

Annual Report of the Electronic Communications Office of Iceland (ECOI) 2021

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A word from the Managing Director

Amendment to the Act on the Electronic Communications Office

An amendment to the Act on the Electronic Communications Office took effect on 1 July 2021. In accordance with this amendment, supervision of postal services was transferred to the Icelandic Regional Development Institute. In conjunction with the amendment coming into force, the organisational structure of the ECOI was altered. The intention of this restructuring was to increase the emphasis on cyber security, as well as preparing the ECOI for the introduction of new general laws on telecommunications (the Code). The principal point of focus in the organisational restructuring was increased emphasis on the

activities of the cyber security team CERT-IS and on surveillance of control systems of network and information systems in the field of digital security. In addition, there was a change in emphasis by transferring the administration of frequency issues to the Infrastructure Division and strengthening the communication with market participants on the development and expansion of the telecommunications infrastructure in Iceland, in particular 5G and fibre optic networks. Market analyses, the resolution of disputes, consumer issues, universal service and general administration of telecommunications are dealt with by the Administration Division. The Operations Division has also been made stronger thanks to the work of the human resources and quality control manager.



New strategy formulation and organisation

The restructuring of the organisation took place alongside the work on formulating future vision and policy. The future vision of the ECOI is as follows:

The ECOI is an innovative partner in the development of a safe digital community and strengthening of competition.

This vision for the future reflects the changes that have occurred in the legal environment of the ECOI, which involves laws on cyber security and the new general laws on telecommunications. A more detailed discussion of the future vision and policy can be found in a separate chapter of the Annual Report.

In 2021, the number of ECOI employees increased by a quarter due to the expansion of the cyber security team and digital security. With reference to international criteria, for example in the SIM3-model trusted introducer, it may be expected that

structuring the cyber security team will take at least three years, if a lack of resources will not delay the process. Structuring the cyber security team is a complex process that involves, among other things, the introduction and development of a regulatory system; hiring and training personnel; establishing an accredited and secure working environment; developing work processes and operating procedures; establishing defined service procedures and service levels for all days of the year, 24 hours a day; installing the necessary systems and technical equipment; establishing and developing international connections; and building up field groups on domestic territory for all groups of important infrastructure. A more detailed discussion of the activities of the cyber security team CERT-IS can be found in the team's annual review.

The Digital Security Division monitors the security organisation of digital infrastructure, providers of digital services and telecommunications companies. This division also serves as



an advisory coordinating authority for five other supervisory authorities for the purpose of establishing such monitoring within the relevant sectors of the community and coordinating the approach in which this is done. The aim of this work is auditing the management systems of cyber and information security for parties that fall within the scope of the law and providing improvements, as applicable. In this way, an important foundation is established for preventive measures to ensure the functioning of the service and to defend against the dangers inherent to their operations, for instance due to cyber threats. However, the division also investigates the risks and security incidents that occur at the relevant parties. Digital security also monitors electronic identification and trust services, and this year the monitoring was transferred to the ECOI from the Consumer Agency.

Another change in the activities of the ECOI was that monitoring of mail was transferred to the Icelandic Regional Development

Institute after nearly a quarter of a century. Monitoring of mail poses a certain challenge due to the status of postal services in a diminishing market for letters, as there are high service standards at the national level with as much equality in pricing as possible.

Sale of Míla

In the latter half of the year, the news arrived that an agreement had been reached with the French fund management company Ardian regarding the purchase of Míla from Síminn Group. Míla operates a nationwide telecommunications network and is the largest and most important entity in this field in Iceland. There was considerable debate about this intended sale in Parliament, and Members of Parliament thought it was important to consider certain aspects of national security in this regard. Subsequently, a parliamentary bill regarding increased security



of telecommunications networks and the importance of the ECOI considering the public interest was presented in Parliament. Some Members of Parliament also thought that the price tag for Míla was somewhat high, and these MPs feared that the price might result in higher prices for telecommunications services in this country. If Míla has a substantial market share in a certain part of the market, the services of Míla will be subject to restrictions in that part of the market following the market analyses of the ECOI, among other things, in the manner that price restrictions are applied to the major wholesale components of telecommunications, such as copper local loops and trunk line connections. The company and the ECOI disagree about whether the so-called IP-MPLS service should be subject to restrictions, and this service is important for all sorts of connections in core networks. Since connections of this kind are base units in the structures of other telecommunications services, such as 5G services and public online services, the ECOI considers this service to be subject to the restrictions according to the market analyses.

Development of telecommunications infrastructure

It is expected that a considerable number of 5G mobile networks will be constructed this decade. This year a consultation took place regarding the allocation of frequencies for mobile networks. Most of the frequency authorisations for mobile networks will expire in 2021 and 2022. The frequency authorisations were extended for short periods of time because the new Electronic Communications Act had not been passed in Parliament. The parliamentary bill for the new Electronic Communications Act includes provisions on the sharing of resources in the construction of mobile networks, which will facilitate the construction of 5G networks and their increased proliferation, for example with uninterrupted mobile network service on Iceland's highways, which in turn is intended to be made subject to restrictions in the new frequency authorisations.

Due to the capacity and technical characteristics of 5G, it may be expected that specialised radio systems at national level will cease to exist in this decade. It is therefore fair to assume that extensive changes will occur in the operations of radio systems that extend over the entire country. Many of these systems have become obsolete, and it may be assumed that their owners will want to cease their operation due to costs and technical obsolescence. Among them are RUV's longwave and nationwide distribution of television content with UHF, as well as GSM and 3G services, which are planned to be discontinued in the middle of the decade. The fate of sound broadcasting services on FM and the operation of the TETRA emergency broadcasting system is not as clear. Technically, 5G technology could supply most, if not all, of the needs which all these radio systems provide today. It will not be stated here that this will happen, and market participants and the government have a great deal of authority in this regard. Irrespective of what the future brings, the cost of renewing and maintaining the existing radio systems could run to hundreds of millions or even billions of ISK for each system. It must therefore be worth considering the possibility of making as much use as possible of the capacity of modern permanent networks and mobile networks and to phase out older systems. If radio systems will decrease significantly in number at national level, there will be an increased need to ensure the security of the remaining mobile networks to a considerable extent, both through organisational and technical means. The new Electronic Communications Act therefore includes provisions on increased surveillance and requirements for the security of 5G mobile networks. Connected to the security of mobile networks is the security of the country's core networks. Mobile network transmitters are interconnected with core network connections, in a large majority of cases by fibre optic cable. It is important to

consider strengthening the country's core networks, possibly by constructing a new multiple-component nationwide circle with an installation route that is separate from the current nationwide circle.

At the request of the National Security Council, the ECOI has conducted a risk assessment of the country's telecommunications networks. Even though the findings of the risk assessment are confidential, the ECOI nevertheless considers that it is appropriate to discuss materially certain conclusions that can be drawn from the risk assessment. The significance of telecommunications in today's modern technological society keeps increasing. The general population makes ever more use of telecommunications, every day. Telecommunications also play an important security role, such as in the distribution of information, for coordination and in times of crisis when trauma and accidents occur. This was blatantly obvious during the storm of 2019, when electric power became unavailable for as long as three days and nights, which led to telecommunications being unavailable in large areas of the north and east parts of the country. All the telecommunications companies had active reserve power in their systems that lasted for at least four hours, and in most cases much longer. However, it was not sufficient to make up for a 70-hour-long electricity shortage. The telecommunications companies have a legal obligation to take measures to prevent general disruptions to operations. However, they are not required to take measures to ensure operations under all possible circumstances that can be considered rare or unlikely. The previously mentioned risk assessment reveals, among other things, a certain market failure in this regard, i.e. the demands of society and citizens regarding the functionality of telecommunications seem to go beyond what the telecommunications companies are prepared to offer

and legally obliged to provide. This applies for instance to reserve power, backup connections, etc. Over the next few seasons, it will be necessary, in the assessment of the ECOI, to perform a re-evaluation of this position to ascertain what steps need to be taken to ensure the functionality of telecommunications, and who will bear the expense of these steps. In this discussion it will be necessary to take note of the increased importance of telecommunications when it comes to the public interest and the importance of telecommunications for national security. It is appropriate to mention that the public sector has already stepped in to strengthen the security of telecommunications by providing funds to improve the capacity of reserve power and by laying a new subsea cable connecting to the country.

The function of market analyses

Market analysis is the ECOI's most important tool for strengthening competition in the telecommunications market. Using them has made it possible to achieve the objectives of the telecommunications framework regarding competition for the benefit of consumers, which is a great improvement for the public and companies. With more competition it is natural that the market share of dominant market participants will decrease, and it may be said that it is a direct objective of the framework to make the level of competition more equal in this manner. By the nature of the issue, the requirements resulting from the market analyses are only directed towards the participant in the market that has considerable market power, i.e., Síminn Group (Síminn and Míla) in all cases in this country so far. Due to Síminn Group's position in the market, it is also addressed in many of the ECOI's decisions to some extent when it comes to the resolution of differences or other administrative determinations. The Managing Director

of Síminn has officially brought attention to this and, among his other statements, has called this a "systematic bias" towards Síminn Group and that this implementation of laws by the ECOI has influenced its communications with and actions towards Síminn Group. As previously mentioned, due to the nature of the issue at hand, it is fitting that the ECOI's surveillance is focused on the party with the largest market share. This does not mean that there is a bias when it comes to surveillance, rather it is a natural implementation of laws considering the position that Síminn Group holds on the market. This situation is not unique to Iceland, as it results from the pan-European telecommunications framework. This should be clear to the Managing Director of Síminn, and to the professional investors who have invested or intend to invest in the company.

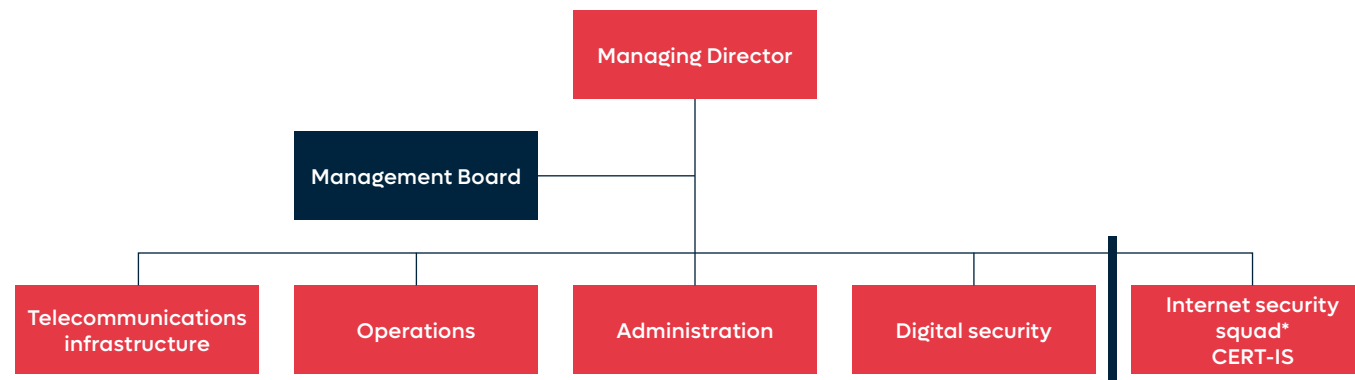
General information about the ECOI

In 2021, the ECOI faced many challenges. The organisational structure was altered, the number of employees increased dramatically, the premises were expanded, equal pay certification was achieved, and steps were taken towards shortening the working week. All this happened during the COVID-19 pandemic. Through coordinated efforts and remote working, employees managed to keep the ECOI fully active during the most transformative times in its history. The country's telecommunications systems were able to respond without fail to the increased workload that resulted from remote working, which generally contributed to decreasing the impact that COVID-19 would otherwise have had on society.

We have not yet experienced the consequences of COVID-19 to their fullest extent, but remote working is now firmly established as part of the labour market. There has also been a significantly increased emphasis on digital transformation, which is one of the three major points of emphasis of the current government.

If things progress as expected, access to internet services will therefore be a prerequisite for access to public services. It is therefore important to take measures to ensure that all citizens have access to telecommunications and internet services, so that all the country's nationals will have an opportunity to participate fully in the digital world. Access to telecommunications and internet services in Iceland is among the best known among the nations of the world, yet there are certain vulnerable groups within society that must require more attention in this regard, such as the elderly and the disabled. The ECOI will contribute to this, among other things, by re-examining the universal service framework with this in mind.

The Managing Director of the ECOI is Hrafnkell V. Gíslason. The Management Board consists of the Managing Director and Heads of Divisions. The ECOI had 27 full-time equivalents at the beginning of 2020, and this number had increased to 37 by the end of 2021.



*The Internet security squad is to be organisationally separated from the Electronic Communications Office of Iceland's surveillance role in the field of internet and information security.

The policy and objectives of the ECOI

The future vision of the ECOI

The ECOI is an innovative partner in the development of a safe digital community and stronger environment for competition.

The future vision of the government is that Iceland will be among the leading nations with reliable and secure infrastructure and excellent services. The ECOI has an important role to play in this regard, by providing administration and surveillance of the implementation of telecommunications and cyber security issues.

The ECOI wishes to be an innovative partner in the development of a safe digital community, as the functionality of modern societies depends on strong and secure telecommunications systems and ongoing innovation in this field.

The values of the ECOI

The values of the ECOI form the framework for its activities, and staff members can refer to them for support when it comes to prioritisation and focus in communications both within and outside the ECOI. These values are grounded in the ECOI's role and they serve as incentives that support the vision for the future.

We show **INTEGRITY** by

- respecting both external and internal interested parties

- living up to the trust that is shown us
- promoting social responsibility

We show **PROFESSIONAL KNOWLEDGE** by

- providing services in a professional manner
- acting professionally in all aspects of our work
- continually seeking to acquire more knowledge

We show **INNOVATION** by

- seeking new methods and solutions
- being willing to cooperate and work in partnerships
- having a clear vision for the future

Policies the ECOI has established for its activities:

- Human resources policy
- Safety policy
- Policy on means of communication
- Equal pay policy
- Policy on the handling of personal data
- The ECOI's policy on the security and functionality of telecommunications infrastructure
- The ECOI's policy on the structure and implementation of surveillance of operators of digital infrastructure

ISO/IEC 27000-certification for the management of information security at the ECOI

The ECOI is very serious about information and operational security. It has worked according to an information security management system based on ISO/IEC 27001 in the past few years. The ECOI received accredited ISO/IEC 27001-certification in 2020. When the management system was originally introduced, it was assumed that the cyber security team CERT-IS would be outside its scope. In 2020, however, it was decided to expand the scope of the management system so it would also apply to the cyber security team. As part of the management system, the Management Board has established measurable objectives in connection with information security. The objectives which have been established, along with information about how successful the institution was in reaching these objectives in 2021, are set out below.

Registration of deviations – minimum requirements

The ECOI has established an objective that the minimum number of reported deviations and feedback each year must be 12. The ECOI has introduced a formal process for the registration of deviations. This will make it possible to submit security incidents, deviations from operating procedures and feedback regarding what can be done better, as well as praise for what is being done

well. It is the assessment of the ECOI management that one submission of feedback per month on average is the minimum requirement for determining that this process is working correctly. In 2021, the number of feedback submissions on deviation reports was 82.

Risk management plans – timed correctly

The ECOI has introduced a formal procedure for the implementation of risk assessments and risk treatment plans. After risk factors have been mapped out, it is decided whether further action will be required to address the relevant risk. If this is deemed necessary, a risk treatment plan is drawn up, and a responsible party and an implementing party are appointed, in addition to which the estimated completion of the risk treatment is recorded.

The ECOI has established the objective for fewer than five risk treatment plans to be behind schedule. Before 2021, no issues remained unresolved with the ECOI.

Testing of retrieval

The ECOI has introduced a formal procedure for the implementation of backing up key information systems, which includes mapping out the requirements and plans that apply to retrieval tests. The ECOI has established the objective for fewer than 20% of retrieval tests to be behind schedule. Before 2021, no retrieval tests were behind schedule.

Clear desk policy

The ECOI has introduced an operating procedure whereby a clear desk policy will be required. This means that confidential data must not be left lying on desks at the end of the day, nor if employees leave their desks for longer periods of time. The ECOI has established the objective that fewer than 10% of employees will keep sensitive data on their desks when they are absent from their desks for longer periods of time. In the cases where audits were performed in 2021, it was revealed that 1% of employees had left sensitive data on their desks when they were absent.

Introduction of BitLocker

The ECOI has introduced a procedure whereby a requirement for the encryption of hard drives has been introduced. The intention is to enable the activation of BitLocker on Windows computers and to apply other comparable solutions for other operating systems.

Internal controls

The ECOI is aware that in addition to formal procedures it is also very important to have active internal controls in place to ensure its operational and information security.

Percentage of internal audits

The ECOI has established the objective to audit at least 50% of the documents that are within the information security management system and are stored in the ECOI's operating manual. In 2021, an internal audit was performed on all documents (100%).

Access controls

The ECOI has introduced a formal process for controlling access. This is one of the key processes for ensuring the secrecy of sensitive information and to restrict access to key information systems to only those who need it.

Controlling of access – deviations

One of the measurements which the ECOI has defined for assessing the efficacy of controlling access is to keep track of the number of deviations from the operating procedure. If such deviations occur, they do not in general constitute security incidents but are rather due to deficiencies in the registration process. The ECOI has established the objective to keep the number of deviations lower than five. Before 2021, the number of deviations was 0.

Auditing of access

According to the operating procedure for controlling access, there is a requirement that access to key information systems is audited every 12 months. The ECOI has established the objective that the percentage of key information systems audited every year is over 80%. Before 2021, 100% of key information systems were audited.

Security awareness

Security awareness among employees is a key factor in ensuring the ECOI's operational and information security.

Security presentations

The ECOI has established the objective to give a security presentation for the benefit of employees at least once a year. Before 2021, one presentation was given.

Security presentations – attendance

The ECOI has established the objective that all employees must attend at least one security presentation every year. Before 2021, all ECOI employees attended at least one security presentation.

Security inspections on Workplace – attendance

The ECOI has introduced security inspections among employees which are distributed on Workplace. The purpose of security inspections is to examine whether employees are familiar with key operating procedures and proper responses to potential security incidents. The ECOI has established the objective of ensuring a minimum level of employee participation of 80% in security inspections on Workplace every year. Before 2021, 87% of employees participated.



ECOI equal pay certification

The ECOI was awarded equal pay certification in February 2021. The ECOI's main objective with the equal pay certification is to combat the gender pay gap and to promote gender equality in the labour market.

The ECOI has introduced into its quality system the equal pay standard ÍST 85:2012, which is an administrative standard for equal pay systems. This includes the establishment of objectives to ensure that the equal pay system is subject to monitoring and that it is consistent with the ECOI's policy. Among other things, this involves a wage analysis being performed at least once a year.

year, and the benchmark is that the gender discrepancy in the relevant population is no more than 5%. In 2021, it proved to be 1%. In addition, the wage model is presented to employees once a year.

With this certification, professional work methods are ensured that will prevent direct and indirect discrimination based on gender.

Restructuring of the ECOI

Considering the new Act on the Electronic Communications Office, it was deemed appropriate to review the organisational structure of the ECOI. A consultant from the company Intellecta was engaged to run the project. In the review of the organisational structure, reference was made to the new Act on cyber security, the intended amendments to the Electronic Communications Act, the Act on the ECOI, the state of the markets and other aspects. The findings from the review were that two new divisions should be founded: the **CYBER SECURITY TEAM CERT-IS** and the Digital Security Division.

It is vital that CERT-IS is an independent unit within the ECOI in light of the provisions of the framework. The main emphasis in the activities of CERT-IS involves on the one hand strengthening situational awareness of cyberthreats and on the other hand responding to incidents to minimise the damage resulting from cyber incidents. Within the Digital Security Division there is the surveillance of the measures taken by the relevant parties to strengthen their ability to respond to trauma and cyberattacks. The division is also responsible for investigating security incidents based on the provisions of the framework. Also, within the division's purview is monitoring of trust services.

Furthermore, the organisation of specialist departments in the field of telecommunications was altered by combining the Analysis Division and the Legal Division to form the Administration Division. The tasks of the Technical Division were also expanded by transferring the administration of frequency and

infrastructure matters to the department that is now called the Infrastructure Division. The new provisions of the telecommunications framework regarding the structure of telecommunications infrastructure will also be mostly handled by this division. The activities of the Operations Division were strengthened by hiring the human resources and quality manager considering the ECOI's increasing number of employees and quality certifications.

The review of the organisational structure took place in conjunction with the ECOI's vision for the future being re-examined. It is now worded in the following manner:

"The ECOI is an active partner in the development of a safe digital community and strengthening of competition."

The ECOI expects that through the altered organisational structure it will be possible to devote increased efforts to working towards a safe digital community where diverse and secure telecommunications services are available to consumers at reasonable prices. Among the ways in which these objectives can be achieved is by promoting cooperation and the sharing of telecommunications infrastructure where applicable and as circumstances allow.



Infrastructure

The Infrastructure Division is responsible for the organisation of telecommunications resources (frequencies and numbers) and the allocation of authorisations for these resources. The division also carries out surveillance of broadcasting, which includes measuring, addressing, and processing disruptions. Through mapping and analysis of current and planned telecommunications infrastructure and related infrastructure, the division promotes the construction of infrastructure in cooperation with government authorities and market participants. The head of the division is Þorleifur Jónasson. Other members of the division are Bjarni Sigurðsson, Hjalti Pálmason, Hörður R. Harðarson, Jósef Kristjánsson, Lilja Bjargey Pétursdóttir, Óskar Sæmundsson, Páll Sveinn Guðmundsson, Sigurður Ísleifsson, Sigurjón Ingvason and Þorgeir Sigurðarson.

Operations

The role of the Operations Division is to ensure continuous and streamlined operations, and to ensure that operations are consistent with the ECOL's certified quality procedures. The head of the division is Hrefna Ingólfssdóttir. Other members of the division are Ásta Guðrún Jóhannsdóttir, Birna G. Magnadóttir, Hanna G. Daníelsdóttir and Sigrún Davíðs.

Administration

The Administration Division, which combines the Analysis Division and the Legal Division, coordinates the ECOL's administrative matters as well as directing competition and consumer issues. Within the division, market analyses are carried out and restrictions imposed on those market participants that have a considerable market share. The head of the division is Björn Geirsson. The members of staff working in the division after the

changes are Arnar Stefánsson, Friðrik Pétursson, Guðmann Bragi Birgisson, Hulda Ástþórsdóttir, Óskar Hafliði Ragnarsson, Óskar Þórðarson and Snorri Þór Daðason.

Digital Security

The purpose of Digital Security, which is a new department, is to monitor the network and information security of digital infrastructure and providers of digital services, as well as the security and functionality of general telecommunications services. This division performs a coordination and advisory role for other supervisory authorities with the objective of promoting coordinated implementation of the NIS Act. In addition, Digital Security is responsible for monitoring trust services. The head of the department is Unnur Kristín Sveinbjarnardóttir, and other members of the division are Arna Hrönn Ágústsdóttir, Sigrún Lilja Sigmarsdóttir and Pétur Sævald Hilmarsson.

The CERT-IS cyber security incident response team

The principal role of the cyber security team CERT-IS is awareness of the state of cyber security issues, as well as to handle cyber security incidents when they occur. By having the cyber security team as an independent organisational unit, it is guaranteed that information and incidents will be handled independently and entirely separate from other divisions.

The director of CERT-IS is Guðmundur Arnar Sigmundsson.

The ECOI Staff Association

The ECOI Staff Association is a strong employee organisation that primarily maintains good morale and cultivates a good spirit among employees. The Staff Association works efficiently with the ECOI and arranges events of various kinds at regular intervals each year, with different themes depending on the season. The Staff Association also arranges trips abroad for educational and informational purposes, on average every two years. As with the previous year, the Staff Association had to take the COVID-19 epidemic into account when planning its events in 2021, so some of them took place in the real world, others on Teams and many smaller-scale events were cancelled.



Activities of the ECOI in 2021

Alterations to the legal environment and activities of the ECOI in 2021

On 1 July last year, a new Act on the Electronic Communications Office of Iceland, no. 75/2021, entered effect. This Act replaced the older Act on the Post and Telecom Administration. The principal innovations introduced by the Act are the new name, provisions regarding the cyber security team, provisions concerning security and civil protection, clearer authorisations to analyse the situation of telecommunications networks and the formulation of distribution forecasts for high-speed networks in addition to new provisions on progress, research, developments, and innovation, to name just a few.

The legal environment in which the ECOI works has developed quickly in recent years. On 1 September 2020, a new Act on cyber and information security for important infrastructure, the so-called NIS Act, entered into force. Subsequently, the cyber security team CERT-IS was made into an independent organisational unit and given a wider scope of authority. In its present form, the consequences of the NIS Act on ECOI operations will be that ECOI activities will double in three years. At present, work is being done within the EU on NIS2, which will significantly expand the scope of application of NIS and the approach taken in that Act.

Last year, Parliament also passed a new Act on the country-code top-level domain.is, and an Act that entails the transfer of monitoring of trust services from the Consumer Agency to the ECOI. Finally, Parliament passed an Act on the transfer

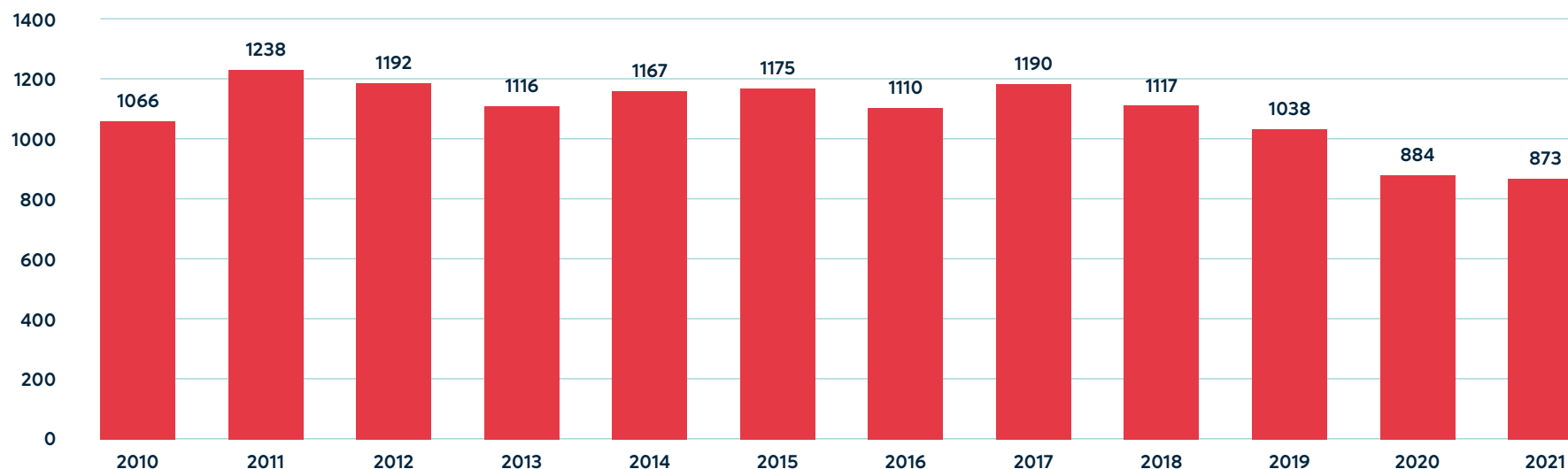
of monitoring of postal services from the Post and Telecom Administration (PTA) to the Regional Development Institute. This part of the former PTA's activities has featured quite prominently in the media, even though the efforts devoted to monitoring post have constituted less than 5% of its activities over the years.

Overall, it may be said that the effects of these changes are that the emphasis on various types of digital technology and security is significantly increased. There is also an increased emphasis on progress and innovation, considering, among other things, the fourth industrial revolution. This does not change anything regarding the continued emphasis on the development of the telecommunications market and the strengthening of competition, with more focus on introducing new technology in a cost-effective way.

Case handling time and case workload

In 2021, a total of 873 cases were added to the ECOI's case list, which is a similar number of cases as the year before, as can be seen on the bar graph below. It can be assumed that the COVID-19 epidemic resulted in fewer cases being referred to the ECOI than usual. Cases added to the list vary widely in nature, and included consumer complaints, disruption complaints, complaints about the basic running of the ECOI itself, as well as cases concerning employees' day-to-day duties, such as market and cost analyses, frequency allocations, the issuing of permits and inspections of telecommunications equipment in marine vessels, to give but a few examples.

Number of registered cases at the Electronic Communications Office of Iceland in 2010–2021

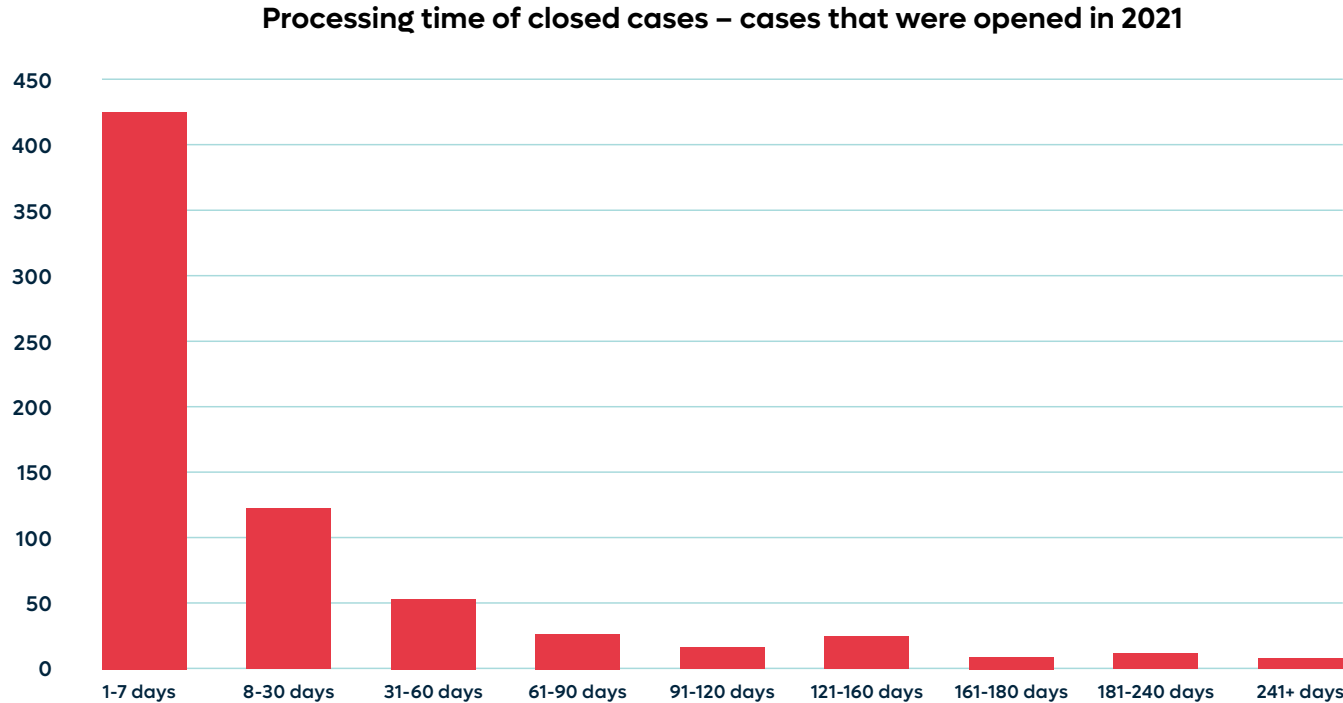


Pursuant to Article 12 of Post and Telecom Administration Act no. 69/2003, the ECOI is required to resolve complaints as soon as possible, and within four months at the latest, unless there are exceptional circumstances. In an ever-changing and fast-paced competitive market, it is important that disputes are resolved quickly and conclusively, without compromising quality standards.

Subsequently, the time it takes to process complaints lodged with the ECOI is monitored closely. Unresolved cases added to the list more than four months ago are designated yellow and cases older than eight months are designated red.

Of the 873 cases created in 2021, 672 fall into the category of case handling time. That is a significantly lower number than the number of cases received under normal conditions, yet quite similar to that received in 2020. When these numbers are added up for the beginning of 2022, a total of 685 cases were closed with the processing times indicated on the following bar graph.

There are therefore 39 complaints that remained unresolved, most of which were lodged in the latter half or towards the end of 2021. The graph indicates that a large majority of complaints, i.e., about 94%, were resolved within the mandatory 120-day time limit.





Various key figures from the activities of the ECOI in 2021

Frequencies allocated

Sound and television broadcasting	130
Backbone links (number of links)	40
Mobile station systems on VHF and UHF	45
MF and HF	0
Short-term radio broadcasting	45
Other temporary licences for Icelandic parties	15
Temporary allocations for foreigners	150

Codes allocated

Number of allocated codes	2.853.440
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Disruption complaints

Disruption complaints	424
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Issues of radio equipment permits

Aeroplanes	73
Marine vessels	463
Mobile surface stations – VHF	113
UHF mobile surface stations	1
Medium-frequency mobile surface stations – MF	0
VHF handheld stations	485
UHF handheld stations	57
VHF land-based master stations	4
UHF land-based master stations	0
Emergency locator transmitter (PLB)	2
Paging devices	0

Radio equipment inspections on maritime vessels and open motor boats

Boats shorter than 24 m, inspected by inspection agencies and the Icelandic Transport Authority	1.167
Boats longer than 24 m and ships	173
Pleasure craft inspected by owners	86

Inspections of boats and ships – by areas of the country

Reykjavík	39
The north-west constituency	26
The north-east constituency	32
The south constituency	41

The south-west constituency	18
Ships registered abroad	16
Ships inspected abroad/not by the ECOI	9

Issues of user licences

Radiocommunications licences, marine vessels (GOC)	98
Radiocommunications licenses, maritime vessels (ROC)	36
Amateurs, Icelandic	8
Amateurs, international	0
Amateurs, misc.	30

Registered ground stations

Fixed-base stations

VHF stations	345
UHF stations	53
MF-SSB stations	23
Paging devices	15

Vehicle-mounted mobile stations

MF-SSB stations	459
VHF stations	6963
UHF stations	192

Handheld stations and beacons

VHF stations	7.610
UHF stations	1.885
Transmitters (beacons)	44
PLB emergency buoys (406 MHz)	102
Miscellaneous equipment	98

Ship stations

MF-SSB stations	10
Combined MF/HF stations	187
VHF stations	3.043
Emergency radios	620
Transponders (X-band)	139
AIS transponders (VHF)	119
Navtex	201
Emergency buoys, free-floating (406 MHz)	355
Emergency buoys in lifeboats and on board (406 MHz)	2.424
Inmarsat B	0
Inmarsat C	218
Inmarsat M	4
Automatic identification systems (AIS)	1.839

Allocations of registration numbers

Numbers for ships	300
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Overview of publications

A list of all the ECOI publications can be found on the ECOI's website: [ÚTGEFID EFNI \(FJARSKIPTASTOFA.IS\)](http://utgefid.efni.fjarskiptastofa.is).

Comparative statistics on the use of electronic communications in eight countries

A statistical report is published annually by the ECOI in cooperation with its sister institutions in the Nordic countries and in the Baltics. The report gathers comparative data on the use of the main electronic communications services and on developments over recent years in all eight countries. Overall, the use of electronic communications is very similar in these countries and their citizens use comparable technologies in a similar way. Despite this, there are nonetheless variations in the usage and development of specific services.

The Nordic comparative report can be accessed on the ECOI's website under Publications.

Statistical reports from the ECOI

Twice a year, the ECOI gathers data from telecoms companies registered in Iceland on various metrics relating to telecommunications operations and services. The ECOI processes this data into statistical reports that summarise the main metrics and companies operating on the Icelandic telecommunications market. The reports are published twice a year: in the second quarter for the whole preceding year and a mid-year status update in the fourth quarter. The aim is to improve information provision and increase transparency on this market. The ECOI's reports are equivalent to those published by its sister institutions in neighbouring countries. The reports can be found on the ECOI's website.

The trend for mobile phones that was seen in previous years continues, with both users and minutes decreasing from one year to the next; this decrease in the number of customers and minutes is mainly seen in households rather than companies. Landline subscribers decreased by 6.1% between years and the number of minutes decreased by 17.2%. Síminn and Vodafone are the biggest companies on the landline market, with a combined share of around 88% at the end of 2021.

The total number of mobile phone subscriptions increased slightly from the previous year, by about 4.5%. There was an increase in contract subscriptions, whereas the number of prepaid subscriptions decreased. The number of mobile phone minutes was 1,137million in 2021, compared to about 1,124 million minutes the previous year, which means that the number of

minutes grew by only 1.0%, which can probably be attributed to less remote working in 2021 due to COVID-19.

Mobile phone cards for devices that are in automatic communication with other devices, called Machine-to-Machine or M2M cards, for mobile communication networks increased significantly in number between 2020 and 2021, from 112,188 to 1,179,191 cards at the end of 2021.

The mobile network data volume continues to increase, although the rate of this increase is somewhat slower, having been about 25% between the years, and as in recent years this increase occurred in connection with the introduction of 4G. Relatively more mobile network data is used by phones than devices that are solely intended for data usage, e.g. tablets or 4G network equipment.

Internet connections increased slightly between the years, whereas the number of fibre-optic connections increased significantly at the same time as there was a decrease in xDSL connections, and at the end of 2021 fibre-optic connections accounted for a little over 75% of all internet connections. There are currently about 107,000 fibre-optic connections.

The total data volume on permanent networks increased by just over 20% from the previous year, with about 88% of the data volume resulting from downloads and 12% from uploads.

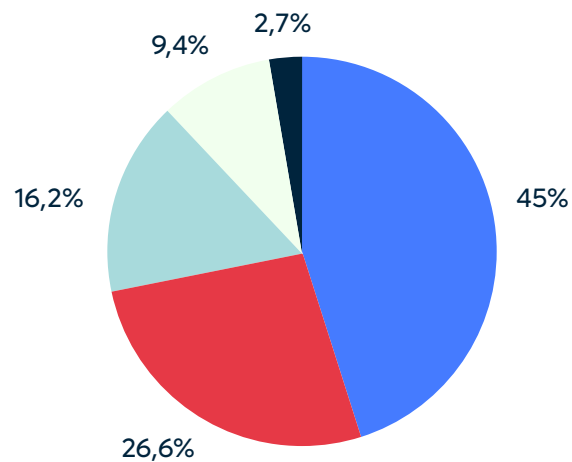
Subscribers of television by IPTV were 84,798 at the end of 2021, a decrease of nearly 4% from 88,109 the previous year.

Turnover in the telecommunications market increased in 2021; revenue from landlines and permanent networks saw a decrease whereas revenue from mobile phone usage, data transmission and internet services, television services and other mass media communication has increased.

Investment on the telecommunications market is mostly in permanent networks, such as in connection with the installation of fibre-optic cable and mobile phone operations.

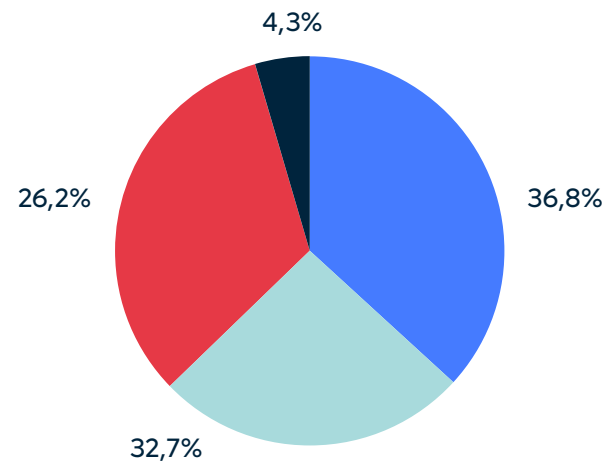
Number of internet connections

Market share by company



Mobile subscriptions

Market share by company



Cyber and information security

Cyber and information security is becoming an ever more important part of the issues concerning response and security for society, and the ECOI plays a key role in this regard. The ECOI operates the cyber security team CERT-IS, monitors security arrangements and the function of important infrastructure, and is a party to the Cyber Security Council, which is the platform for cooperation with government authorities with the role of implementing government policy on cyber and information security. The ECOI also maintains a website containing information for the public on cyber security, www.netöryggi.is, and cooperates with parties who work on cyber security issues.

Activities of the cyber security team CERT-IS (cyber emergency response team)

One of the entries from [THE CERT-IS ANNUAL REPORT FOR 2021](#) is as follows:

On 1 September 2020, the Act on cyber and information security for important infrastructure, the so-called NIS Act, was introduced in Iceland. At this turning point, the role and organisation of the cyber security team CERT-IS was greatly strengthened and it has grown in step with expanding emphases and responsibilities.

In the new coalition agreement, one of the major challenges ahead is digital transformation, which will include targeted efforts towards strengthening cyber and telecommunications

security. It is the assessment of CERT-IS that cyber security is a vital prerequisite for digital transformation. The team has a well-defined coordination role in communicating information and providing consultancy on responses to incidents concerning important infrastructure, as well as maintaining proper situational awareness regarding cyber security issues at national level and communicating this within the Icelandic network domain and to foreign cyber security teams.

To promote strong incident response, CERT-IS has recently been working towards establishing field groups of operators of essential services. At present, field groups have been activated for financial infrastructure, telecommunications infrastructure, and energy infrastructure. With the activation of the field groups, parties responsible for important systems infrastructure will be able to provide tighter cyber security with more cooperation.

To meet the obligation CERT-IS must maintain situational awareness about this policy area in Iceland, CERT-IS intends to focus on processing detailed information from the indicators which the team receives and make it accessible to the public and service groups, including with reports such as this one. There will be an emphasis on improving cooperation with foreign cyber security teams, which is important since in a digital world cyberattacks usually do not occur with any consideration of conventional national borders. It is important that Iceland can contribute to international cooperation in this regard.

Digital security activities

Digital Security is a new division within the ECOI that was founded in conjunction the alterations to the organisation of the ECOI upon the Act on the Electronic Communications Office coming into effect on 1 July 2021. The activities of this division include monitoring the organisation of security issues and the activities of telecommunications services in this country. This division is also responsible for monitoring security issues relating to digital infrastructure and providers of digital services under the NIS Act. In addition to providing monitoring under said Act, the division has a leading role in the cooperation of all government authorities that are responsible for monitoring other fields relating to important infrastructure under the Act. The ECOI serves as an advisory coordinating authority for them with a view to promoting coordinated implementation of the Act.

These activities within the division involve having a specific policy direction for how to structure monitoring of the security of network and information systems for important infrastructure in this country, along with conducting actual monitoring. Monitoring generally involves audits and inspections of the functionality of how security issues are organised by individual parties. These are preventive actions, as a well-organised and efficient security framework is a key factor for defending against the threats that exist regarding systems and services provided by the aforesaid parties. However, monitoring also involves investigating any incidents and risks that may arise and influence the services

provided by telecommunications companies and the companies that are subject to the ECOI's monitoring under the NIS Act.

The division has published policies on monitoring of the security and efficacy of telecommunications and digital infrastructure, and works in accordance with those policies. In this manner, the division implemented the integral risk assessment of important telecommunications infrastructure at the end of the year. The report on that implementation was then communicated to the National Security Council. The division also carried out self-assessment audits of the security organisations of digital infrastructure operators during the year. The findings of self-assessment audits form the basis for the prioritisation of audits by the division.

In October 2021, monitoring of Act no. 55/2019 on Electronic Identification and Trust Services for Electronic Transactions was transferred from the Consumer Agency to the ECOI, and this monitoring is one aspect of the division's activities. Many of the tasks that are based on this Act concern awarding providers of trust services a fully validated position in that field. In addition to this, the ECOI has an obligation to investigate incidents that occur and to maintain a trust list for Iceland.

Finally, it is worth mentioning that the division also acts for the ECOI based on Article 13 of Act no. 54/2021 on Icelandic domain names, which was passed by Parliament on 27 May 2021.

The electronics communications market

The electronics communications market is constantly changing in step with technological developments and changes in the legal environment, both in Iceland and on an international level.

Cooperation between mobile phone companies and Neyðarlínan emergency phone line on mutual roaming

In a letter from Neyðarlínan ohf., dated 4 November 2020, the then PTA received a request for the company's authorisation to work together with Síminn hf., Sýn hf. and Nova ehf. (the mobile network companies) by using the telecommunications facilities of Neyðarlínan ohf. to share transmitters and frequencies in places where the market has failed.

The letter from Neyðarlínan ohf. stated that the cooperation would involve transmitter locations in smaller areas in the country, which are often located far away from populated areas or in very sparsely populated places, and that have in many cases been installed with financial support from the Telecommunications Fund.

Neyðarlínan ohf. referred to the obligations which the company has in its role as a universal service provider for telephone and internet service in particular cases, cf. PTA Decision no. 9/2020. Under certain circumstances, the most practical solution would be to provide the service through a mobile network

connection. The intention would then be to negotiate with one telecommunications company regarding the installation of a transmitter in facilities that belong to Neyðarlínan ohf., and to ensure equal treatment of the telecommunications companies there would be a requirement for their roaming access. This would ensure mutual roaming for the telecommunications companies at the transmitter locations of Neyðarlínan ohf. that are constructed with government support or activated to meet a universal service obligation which the company is required to provide.

It was not the function of the PTA and is not the function of the ECOI to approve cooperation of this sort. However, the PTA, considering its role, considered this and decided to issue an opinion of the effects this cooperation would have on the telecommunications market in general, and it also had to be taken into consideration that the planned roaming cooperation required the sharing of frequencies by the telecommunications companies for technical reasons, which required approval from the PTA.

The PTA reviewed a draft of the intended cooperation agreement with reference to directions from the Body of European Regulators for Electronic Communications (BEREC) which, among other things, include the perspectives which supervisory authorities must consider when assessing cooperation agreements between telecommunications companies regarding sharing of facilities and technical equipment.

After reviewing the draft of the agreement, which included a consideration of the objectives and scope of the agreement as well as the role of Neyðarlínan ohf. as the implementing party of the cooperation, the PTA found in April of last year that the intended cooperation was consistent with the objectives of the Electronic Communications Act and the government's plans for providing the people of Iceland with access to a high-speed mobile network service, and also that the cooperation could result in a benefit for users in the mentioned areas which they otherwise would possibly not have enjoyed. Also approved was the sharing of frequencies by the telecommunications companies for this project.

Prohibition of the installation of terminals in public telecommunications networks

Confidentiality of communications is closely related to personal privacy. Communications between people on telecommunications networks involve personal information which may not be intercepted or recorded without their consent or legal authorisation. Telecommunications networks create so-called teletraffic data, which are data about which customer of a telecommunications company is the user of a specific telephone number, IP number or username, in addition to information about all connections which the user has made, their dates, to whom the connection was made and the amount of data transmitted to the relevant user. Telecommunications companies have an obligation to ensure the security of teletraffic information.

Through signalling in general telecommunications networks, it is possible to locate the user's terminal and consequently

the location of individuals. Such information also constitutes teletraffic data, which is subject to specific rules. It is only permitted to process such information in such a way that it cannot be traced to individual users or subject to approval from users. An important exception is authorising emergency responders such as police, paramedics, and firefighters to locate emergency phone calls from users, if this is technically possible. If information regarding the location of terminals in telecommunications networks is processed for any other purpose, this constitutes a violation of personal privacy.

According to Decision no. 8/2021, the ECOI found that IMC Ísland ehf. (IMC) was in violation of the Electronic Communications Act when subscribers of a foreign telecommunications company were made to disclose their location with signalling from an Icelandic number without their knowledge or consent.

IMC had been allocated a numbering range from the Icelandic numbering scheme from the ECOI. The number in question had then been allocated by agreement to another company, the activities of which included locating users of public telecommunications networks. Even though the telecommunications (signalling) that were under investigation in the case took place in another country, the use of numbers allocated by the ECOI is subject to Icelandic jurisdiction and Icelandic law.

In the opinion of the ECOI, no satisfactory data was presented to support the explanation from IMC that the consent of users had been provided for the processing of the location information, as required, nor that the party with whom IMC had made the agreement was an accredited emergency service provider that was permitted to process such information without first obtaining consent. The ECOI considered that IMC was responsible for

unauthorised signalling being transmitted from the number to the user's terminal, and therefore that the company had violated the Electronic Communications Act.

Reorganisation of frequency allocations in 2022 to 2023

In February 2022, the term of validity expired for a great many frequency authorisations for general mobile network service. Furthermore, several frequency authorisations will also expire at the end of March 2023. The ECOI decided that the renewal of frequency authorisations for longer periods or 20 years should take place based on the new Electronic Communications Act. Since the bill for the Electronic Communications Act was not passed during the parliamentary sessions of 2021, the ECOI called a consultation meeting to discuss its intention to renew the frequency authorisations with terms of validity until February 2022 temporarily and for short periods until the end of March 2023. In this way it would also be possible to achieve harmonisation of the terms of validity of most of the frequency authorisations for general mobile network service, i.e., until 31 March 2023. The short-term renewal previously mentioned was subsequently implemented in December 2021.

In the aforesaid consultation, the ECOI also looked to the future and outlined the principal commitments which it intended to attach to the renewal of frequency authorisations for the longer term. Among the issues addressed in the consultation document were the ECOI's ideas about the utilisation of the frequency spectrum and further expansion of high-speed mobile networks, such as on Iceland's trunk roads and in average-sized population centres.

Briefly, it may be said that the ECOI intends to require that the general expansion of 5G-service will not be of lesser quality, all things considered, than applies to mobile network services with due consideration of current and older technology. It also intends to determine the quality of the service according to defined requirements which BEREC has formulated. The ECOI also intends to stipulate specific requirements for construction. Firstly, the installation of a 100% uninterrupted high-speed mobile network service on the trunk roads of the country and secondly an increase in the rate of installation of 5G service in small and average-sized population centres. The ECOI has arranged for an estimate of the cost of the first requirement and is now publishing the estimate along with the decision from the consultation. It should be stated here that the cost of the implementation varies depending on what scenarios are examined.

In general, it may be said that frequency authorisation holders reacted favourably to the ideas of the ECOI regarding the installation of high-speed mobile network service over the next years, at least judging from the responses received during the consultation. On the other hand, it is natural that they reserve the right to present their opinions regarding the way the implementation will take place, something which has not yet been determined. The ECOI aims at consulting specifically with frequency authorisation holders regarding the aforesaid construction plans in the summer/autumn of 2022.

We are now at a crossroads in time where highly developed and powerful telecommunications technology will influence the entire social structure. This has been called the fourth industrial revolution, whereby various infrastructure in society will be directed by networked units that will be equipped with artificial intelligence. Telecommunications infrastructure and services will

therefore be a kind of mechanism for society rather than just a medium for communication and entertainment.

The construction of the aforesaid telecommunications infrastructure will require considerable investment in telecommunications networks and equipment. In this regard, it is generally assumed that frequency authorisations will have to be allocated on a long-term basis so telecommunications companies will have an opportunity to recover their investment. It is also expected that in certain areas of the country, the construction will not be financially sustainable under normal market conditions and that coordinated efforts between interested parties will be required for the joint installation of telecommunications infrastructure and the sharing thereof.

Due to the importance of high-speed mobile network service for the community in years and decades to come, it is important to ensure that all users will have access to it and that its geographical coverage will be as extensive as possible, i.e. that it will at least reach to unpopulated areas that see a lot of traffic, such as the principal trunk roads of the country and popular tourist destinations.

Monitoring the airwaves – ECOL interference monitoring

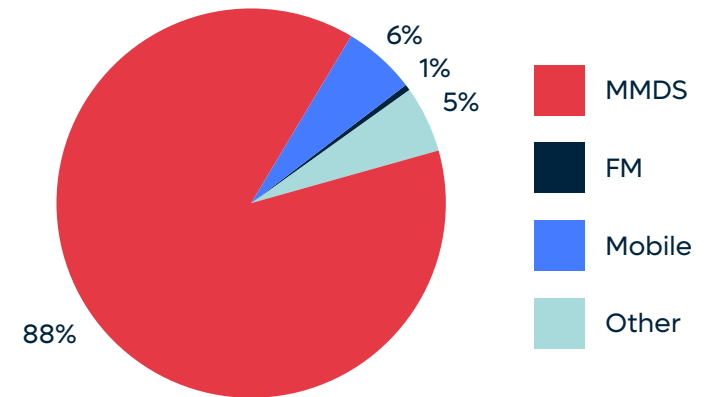
The frequency spectrum is a limited resource determined by nature, and it must be used in an efficient manner to have a telecommunications network that can function without interference. Technologically speaking, communications devices are rapidly becoming ever-more advanced and it is therefore necessary to manage the frequency spectrum effectively. This is a key point in ensuring the interoperation of various radio systems without them interfering with each other. Spectrum monitoring serves as the eyes and ears when it comes to the organisation and allocation of frequencies. Permission to use a frequency under a frequency authorisation is not a guarantee that the frequency will be used as described in the ECOL's authorisation. Frequencies are used 24 hours a day, seven days a week, all year round. Most electronic communications companies that provide services on an allocated frequency range maintain 24-hour monitoring of the services.

Work on disconnecting MMDS antennae in the Reykjavík area continued in 2021. A total of about 600 MMDS antennae were disconnected in 2021. Fewer homes were visited due to COVID-19 restrictions, but a number of households and businesses were asked to disconnect MMDS antennae. Owners received a letter with instructions on how to disconnect their antennae.

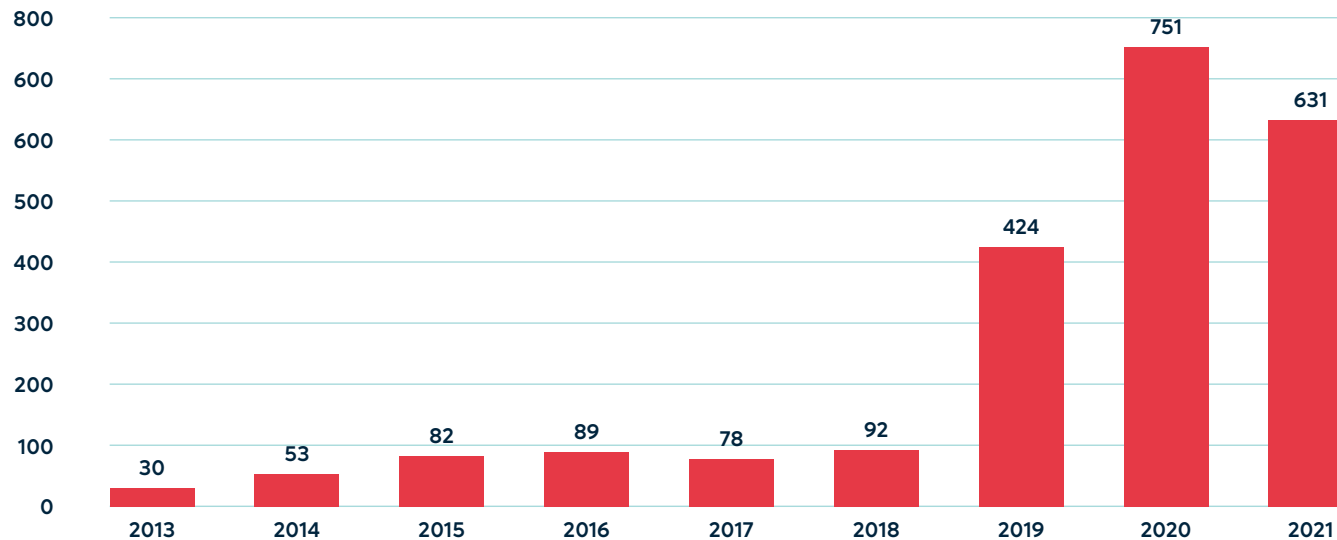
Overview of radio disruptions in 2021

Disruptions caused by microwave antennae (MMDS) account for about 88% of the disruptions dealt with, as the cause of the disruptions can be traced to obsolete but still functioning microwave antennae. Other disruptions to mobile phones account for 6% whereas disruptions to other systems account for about 6%.

Disruptions 2021



Number of disruptions



Access to telecommunications services

The authorities emphasise the importance of achieving a level of access to telecommunications services that is among the best available in the world. This is reflected in the goals of the authorities that are stated in both the budget for 2020–2024 and in the proposed parliamentary resolution for an Electronic Communications Plan for 2019–2023.

Access to broadband is still increasing, and this is especially because of the Telecommunications Fund project for providing fibre-optic connection to the rural areas of the country.

The remainder would then be rural areas with a high population density. Today, nearly all these places have high-speed connections based on xDSL technology. The government considers that evidence of market failure has not been demonstrated regarding the rollout of fibre broadband in rural population centres. Pressure from local authorities and residents is likely to result in market-driven efforts to improve high-speed connections in these areas over the following years, either through

the installation of fibre broadband cables, the development of powerful 5G services or a combination of these solutions.

Nearly all homes and workplaces in Iceland have access to mobile network services with voice communications and high-speed internet. High-speed internet can certainly vary in quality, and it is likely that the quality will be different in urban and rural areas. This difference in quality will be assessed through planned quality measurements that are intended to take place once net neutrality laws are on the statute book.

The situation is somewhat different when it comes to access to mobile network services along Iceland's highways. Accessibility goals have not been fully realised there. It is clear that market participants and the authorities face the challenge of improving mobile network access in Iceland along the country's highways. This is also of particular importance in connection with the development of 5G mobile network services in the long term.



The ECOL's market analyses of the telecommunications market in 2021

Market analyses of the electronic communications market form a significant part of the ECOL's operations. They constitute the most important policy instrument for the ECOL to strengthen competition and thereby support fair pricing, innovation, and improved access to services across the country. They are used to strengthen competition by analysing the position of players on the market and by imposing appropriate obligations where competition is not considered adequate. Market analyses are the basis for decisions on whether to impose, maintain, change, or lift specific regulatory obligations on electronic communications companies that have been designated as having significant market power.

The implementation of a market analysis report can be divided into three phases:

1. Defining the relevant service markets and geographical markets.
2. Analysing all markets, determining whether there is active competition on these markets and deciding whether there are one or more companies with significant market power.
3. Deciding whether restrictions should be imposed, amended, or withdrawn regarding companies with significant market power.

The ECOI carries out analyses of the markets specified in the recommendation from the EFTA Surveillance Authority (ESA) in accordance with the Electronic Communications Act and Iceland's obligations under the EEA Agreement. Furthermore, the Electronic Communications Act requires the ECOI to define these markets in accordance with the circumstances specific to Iceland. The ECOI's market definitions may therefore be expected to vary from those in the recommendation. In addition, the ECOI is permitted to investigate additional telecommunications markets over and above those specified in the recommendation. The ESA recommendation currently in force was issued on 11 May 2016 and lists fewer markets than in previous ESA recommendations on the same subject, published in 2004 and 2008, respectively. Few markets in the recommendation from 2008 were considered to still satisfy the requirements for imposing advance restrictions. The markets that must be reviewed under the current ESA recommendation from 2016 are the following wholesale markets:

Market 1: Voice call termination on individual public telephone networks provided at a fixed location

Market 2: Voice call termination on individual mobile networks

Market 3: a) Local access provided at a fixed location
b) Central access provided at a fixed location for mass-market products

Market 4: High-quality access provided at a fixed location

The PTA's analyses of the following wholesale markets, based on the ESA recommendation from 2008, remain in effect:

Market 4: Network infrastructure access (including shared or fully unbundled access) at a fixed location (PTA Decision no. 21/2014)

Market 5: Broadband access (PTA Decision no. 21/2014)

Market 6: Terminating segments of leased lines (PTA Decision no. 8/2014)

Market 7: Voice call termination on individual mobile networks (PTA Decision no. 20/2015)

In addition to this, the analysis of the following wholesale market based on the ESA recommendation from 2004 remains in effect:

Trunk line segments of leased lines, previously market 14 (PTA Decision no. 21/2015)



Primary focuses of 2021 market analyses

During the year, the ECI's wholesale markets were analysed in accordance with the ECI's annual plan, and the analyses of the markets 3a, local access provided at a fixed location, and 3b, central access provided at a fixed location for mass-market products, were completed by PTA Decision no. 5/2021 of 19 October 2021.

The following markets were also analysed in 2021:

Market 4: High-quality access provided at a fixed location (previously Market 6/2008)

Market 14/2004: Trunk line segments of leased lines

Furthermore, continued emphasis will be placed on enforcing the obligations that have been imposed as a result of market analyses, particularly on cost analyses of wholesale prices and reviews of reference offers.



Main obligation enforcement cases in 2021

The principal projects concerning price rulings and cost analyses in 2021 were as follows:

- Reminder sent to Míla regarding the current requirements that apply to Míla's IP/MPSL network – 20 December 2021
- ECOI Decision no. 8/2021 – Re-examination of Míla's wholesale tariff for hosting and electricity – 26 November 2021
- ECOI Decision no. 7/2021 – Wholesale rate for call termination in individual mobile networks – 29 October 2020
- ECOI Decision no. 6/2021 – Wholesale rate for call termination in public telephone networks provided at a fixed location – 29 October 2020
- PTA Decision no. 5/2021 – Re-examination of Míla's wholesale tariff for trunk line segments of leased lines – 26 April 2021

Market analysis of local loop and bit stream markets

In October last year, the ECOI completed its analysis of wholesale markets for local loops (local access provided at a fixed location; market 3a and bit stream access (central access provided at a fixed location for mass-market products; market 3b, cf. PTA Decision no. 5/2021.

This is one of the most extensive projects which the ECOI has ever taken on. In market analyses, market conditions must be assessed with due consideration of, among other things, the relevant area of the country and the substitution of different telecommunications technology for another. The retail market and the market share of telecommunications companies must be considered. The interaction of various assessment factors has become more complex over the years due to the increasing number of companies in the telecommunications market, especially regarding local fibre-optic networks. All this work requires extensive data collection and consultation with market participants as well as processing of data and notes submitted.

Furthermore, the ECOI must work in consultation with the EFTA Surveillance Authority (ESA) to make the first draft of the findings of the market analysis which the institution carried out in mid-September 2021. One month later a reply was received from the ESA whereby the ECOI was authorised to decide based on the draft that had been completed. However, the ESA did submit several notes regarding the market analysis, and these can be

found in Appendix D to the ECOI's decision.

The ECOI found that the designation of Míla ehf. (Míla) as a company with considerable market power and the requirements set for that company in the aforesaid markets should remain unchanged. Despite the advent of Gagnaveita Reykjavíkur ehf. (GR) and other local networks, Míla's market share remained about 57% and significant barriers to entry still prevail in the relevant markets in the assessment of the ECOI. Furthermore, the ECOI designated the parent company of Míla, Síminn hf. (Síminn), as a company with considerable market power in the relevant markets, and accordingly stipulated that the company was subject to certain requirements, whereas the group which the companies form (Síminn Group) is one economic unit in the sense of competition law.

Market 3a covers access to copper and fibre-optic local loops, as the ECOI considers that there is substitutability between such local loops. The same applies to bit stream connections over such local loops in market 3b.

The ECOI considered that the entire country should still constitute the geographical market, even though competitive conditions were still seen as somewhat uneven between the municipalities of the country. On the other hand, the ECOI did not find that they were uneven enough to justify geographically separated



markets, although it did consider them uneven enough to justify milder requirements in 17 further specified municipalities in the country, including the greater capital area in its entirety. Due to the unstable competitive conditions in many of these municipalities, the ECOI will carry out a new assessment of the geographical conditions regarding the aforesaid markets, which will be completed before the end of 2022.

The ECOI imposed appropriate requirements on Míla and Síminn in the relevant markets to strengthen competition in telecommunications. These are requirements concerning access, equality, and transparency, as well as monitoring of tariffs and keeping a cost-accounting system. Síminn Group has not been subject to a requirement for monitoring of tariffs regarding optical

cable. Instead of requiring Míla to cost-analyse the prices for such products, the ECOI imposed a less strict requirement whereby the Group had to pass a so-called Economic Replicability Test (ERT), which entails a certain degree of restraint when it comes to pricing the Group's fib-re-optic products at the wholesale and retail level. The ECOI will at a later stage make a specific decision regarding the implementation of the aforesaid ERT-requirement before it will be possible to carry out such a test.

It is appropriate here to note that at the end of last year Míla and Síminn appealed ECOI Decision no. 5/2021 regarding the aforesaid market analysis to the Committee for Electronic Communications and Postal Affairs, where the case is currently under consideration.

Advisory recommendation regarding the handling of reports from interested parties in connection with market analyses

The ECOI's time-consuming and extensive market analysis of local loop and bit stream markets last year was an important learning experience. The ECOI realised that it would be necessary to look for ways in which to speed up the procedure for performing market analyses and make that procedure more targeted, without impairing the quality of market analyses. One of the most important aspects in this regard was to make all processing of data more efficient and simpler.

By their very nature, market analyses can get quite comprehensive and detailed. With the addition of notes from interested parties, which can also be detailed in nature due to the interests that are at stake, the text of such analyses can become quite long and even convoluted. Among the consequences of this is the long time it takes to process market analyses, something which it is important to shorten as much as possible.

As a remedial measure for the administrative practice that applies to market analyses, the ECOI embarked on a consultation with market participants at the end of last year with the aim of issuing an advisory recommendation regarding the notes from interested parties in connection with the analyses. The objective of the recommendation would be to improve the process for investigating cases and collecting data for market analyses, by making it more efficient and precise and shortening the processing time. One aspect of this would be to improve the clarity and presentation of reports from interested parties, which should result in less work for all parties concerned and improve the organisation of the work and the handling of case documents.

After consideration had been given to the notes submitted during the consultation, the recommendation was issued at the beginning of this year.



Postal market up until the relocation to the Regional Development Institute

This part of the PTA's activities has featured quite prominently in the media, even though the efforts devoted to monitoring post have constituted less than 5% of its activities over the years.

An alteration occurred in 2021 in that supervision of postal services was transferred to the Regional Development Institute on 1 July 2021. Under Act no. 76/2021 regarding the amendment of the Act on Postal Services and the Act on the Icelandic Regional Development Institute (relocation of postal matters), which took effect on 1 July 2021, Act no. 98/2019 was amended to the effect that tasks and obligations pertaining to postal matters were transferred from the PTA to the Regional Development Institute.

The new Act on the Electronic Communications Office of Iceland, no. 75/2021, entered into effect at the same time.

It is therefore appropriate to briefly describe the PTA's principal tasks in the field of postal matters up until 1 July 2021.

The PTA determines the universal service contribution for Íslandspóstur ohf.

Under Decision no. 1/2021, the PTA decided the contribution for Íslandspóstur (hereinafter ÍSP) for universal service which the company provided in 2020.

The state's, and thereby ÍSP's, exclusive right to distribute letters lighter than 50 g lapsed on 1 January 2020. Simultaneously, the special authorisation was revoked that had been granted by older laws to allow the inefficiency inherent in the systems of ÍSP for universal service to be included in the cost base of the company within the scope of exclusive rights.

According to the Act on Postal Services, all people in Iceland are entitled to universal service that meets certain quality standards and is provided for a reasonable price, cf. paragraph 1 of Article 9 of the Act on Postal Services.

According to PTA Decision no. 13/2020, the PTA would, without nomination, not provide postal services in certain locations in the country and/or provide services in altered form if the company could support this by citing traditional commercial viewpoints. Based on that finding, about 15% of postal addresses would therefore not receive the defined minimum service.

	Address	Workplace	Total	Proportion
Active	116.489	14.409	130.898	85%
Inactive	19.195	3.883	23.078	15%
Total	135.684	18.292	153.976	100%

The service to which most importance is attached today is the distribution of packages as part of universal service, a position that was for a long time held by the letter. Even though sending letters by post is still considered quite important today, the altered communication pattern and the increase in various electronic services has detracted from the importance of the letter, and the number of letters as a proportion of total post carried has kept decreasing and all signs point to this development continuing in years to come. Service in connection with the distribution of packages is by contrast likely to keep increasing.

Application from Íslandspóstur

The application from the company includes the following service classes:

- Domestic letters 0–2 kg
- Domestic packages 0–10 kg
- Domestic traceable letters

ÍSP also applied for a contribution due to the obligation which the company has to offer the same list of tariffs for universal service throughout the country, cf. paragraph 2 of Article 17 of the Act on Postal Services, and to provide certain postal services for blind people free of charge.

In accordance with PTA Decision no. 13/2020, the company's cost for universal service is divided into the following classes:

- Net cost of distribution of post delivered by land
- Net cost of distribution to urban centres with fewer than 750 companies/households
- Net cost of having the same tariff throughout the country for universal service products
- Net cost of items sent for blind people

Consistent with this division, the net cost of ÍSP was ISK 509 million in 2020, itemised as follows:

Net cost 2020 (universal service)	Amount in ISK million
Post sent by land	-257
Areas under 750	-181
Post sent for blind people	-15
Harmonised list of tariffs	-126
Total:	-579
Expected rate of return	-17
Streamlining for packages 11–20 kg	30
Market gain	30
Streamlining requirement	27
Total net cost:	-509

The PTA's decision therefore confirms that the precautionary contribution granted to ÍSP by PTA Decision no. 29/2019 in the amount of ISK 250 million was justified, and that amount is deducted from the ISK 509 million.

The PTA's decision also refers to the cost assessment included in the memorandum to the Act on Postal Services, which was based among other things on the analyses previously made regarding ÍSP's universal service cost, by the PTA, the Economics Department of the University of Iceland, and Copenhagen Economics. The PTA's findings in the decision that appears here is comparable in many regards, as the same subject matter is always under discussion, i.e., to analyse the net cost for a universal service provider to provide service in locations where it cannot be provided on a commercial basis. The cost is then divided according to certain rules of division into ÍSP's individual product categories, i.e., letters and packages.

To the conventional cost for universal service, which is particularly due to distribution in inactive market areas, are now added payments for requirements connected to pricing of services within universal service, in addition to which costs for post sent for blind people are now analysed separately. In the PTA's decision, attention is also drawn to the fact that it seems no analysis has been carried out by Parliament regarding the potential financial consequences of the requirement to have the same list of tariffs throughout the country.

Regarding unreasonable burden

The PTA also found that ÍSP's net cost for universal service was an unreasonable burden for the company, and if no compensation was paid for this it would have a considerable impact on the company's ability to maintain operations and its competitive potential, and could thereby jeopardise its financial position, cf. paragraph 3 of Article 12 of the Act on Postal Services. This would especially apply if the net cost remained the same over the next few years without any direct payment to compensate the company for this in some way.

Regarding auditing

If no amendments are made to the Act on Postal Services, it may be assumed that the state will end up having to pay a contribution to ÍSP in the next few years. As stated in the PTA's decision, the payment is for services which companies would generally not provide if conventional commercial viewpoints prevailed. Calculations of net cost are based on the company's cost model and performance in the areas of the country that are considered inactive market areas, along with the cost resulting from the harmonised list of tariffs and cost from providing postal service free of charge for blind and visually impaired people.

ÍSP's cost accounting system must at each time reflect the correct cost share of the product which the company offers, and it is assumed that the services within universal service will mostly bear the cost of the distribution system, whereas services outside universal service will bear the additional cost consistent with the use of the distribution system.



There has been a great deal of change in both the internal and external operational environment of ÍSP in recent years: exclusive rights have lapsed, the amount of packages sent has increased dramatically and the amount of letters sent has decreased, the universal service requirement was changed from 0–20 kg to 0–10 kg and a new requirement for one list of tariffs for the entire country has been established for packages, to name but a few things. Among the effects of all these changes is that the cost share for the distribution system is shifting from the delivery of letters to the delivery of packages. It is therefore necessary to re-evaluate the cost participation of product classes within the model in general. The re-evaluation was to have been completed by 1 September 2021 in accordance with item 8 of the statement in PTA Decision no. 13/2020, which addresses the duration of the nomination and review of individual provisions thereof.

Rules on government grants

The PTA's decision also includes a discussion of whether the contribution is consistent with the SGEI decision and the Altmark decision, and it is the PTA's assessment that this is the case.

Mitigating measures

In the PTA's decision, it is pointed out that the government can always choose to take certain mitigating measures for the purpose of lowering the state's cost from universal service. This applies equally to certain aspects of the service, such as the frequency of distribution, less restrictive requirements in connection with the delivery of post in central locations of delivery and/or alterations to the requirements connected with lists of tariffs within universal service with the relevant amendments to laws and regulations.

The PTA's surveillance of universal service tariffs and commercial terms

The PTA issued PTA Decision no. 10/2021, Íslandspóstur's list of tariffs for packages sent domestically within universal service.

Among the findings in the decision was that the then-current list of tariffs for packages within universal service was consistent with Article 2, cf. paragraph 3 of Article 17 of Act no. 98/2019.

Citing paragraph 7 of Article 17 of the Act on Postal Services no. 98/2019 in support, the PTA on the other hand sets the requirement that Íslandspóstur ohf. re-examine the division and allocation of cost in the company's cost model, and this re-examination was to have been completed before 1 September 2021.

Furthermore, the PTA required that the alterations that needed to be made to the company's list of tariffs for sending packages due to the amendments made by Parliament to paragraph 2

of Article 17 of the Act on Postal Services, cf. Article 4 of Act no. 76/2021, be completed as soon as possible. In that regard, the PTA referred, among other things, to the cost to the state of universal service, the committee report from Parliament discussing the consequences of older legislation and the wording of Article 13 of Act no. 76/2021.

On 1 July 2021, ÍSP made changes to the company's list of tariffs for letters sent abroad, and from that date onwards only one "stream" has been offered, i.e., letters for abroad, and B-mail has thereby been discontinued. At the same time, a flat 6% increase was added to all weight classes for foreign countries. The statement from the PTA that was issued on 30 June 2021 specifies, among other things, that the PTA does not see any reason to submit notes on the aforesaid changes.

Rulings made by the Committee for Electronic Communications and Postal Affairs

The Committee's Ruling no. 2/2021, dated 15 September 2021, confirmed PTA Decision no. 16/2020, whereby the PTA found that there were no grounds to comment on ÍSP's changes to the company's tariff for bulk postage.

This conclusion was partly based on the changes to the calculation rules for special bulk postage tariffs made in the Act on Postal Services no. 98/2019. An independent cost analysis of how the company benefits from bulk transactions is no longer required. The Committee's view was that, among other things, there were no significant defects in the proceedings that could lead to the invalidation of the appealed decision. Furthermore, the Committee did not find that there was reason to re-examine the PTA's assessment that more would be required than a 2–5% cancellation of the total discounts given for the altered list of tariffs to use the authorisation to require a separate cost analysis.

As regards the complainant's view that the finding of the appealed decision was different from the PTA's and the Committee's

previous decisions regarding the same case, the Committee stated that ÍSP had full authority to formulate its own discount arrangements, within the limits established by the Act on Postal Services. In that regard, reference is also made to the aforesaid discussion on the amendments to the Act on Postal Services and the altered environment in the postal market that came about with the entry into effect of Act no. 98/2019. The difference in the resolution of the appealed decision is therefore based on presentable and legitimate viewpoints, as it is supported by the new Act on Postal Services.



Consumer affairs

One of the most important tasks of the ECOI is to promote the protection of consumers and provide information. Each year the ECOI receives many queries and complaints from consumers, and in many cases the issues can be resolved by discussion, although some cases are of such a nature that they must go through a formal process.

Among these are two complaints that concerned the unwillingness of telecommunications companies to provide individuals with certain information about telecommunications use which they considered they were entitled to. In Decisions no.

3/2021 and 4/2021, the ECOI addressed the right of individuals to obtain information from the telecommunications companies. Among the information requested was teletraffic data that extended beyond the statutory six-month retention period and information about phone calls and text messages received. In both these cases, the ECOI found that the complainants were not entitled to information beyond what was stated in the Electronic Communications Act and Regulation no. 526/2011 on electronic communications billing. The ECOI pointed out that a recipient of telecommunications services cannot demand teletraffic data, as this in fact concerns telecommunications use

by other parties to contact the recipient. The ECOI also cited that consumers have equal access to information about their own use of telecommunications on the telecommunications companies' dedicated service webpages and such an arrangement is consistent with the Electronic Communications Act. Consumers of telecommunications services are not entitled to other or more detailed information that contravenes the provisions of the Electronic Communications Act regarding storage and deletion, as well as the stance on privacy policy in telecommunications.

Protection of individuals during the time leading up to elections

The Cambridge Analytica case revealed that companies and political organisations had attempted to influence people's political stance. Technological developments in recent years have also resulted in other potential threats which may be present during the time leading up to elections in this country, such as privacy policy issues, information disorder, cyber security issues and national security issues. For this reason, a special government consultative group was established in 2021

to address issues relating to the protection of individuals during the time leading up to elections. The government bodies that are represented in the group are the Media Committee, the ECOI and the cyber security team CERT-IS, the National Electoral Commission and the Icelandic Data Protection Authority. The role of the consultative group is to facilitate the exchange of information between the relevant government bodies during the time leading up to elections. The group's objective is to ensure that the government receives relevant information about issues to enable them to respond as soon as possible if it seems likely that circumstances will arise that the relevant government bodies will need to address.

During the time leading up to the Parliamentary elections this year, the ECOI published a news item in September in which it reminded political organisations and/or individual candidates that they were required to abide by the provisions of the Electronic Communications Act that imposed restrictions on unsolicited telecommunications in the form of direct marketing. The article also listed the principal rules that apply to unsolicited telecommunications and the way such complaints were handled at the ECOI.

Administrative determinations of the ECOI in 2021

The ECOI passed 20 formal administrative determinations in 2021. The Rulings Committee for Electronic Communications and Postal Affairs ruled on one case where the ECOI's decisions had been appealed to the Committee.

The ECOI has maintained statistics on the outcome of administrative determinations since 2007, when the current setup of the ECOI was adopted. This table shows the decisions up to and including 2021:

Year	Decisions PFS	Complaints against decisions	Complaints ratio	Rulings total	Invalid decisions	Confirmed decisions	Confirmation ratio/complaints
2007	27	9	33%	9	1	8	89%
2008	33	7	21%	7	2	6	86%
2009	23	5	22%	5	0	5	100%
2010	41	10	24%	10	3	7	70%
2011	35	5	14%	5	2	3	60%
2012	40	7	18%	7	1	6	86%
2013	33	4	12%	4	0	4	100%
2014	42	5	12%	5	2	3	60%
2015	37	10	27%	10	2	8	80%
2016	24	4	17%	4	0	4	100%
2017	32	13	41%	13	1	12	92%
2018	28	4	14%	4	1	3	75%
2019	31	7	23%	7	3	4	57%
2020	18	4	22%	4	0	4	100%
2021	20	2	10%	1	0	1	100%
Total	464	96	21%	95	17	78	82%
Of total number	100%				3.7%		
					*By weighted mean		82.1%

Average confirmation ratio*

An overview of the decisions issued by the ECOI and the PTA in 2021 can be found on the ECOI's website.

Registered telecommunication
providers at the end of 2021

Name	Registered	Economic activities
1819 – Nýr valkostur ehf.	20.6.2014	Directory enquiries services
Ábótinn ehf.	28.3.2003	Data transmission network and services
Advania Iceland ehf.	17.4.2002	Data transmission services
Althingi (Icelandic parliament)	23.3.2015	Transmission of radio and television signals
Alza ehf.	1.9.2017	Data transmission services via wireless and fixed networks
Árvakur hf.	26.1.2015	Directory enquiries services
Ásaljós	18.8.2015	Operation of fixed-line electronic communications network
Austurljós ehf.	5.3.2015	Data transmission network and services
Backbone ehf.	25.8.2010	Data transmission network and services
Bloomberg Finance L.P.	19.7.2007	Line rental services and general network
Boðleið þjónusta ehf.	1.12.2015	Voice telephony services, mobile telephone services and operation of fixed-line communications network
Brimrún ehf.	3.4.2008	Data transmission services via satellite
BT Solutions Limited, Iceland office	28.7.2014	Data transmission services
CenturyLink Iceland ehf.	1.12.2015	Operation of fixed-line electronic communications network and data transmission services
Colt Technology Services AB	29.9.2015	Data transmission services
Cronus ehf.	1.10.2019	Transmission of radio and television signals
Cubic Telecom Ltd.	9.8.2018	Operation of fixed-line and wireless electronic communications networks, data transmission via wireless electronic communications networks

Name	Registered	Economic activities
Dalaveitur ehf.	14.2.2017	Operation of fixed-line electronic communications network
DataBox ehf.	13.12.2010	Voice telephony services and communications network
Davíð og Góliat ehf.	3.5.2010	Voice telephony and data transmission services
DCN Hub ehf.	10.12.2012	Mobile and data transmission services
DIDWW Ireland Limited	19.12.2012	Data transmission and voice telephony services
Digriklettur ehf.	1.4.2019	Operation of fixed-line electronic communications network
DVD-Margmiðlun ehf.	6.2.2004	Operation of radio broadcasting broadband system
Municipality of Eyja- og Miklaholtshreppur	29.9.2015	Operation of fixed-line electronic communications network
Factor ehf.	30.5.2013	Data transmission network and services
Farice ehf.	2.9.2003	Submarine cable
Ferðapjónustan Húsafelli ehf.	23.4.2018	Operation of fixed-line electronic communications network
Feris ehf.	6.1.2014	Data transmission services
Fjarskiptafélag Mývatnssveitar ehf.	10.4.2017	Operation of fixed-line and wireless electronic communications networks, data transmission via wireless electronic communications networks
Fjarskiptafélag Reykhólahrepps	9.8.2018	Operation of fixed-line electronic communications network
Fjarskiptafélag Skagabyggðar	8.6.2016	Data transmission network
Fjarskiptafélag Skeiða- og Gnúpverjahrepps ehf.	8.3.2013	Data transmission network
Fjarskiptafélag Svalbarðshrepps ehf.	14.2.2017	Operation of fixed-line electronic communications network

Name	Registered	Economic activities
Fjölnet ehf.	26.10.2001	Voice telephony, data transmission services and network
Gagnaveita Helgafellssveitar ehf.	18.8.2015	Operation of fixed-line electronic communications network
Gagnaveita Hornafjarðar ehf.	13.2.2013	Electronic communications network
Gagnaveita Reykjavíkur ehf.	23.3.2007	Data transmission network and services
Gagnaveita Suðurlands ehf.	9.12.2013	Data transmission services
Gagnaveitan ehf.	8.6.2011	Electronic communications services
GlobalCall ehf.	4.9.2008	Voice telephony services
Halló ehf.	23.5.2014	Directory enquiries services
Hátíðni hf.	24.1.2001	Voice telephony, data transmission services and network
Hitaveita Drangsness	28.3.2019	Operation of fixed-line electronic communications network
Hitaveita Egilsstaða/Fella ehf.	11.9.2018	Operation of fixed-line and wireless communications networks, data transmission services via wireless and fixed-line networks and broadcasting of radio and television signals
Hitaveita Tálknafjarðarhrepps	24.6.2015	Data transmission services via fixed-line electronic communications network
Hljóðsmárinn ehf.	24.10.2017	Transmission of radio and television signals
Hópkaup ehf.	28.4.2015	Directory enquiries services
Hótel Laki ehf.	10.4.2017	Operation of fixed-line electronic communications network
Hrafnshóll ehf.	30.1.2019	Operation of fixed-line electronic communications network
Hringdu ehf.	9.11.2010	Voice telephony and data transmission services

Name	Registered	Economic activities
Hringiðan ehf./Vortex Inc.	3.12.1998	Voice telephony, data transmission services and network
Húnanet ehf.	23.10.2017	Operation of fixed-line electronic communications network
Municipality of Hvalfjarðarsveit	31.3.2014	Electronic communications network
Icelandair ehf.	14.2.2014	Electronic communications network
IMC Ísland ehf.	27.6.2000	Mobile DSC 1800
Internet á Íslandi hf.	3.2.1998	Electronic communications network, voice telephony and data transmission services
Isavia ohf.	30.12.2010	Voice transmission service for aircraft and operation of fixed-line electronic communications network
Já hf.	21.11.2007	Publication of telephone and address directories, directory enquiries services
Kukl ehf.	20.3.2009	Voice telephony, data transmission services and network
Icelandic Coast Guard	1.1.2011	Management and leasing of NATO fibre-optic cables
Leiðarljós ehf.	14.2.2017	Operation of fixed-line electronic communications network
Líf í Mýrdal ehf.	15.9.2014	Operation of fixed-line electronic communications network
Lindin, kristið útvarp	26.1.2015	Transmission of radio and television signals
Ljós og gagnaleiðari ehf.	10.8.2009	Data transmission network
Ljósfesti ehf.	19.12.2016	Operation of fixed-line electronic communications network
Optical fibre for Borgarbyggð	18.10.2019	Operation of fixed-line electronic communications network
Ljóspunktur ehf.	24.10.2017	Operation of fixed-line electronic communications network

Name	Registered	Economic activities
Loki Telecom ehf.	4.5.2015	Operation of fixed-line and wireless communications networks, data transmission services via wireless and fixed-line networks and broadcasting of radio and television signals
Lýsir ehf.	20.12.2019	Operation of wireless electronic communications network
Magnavík ehf.	1.4.2004	Data transmission services
Martölvan ehf.	26.11.2007	Voice telephony, data transmission services and network
Míla ehf.	4.4.2007	Electronic communications network
Mobiweb Telecom Limited	19.12.2016	Mobile telephony services
Nepal hugbúnaður ehf.	21.2.2005	Data transmission services and wireless electronic communications networks
Netvarp og Sport ehf.	18.7.2017	Transmission of radio and television signals
Netvöktun ehf.	9.8.2018	Voice telephony services, operation of a fixed-line and wireless electronic communication networks, data transmission services via fixed-line and wireless networks
Neyðarlínan ohf.	6.10.1999	Voice telephony/emergency service response line
Nordic Networks ehf.	24.11.2016	Submarine cable and data transmission services
Nova hf.	12.7.2006	Voice telephony and data transmission services
OnAir S.A.R.L.	29.4.2008	Mobile communication services on aircraft (MCA)
Opin kerfi hf.	25.2.2011	Data transmission services
Origo hf.	12.12.2011	Data transmission services
Orkufjarskipti hf.	26.10.2001	Electronic communications network
Premis ehf.	24.10.2017	Voice telephony and mobile telephony services, operation of wireless and fixed-line telecommunications networks and data transmission services via fixed-line and wireless networks

Name	Registered	Economic activities
Protektion ehf.	5.3.2018	Operation of fixed-line electronic communications network
Rafey ehf.	18.8.2015	Operation of fixed-line electronic communications network
Rangárljós	29.8.2016	Operation of fixed-line electronic communications network
Refinitiv Norge A/S	1.9.2017	Data transmission services via fixed-line electronic communications network
Ríkisútvarpið ohf.	29.7.1997	Electronic communications services: radio and TV broadcasting
Sensa ehf.	19.12.2016	Data transmission services via fixed-line electronic communications network
Síminn hf.	30.7.1998	Voice telephony, mobile, data transmission network, etc.
Sjónvarpsmiðstöðin ehf.	8.10.2009	Data transmission services
Snerpa ehf.	17.8.2000	Electronic communications network, voice telephony and data transmission services
Splitti ehf.	8.7.2019	Voice telephony and mobile services, data transmission via fixed and wireless electronic communications networks and telephone number information service
Stöð 5 ehf.	1.10.2019	Voice telephony and mobile services
Sumarsól ehf.	1.12.2015	Directory enquiries services
Sýn hf.	27.3.2007	Voice telephony services, mobile telephony services, data transmission services and electronic communications network
Tech Support á Íslandi ehf.	3.3.2017	Voice telephony, data transmission services via fixed-line and wireless networks
TELE Greenland A/S	24.6.2008	Submarine cable
Tengir hf.	20.9.2002	Optical fibre network
Tismi BV	5.3.2015	Voice and mobile telephony

Name	Registered	Economic activities
TRS ehf.	29.3.2004	Data transmission services
Truphone Limited	22.11.2017	Mobile telephony and data transmission via wireless electronic communications networks
TSC ehf.	18.1.2002	Voice telephony, data transmission services and network
Twilio Ireland Limited	12.7.2019	Voice telephony and mobile services, data transmission via fixed and wireless electronic communications networks and operation of fixed and wireless electronic communications networks
Tölvun ehf.	25.4.2003	Data transmission network and services
Tölvustoð ehf.	15.4.2009	Data transmission services
Vengo ehf.	18.10.2019	Data transmission services via fixed-line electronic communications network
Yellow Mobile B.V.	18.7.2017	Voice and mobile telephony, operation of fixed and wireless electronic communications networks, data transmission via fixed-line and wireless electronic communications networks
Zendesk International Limited	9.8.2018	Cloud-based SMS and VoIP service
Þekking – Tristan hf.	16.1.2004	Data transmission network and services
Þorvaldur Stefánsson	14.10.2014	Maritime data transmission services
Örugg afritun ehf.	18.10.2019	Data transmission services via fixed-line electronic communications network
Öryggisfjaraskipti ehf.	6.10.2008	Telecommunications services and network/TETRA