEGA 30	31990	Internet + TV	30	180	N/A	N/A	N/A	N/A	N/A
Cabletica	TRIPLE PLAY MEGA 30 + DIGITAL	34990	Internet + TV + Fixed telephony	30	180	500	N/A	200	N/A	N/A
Cabletica	DOBLE PLAY MEGA 100	36990	Internet + TV	100	180	N/A	N/A	N/A	N/A	N/A
Cabletica	TRIPLE PLAY MEGA 100 + DIGITAL	39990	Internet + TV + Fixed telephony	100	180	500	N/A	N/A	200	N/A
Cabletica	DOBLE PLAY MEGA 200	52490	Internet + TV	200	173	N/A	N/A	N/A	N/A	N/A
Cabletica	TRIPLE PLAY MEGA 200 + DIGITAL	56490	Internet + TV + Fixed telephony	200	180	500	N/A	N/A	200	N/A
Kölbi	Plan Dúo Telefonía + Internet 1Mbps	11900	Internet + Fixed telephony	1	0	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo TV Avanzada + Internet 1Mbps	24400	Internet + TV	1	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple Tv Avanzada + Telefonía + Internet 1 Mbps	27400	Internet + TV + Fixed telephony	1	119	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 2Mbps	14900	Internet + Fixed telephony	2	0	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo TV Avanzada + Internet 2Mbps	25400	Internet + TV	2	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple Tv Avanzada + Telefonía + Internet 2Mbps	28400	Internet + TV + Fixed telephony	2	119	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 3Mbps	16900	Internet + Fixed telephony	3	0	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo TV Avanzada + Internet 3Mbps	26400	Internet + TV	3	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple Tv Avanzada + Telefonía + Internet 3Mbps	29400	Internet + TV + Fixed telephony	3	119	600	N/A	N/A	N/A	N/A

Continues...

...Continued

Operator	Name of package	Cost	Services	Download Speed	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Kölbí	Plan Dúo Telefonía + Internet 4Mbps	17900	Internet + Fixed telephony	4	0	600	N/A	N/A	N/A	N/A
Kölbí	Plan Dúo TV Avanzada + Internet 4Mbps	27400	Internet + TV	4	119	N/A	N/A	N/A	N/A	N/A
Kölbí	Plan Triple Tv Avanzada + Telefonía + Internet 4Mbps	30400	Internet + TV + Fixed telephony	4	119	600	N/A	N/A	N/A	N/A
Kölbí	Plan Dúo Telefonía + Internet 6Mbps	19900	Internet + Fixed telephony	6	0	600	N/A	N/A	N/A	N/A
Kölbí	Plan Dúo Tv Avanzada + Internet 6Mbps	27400	Internet + TV	6	119	N/A	N/A	N/A	N/A	N/A
Kölbí	Plan Dúo 6 Mbps + TV Digital	27400	Internet + TV	6	119	N/A	N/A	N/A	N/A	N/A
Kölbí	Plan Triple Tv Avanzada + Telefonía + Internet 6Mbps	30400	Internet + TV + Fixed telephony	6	119	600	N/A	N/A	N/A	N/A
Kölbí	Plan Dúo Telefonía + Internet 10Mbps	19900	Internet + Fixed telephony	10	0	600	N/A	N/A	N/A	N/A
Kölbí	Plan Dúo TV Avanzada + Internet 10Mbps	27400	Internet + TV	10	119	N/A	N/A	N/A	N/A	N/A
Kölbí	Plan Dúo kA TV + Internet 10Mbps	27400	Internet + TV	10	127	N/A	N/A	N/A	N/A	N/A
Kölbí	Plan Dúo 10 Mbps + TV Digital	27400	Internet + TV	10	119	N/A	N/A	N/A	N/A	N/A
Kölbí	Plan Triple TV Avanzada + Telefonía + Internet 10Mbps	30400	Internet + TV + Fixed telephony	10	119	600	N/A	N/A	N/A	N/A
Kölbí	Plan Triple kA TV + Telefonía + Internet 10Mbps	30400	Internet + TV + Fixed telephony	10	127	600	N/A	N/A	N/A	N/A
Kölbí	Plan Dúo Telefonía + Internet 20Mbps	24900	Internet + Fixed telephony	20	0	600	N/A	N/A	N/A	N/A
Kölbí	Plan Dúo TV Avanzada + Internet 20Mbps	30400	Internet + TV	20	119	N/A	N/A	N/A	N/A	N/A

Continues...

...Continued

Operator	Name of package	Cost	Services	Download Speed	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Kölbi	Plan Dúo 20 Mbps + TV Digital	30400	Internet + TV	20	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple Tv Avanzada + Telefonía + Internet 20Mbps	33400	Internet + TV + Fixed telephony	20	119	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 30Mbps	28900	Internet + Fixed telephony	30	0	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo 30 Mbps + TV Digital	35400	Internet + TV	30	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 30Mbps	35400	Internet + TV	30	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 30Mbps	38400	Internet + TV + Fixed telephony	30	127	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 50Mbps	30900	Internet + Fixed telephony	50	0	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo 50 Mbps + TV Digital	37400	Internet + TV	50	119	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 50Mbps	37400	Internet + TV	50	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 50Mbps	40400	Internet + TV + Fixed telephony	50	127	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 100Mbps	42900	Internet + Fixed telephony	100	0	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 100Mbps	58400	Internet + TV	100	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 100Mbps	61400	Internet + TV + Fixed telephony	100	127	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 200Mbps	82900	Internet + Fixed telephony	200	0	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 200Mbps	98400	Internet + TV	200	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 200Mbps	101400	Internet + TV + Fixed telephony	200	127	600	N/A	N/A	N/A	N/A

Continues...

...Continued

Operator	Name of package	Cost	Services	Download Speed	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Kölbi	Plan Dúo Telefonía + Internet 300Mbps	147900	Internet + Fixed telephony	300	0	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 300Mbps	163400	Internet + TV	300	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 300Mbps	166400	Internet + TV + Fixed telephony	300	127	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 500Mbps	207900	Internet + Fixed telephony	500	0	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 500Mbps	223400	Internet + TV	500	127	N/A	N/A	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 500Mbps	226400	Internet + TV + Fixed telephony	500	127	600	N/A	N/A	N/A	N/A
Kölbi	Plan Dúo TV Avanzada + Telefonía	24750	Televisión + Fixed telephony	0	119	600	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +@ 15 Mbps	25800	Internet + TV	15	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 15 @A	27050	Internet + TV	15	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+@ 15Mbps	28750	Internet + TV	15	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 15 @A	30950	Internet + TV	15	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 15 @S	31040	Internet + TV	15	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +HD+@ 15 Mbps	31050	Internet + TV	15	119	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 15@A	32300	Internet + TV	15	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 15 @S	33860	Internet + TV	15	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD+@ 15Mbps	34000	Internet + TV	15	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 15@A	36200	Internet + TV	15	157	N/A	N/A	N/A	N/A	N/A

Continues...

...Continued

Operator	Name of package	Cost	Services	Download Speed	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Telecable	FTTH TV Digital +HD+ 15@ S	36290	Internet + TV	15	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 15@ S	39110	Internet + TV	15	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital +@ 30 Mbps	31800	Internet + TV	30	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 30 @A	34100	Internet + TV	30	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 30 Mbps	34490	Internet + TV	30	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 30 @A	36950	Internet + TV	30	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital +HD+@ 30 Mbps	37050	Internet + TV	30	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 30 @S	38050	Internet + TV	30	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 30@ A	39350	Internet + TV	30	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 30@ A	39350	Internet + TV	30	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD +@ 30 Mbps	39740	Internet + TV	30	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 30 @S	40800	Internet + TV	30	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 30@ S	43300	Internet + TV	30	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 30@ S	46050	Internet + TV	30	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital +@ 50 Mbps	35400	Internet + TV	50	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig +50 @A	35950	Internet + TV	50	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 50Mbps	38180	Internet + TV	50	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 50 @A	40050	Internet + TV	50	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital +HD+@ 50 Mbps	40650	Internet + TV	50	119	N/A	N/A	N/A	N/A	N/A

Continues...



...Continued

Operator	Name of package	Cost	Services	Download Speed	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Telecable	Paq. FTTH Tv Dig + 50 @S	41050	Internet + TV	50	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 50@ A	42500	Internet + TV	50	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 50@ A	42500	Internet + TV	50	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD +@ 50Mbps	43430	Internet + TV	50	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 50 @S	43800	Internet + TV	50	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 50@ S	46300	Internet + TV	50	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 50@ S	49050	Internet + TV	50	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +@ 100 Mbps	36800	Internet + TV	100	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 100 @A	39200	Internet + TV	100	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 100Mbps	39920	Internet + TV	100	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +HD+@ 100 Mbps	42050	Internet + TV	100	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 100 @A	42250	Internet + TV	100	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 100@ A	44450	Internet + TV	100	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 100@ A	44450	Internet + TV	100	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD +@ 100Mbps	45170	Internet + TV	100	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 100 @S	46250	Internet + TV	100	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 100 @S	49050	Internet + TV	100	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 100@ S	51500	Internet + TV	100	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 100@ S	54300	Internet + TV	100	157	N/A	N/A	N/A	N/A	N/A

Continues...

...Continued

Operator	Name of package	Cost	Services	Download Speed	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Telecable	Paq TV Digital +@ 200 Mbps	53850	Internet + TV	200	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig+ 200 @A	56200	Internet + TV	200	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 200Mbps	56410	Internet + TV	200	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 200 @A	58750	Internet + TV	200	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +HD+@ 200 Mbps	59100	Internet + TV	200	119	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 200@ A	61450	Internet + TV	200	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 200@ A	61450	Internet + TV	200	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD +@ 200 Mbps	61660	Internet + TV	200	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 200 @S	66550	Internet + TV	200	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 200 @S	68750	Internet + TV	200	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 200@ S	71800	Internet + TV	200	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 200@ S	74000	Internet + TV	200	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +@ 300 Mbps	85300	Internet + TV	300	119	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 300 @A	86200	Internet + TV	300	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 300 @A	88950	Internet + TV	300	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 300Mbps	89430	Internet + TV	300	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq TV Digital +HD+@ 300 Mbps	90550	Internet + TV	300	119	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 300@ A	91450	Internet + TV	300	157	N/A	N/A	N/A	N/A	N/A

Continues...

...Continued

Operator	Name of package	Cost	Services	Download Speed	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Telecable	FTTH TV Digital Plus +HD+ 300@ A	91450	Internet + TV	300	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus+HD +@ 300Mbps	94680	Internet + TV	300	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 300 @S	100250	Internet + TV	300	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 300 @S	103000	Internet + TV	300	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 300@ S	105500	Internet + TV	300	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 300@ S	108250	Internet + TV	300	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 500 @A	185300	Internet + TV	500	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 500 @A	188050	Internet + TV	500	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 500@ A	190550	Internet + TV	500	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 500@ A	190550	Internet + TV	500	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig + 500 @S	220300	Internet + TV	500	157	N/A	N/A	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 500 @S	222300	Internet + TV	500	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital +HD+ 500@ S	225550	Internet + TV	500	157	N/A	N/A	N/A	N/A	N/A
Telecable	FTTH TV Digital Plus +HD+ 500@ S	227550	Internet + TV	500	157	N/A	N/A	N/A	N/A	N/A
TIGO	TV Digital Avanzado + 15 Megas	24900	Internet + TV	15	170	N/A	N/A	N/A	N/A	N/A
TIGO	TV Digital Avanzado + 30 Megas	30900	Internet + TV	30	170	N/A	N/A	N/A	N/A	N/A
TIGO	TV Digital Avanzado + 100 Megas	36900	Internet + TV	100	170	N/A	N/A	N/A	N/A	N/A
TIGO	ONE TV + 200 MEGAS	52900	Internet + TV	200	241	N/A	N/A	N/A	N/A	N/A

Source: Sutel, Directorate General of Markets, Costa Rica, 2021.

Table n.º 69. Costa Rica: Characteristics of fixed mobile telecommunications bundle in December 2021

Operator	Name of package	Cost	Services	Download Speed	Type of Internet connection	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Kölbi	Plan Dúo Telefonía + Internet 1Mbps	11900	Internet + Fixed telephony	1	Copper + Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 2Mbps	14900	Internet + Fixed telephony	2	Copper + Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 3Mbps	16900	Internet + Fixed telephony	3	Copper + Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 4Mbps	17900	Internet + Fixed telephony	4	Copper + Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 20Mbps	24900	Internet + Fixed telephony	20	Copper + Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo TV Avanzada + Internet 1Mbps	25900	Internet + TV	1	Copper + Fiber	115	0	0	N/A	N/A	N/A
Kölbi	Plan Dúo TV Avanzada + Internet 2Mbps	26900	Internet + TV	2	Copper + Fiber	115	0	0	N/A	N/A	N/A
Kölbi	Plan Dúo TV Avanzada + Internet 3Mbps	27900	Internet + TV	3	Copper + Fiber	115	0	0	N/A	N/A	N/A
Kölbi	Plan Dúo TV Avanzada + Internet 4Mbps	28900	Internet + TV	4	Copper + Fiber	115	0	0	N/A	N/A	N/A
Kölbi	Plan Dúo TV Avanzada + Internet 20Mbps	31900	Internet + TV	20	Copper + Fiber	115	0	0	N/A	N/A	N/A
Kölbi	Plan Triple TV Avanzada + Telefonía + Internet 10Mbps	31900	Internet + TV + Fixed telephony	10	Copper + Fiber	123	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 10Mbps	19900	Internet + Fixed telephony	10	Copper + Fiber	0	600	0	N/A	N/A	N/A
Kölbi	Plan Dúo TV Avanzada + Internet 10Mbps	28900	Internet + TV	10	Copper + Fiber	115	0	0	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 30Mbps	36900	Internet + TV	30	Fiber	123	0	0	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 50Mbps	38900	Internet + TV	50	Fiber	123	0	0	N/A	N/A	N/A

Continues...

...Continued

Operator	Name of package	Cost	Services	Download Speed	Type of Internet connection	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Kölbi	Plan Dúo kA TV + Internet 200Mbps	99900	Internet + TV	200	Fiber	123	0	0	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 300Mbps	16490	Internet + TV	300	Fiber	123	0	0	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 6Mbps	19900	Internet + Fixed telephony	6	Copper + Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo kA TV + Internet 500Mbps	22490	Internet + TV	500	Fiber	123	0	0	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 30Mbps	28900	Internet + Fixed telephony	30	Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 10Mbps	31900	Internet + TV + Fixed telephony	10	Fiber	123	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 50Mbps	30900	Internet + Fixed telephony	50	Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 50Mbps	41900	Internet + TV + Fixed telephony	50	Fiber	123	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 200Mbps	82900	Internet + Fixed telephony	200	Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 300Mbps	14790	Internet + Fixed telephony	300	Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 200Mbps	10290	Internet + TV + Fixed telephony	200	Fiber	123	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo Telefonía + Internet 500Mbps	20790	Internet + Fixed telephony	500	Fiber	0	60	60	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 300Mbps	16790	Internet + TV + Fixed telephony	300	Fiber	123	60	60	N/A	N/A	N/A
Kölbi	Plan Triple kA TV + Telefonía + Internet 500Mbps	22790	Internet + TV + Fixed telephony	500	Fiber	123	60	60	N/A	N/A	N/A
Kölbi	Plan Dúo Tv Avanzada + Internet 6Mbps	28900	Internet + TV	6	Copper + Fiber	115	0	0	N/A	N/A	N/A

Continues...

...Continued

Operator	Name of package	Cost	Services	Download Speed	Type of Internet connection	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Kölbí	Plan Triple Tv Avanzada + Telefonía + Internet 1 Mbps	28900	Internet + TV + Fixed telephony	1	Copper + Fiber	115	60	60	N/A	N/A	N/A
Kölbí	Plan Triple Tv Avanzada + Telefonía + Internet 2Mbps	29900	Internet + TV + Fixed telephony	2	Copper + Fiber	115	60	60	N/A	N/A	N/A
Kölbí	Plan Triple Tv Avanzada + Telefonía + Internet 3Mbps	30900	Internet + TV + Fixed telephony	3	Copper + Fiber	115	60	60	N/A	N/A	N/A
Kölbí	Plan Triple Tv Avanzada + Telefonía + Internet 4Mbps	31900	Internet + TV + Fixed telephony	4	Copper + Fiber	115	60	60	N/A	N/A	N/A
Kölbí	Plan Triple Tv Avanzada + Telefonía + Internet 6Mbps	31900	Internet + TV + Fixed telephony	6	Copper + Fiber	115	60	60	N/A	N/A	N/A
Kölbí	Plan Triple Tv Avanzada + Telefonía + Internet 20Mbps	34900	Internet + TV + Fixed telephony	20	Copper + Fiber	115	60	60	N/A	N/A	N/A
Kölbí	Plan Dúo 50 Mbps + TV Digital	37400	Internet + TV	50	Hybrid (cable + fiber)	119	0	0	N/A	N/A	N/A
Kölbí	Plan Dúo 30 Mbps + TV Digital	35400	Internet + TV	30	Hybrid (cable + fiber)	119	0	0	N/A	N/A	N/A
Kölbí	Plan Dúo 20 Mbps + TV Digital	30400	Internet + TV	20	Hybrid (cable + fiber)	119	0	0	N/A	N/A	N/A
Kölbí	Plan Dúo 10 Mbps + TV Digital	27400	Internet + TV	10	Hybrid (cable + fiber)	119	0	0	N/A	N/A	N/A
Kölbí	Plan Dúo 6 Mbps + TV Digital	27400	Internet + TV	6	Hybrid (cable + fiber)	119	0	0	N/A	N/A	N/A
Kölbí	Plan Dúo TV Avanzada + Telefonía	26250	Televisión + Fixed telephony	0	Copper + Fiber	123	60	60	N/A	N/A	N/A
Kölbí	Plan Dúo 100Mbps + TV Digital	38900	Internet + TV	100	Hybrid (cable + fiber)	125	0	0	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 50Mbps	32575	Internet + TV	50	Hybrid (cable + fiber)	240	0	0	N/A	N/A	N/A

Continues...



...Continued

Operator	Name of package	Cost	Services	Download Speed	Type of Internet connection	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Telecable	Paq. TV Digital Plus +@ 200Mbps	39450	Internet + TV	200	Hybrid (cable + fiber)	240	0	0	N/A	N/A	N/A
Telecable	Paq. TV Digital Plus +@ 300Mbps	90380	Internet + TV	300	Hybrid (cable + fiber)	240	0	0	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 500 @S	90450	Internet + TV	500	Fiber	240	0	0	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 50 @S Telecable	34950	Internet + TV	50	Fiber	240	0	0	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 100 @S Telecable	38600	Internet + TV	100	Fiber	240	0	0	N/A	N/A	N/A
Telecable	Paq. FTTH Tv Dig Plus + 200 @S	39975	Internet + TV	200	Fiber	240	0	0	N/A	N/A	N/A
Cabletica S.A.	TRIPLE PLAY MEGA 30 + DIGITAL	34990	Fixed telephony+ Fixed Internet + Television	30	Cable, Fiber, Hybrid (cable + fiber)	180	500	0	200	N/A	N/A
Cabletica S.A.	TRIPLE PLAY MEGA 100 + DIGITAL	39990	Fixed telephony+ Fixed Internet + Television	100	Cable, Fiber, Hybrid (cable + fiber)	180	500	Unlimited	200	Unlimited	N/A
Cabletica S.A.	TRIPLE PLAY MEGA 200 + DIGITAL	56490	Fixed telephony+ Fixed Internet + Television	200	Cable, Fiber, Hybrid (cable + fiber)	180	500	0	200	N/A	N/A
Cabletica S.A.	DOBLE PLAY MEGA 30	31990	Fixed Internet + Television	30	Cable, Fiber, Hybrid (cable + fiber)	180	0	0	N/A	N/A	N/A
Cabletica S.A.	DOBLE PLAY MEGA 100	36990	Fixed Internet + Television	100	Cable, Fiber, Hybrid (cable + fiber)	180	0	Unlimited	N/A	Unlimited	N/A
Cabletica S.A.	DOBLE PLAY MEGA 200	52490	Fixed Internet + Television	200	Cable, Fiber, Hybrid (cable + fiber)	180	0	0	N/A	N/A	N/A
Cabletica S.A.	DOBLE PLAY MEGA 30 DIAMANTE	50293	Fixed Internet + Television	30	Cable, Fiber, Hybrid (cable + fiber)	269	0	0	N/A	N/A	N/A
Cabletica S.A.	DOBLE PLAY MEGA 100 DIAMANTE	55246	Fixed Internet + Television	100	Cable, Fiber, Hybrid (cable + fiber)	269	0	0	N/A	N/A	N/A

Continues...

...Continued

Operator	Name of package	Cost	Services	Download Speed	Type of Internet connection	Number of channels	Number of fixed telephony to fixed own network minutes	Number of fixed telephony to mobile own network minutes	Number of off net fixed national fixed telephony minutes	Number of off net mobile national fixed telephony minutes	Number of international calls minutes included
Cabletica S.A.	DOBLE PLAY MEGA 200 DIAMANTE	70600	Fixed Internet + Television	200	Cable, Fiber, Hybrid (cable + fiber)	269	0	0	N/A	N/A	N/A
Cabletica S.A.	TRIPLE PLAY MEGA 30 DIAMANTE	54070	Fixed telephony+ Fixed Internet + Television	30	Cable, Fiber, Hybrid (cable + fiber)	269	500	0	200	N/A	N/A
Cabletica S.A.	TRIPLE PLAY MEGA 100 DIAMANTE	59070	Fixed telephony+ Fixed Internet + Television	100	Cable, Fiber, Hybrid (cable + fiber)	269	500	0	200	N/A	N/A
Cabletica S.A.	TRIPLE PLAY MEGA 200 DIAMANTE	75470	Fixed telephony+ Fixed Internet + Television	200	Cable, Fiber, Hybrid (cable + fiber)	269	500	0	200	N/A	N/A
TIGO	TV Digital Avanzado + 20 Megs	26300	Fixed Internet + Television	20 Mbps	Hybrid (cable + fiber)	170	0	0	N/A	N/A	N/A
TIGO	TV Digital Avanzado + 50 Megs	35900	Fixed Internet + Television	50 Mbps	Hybrid (cable + fiber)	170	0	0	N/A	N/A	N/A
TIGO	ONEtv HD + 100 Mbps	39500	Fixed Internet+ Televisión	100 Mbps	Hybrid (cable + fiber)	243	0	0	N/A	N/A	N/A
TIGO	ONE TV + 200 MEGAS	53500	Internet fijo+ Televisión	200 Mbps	Híbrida (cable + Fiber)	243	0	0	N/A	N/A	N/A
TIGO	TV Digital Avanzado + 30 Megs	32500	Internet fijo+ Televisión	30 Mbps	Híbrida (cable + Fiber)	177	0	0	N/A	N/A	N/A
TIGO	ONETV+ 300 Mbps	78900	Internet fijo+ Televisión	300 Mbps	Híbrida (cable + Fiber)	243	0	0	N/A	N/A	N/A

Fuente: Sutel, Dirección General de Mercados, Costa Rica, 2021.

Table n.º 70. Costa Rica: Total annual projects developed through FONATEL per project life cycle phases, 2015-2021

Status	2015	2016	2017	2018	2019	2020	2021
Initiation	0	0	0	0	0	0	0
Planning	14	18	14	8	7	5	5
Execution	13	14	21	28	27	28	31
Closing	0	0	0	0	2	4	2
<b>Total</b>	<b>27</b>	<b>32</b>	<b>35</b>	<b>36</b>	<b>36</b>	<b>37</b>	<b>38</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 71. Costa Rica: Districts with presence of at least one program developed with FONATEL funds per program, 2015-2021

Program	2015	2016	2017	2018	2019	2020	2021
Connected Communities	11	32	72	72	103	127	128
Connected Households	0	216	381	434	471	475	483
Equipped Public Centers	0	0	172	263	263	263	263
Connected Public Spaces	0	0	0	0	178	313	315
Bicentennial Educational Network	0	0	0	0	0	0	57
<b>Total</b>	<b>11</b>	<b>231</b>	<b>391</b>	<b>460</b>	<b>478</b>	<b>481</b>	<b>484</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 72. Costa Rica: Device delivered through programs developed with FONATEL funds for ICT access and use per program, 2016-2021

(Accumulated annual figures)

Program	2016	2017	2018	2019	2020	2021
Connected Households	10 089	30 418	84 268	130 579	148 426	181 644
Equipped Public Centers	0	6407	36 004	36 831	36 831	36 831
<b>Total</b>	<b>10 089</b>	<b>36 825</b>	<b>120 272</b>	<b>167 410</b>	<b>185 257</b>	<b>218 475</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 73. Costa Rica: Public Service Provision Centers that have benefited from FONATEL programs, per program, 2015-2021

(Accumulated annual figures)

Program	2015	2016	2017	2018	2019	2020	2021
Connected Communities	15	94	234	600	996	1446	1777
Equipped Public Centers	0	0	0	3787	3809	3809	3809
Bicentennial Educational Network	0	0	0	0	0	0	133
<b>Total</b>	<b>15</b>	<b>94</b>	<b>234</b>	<b>4387</b>	<b>4805</b>	<b>5255</b>	<b>5719</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 74. Costa Rica: Inhabitants, housing units and households with access to voice and data service with presence of programs developed with FONATEL funds, 2015-2021

(Figures in thousands)

Indicator	2015	2016	2017	2018	2019	2020	2021
<b>Inhabitants</b>	76 739	269 740	393 088	905 496	1 171 572	1 368 676	1 695 417
<b>Households</b>	23 212	82 421	121 028	285 284	370 662	419 584	468 419
<b>Housing units</b>	22 799	80 830	118 606	278 616	365 421	413 543	463 947

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 75. Costa Rica: Subscriptions to fixed telephony and fixed Internet access services provided through programs developed with FONATEL funds, 2015-2021

Service	2015	2016	2017	2018	2019	2020	2021
<b>Fixed telephony</b>	10	112	387	1131	3409	3351	5000
<b>Fixed Internet</b>	19	10 575	31 532	86 038	141 065	175 402	226 867
<b>Mobile telephony</b>	12 334	27 871	38 603	36 683	40 429	31 234	32 925

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 76. Costa Rica: FONATEL Equity, 2012-2021

(Annual figures in million colones)

	2015	2016	2017	2018	2019	2020	2021
<b>Equity</b>	143 265	161 306	171 551	200 979	200 847	211 188	204 683
<b>Variation %</b>	9 %	13 %	6 %	17 %	0 %	5 %	-3 %

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 77. Costa Rica: CEF (Spanish acronym for Special parafiscal contribution) collection, 2012-2021

(Annual figures in million colones)

	2015	2016	2017	2018	2019	2020	2021
<b>CEFP Collection</b>	11 674	12 434	12 936	13 453	14 079	14 297	13 890
<b>Variation %</b>	17 %	7 %	4 %	4 %	5 %	2 %	-3 %

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 78. Costa Rica: Investment made through FONATEL according to program, 2013-2021

(Annual figures in million colones)

Program	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Connected Communities	49	3077	2878	454	1971	4754	1936	10.860	4.609	30.588
Connected Households	0	0	0	734	6060	17 298	21 205	17 366	21 006	83 669
Equipped Public Centers	0	0	0	0	4752	3357	1464	0	0	9573
Connected Public Spaces	0	0	0	0	0	0	981	3.740	6.550	11.271
Bicentennial Educational Network	0	0	0	0	0	0	0	0	1013	1013
<b>Total</b>	<b>49</b>	<b>3077</b>	<b>2878</b>	<b>1187</b>	<b>12 783</b>	<b>25 409</b>	<b>25 586</b>	<b>31 965</b>	<b>33 178</b>	<b>136 113</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 79. Costa Rica: Investment made through FONATEL per operator, 2015-2021

(Annual figures in million colones)

Operator	2015	2016	2017	2018	2019	2020	2021
Telecable	2123	140	2263	5791	4055	12.314	9418
Cabletica	0	103	1372	4416	7072	5919	5694
ICE	0	420	2978	5941	6146	4035	4976
Tigo	0	0	188	3143	3649	3209	3680
RACSA	0	431	724	1423	1456	2592	2561
Coopeguanacaste	0	0	4752	3357	1741	1322	2352
Claro	0	0	6	96	303	1310	1919
Telefónica	0	37	194	601	463	706	952
Coopesantos	0	38	272	577	648	416	811
Coopesca	755	18	33	64	45	85	654
Cable Pacayas	0	0	0	0	0	58	125
Coopealfaro	0	0	0	0	6	0	36
Cable Visión							0
<b>Total</b>	<b>2878</b>	<b>1187</b>	<b>12.783</b>	<b>25.409</b>	<b>25.586</b>	<b>31.965</b>	<b>33.178</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 80. Costa Rica: Achievement of goal 1 of the NTDP: districts with access to voice and data services provided through the Connected Communities Program, 2016-2021

Indicator	2016	2017	2018	2019	2020	2021
Districts	32	72	72	103	127	128
Annual goal <sup>1</sup>	32	72	72	125	125	183
Achievement of annual goal	100 %	100 %	100 %	82 %	102 %	70 %
Total goal <sup>1</sup>	183	183	183	183	183	183
Achievement of total goal	17 %	39 %	39 %	56 %	69 %	70 %

Note:<sup>1</sup> Goals set out in the NTDP 2015-2021 Goals Matrix updated to February 2021

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 81. Costa Rica: Achievement of goal 2 of the NTDP: indigenous territories with access to voice and data services provided through the Connected Communities Program, 2019-2021

Indicator	2019	2020	2021
Territories	1	3	6
Annual goal <sup>1</sup>	4	4	20
Annual goal achievement	25 %	75 %	30 %
Total goal <sup>1</sup>	20	20	20
Total goal achievement	5 %	15 %	30 %

Nota:<sup>1</sup>Goals set out in the NTDP Goal Matrix 2015-2021 updated to February 2021

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 82. Costa Rica: Distribution of districts with (total or partial) connectivity with access to voice and data services provided through the Connected Communities Program per region, 2015-2021  
(Accumulated annual figures)

Region	2015	2016	2017	2018	2019	2020	2021
Huetar Caribe	3	3	17	17	19	19	19
Huetar Norte	8	25	25	25	25	25	25
Brunca	0	4	30	30	30	30	30
Chorotega	0	0	0	0	29	39	40
Central Pacific	0	0	0	0	0	14	14
Total	11	32	72	72	103	127	128

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.



Table n.º 83. Costa Rica: Total annual projects of the Connected Communities Program per project life cycle phase, 2015 – 2021

Status	2015	2016	2017	2018	2019	2020	2021
Initiation	0	0	0	0	0	0	0
Planning	13	17	13	6	6	4	4
Execution	13	13	19	26	25	24	26
Closing	0	0	0	0	1	4	2
<b>Total</b>	<b>26</b>	<b>30</b>	<b>32</b>	<b>32</b>	<b>32</b>	<b>32</b>	<b>32</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 84. Costa Rica: Distribution of telecommunications infrastructure towers in service in the Connected Communities Program per region, 2015-2021  
(Accumulated annual figures)

Region	2015	2016	2017	2018	2019	2020	2021
Huetar Caribe	7	7	7	62	111	116	129
Huetar Norte	24	143	143	147	148	173	175
Brunca	0	0	50	115	115	116	118
Chorotega	0	0	0	0	57	114	129
Central Pacific	0	0	0	0	0	68	77
<b>Total</b>	<b>31</b>	<b>150</b>	<b>200</b>	<b>324</b>	<b>431</b>	<b>587</b>	<b>628</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 85. Costa Rica: Inhabitants, households and housing units with potential access to voice and data services in districts with (total or partial) connectivity provided through the Connected Communities Program, 2015-2021

	2015	2016	2017	2018	2019	2020	2021
<b>Inhabitants</b>	76 739	237 639	294 488	631 625	803 267	932 564	943 986
<b>Households</b>	23 212	72 745	90 765	197 129	254 138	292 773	304 630
<b>Housing units</b>	22 799	71 208	89 099	194 405	250 543	288 555	301 721

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 86. Costa Rica: Subscriptions fixed telephony, fixed Internet access and mobile telephony services provided through the Connected Communities Program, 2015-2021

Service	2015	2016	2017	2018	2019	2020	2021
<b>Fixed telephony</b>	10	112	387	1131	3409	3351	5000
<b>Fixed Internet</b>	19	486	1114	1770	10 486	26 976	33 078
<b>Mobile Telephony</b>	12 334	27 871	38 603	36 683	40 429	31 234	32 925

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 87. Costa Rica: Distribution of subscriptions to fixed Internet access provided through the Connected Communities Program per region, 2014-2020

Region	2015	2016	2017	2018	2019	2020	2021
Huetar Caribe	19	13	13	14	2171	6657	7992
Huetar Norte	0	473	894	1378	5720	13 515	15 865
Brunca	0	0	207	378	2595	6253	7514
Central Pacific	0	0	0	0	0	314	664
Chorotega	0	0	0	0	0	237	1043
<b>Total</b>	19	486	1114	1770	10 486	26 976	33 078

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 88. Costa Rica: Distribution of subscriptions to the fixed telephone service provided by the Connected Communities Program per region, 2015-2021

Region	2015	2016	2017	2018	2019	2020	2021
Huetar Caribe	10	3	2	5	873	1064	1462
Huetar Norte	0	109	278	873	1543	332	79
Brunca	0	0	107	253	993	1404	1752
Central Pacific	0	0	0	0	0	314	664
Chorotega	0	0	0	0	0	237	1043
<b>Total</b>	10	112	387	1131	3409	3351	5000

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 89. Costa Rica: Distribution of subscriptions to the mobile telephony service provided through infrastructure facilitated by the Connected Communities Program per region, 2015-2021

Region	2015	2016	2017	2018	2019	2020	2021
HuetarCaribe	792	1565	2290	1865	6230	8682	9067
Huetar Norte	11 542	26 306	33 491	32 273	29 861	17 349	18 423
Brunca	0	0	2822	2545	4338	5203	5435
<b>Total</b>	12 334	27 871	38 603	36 683	40 429	31 234	32 925

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 90. Costa Rica: Distribution of the investment executed through the Connected Communities Program by operator, 2015-2021

(Annual figures in million colones)

Operator	2015	2016	2017	2018	2019	2020	2021
ICE	2123	5	1213	3267	434	8183	2673
Claro	0	431	724	1419	1453	2592	1918
Telefónica	755	18	33	68	49	85	18
<b>Total</b>	<b>2878</b>	<b>454</b>	<b>1971</b>	<b>4754</b>	<b>1936</b>	<b>10.860</b>	<b>4609</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 91. Costa Rica: Households registered in the Connected Households Program Beneficiary Management System by status, 2016-2021

(Cumulative biannual figures)

Status	II S-16	I S-17	II S-17	I S-18	II S-18	I S-19
Active	9947	17 042	28 806	51 142	78 815	105 555
unsubscribed	142	718	1601	2588	5190	8449
Administrative changes	0	60	25	161	263	472
Assigned	2698	2472	6780	11.135	12.921	7082
<b>Total</b>	<b>12 787</b>	<b>20 292</b>	<b>37 212</b>	<b>65 026</b>	<b>97 189</b>	<b>121 558</b>

Status	II S-19	I S-20	II S-20	I S-2021	II S-2021
Active	117 719	120 660	126 095	144 201	166 512
unsubscribed	12 264	16 577	21 146	22 398	24 974
Administrative changes	596	801	1185	1695	2303
Assigned	8575	3881	7420	11 576	14.077
<b>Total</b>	<b>139 154</b>	<b>141 919</b>	<b>155 846</b>	<b>179 870</b>	<b>207 866</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 92. Costa Rica: Households benefiting from the Connected Households Program, by status, 2016-2021

(Cumulative biannual figures)

Status	II S-16	I S-17	II S-17	I S-18	II S-18	I S-19
Beneficiaries	10 089	17 776	30 418	53 888	84 268	114 476
Active <sup>1</sup>	9947	17 042	28 806	51 142	78 815	105 555
Inactive	142	734	1612	2746	5453	8921

Status	II S-19	I S-20	II S-20	I S-2021	II S-2021
Beneficiaries	130 579	138 038	148 426	168 269	193 789
Active <sup>1</sup>	117 719	120 660	126 095	144 201	166 512
Inactive	12 860	17 378	22 331	24 068	27 277

Nota: <sup>1</sup>Corresponds to active subsidized subscriptions to the Internet access service.

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 93. Costa Rica: Achievement of goal 5 of the NTDP: subsidized households for Internet service and a device for use provided through the Connected Households Program, 2016-2021

Indicator	2016	2017	2018	2019	2020	2021
Beneficiaries	10 089	30 418	84 268	130 579	148 426	32 689
Annual goal <sup>1</sup>	10 089	30 418	63 582	95 196	154 496	186 959
Annual goal achievement	100 %	100 %	133 %	137 %	96 %	17 %
Total goal <sup>1</sup>	140 496	140 496	140 496	140 496	186 958	186 959
Total goal achievement	7 %	22 %	60 %	93 %	79 %	17 %

Nota:<sup>1</sup>Goals set out in the NTDP Goal Matrix 2015-2021 updated to February 2021.

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 94. Costa Rica: Achievement of goal 43 of the NTDP: households with students with subsidies for Internet service provided through the Connected Households Program, 2020-2021

Indicator	2020	2021
Beneficiaries	0	12 145
Annual goal <sup>1</sup>	10 684	100 684
Annual goal achievement	0 %	12 %
Total goal <sup>1</sup>	100 684	100 684
Total goal achievement	0 %	12 %

Nota:<sup>1</sup>Goals set out in the NTDP Goal Matrix 2015-2021 updated to February 2021.

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 95. Costa Rica: Distribution of households that benefited from the Connected Households Program according to income quintile, 2016-2021  
(Cumulative biannual figures)

Income quintile	IIS-16	IS-17	IIS-17	IS-18	IIS-18	IS-19	IIS-19	IS-20	IIS-20	IS-2021	IIS-2021
Quintile 1	9832	15 970	24 981	44 884	71 431	95 951	109 432	123 841	124 393	140 268	156 895
Quintile 2	256	1805	4283	7166	10 536	15 273	17 402	19 817	19 885	23 289	30 126
Quintile 3	1	1	1154	1838	2301	3252	3745	4137	4148	4737	6768
Total	10 089	17 776	30 418	53 888	84 268	114 476	130 579	147 795	148 426	168 294	193 789

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 96. Costa Rica: Distribution of households that benefited from the Connected Households Program, per operator, 2016-2021  
(Cumulative biannual figures)

Operator	IIS 2016	IS 2017	IIS 2017	IS 2018	IIS 2018	IS 2019	IIS 2019	IS 2020	IIS 2020	IS-2021	IIS-2021
Cabletica	5018	8369	13 608	21 053	30 590	36 407	40 033	40 369	43 853	49 135	53 566
Telecable	2124	3734	6059	11 890	22 915	32 689	37 361	39 069	43 966	51 411	62 215
ICE	1237	2243	4694	7606	10 726	19 730	23 279	26 770	26 867	27 345	30 119
Tigo	488	1453	3242	8370	13 646	18 322	21 613	23 205	24 313	28 184	32 081
Coopesesca	658	1102	1684	2774	3060	3390	3940	4110	4546	6119	7472
Coopesantos	458	744	947	1954	2982	3535	3921	4002	4274	4865	6174
Coopeguanacaste	106	131	184	241	324	380	402	403	426	570	863
Cable Visión	0	0	0	0	25	23	22	0	0	0	0
Cable Pacayas	0	0	0	0	0	0	8	110	181	429	696
Coopealfaroruz	0	0	0	0	0	0	0	0	0	211	300
Claro	0	0	0	0	0	0	0	0	0	0	140
Telefónica	0	0	0	0	0	0	0	0	0	0	163
<b>Total</b>	<b>10 089</b>	<b>17 776</b>	<b>30 418</b>	<b>53 888</b>	<b>84 268</b>	<b>114 476</b>	<b>130 579</b>	<b>138 038</b>	<b>148 426</b>	<b>168 269</b>	<b>193 789</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 97. Costa Rica: Distribution of households that benefited from the Connected Households Program, per province, 2016-2021  
(Cumulative biannual figures)

Province	IIS 2016	IS 2017	IIS 2017	IS 2018	IIS 2018	IS 2019	IIS 2019	IS 2020	IIS 2020	IS-2021	IIS-2021
San José	3259	5780	9173	16 883	28 102	37 284	41 919	43 704	45 921	50 385	58 440
Alajuela	1721	3273	5224	9173	13 335	18 216	21 482	23 186	25 803	29 932	34 452
Cartago	510	998	1872	3718	7533	11 982	13 894	14 740	16 607	18 843	21 540
Heredia	492	1538	2942	4421	6997	9440	10 557	11 073	11 842	12 940	14 501
Guanacaste	1671	2482	4183	7350	10458	13 336	14 949	15 626	17 195	20 050	23 026
Puntarenas	1624	2533	4903	8209	12 106	16 560	18 750	19 635	20 643	23 539	27 145
Limón	812	1172	2121	4134	5737	7658	9028	10 074	10 415	12 580	14 685
<b>Total</b>	<b>10 089</b>	<b>17 776</b>	<b>30 418</b>	<b>53 888</b>	<b>84 268</b>	<b>114 476</b>	<b>130 579</b>	<b>138 038</b>	<b>148 426</b>	<b>168 269</b>	<b>193 789</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 98. Costa Rica: Districts with presence of the Connected Households Program, 2016-2021

	2016	2017	2018	2019	2020	2021
<b>Districts</b>	<b>216</b>	<b>381</b>	<b>434</b>	<b>471</b>	<b>475</b>	<b>482</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 99. Costa Rica: Total and net active subsidized subscriptions to the Connected Households Program's Internet access service, 2016-2021  
(Accumulated annual figures)

Indicator	2016	2017	2018	2019	2020	2021
<b>Total subscriptions</b>	9947	28 806	78 815	117 719	126 095	166 512
<b>Net subscriptions</b>	8097	23 448	64 155	67 335	72 126	114 893

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 100. Costa Rica: Total and net penetration of the Connected Households Program's residential fixed Internet service, 2016-2021  
(Annual figures in percentages)

Indicator	2016	2017	2018	2019	2020	2021
<b>Total penetration</b>	0.7 %	1.9 %	5.1 %	7.5 %	8.0 %	10.1 %
<b>Net penetration</b>	0.6 %	1.6 %	4.2 %	4.3 %	4.6 %	7.0 %

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 101. Costa Rica: Distribution of the investment executed through the Connected Households Program according to service operator, 2016-2021  
(Annual figures in million colones)

Operator	2016	2017	2018	2019	2020	2021
<b>Telecable</b>	103	1372	4416	6622	4752	7612
<b>Cabletica</b>	420	2978	5941	6146	4035	5694
<b>Tigo</b>	0	188	3143	3649	3209	3680
<b>ICE</b>	136	1050	2524	3621	4131	2303
<b>Coopesantos</b>	38	272	577	648	416	811
<b>Coopelesca</b>	37	194	601	463	706	654
<b>Cable Pacayas</b>	0	0	0	0	58	125
<b>Coopeguanacaste</b>	0	6	96	50	59	88
<b>Coopealfaroruiz</b>	0	0	0	0	0	36
<b>Telefónica</b>	0	0	0	0	0	2
<b>Claro</b>	0	0	0	0	0	1
<b>Cable Visión</b>	0	0	0	6	0	0
<b>Total</b>	734	6 060	17 298	21 205	17 366	21 006

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.



Table n.º 102. Costa Rica: Achievement of goal 9 established in the NTDP: connectivity devices provided to CPSP through Equipped Public Centers Programs, 2017-2021

Indicator	2017	2018	2019	2020	2021
Devices	6407	36 004	36 831	36 831	36 831
Annual goal <sup>1</sup>	6407	18 533	36 000	36 831	36 831
Annual goal achievement	100 %	194 %	102 %	100 %	100 %
Total goal <sup>1</sup>	40 000	40 000	40 000	123 643	123 643
Total goal achievement	16 %	90 %	92 %	30 %	30 %

Nota:<sup>1</sup>Goals set out in the NTDP Goal Matrix 2015-2021 updated to February 2021.

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 103. Costa Rica: Digital zones of free Internet access in service through the Connected Public Spaces Program, 2019-2021

Digital zones	IS 2019	IIS 2019	IS 2020	IIS 2020	IS 2021	IIS 2021
Biannual	101	200	101	108	3	0
Cumulative	101	301	402	510	513	513

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 104. Costa Rica: Achievement of goal 13 of the NTDP: digital zones of free Internet access for the population, in public spaces, in the Connected Public Spaces Program, 2018-2021

Indicator	2018	2019	2020	2021
Digital zones	0	301	510	513
Annual goal <sup>1</sup>	15	200	400	513
Annual goal achievement	0 %	151 %	128 %	100 %
Total goal <sup>1</sup>	513	513	513	513
Total goal achievement	0 %	59 %	99 %	100 %

Nota:<sup>1</sup>Goals set out in the NTDP Goal Matrix 2015-2021 updated to February 2021.

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 105. Costa Rica: Digital zones of free Internet access in service through the Connected Public Spaces Program, by zone type, 2019-2021

Zone type	2019		2020		2021	
	Number	Percentage	Number	Percentage	Number	Percentage
Public space	230	76 %	417	81 %	419	81 %
Library <sup>1</sup>	45	15 %	61	12 %	61	12 %
Train station	24	8 %	28	5 %	28	5 %
Civic center <sup>1</sup>	4	1 %	6	1 %	7	1 %
Total	303	100 %	512	100 %	515	100 %

Nota:<sup>1</sup>There are two areas that at the same time are library and Civic Center, corresponding to the areas of Guararí and Aguas Zarcas. Both zones are counted once in each category.

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 106. Costa Rica: Distribution of digital zones of free Internet access put into service through the Connected Public Spaces Program, by operator, 2019-2021

Operator	2019		2020		2021	
	Number	Percentage	Number	Percentage	Number	Percentage
Telecable	127	42 %	170	33 %	175	34 %
Copopeguanacaste	108	36 %	174	34 %	171	33 %
ICE-RACSA-PC	66	22 %	166	33 %	169	33 %
<b>Total</b>	<b>301</b>	<b>100 %</b>	<b>510</b>	<b>100 %</b>	<b>515</b>	<b>100 %</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 107. Costa Rica: Distribution of digital zones of free Internet access put into service through the Connected Public Spaces Program by province, 2019-2021

Province	2019		2020		2021	
	Number	Percentage	Number	Percentage	Number	Percentage
San José	93	31 %	133	26 %	133	26 %
Alajuela	72	24 %	117	23 %	117	23 %
Heredia	60	20 %	62	12 %	62	12 %
Cartago	6	2 %	61	12 %	64	12 %
Puntarenas	29	10 %	57	11 %	57	11 %
Guanacaste	34	11 %	53	10 %	53	10 %
Limón	7	2 %	27	5 %	27	5 %
<b>Total</b>	<b>301</b>	<b>100 %</b>	<b>510</b>	<b>100 %</b>	<b>513</b>	<b>100 %</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 108. Costa Rica: Districts with presence of the Connected Public Spaces Program, 2019-2021

(Cumulative biannual figures)

	IS 2019	IIS 2019	IS 2020	IIS 2020	IS 2021	IIS 2021
<b>Districts</b>	<b>58</b>	<b>178</b>	<b>244</b>	<b>313</b>	<b>315</b>	<b>315</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 109. Costa Rica: Total and new users, connection hours, GB data traffic, and sessions initiated of the Connected Public Spaces Program, 2019-2021

Operator	2019	2020	2021	Total
<b>Total users</b>	<b>399 218</b>	<b>715 716</b>	<b>1 683 033</b>	<b>2 797 967</b>
<b>New users</b>	<b>239 062</b>	<b>339 783</b>	<b>599 050</b>	<b>1 177 895</b>
<b>Connection hours</b>	<b>790 644</b>	<b>1 358 995</b>	<b>3 862 881</b>	<b>6 012 519</b>
<b>Traffic (GB)</b>	<b>85 869</b>	<b>242 929</b>	<b>1 003 223</b>	<b>1 332 021</b>
<b>Sessions</b>	<b>1 269 812</b>	<b>2 957 749</b>	<b>6 942 592</b>	<b>11 170 153</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 110. Costa Rica: Distribution of the investment executed through the Connected Public Spaces Program per operator, 2019-2021

Operator	2019		2020		2021	
	Number	Porcentage	Number	Porcentage	Number	Porcentage
<b>Telecable</b>	450	46 %	1167	31 %	1767	27 %
<b>RACSA-ICE</b>	278	28 %	1322	35 %	2561	39 %
<b>Coopeguanacaste</b>	253	26 %	1251	33 %	2221	34 %
<b>Total</b>	981	100 %	3740	100 %	6550	100 %

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 111. Costa Rica: Achievement of goal 14 of the NTDP: progress of execution of the Bicentennial Educational Network FONATEL Axis, 2021

Indicator	2021
<b>Fonatel axis progress</b>	19.8 %
<b>Annual goal<sup>1</sup></b>	39.6 %
<b>Annual goal achievement</b>	50 %
<b>Total goal<sup>1</sup></b>	39.6 %
<b>Total goal achievement</b>	50 %

Nota:<sup>1</sup>Goals set out in the NTDP Goal Matrix 2015-2021 updated to February 2021.

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 112. Costa Rica: Educational centers connected through the Bicentennial Educational Network program, 2021  
(Accumulated monthly figures)

Connected EC	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
<b>EC</b>	3	23	23	4	80
<b>Accumulated</b>	3	26	49	53	133

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 113. Costa Rica: Educational centers served through the Bicentennial Educational Network program by status, 2021

Indicator <sup>1</sup>	2021
<b>EC connected to the Bicentennial Educational Network</b>	133
<b>EC with connectivity and internal network deployed</b>	168
<b>EC with approved solution design</b>	262
<b>EC with solution design submitted for analysis</b>	283
<b>EC with technical requirements for installation established</b>	485
<b>EC visited to survey technical requirements for installation</b>	487
<b>EC to be tended to in 2021</b>	516
<b>EC assigned to the FONATEL Axis in total</b>	2375

Nota:<sup>1</sup>EC = educational centers.

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 114. Costa Rica: Distribution of educational centers connected through the Bicentennial Educational Network program according to bandwidth in Mbps, 2021

Bandwidth (Mbps)	Number	Percentage
15 Mbps	2	2 %
40 Mbps	5	4 %
100 Mbps	69	52 %
175 Mbps	40	30 %
300 Mbps	15	11 %
500 Mbps	2	2 %
<b>Total</b>	<b>133</b>	<b>100 %</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 115. Costa Rica: Distribution of educational centers connected through the Bicentennial Educational Network program by operator, 2021

Operator	Number	Percentage
Telecable	79	59 %
Coopeguanacaste	39	29 %
RACSA-ICE-PC	15	11 %
<b>Total</b>	<b>133</b>	<b>100 %</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 116. Costa Rica: Distribution of educational centers connected through the Bicentennial Educational Network program by province, 2021

Province	Number	Percentage
San José	37	28 %
Alajuela	6	5 %
Heredia	2	2 %
Cartago	0	0 %
Guanacaste	33	25 %
Puntarenas	45	34 %
Limón	10	8 %
<b>Total</b>	<b>133</b>	<b>100 %</b>

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 117. Costa Rica: Districts with presence of the Bicentennial Educational Network program, 2021

EC (Educational Centers) connected	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Monthly	2	10	8	2	35
Accumulated	2	12	20	22	57

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 118. Costa Rica: Students in educational centers connected through the Bicentennial Educational Network program, 2021

Students	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Monthly	532	6946	7509	869	17 787
Accumulated	532	7478	14 987	15 856	33 643

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.

Table n.º 119. Costa Rica: Distribution of the investment executed through the Bicentennial Educational Network Program by service operator, 2021

Operator	Number	Percentage
Telefónica	932	92 %
Coopeguanacaste	43	4 %
Telecable	38	4 %
Total	1013	100 %

Source: SUTEL, Directorate General of FONATEL, Costa Rica, 2021.



# ACRONYMS





A4AI	Alliance for Affordable Internet
AON	Active optical networks
ARESEP	Spanish acronym for Autoridad Reguladora de los Servicios Públicos, Regulatory Authority of Public Services
ARPU	Average Revenue per User
BCCR	Spanish acronym for Banco Central de Costa Rica, Central Bank of Costa Rica
CCSS	Spanish acronym for Caja Costarricense de Seguro Social, CR Social Security Administration
CECI's	Spanish acronym for Centros Comunitarios Inteligentes, Intelligent Community Centers
Cen Cinai	Spanish acronym for Centros de Educación y Nutrición y Centros Infantiles de Atención Integral, Educational and Nutritional Centers and Children's Centers for Comprehensive Care
CEPF	Spanish acronym for Contribución Especial Parafiscal, Special Parafiscal Contribution
CGR	Spanish acronym for Contraloría General de la República, National Comptroller's Office
COMEX	Ministry of Foreign Trade
COPROCOM	Spanish acronym for Comisión para Promover la Competencia, Commission for the Promotion of Competition
CPSP's	Public Service Provision Centers
DGC	Dirección General de Calidad
DGCO	Directorate General for Competition
DGF	Directorate General of FONATEL
DGM	Directorate General of Markets
DWDM	Dense wavelength division multiplexing. Optical fiber multiplexing technology used to increase the bandwidth of existing fiber network using many different wavelength signals
EBAIS	Spanish acronym for Equipos Básicos de Atención Integral en Salud, Basic Comprehensive Health Care Teams
ENAH	Spanish acronym for Encuesta Nacional de Hogares, National Household Survey
ENIGH	Spanish acronym for Encuesta Nacional de Ingresos y Gastos de los Hogares, National Household Income and Expenditure Survey
FAC	Spanish acronym for Factor de Ajuste de Calidad, Quality Adjustment Factor
FIPI	Fixed Internet Price Index
FONATEL	Spanish acronym for Fondo Nacional de Telecomunicaciones, National Telecommunications Fund
FTTx	Fiber to the X, generic term for the provision of last mile fiber optics networks
GB	Gigabyte
GDP	Gross Domestic Product
GIS	Geographic Information System
GSM	Global System for Mobile Communications
GTL	General Telecommunications Law
HFC	Hybrid fibre-coaxial. Hybrid fiber and copper networks that use DOCSIS or similar technologies for the provision of services
HHI	Herfindahl-Hirschman Index, a measure of market concentration
ICE	Spanish acronym for Instituto Costarricense de Electricidad, Costa Rican Electricity Institute
IDB	Interamerican Development Bank
IMAS	Spanish acronym for Instituto Mixto de Ayuda Social, Joint Institute of Social Aid
INEC	Spanish acronym for Instituto Nacional de Estadística y Censos, National Institute of Statistics and Censuses
IP	Internet Protocol, a set of standards for addressing and routing data on the Internet
IPTV	Internet Protocol Television
ISO	International Standardization Organization
ITU	International Telecommunication Union
IXP	Internet Exchange Protocol



kbps	Kilobits per second
LTE	Long Term Evolution, a standard for wireless broadband communication for mobile devices and data terminals
Mbps	Megabits per second
MEIC	Spanish acronym for Ministerio de Economía, Industria y Comercio, Ministry of Economy, Industry and Trade
MEP	Spanish acronym for Ministerio de Educación, Ministry of Education
MICITT	Spanish acronym for Ministerio de Ciencia, Tecnología y Telecomunicaciones, Ministry of Science, Technology and Telecommunications
MIDEPLAN	Spanish acronym for Ministerio de Planificación Nacional y Política Económica, Ministry of National Planning and Economic Policy
MIVAH	Spanish acronym for Ministerio de Vivienda y Asentamientos Humanos, Ministry of Housing and Human Settlements
MMDS	Multichannel Multipoint Distribution Services
MMS	Multimedia Messaging System
MS	Spanish acronym for Ministerio de Salud, Ministry of Health
MTPI	Mobile Telecommunications Price Index
OCDE	Organization for Economic Cooperation and Development
Off-net	Applies when the call or message is made on a different network than the destination
On-net	When your call or message originates on your home operator's network and terminates to another mobile number that resides with your operator
PAPyP	Spanish acronym for Plan Annual de Proyectos y Programas, Annual Projects and Programs Plan
PBAS	Spanish acronym for Programa Banda Ancha Solidaria, Solidary Bandwidth Program
PCC	Spanish acronym for Programa Comunidades Conectadas, Connected Communities Program
PCiC	Spanish acronym for Programa Ciudadano Conectado, Connected Citizen Program
PCPP	Spanish acronym for Programa Centros Públicos Equipados, Equipped Public Centers Program
PEPC	Spanish acronym for Programa Espacios Públicos Conectados, Connected Public Spaces
PHC	Spanish acronym for Programa Hogares Conectados, Connected Households Program
PNDT	Spanish acronym for Programa Nacional de Desarrollo de Telecomunicaciones, National Telecommunications Development Program
PNUD	Programa de las Naciones Unidas para el Desarrollo
PON	Passive Optical Networks
Pp	Percentage Points
PREB	Spanish acronym for Programa Red Educativa del Bicentenario, National Bicentennial
QoSE	Quality of service experienced by the user
RPCS	Spanish acronym for Reglamento de Prestación y Calidad de Servicios, Regulations for Service Quality and Provision (RSQP)
SDH	Synchronous Digital Hierarchy, standard multiplexing protocol used to transfer multiple digital bit streams over optical networks
SITEL	Spanish acronym for Sistema de Indicadores de Telecomunicaciones, Telecommunication Indicators System
UG	Spanish acronym for Unidad de Gestión, Management Unit for the execution of FONATEL
UNDP	United Nations Development Program
USB	Universal Serial Bus, a USB flash drive is a data storage device with a universal serial port
VoIP	Voice over Internet Protocol service
VPN	Virtual private networks
XDSL	Digital Subscriber Line, technology that uses copper wire telephone platform for access



📍 Guachipelín de Escazú,  
Oficentro Multipark, Tapantí Building, 1st floor.

📞 Toll-free: 800-88SUTEL

📄 Headquarters: 4000-0000

✉️ [gestiondocumental@sutel.go.cr](mailto:gestiondocumental@sutel.go.cr)