

ANNUAL REPORT 2018

OUR MISSION

The European Communications Office (ECO) is the permanent office of the European Conference of Postal and Telecommunications Administrations (CEPT), an organisation where policymakers and regulators from 48 European countries collaborate to harmonise telecommunication, radio spectrum and postal regulations.

The ECO provides expert advice and administrative support to the CEPT to help it to develop and deliver its policies and decisions effectively and transparently. The Office is a European centre of expertise in electronic communications. It provides a forum for CEPT member countries and concerned stakeholders to discuss, debate and collaborate on advancing European communications policy for the benefit of all Europe's citizens.

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CHAIRPERSON'S FOREWORD



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When I was first elected Chairperson of the European Communications Office in May 2015, 5G was in its infancy but already attracting lots of attention from spectrum managers. New spectrum opportunities were being identified for broadband in higher frequency bands, and the topic of the day was self-driving vehicles. The ECO underwent much change that year, too, with the appointment of a new director in April 2015 and an addition to the ECO Convention when Lithuania joined in February.

Fast forward three years, and change is as constant as ever. We are closer to seeing 5G become a reality throughout Europe, spectrum opportunities have been proposed and autonomous driving is being introduced. In May I was proud to be reappointed as Chairperson of the ECO for a second three-year term. Dr Samuel Ritchie of Ireland also began his second term as the Office's Vice-Chairman. Please know that we are both fully committed to fulfilling our roles within this great organisation. It deserves nothing less.

Just as in 2015, this year also saw a change to the make-up of the ECO Convention. On 21 November, Malta joined the Convention, bringing to 36 the number of countries contributing and financing the ECO. Its addition further reinforces the importance of the Office as it provides a centre of expertise in the postal and electronic communications field.

Malta has been a member of CEPT for many years. So, yes, I will take this opportunity to remind you that the Convention is open for accession by any State whose Administration is a Member of the CEPT. Additional signatories are always warmly welcomed; the more signatories we have on board, the stronger the ECO's service provision becomes.

Unquestionably, the Office has already strengthened its offering in the past year, with major improvements in its IT platform. This year saw the implementation of a new and improved ECO Documentation Database, on the back of which 108 000 page views were received in 2018. The new version offers many improved features, including update tools and an improved search facility. The Office also developed a new feature to facilitate the integration of EFIS and DocDB through an application programming interface. We have come a long way from its inception, and the staff at the ECO must be congratulated for their gargantuan efforts.

Of course, I expect nothing less from this small team who at all times show utmost professionalism and 100% commitment to any task before them. Take the GDPR regulations, which came into force, this year. For a small Office like ours, the magnitude of this task – to ensure that we are compliant with EU regulation – cannot be overstressed. Yet, as with everything else, the team delivered.

Once again in 2018, the ECO has demonstrated that it is invaluable to CEPT and its three committees. It continues to assist the Council in developing its policies and decisions. Our experts' knowhow and proficiency is of vital importance; our backroom staff are the driving force behind the organisation.

I hope the following pages demonstrate the challenges, work and multitude of achievements of the Office in 2018. You'll certainly see why I am honoured to serve this organisation for three more years.

Marta Leandro
Chairperson of the ECO Council

DIRECTOR'S STATEMENT

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I was asked recently to describe the most significant aspect of our work here at the ECO. It didn't take me long to respond: we offer expert advice in an unbiased and diplomatic way. All team members contribute to ensuring that the Office executes this role by providing first-rate support to CEPT and its three committees.

In 2018, we had another busy year as our staff members undertook a series of projects. Not only did we implement our GDPR policies to comply with European regulations, we also revised our IT policies in conjunction with them. We worked hard on a new version of SEAMCAT, ensuring that the correct tools were in place for simulating 5G systems. We hosted and actively contributed to meetings within the CEPT's committees, we carried out public consultations and organised workshops.

In 2018, we also provided greater support to CERP and its working groups. We hosted the 51st CERP Plenary Meeting and organised and facilitated a number of CERP meetings throughout the year. We also worked closely with the CERP Chairman, Mr Germán Vázquez, to develop a template and distribution method for its newsletter.

I continuously receive positive feedback about the support that the Office provides all three of the CEPT's committees. Even with only a small team of 12, our employees continue to perform remarkably.

We had to say goodbye to some members of staff in 2018. Bruno Espinosa, Frenchman and deputy director of the ECO, left us in November after six and half years, to start an exciting new role within the European Space Agency. Thomas Weber, our much-respected expert in Frequency Management from Germany, completed his contract in December. They were two of our most experienced staff members and it was sad to see them go, and I wish them well in their future endeavours.

Both departures opened up positions at the Office, and after a tough selection process, Freddie McBride, our Numbering and Networks expert from Ireland, was appointed Deputy Director. I am extremely pleased to have Freddie as my new deputy; he has taken to the role with gusto.

Robin Donoghue from the United Kingdom joined the Office in November, taking over Thomas's role in Frequency Management. He has been a great addition to the team. By the year end, Jaime Alfonso from Portugal has been selected as a spectrum expert supporting a range of project teams in the ECC group, and will start in the post in March. He is the very first Portuguese national to work at the office.

For such a small organisation, we are a truly multicultural one. There are six nationalities working at the ECO in Copenhagen. We are still able to attract highly-skilled and competent people for the range of roles in the Office, and I am confident that we have the best team of hardworking and committed individuals on board.

In 2018, we continued to look ahead to World Radiocommunication Conference-2019, which will see the world's experts in radiocommunications descend on Sharm el-Sheik in Egypt for four weeks from October to November next year. It is an exciting time to work at the ECO as we help CEPT finalise its preparations ahead of the conference.

This world of communications has never been more exciting, and I am proud that the ECO and its staff have played, and continue to play, an important role within that.

Per Christensen
Director of the ECO

THE ECO: OUR ROLE, OUR TEAM

Our role

The primary function of the European Communications Office (ECO) is to provide expert advice and administrative support to CEPT. We help CEPT to develop and deliver its policies and decisions effectively and transparently.

Our core duties are threefold: to provide a European centre of expertise in electronic communications; to contribute to the work of the three CEPT committees; and to manage CEPT’s day-to-day activities.

As well as providing operational support to CEPT and its three autonomous business committees – ECC, CERP and Com-ITU – we also have a central objective to maximise the effectiveness of CEPT’s Electronic Communications Committee (ECC).

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We help CEPT to develop and deliver its policies and decisions effectively and transparently.

The ECC brings together the 48 CEPT countries to develop common policies and regulations in electronic communications and their related applications for Europe while providing a focal point for technical and regulatory information on spectrum and numbering use. The ECC’s ultimate objective is to harmonise the efficient use of the radio spectrum, satellite orbits and numbering resources across Europe. It takes an active role at international level, preparing common European proposals to represent European interests in the International Telecommunication Union (ITU) and other international organisations.

In this context, the ECO complements and supports the ECC by:

- improving collaboration across its membership and extending its reach beyond Europe;
- ensuring its communications are open, consistent and effective;
- delivering new initiatives and providing strategic input to its work; and
- supporting CEPT’s bottom-up approach to policy development by consensus.

Our team

The ECO has a core team of 12 employees based at its offices in Copenhagen, Denmark. The team comprises the Director, six experts in the field of electronic communications – recruited internationally and coming from right across Europe – and five team members from Denmark who are responsible for managing our support and administrative services.

Together, our employees have the expertise and experience necessary to deliver the specialist services required of the ECO. We work effectively as a team and we strive to identify new and innovative ways to maximise our impact and value across our many specialised activities.

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We work effectively as a team and we strive to identify new and innovative ways to maximise our impact.



Front row, from left: Bruno Espinosa, Anne-Dorthe Hjelm Christensen, Susanne Have;
Second row: Vibeke Hansen, José Carrascosa, Mette Tobiassen, Doriana Guiducci;
Third row: Per Christensen, Thomas Weber, Kenneth Karlsson, Peter Faris, Freddie McBride.
Inset: Robin Donoghue

The ECO team and their main areas of responsibility in 2018

Per Christensen	Director, Denmark
Freddie McBride	Deputy Director, Ireland (Numbering and Networks, Com-ITU) – Appointed Deputy Director on 01 December 2018
Bruno Espinosa	Deputy Director, France (Frequency Management, Com-ITU, EC Co-ordination, ETSI Co-ordination) – left organisation in November 2018 to join the European Space Agency
José Carrascosa	Spain (Spectrum Engineering, SEAMCAT, Broadcasting Plan Management)
Robin Donoghue	United Kingdom (Frequency Management, EFIS Management) – joined organisation in November 2018
Thomas Weber	Germany (Frequency Management, EFIS Management) – left organisation in December 2018 at end of contract period
Peter Faris	Ireland (Spectrum Engineering, Mobile broadband, Satellite Services)
Doriana Guiducci	Italy (Spectrum Engineering, Frequency Management, WRC preparation)
Anne-Dorthe Hjelm Christensen	Denmark (Public consultations, ECO Documentation Database, EFIS, Administration)
Vibeke Hansen	Denmark (Webmaster, Reception, Administration)
Susanne Have	Denmark (CEPT, ECO Council, SAT MoU, Administration)
Kenneth Karlsson	Denmark (IT support and development, Technical enquiries)
Mette Tobiassen	Denmark (Finance, Human Resources, Projects)

AN EXPERT JOINS THE ECO – THEIR EXPERIENCE

Globalisation has made the world a smaller place, and advances in technology mean it is easier now than ever for emigrants to communicate with loved ones back home. However, that doesn't take away from the enormity of moving country – it is a daunting experience for everyone, including internationally-recruited ECO experts.

Uncertainty, solitude and having to adjust to new customs, cultures and a new way of life, can be challenging but there are many positives. For starters, ECO experts move to Copenhagen, a welcoming, world-class city with a population of just over 600 000 people. In the office, we often compare how the Danes live to how we ourselves live in our own countries, and quickly conclude that they get a lot of things right. Our experts usually settle in fast and get down to the business at hand relatively quickly.

Before an ECO expert arrives in Denmark, the Office works closely with them to help arrange transport and shipping, rental accommodation, for them and their family, and schools. They will put the expert in touch with some of the best international schools in the city. When the new recruit arrives, colleagues provide them with information on everything from cycling etiquette to public transport options, from buying a broadband service to the best television packages. The new recruit also receives insider knowledge into where to get the best Smørrebrød.

It is not just a change of scenery that they need to prepare for but also a different way of working. Many of our recently-recruited experts have come from roles within CEPT Administrations, and are no strangers to the meetings of CEPT and its constituent groups. However, at the ECO they must take a completely different approach to those meetings. Their position as an embedded member of an ECC group, for example, differs significantly from that of being a national representative. The ECO expert is there to contribute and support the work, and must maintain a neutral and objective perspective on both the decisions on the approval of deliverables and on the direction of the work.

For experts who previously represented an administration, it can, at least initially, seem strange not to be taking a national position on a particular issue but is something we adapt to quite quickly. Our primary role in these situations is to provide assistance to the group chairs, and to advise and support the groups in their activities both during and after meetings. In this way, our neutral position gives us a unique insight into the work. It often leads us to conduct drafting activities and to provide objective guidance on resolving specific issues. We also take the lead in ensuring that the timescales set for a particular work item are met; we assist the chairman in driving the work programme forward.

Working at the ECO and living in Denmark is an enjoyable and rewarding experience both professionally and personally. ECO experts are limited to a maximum of eight years in their respective roles so vacant positions become available quite frequently. If you think you are cut out for an adventure in Copenhagen and a bit of Danish hygge, keep an eye out for future vacancies and be ready to get on your bike.

Expert positions at the ECO are advertised at <https://www.cept.org/eco/>



Image by Max Adulyanukosol on Unsplash.com



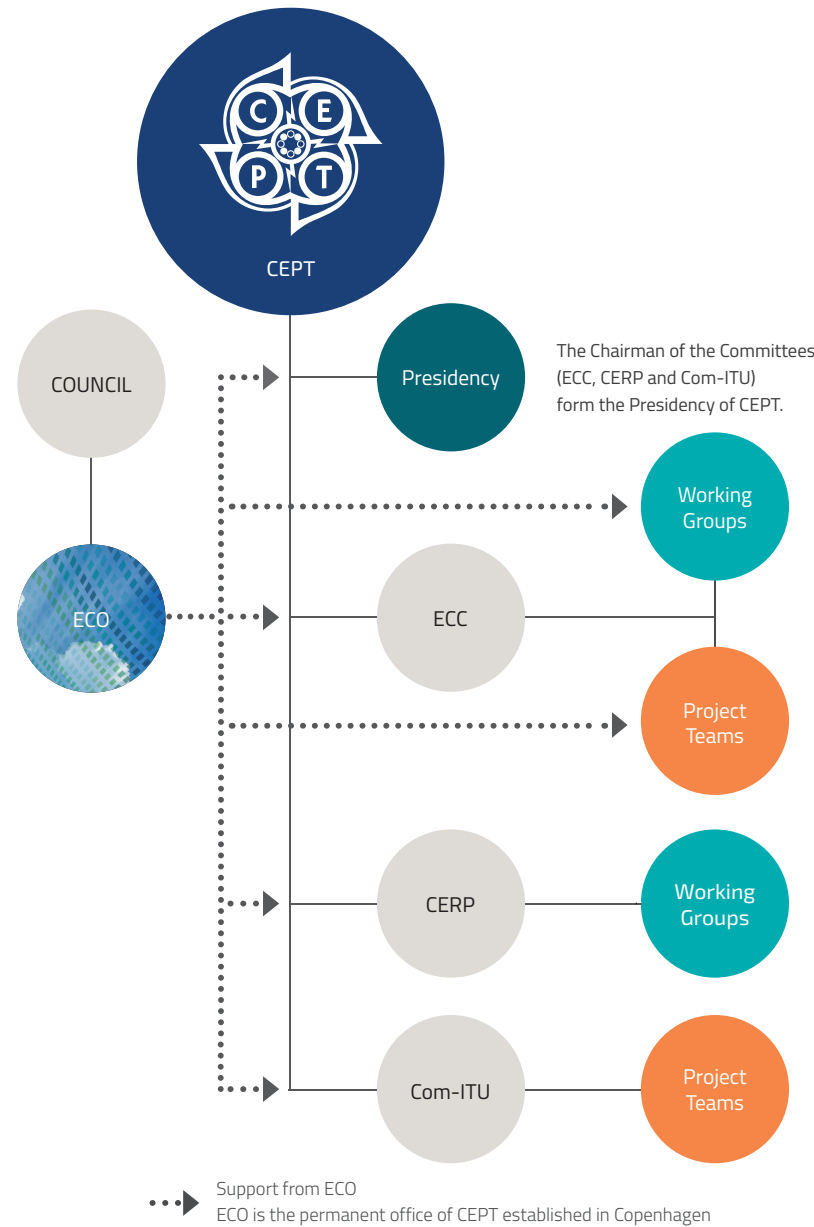
Image by Rasmus Vassberg on Unsplash.com

SUPPORTING CEPT



The ECO provides a Secretariat for the CEPT (including its Presidency) as an umbrella organisation for its three autonomous business committees.

Our structure



CEPT has a Co-Presidency comprising the Chairmen of the three committees.



The Electronic Communications Committee (ECC) develops common policies and regulations in electronic communications and harmonising spectrum use. The ECC also facilitates European co-ordination and preparation for meetings in the Radiocommunication Sector of the ITU.

Mr Chris Woolford, UK, is Chairman of the ECC having succeeded Mr Eric Fournier, France, in November 2018.



The European Committee for Postal Regulation (CERP) is responsible for postal regulation, as well as European co-ordination and preparation for meetings of the Universal Postal Union (UPU).

Mr Germán Vázquez, Spain, is Chairman of CERP.



The Committee for ITU Policy (Com-ITU) organises and co-ordinates CEPT actions for the preparation for, and during the course of, the activities of the ITU Council, ITU Plenipotentiary Conferences, WTDC, WTSA and other meetings as appropriate.

Ms Cristiana Flutur, Romania, is Chairwoman of Com-ITU having succeeded Mr Manuel da Costa Cabral, Portugal, in June 2018.

- The CEPT Co-Presidency works to effectively co-ordinate the activities of the three business committees in order to create a dynamic market in the fields of electronic communications and postal services for the social and economic benefit of all of Europe's citizens.
- As the permanent office of CEPT, the ECO supports the Presidency as follows:
- 1) It handles the day-to-day correspondence to and from the Presidency, with some secretarial and advisory support for co-ordination between the co-Presidents;
 - 2) It provides and maintains content of the sections of the CEPT website that relate to the Presidency and CEPT as a parent organisation for its three committees;
 - 3) It prepares reports to the membership on the activities of the Presidency and provision of assistance to the individual committee Chairs where appropriate;
 - 4) It invoices and collects CEPT member financial contributions, used to pay for the ECO's support and external expenditure as required, namely the costs of CEPT Assemblies, and some of the facilities provided for CEPT delegations at international conferences; and
 - 5) It prepares facilities and secretariat support for CEPT Assemblies as required.

The CEPT Assembly is the supreme body of the organisation, and is convened as required. There was no need to call for an Assembly meeting in 2018.

2018 IN BRIEF

We participated in **meetings and events outside of the CEPT framework**, promoting our deliverables and the positions agreed within the committees

Our experts actively contributed to **more than 120 physical meetings** within the CEPT's committees: **335 person-days** shared between our international team

In 2018, **36 countries** contributed to the financing of the ECO

We implemented a **new and improved DocDB** in 2018.

It received over **108 000 page views** from around the world.

Of our over 700 ECC Deliverables in force, **over 26 000 copies** were downloaded from DocDB

We implemented our **GDPR policies** and revised our corporate IT policies accordingly

We **released v5.2.0 of SEAMCAT**, which included important functionalities for simulating 5G (IMT-2020) systems

We carried out **81 public consultations**, which were used to inform the substance of new or revised **ECC Deliverables**. The office analysed and processed **385 responses** to them.

The ECO team organised **168 web meetings** to support the work of the CEPT committees.

The ECO organised **2 thematic workshops** on **"Spectrum for Drones"** and **"The Role of E.164 numbers in International Fraud"** and **2 training programmes** for SEAMCAT

We hosted **39 meetings**, spread across **96 days**, attracting more than **1 070 participants** to our offices in Copenhagen

The ECO created and managed **13 questionnaires** and processed **339 individual responses** in total in order to fully inform the work of the ECC

The CEPT portal, managed by the ECO, had almost **1.2 million page views** and over **5 030 registered users**

We produced **3 ECC newsletters**, containing **8 specific articles** on spectrum and numbering management topics, **7 of which were authored by ECO experts**

SECTION

2

Review of the year

2.1

PROVIDING SPECIALIST SUPPORT TO THE CEPT COMMITTEES

One of the ECO’s primary functions is to actively contribute to the work of the CEPT committees, in particular the ECC. We aim to maximise the ECC’s overall effectiveness by providing first-class administrative support, regulatory and technical expertise and a range of specialist support services.

Our work in supporting the CEPT committees is manifold. In 2018 we:

- Participated in and contributed to Working Groups and Project Teams right across the ECC;
- Helped advance topics of interest within the ECC;
- Participated in and assisted Com-ITU and its Project Teams in preparation for PP-18;
- Assisted the CERP chairman with the template development and distribution of the CERP newsletter;
- Continued to upgrade and improve our tools and services such as SEAMCAT and EFIS, the ECO Frequency Information System;
- Provided guidance on rules of procedure and working methods when required;
- Conducted public consultations and questionnaires on behalf of CEPT committees to fully inform their work;
- Provided a central source for specialist information.

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We aim to maximise the ECC’s overall effectiveness by providing first-class administrative support, regulatory and technical expertise and a range of specialist support services.

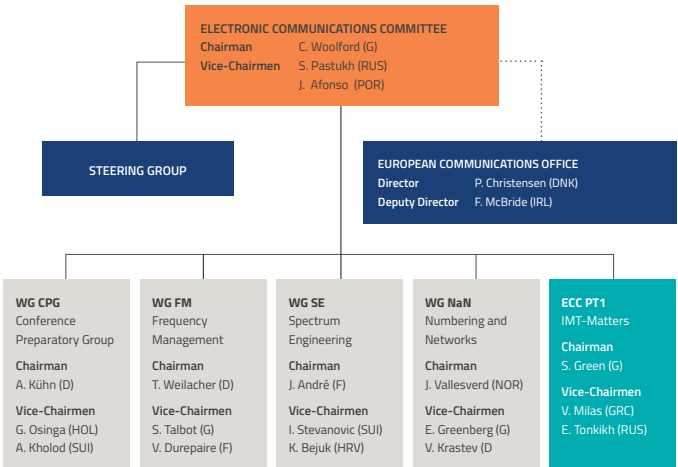
Contributing to the improvement of ECC’s efficiency and its working processes

ECO experts aim to make a positive impact on the ECC’s activities through their continuous work as embedded members of various Working Groups and Project Teams. We participate as recognised observers in almost every meeting of the ECC and its many subordinate groups. We assist in the preparation and management of the meetings and the necessary follow-up work.

In 2018, we participated in 120 physical meetings within the ECC, the equivalent of 335 person-days shared mainly between the six international experts from our team, plus the Director.

Our continued presence and active participation in these meetings demonstrates our important role in striving to continuously improve the ECC’s efficiency, the effectiveness of its working processes, and ultimately, the quality of its deliverables.

Structure of the ECC – December 2018



Promoting the use of ECO tools to prepare for WRC-19

The ECO maintains the ECO Documentation Database (DocDB, www.ecodocdb.dk), a library of Decisions, Recommendations and Reports in the field of spectrum and numbering regulations approved by the ECC. The new version of the DocDB went live in April 2018 and offers new and improved features, including quick search and update history tools and a notification feature to inform users about new documents and other updates on a monthly basis.

The Office also maintains the ECO Frequency Information System (EFIS, www.efis.dk) containing comprehensive information on spectrum use in Europe. With EFIS, users can search for and compare spectrum use across Europe, as well as related information such as CEPT activities, radio interface specifications and other national or international regulations. EFIS is an integral tool for supporting harmonised spectrum use across Europe. EFIS and DocDB are used by the ECC for internal harmonisation but are also useful for preparing European Common Proposals (ECPs) towards ITU. EFIS contains information on the use of frequency bands and provides links to documents that provide the background on the policy in DocDB.

The Office continuously promotes the use of these ECO tools in ECC Working Groups and Project Teams. In 2018, for example, we promoted their use to support CEPT's Conference Preparatory Group (CPG) and its project teams in their preparations for the World Radiocommunication Conference in 2019 (WRC-19). EFIS allows users to search on the usage of a particular frequency band, inputting multiple criteria to produce focused search results. Searches can also be performed using an application or a particular type of document as the main search criterion. Search results can easily be exported and included in relevant documents, such as in the CEPT Briefs for WRC-19.

In 2018, the Office developed a new feature which will facilitate the interrogation of EFIS and DocDB automatically through an application programming interface (API). This feature will allow interested parties to incorporate information from these tools on their own websites. This is an exciting development which we believe will be used much more frequently in the years ahead.

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Our bespoke tools, such as EFIS and SEAMCAT, facilitate the research and analysis that is required to provide sound reasoning and justification for the ECC's policy work.

The ECO's participation in a group is driven by its objective to achieve positive outcomes through constructive engagement and by providing contributions to further the group's work, in particular, during the development of ECC Deliverables and the definition of CEPT common positions.

We help prepare and submit contributions to meetings in areas where our expertise is both beneficial and relevant to the work. As described in subsequent sections, our experts analyse the responses from public consultations and from questionnaires, a task that is essential as an evidence-based approach to fully inform the development of ECC Deliverables. Our bespoke tools, such as EFIS and SEAMCAT, facilitate the research and analysis that is required to provide sound reasoning and justification for the ECC's policy work.

With EFIS we contribute to ECC activities by analysing spectrum usage and related information. With SEAMCAT, we carry out detailed compatibility and sharing studies.

As a result of our involvement in the full range of ECC activities and our important co-ordination role, we also contribute to fostering co-operation between different groups on topics of mutual interest. This is an integral role for us in order to increase efficiency and consistency within the ECC and to avoid duplication of effort across different groups.

When meetings are in progress, our primary role is to provide assistance to the Chairmen and to advise and support the groups in their activities. Our central and neutral position gives us a unique perspective on the groups' work and often leads us to conduct drafting activities and to provide objective guidance on resolving specific issues.

When a meeting ends, our support continues. We editorialise and process draft deliverables, as well as developing summaries of meeting outcomes for publication on the ECC website.

In 2018, we actively contributed to the vast majority of ECC work items which led to new deliverables. One illustrative example of our multi-faceted role over the course of a work item is provided on page 18.

Occasionally, the ECO is invited to provide a Chairman for a Project Team or a Forum Group. Our leadership is called upon particularly in cases where we have been playing a central role in the related topic.

In this context, we have continued to lead:

- Project Team STG, which is responsible for the development of the CEPT compatibility tool, SEAMCAT, within the Working Group Spectrum Engineering (WG SE); and
- SRD Maintenance Group of the Frequency Management Working Group (WG FM) responsible for Short Range Devices (SRD).

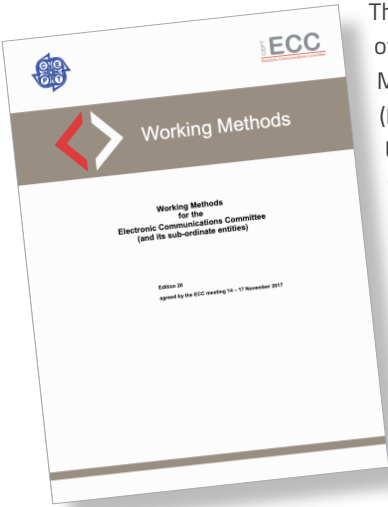
We also continued to lead the activities of the WG FM Forum Group dealing with Amateur Radio Issues. This is consistent with our role as the focal point for the CEPT regulatory framework on amateur radio aspects, dealing with certification and licensing matters.

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Our central and neutral position gives us a unique perspective on the groups' work and often leads us to conduct drafting activities and to provide objective guidance on resolving specific issues.

Supporting the ECC on procedural matters and working arrangements

The ECO plays a central and supporting role in the ECC's overall governance, in particular on matters related to rules of procedure and the working methods. ECO experts develop and maintain an in-depth understanding of these fundamental documents. They are often called upon to clarify various articles and provisions by members on issues such as the principles for appointment of Chairmen and Vice-Chairmen and participation of observers in meetings. The Office endeavours to ensure that the ECC is driven by a consistent set of rules, that its working arrangements are efficient and that it makes the best use of electronic means as appropriate.



The Office also maintains a set of co-operation agreements – Memoranda of Understanding (MoU) and Letters of Understanding (LoU) – between the ECC and its external partners. The Office has a standing objective to assist the ECC in identifying possible future LoU partners.

In 2018, four new LoU were signed with:

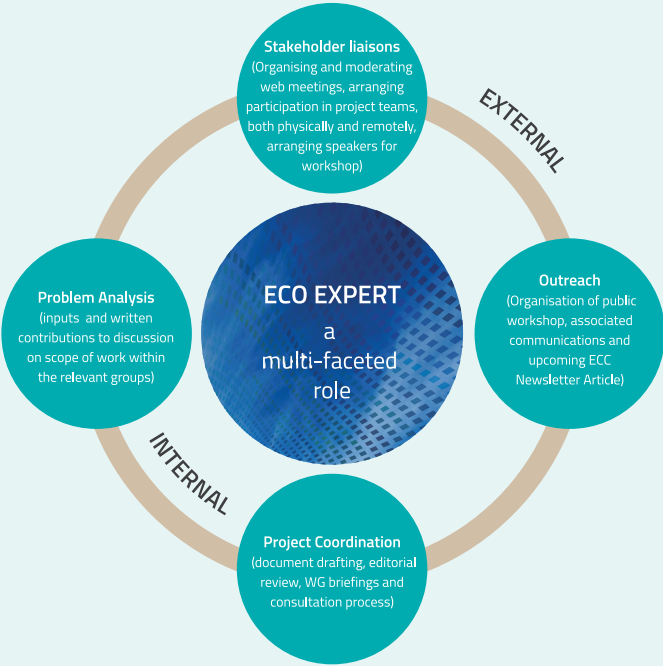
- The 5G Automotive Association (5GAA), the international association of automotive, technology and telecommunications industries, set up in 2016 to develop end-to-end solutions for future transportation services;
- The European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), an intergovernmental organisation, set up in 1986 to supply weather and climate-related satellite data to national meteorological services in Europe and worldwide;
- EUROCONTROL, the European organisation for the safety of air navigation, founded in 1960 to strive for safe and seamless air traffic management across Europe; and
- The European Space Agency (ESA), an intergovernmental organisation of 22 member states, established in 1975 with the aim of exploring space.

The Role of E.164 Numbers in International Fraud and Misuse of Electronic Communications Services – An example of the ECO expert’s multifaceted role

In today’s ever-changing telecommunications landscape, the use of electronic communications networks and services to perpetrate fraud is an increasingly difficult challenge for regulators and industry players to overcome. The latest figures from the Communications Fraud Control Association (CFCA) – a not-for-profit international association of industry players committed to risk management, loss prevention and fraud control – estimates that the industry lost US\$29.2 billion (approximately €24.75 billion) to fraud in 2017 alone. The impact of fraud is not just financial. Fraud can have a negative emotional impact on consumers, particularly those from vulnerable sectors of society. At its 13th meeting in November 2016, ECC Working Group Numbering and Networks (WG NaN) considered a work item proposal submitted by Belgium to study the role of E.164 numbers in international fraud. WG NaN considered it a relevant and high-priority subject for it to study and approved the work item. WG NaN’s Project Team on Number Portability and Switching (PT NPS) was assigned the task of developing an ECC Report on this subject.

It quickly became apparent to PT NPS that it was studying a subject with multiple layers of complexity and that close collaboration with industry and other regulatory bodies would be necessary in order to produce an informed deliverable that would meet the high standard required by the ECC and the expectations of our internal and external stakeholders.

ECO expert’s multi-faceted role



At the request of the WG NaN and PT NPS, the ECO expert undertook the task to reach out to the external stakeholder community, and find organisations and individual experts that could help with the work through close collaboration. A few national experts involved in the work also undertook the task of finding relevant experts to participate. Together, over the course of 2017 and 2018, they set up a series of contacts with relevant international stakeholders to learn more on the complicated issues associated with telecoms fraud.

The work culminated in the publication of ECC Report 275 in May 2018. This Report examines the motives, methods and opportunities for committing fraud and provides an inventory of known fraud techniques, with some guidance on what regulators and the industry could do to reduce fraud and the impact of it. One of the recommendations in the Report addresses the need for information sharing and co-operation. As fraud is now a global phenomenon, no one stakeholder can combat fraud on their own. A multi-stakeholder approach is needed with close collaboration and co-operation between operators, regulators, policy makers and law enforcement. In this context, WG NaN considered that it should adopt a proactive approach, and it decided to hold a public workshop as a first positive step in that direction.

The ECO expert undertook to organise this workshop which was held on 11 December 2018 at the invitation of the Belgian Institute for Postal Services and Telecommunications in Brussels. Over the course of the summer and autumn of 2018, the ECO expert drafted a programme, contacted potential speakers, held calls to discuss the scope of the presentations with presenters and made all the administrative arrangements including all communications activities.

The workshop provided a platform for over 90 representatives from a broad range of stakeholders to share experiences and insights on fraud and to co-operate and collaborate on finding solutions to effectively combat fraud. The workshop was a resounding success and WG NaN has already started work on follow-up activities including a new work item on CLI spoofing. The ECO expert will also write an ECC Newsletter Article on this subject in early 2019. The chronology of WG NaN’s work on this subject demonstrates the multi-faceted and central role played by the ECO expert from an initial problem description, to the publication of a fully-informed ECC Deliverable and the identification of follow-up activities.

Public policy documents, such as ECC Deliverables, are much more effective when those most affected by the subject are fully consulted. In the case of the ECC’s work on telecoms fraud, the consultation with stakeholders was detailed and extensive. The process demonstrated the multi-faceted nature of the ECO expert’s role in developing fully-informed ECC Deliverables.

Timeline of ECO expert’s role in WG NaN’s fraud work

Date	Details
November 2016	Fraud work item adopted by WG NaN
May 2017	Organised and moderated webinar with Transnexus (a leading provider of software solutions to manage and protect telecommunications networks.) as part of the 19th meeting of PT NPS in Vilnius.
October 2017	With the PT NPS chairman, arranged presentations by NOS, MEO (mobile providers in Portugal) and WeDo Technologies (a global provider of revenue assurance and fraud management products) at the 20th meeting of PT NPS in Lisbon.
November 2017	Organised and moderated a webinar between the CFCA and WG NaN members.
November 2017	With the WG NaN chairman, arranged a web meeting with the FCC to discuss fraud and, in particular, plans in the USA for implementing the STIR/SHAKEN protocols for validating Calling Line Identification (CLI).
November 2017	Draft ECC Report 275 approved for public consultation at the 15th meeting of WG NaN in Bucharest.
January – February 2018	Public consultation on Draft ECC Report 275
February 2018	With the Belgian administration, organised a presentation from BICS (a leading wholesale carrier with a global footprint) at the 21st meeting of PT NPS in Brussels.
May 2018	Organised presentations from Voxbone (a global cloud communications provider offering IP- based voice and SMS services), the UK regulator, Ofcom and Icelandic operators, Nova Hf and Síminn, at the 16th meeting of WG NaN in Reykjavík specifically on the subject of CLI spoofing and possible solutions. ECC Report 275 also adopted at this meeting and decision to proceed with a public workshop taken.
June 2018	Arranged for the GSMA to participate remotely in the 38th meeting of Project Team Future Numbering Issues (PT FNI) in Lisbon to give a presentation on its efforts as an industry association to help its members deal with fraud from high risk numbering ranges.
June – December 2018	Planned and organised the programme for ECC WG NaN public workshop on The Role of E.164 Numbers in International Fraud and Misuse of Electronic Communications Services.
December 2018	Public workshop held at BIPT offices in Brussels.

Conducting questionnaires – promoting a fully-informed approach to policy development

Questionnaires are an integral part of ensuring an evidence-based and fully-informed approach to policy development within the framework of the three CEPT Committees: ECC, Com-ITU and CERP. These questionnaires are generally used to gather information from administrations and other stakeholders to improve the development of deliverables and to identify relevant technical, regulatory and market trends.

The ECO assists the relevant groups in the development of the questionnaires, acts as a contact point to release them and collects the corresponding responses. In most cases, the ECO also processes the information collected through the questionnaires, and analyses and summarises the responses. Those responses are then considered by the responsible group in order to decide how to best utilise the information. Questionnaires can also be triggered by national administrations seeking to benefit from the experiences of colleagues in other countries on certain topics.

In 2018, the ECO managed 13 questionnaires to CEPT Administrations on behalf of ECC groups and national administrations. The questionnaires addressed a wide range of

topics in the spectrum and numbering management area, and the ECO processed 339 responses in total. All of these questionnaires were managed using the ECO’s online questionnaire tool which has been available on the CEPT portal since 2013. The tool facilitates the distribution of the questionnaires and collates the responses received, which makes the task of analysing the results much more efficient. We now have the results of over 135 questionnaires stored in our systems. This is a valuable repository of information and a first point of reference for CEPT Administrations when considering a new policy proposal or work item.

In 2018, the ECO prepared plans, based on feedback from users, for enhancing the online tool. Amongst the new features will be a more user-friendly interface which will make it easier to sort and search the existing questionnaires and their corresponding results. We also plan some new question types and improvements to the collation of responses. The enhancements will take account of, and resolve, known bugs of which we have been notified by our user community. The enhanced questionnaire tool will be deployed on the CEPT portal in early 2019.

QUESTIONNAIRES MANAGED BY THE ECO IN 2018	REPLIES RECEIVED
Electronic questionnaires triggered by ECC groups	
Questionnaire to CEPT Administrations on the actions against GNSS jamming and GNSS illegal jammers	29
Questionnaire to CEPT Administrations on Licensing for Personal Radio Equipment	32
Questionnaire to CEPT Administrations on Defining and Calculating Free Space in Cable Ducts	17
Questionnaire to CEPT Administrations on the Provision of Comparable Information on Mobile Internet Access Service (IAS) Quality	15
EFIS questionnaire to users of the ECO Frequency Information System (EFIS)	50
Questionnaire to CEPT Administrations on the Current and Future Trends for the Fixed Services and Status of the Other Incumbent Uses in Europe in the Frequency Band 5925-6425 MHz	37
Questionnaire to CEPT Administrations on Caller location information from private/corporate networks for emergency calls	16
Questionnaire to CEPT administrations on the need for regulation for licence-exempt use of frequencies below 9 kHz	37
Questionnaire to CEPT Administrations on E.164 numbering plan management and assignment practices in CEPT countries	22
Questionnaire to CEPT Administrations on Interference Statistics 2017	40
Questionnaire to CEPT Administrations on Public warning systems in CEPT countries	16
Electronic questionnaires triggered by national administrations	
Short numbers in fixed and mobile networks	12
PSAP financing in CEPT countries	16
Total responses	339

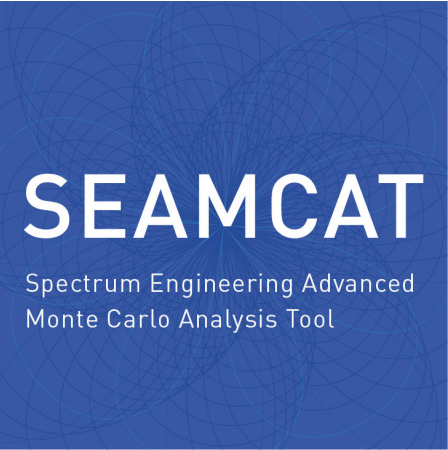
Developing the SEAMCAT spectrum analysis tool

SEAMCAT in brief

The Spectrum Engineering Advanced Monte Carlo Analysis Tool (SEAMCAT) is an open source and free-of-charge software tool developed and maintained by the ECO, in co-operation with the SEAMCAT Technical Group (STG), a project team of the ECC Working Group Spectrum Engineering (WG SE). It is based on Monte Carlo simulation methods, a subset of computational algorithms. The algorithms use the process of repeated random sampling of parameters - which can vary and are therefore modelled as random variables. This permits statistical modelling of different scenarios for the coexistence of wireless communications systems. SEAMCAT has been developed to deal with a diversity of complex spectrum engineering and wireless compatibility situations.

SEAMCAT can assess the potential interference between different radiocommunication systems that operate in shared, overlapping or adjacent frequency bands. It can also evaluate radio equipment parameters, taking into account all interference mechanisms. It is a system-oriented tool, which allows the user to build customised libraries – such as radio systems, antennae, spectrum masks, propagation models etc – or to use those provided by other stakeholders to ease the effort of building complete scenarios for investigation. SEAMCAT is distributed with a predefined set of libraries that are at the user’s disposal anytime there are studies to perform. It is possible to join the SEAMCAT community to contribute to the development of the software and its libraries.

Interested in joining the SEAMCAT Development Community?
More information at: www.seamcat.org



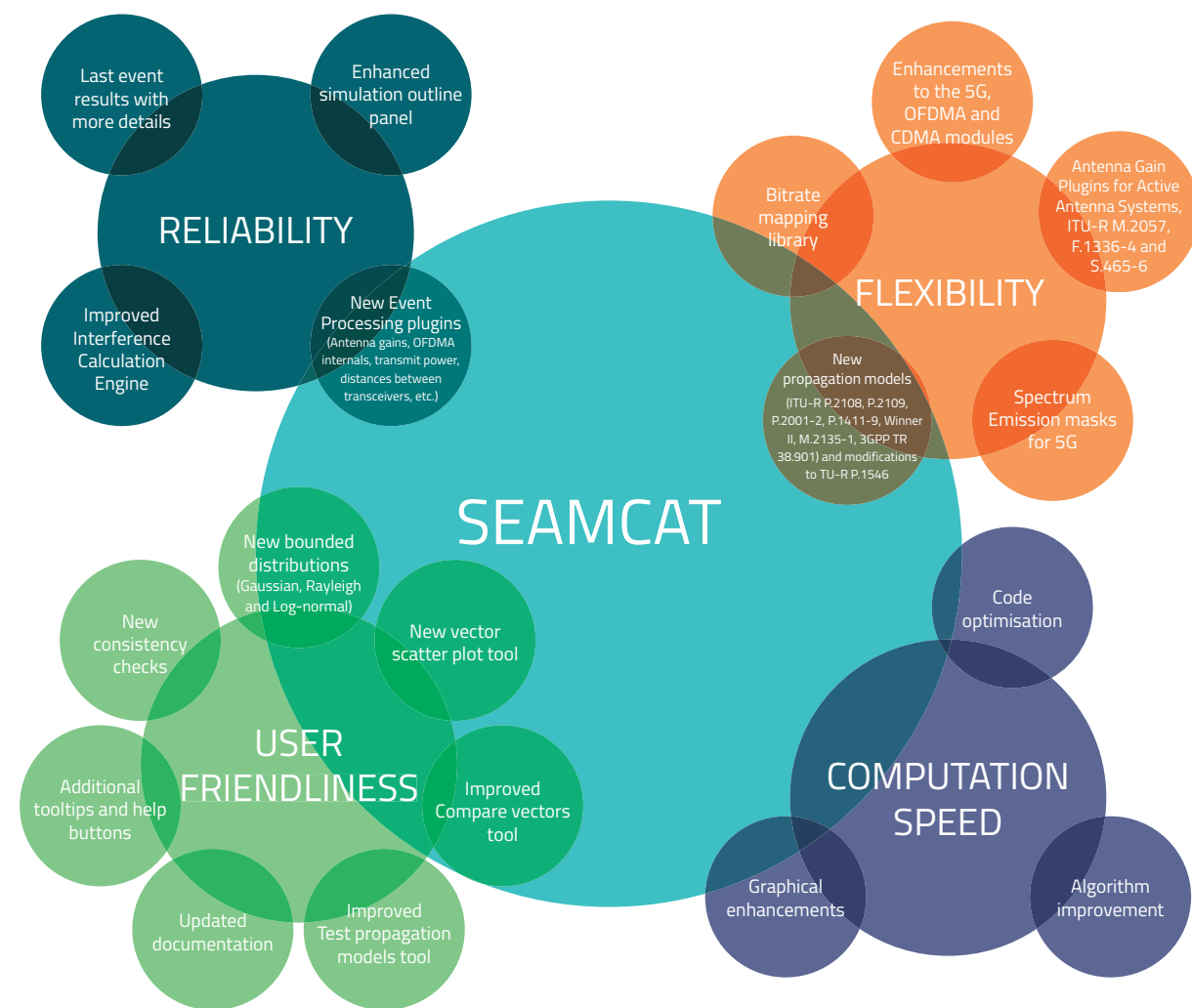
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SEAMCAT has been developed to deal with a diversity of complex spectrum engineering and wireless compatibility situations.

The tool is updated on a regular basis and is downloadable free of charge at: www.seamcat.org

Development of SEAMCAT continued in 2018 with version v5.2.0 released at the beginning of March. As ever, the latest improvements aim to respond to the overarching objectives for SEAMCAT development: to achieve increased flexibility, reliability, user-friendliness and faster and more efficient computational speeds.

This latest version includes important functionalities such as the possibility to simulate 5G (IMT-2020) systems according to the relevant ITU and 3GPP specifications and new propagation models and enhancements to the antenna gain plugin. New tools to assist in the generation of spectrum emission masks and in the verification of the consistency among the parameters introduced in a SEAMCAT workspace are being developed, too. The ECO is also carrying out enhancements to the graphical user interface to improve the user-friendliness of the tool. The latest test version (v5.3.0 Beta 1) was released in October 2018 with the next full release planned in 2019. Test versions are used by SEAMCAT users to verify the new features implemented in the tool before an official release.



As well as maintaining and developing SEAMCAT, the ECO continues to raise awareness of the tool. SEAMCAT has been introduced in workshops, conferences and publications, as detailed in other sections. The following timeline presents the main activities related to SEAMCAT during 2018:

FEBRUARY	Release of SEAMCAT v5.2.0 Beta 4 and Beta 5
MARCH	Release of SEAMCAT v5.2.0 and v5.3.0 Alpha 1
APRIL	Release of SEAMCAT v5.3.0 Alpha 2
MAY	SEAMCAT Workshop for Intermediate Users ECO, Copenhagen, Denmark
JUNE	Release of SEAMCAT v5.3.0 Alpha 3
OCTOBER	- SEAMCAT Workshop for Beginners – ECO, Copenhagen, Denmark - Release of SEAMCAT v5.3.0 Beta 1

Responding to ECC needs for the SEAMCAT development

The main purpose for the continuous development of SEAMCAT is to provide the ECC and its stakeholders with an open-source, free-of-charge software tool that allows them to perform coexistence studies. With that objective in mind, the ECO and the SEAMCAT Technical Group (STG) work in close co-operation with the relevant ECC groups and respond to their needs.

5G remains a high priority work item for the ECC. In 2018, harmonised technical and regulatory conditions for 5G systems were set in the pioneer bands, and work will continue for agreement on similar conditions for the existing 4G bands in accordance with the **CEPT 5G Roadmap**. In this regard, the ECO and the STG have worked together in recent years, alongside the ECC Project Team 1 which is responsible for mobile communication networks, on the identification of the requirements to further accommodate 5G systems into SEAMCAT. Of course, 5G is just one theme of the ECC’s activities, and the needs of all of its subordinate groups continually evolve. In its role of managing the SEAMCAT project and providing the chairmanship of STG, the ECO has its finger on the pulse of this evolution. It is in a good position to react accordingly and in a timely manner to specific requests.

It is important to remember that SEAMCAT was conceived as a co-operative project in which CEPT Administrations contribute not only with ideas and suggestions, but also with specific proposals for the enhancement of the tool. In that respect, the ECO continuously invites CEPT Administrations and industry stakeholders to increase their involvement in the development of the tool, as they are ultimately the main beneficiaries of this work.

It is a very positive endorsement of the efforts made within the CEPT that spectrum engineers involved in coexistence studies outside of Europe can also benefit from access to a continuously evolving tool. This is reflected in the attendance at the two SEAMCAT workshops run by the ECO in 2018 where we continued to attract participants from both industry and academia and from all over the world:

- The SEAMCAT workshop for intermediate users (16-17 May 2018) focused on the new 5G module, and included hands-on exercises related to current issues under study in CEPT:
 - Fixed Satellite Service uplink interfering with the Fixed Service; and
 - 5G systems interfering with the Earth Exploration-Satellite Service (downlink)
- The SEAMCAT workshop for beginners (10-11 October 2018) focused on the new features implemented in SEAMCAT in the latest versions. It included exercises related to topics currently under discussion in CEPT, such as the impact of urban GSM-R (uplink) into GSM900 (uplink).

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In its role of managing the SEAMCAT project and providing the chairmanship of STG, the ECO has its finger on the pulse of this evolution. It is in a good position to react accordingly and in a timely manner to specific requests

SEAMCAT Technical Group (STG)

The SEAMCAT Technical Group is a project team under Working Group Spectrum Engineering (WG SE) that joins the expertise of Administrations and industry with the aim to:

- Provide technical support on the development of SEAMCAT, including the drafting of supporting user manuals;
- Liaise with and contribute to relevant groups within the ECC to respond to their needs related to SEAMCAT implementation; and
- Promote SEAMCAT in Europe and beyond.

STG decides which changes should be made to the software to respond to the needs both of ECC Working Groups and Project Teams. With that aim, STG meets both physically and remotely to make the decision-making more agile. In 2018, STG has dealt with a wide range of topics, including the implementation of new propagation models, antenna patterns, enhancements to the existing modules (i.e. generic and cellular, including 5G) and improvements to the graphical user interface.

The importance of the work of STG is vital for the development of ECC Deliverables that encompass coexistence studies between wireless systems that require the use of a Monte Carlo simulator. Therefore, stakeholders involved in activities in WG SE project teams are regularly invited to take part in STG’s work.



ECO expert José Carrascosa (seated) at the 62nd meeting of STG at Telefónica’s premises in Berlin, Germany.

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Conducting consultations to deliver better policies

The ECC adopts a transparent and evidence-based approach to developing its deliverables. Listening to, and carefully considering, the views of all concerned stakeholders is critical to delivering fair and effective policies and regulations that benefit the economy and society.

Central to the success of this approach is the public consultation process and the ECO takes responsibility for conducting consultations on behalf of the ECC (available at <https://cept.org/ecc/tools-and-services/ecc-consultation>).

The role of the ECO in the consultation process is two-dimensional:

- Administrative responsibility: this includes the editing and formatting of the draft deliverables, the launching of the consultation process, the collection of the responses and, in many cases, the submission of a formal response to the consultation to address editorial issues;
- Expert analysis: we perform a detailed analysis of the responses received. Those responses can include, on the one hand, general comments, which provide views on the topics under consideration, and, on the other hand, specific proposals (editorial, substantive or technical) intended to inform the draft deliverable under consultation. An amended version of the draft ECC Deliverable under consultation is then produced which takes due account of the views expressed by all stakeholders. This activity is an essential element for the conclusive discussions that lead to the final approval of draft ECC Deliverables and, ultimately, their adoption and publication in the ECO Documentation Database (DocDB).

In 2018, we carried out 81 public consultations, which were used to inform the substance of new or revised ECC Deliverables. In total, we processed and analysed a total of 385 public consultation responses from administrations and other stakeholders.

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Listening to, and carefully considering, the views of all concerned stakeholders is critical to delivering fair and effective policies and regulations that benefit the economy and society.

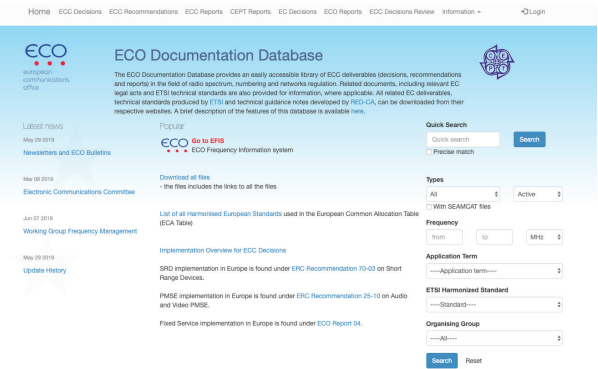
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DocDB also provides access to relevant ETSI standards, European Commission Decisions and applicable EU legislation related to the ECC Deliverables thereby providing a one-stop shop for those seeking information on these policies.

Maintaining a record of important deliverables (DocDB)

The ECC’s policies on spectrum and numbering matters are given effect through its deliverables, namely ECC Decisions, Recommendations and Reports. Once these deliverables are approved at ECC or Working Group level, we make them publicly available in DocDB (<https://www.ecodocdb.dk/>). DocDB also provides access to relevant ETSI standards, European Commission Decisions and applicable EU legislation related to the ECC Deliverables thereby providing a one-stop shop for those seeking information on these policies.

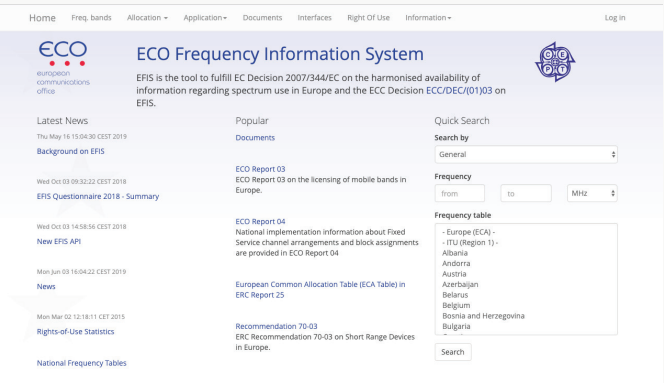
A revamped DocDB became fully operational in April 2018. The new DocDB features a new layout, an archive showing older versions of a deliverable, improved search functionality and linkage with EFIS (for example, information on harmonised standards, the application terminology and frequency ranges are imported from EFIS). National implementation information can be maintained directly by CEPT Administrations via their own user accounts. A user notification feature has also been implemented in the new version to inform users, by email once per month, about new documents and other updates, while an enhanced history tool allows users to follow content changes in the database.



In 2018, there were over 108 000 page views to DocDB from users all over the world. They had access to all the documents available in DocDB in 2018, including the over 700 ECC Deliverables in force, an archive of withdrawn or superseded deliverables and many additional informative documents.

Creating a common platform for our information databases

Following major improvements to the DocDB and EFIS in 2017, a detailed analysis of the database structure of EFIS, DocDB and the ECC Work Programme Database (WP DB) was started in 2018. The aim was to develop a common object model for integration. The overall objective is to have the document types and related attributes harmonised in a single common document section shared by all of these information databases in the future. A range of potential improvements for EFIS in 2019 has also been identified by the ECO and EFIS/MG, having considered the responses to a survey of the main EFIS users carried out in 2018.

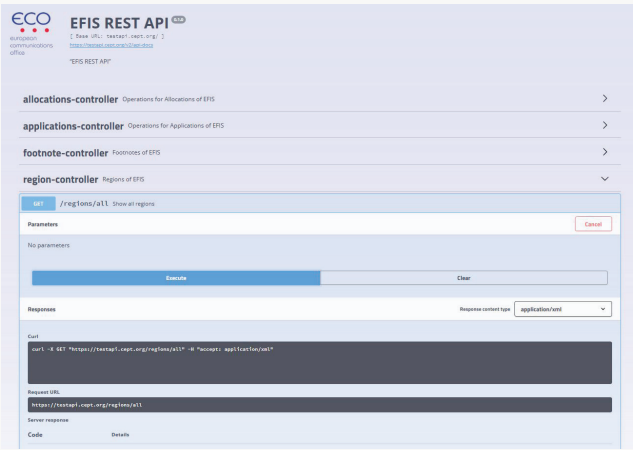


As mentioned previously, the ECO also developed an Application Programming Interface (API) to support automated queries to our information databases. As a first step, an API was developed to query EFIS. The API is an open machine-to-machine interface which allows interested users to develop automated queries to interrogate EFIS and extract relevant information.

This information can then be used to develop a web page or to populate another database. The tool provides users with the flexibility to process data according to their specific informational needs. A user-friendly API controller tool has also been developed to allow for the syntax of queries to EFIS to be generated automatically. Further development work will continue in 2019.

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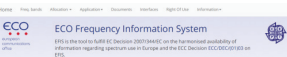

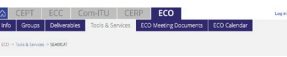
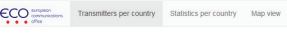
What is EFIS?

Since its establishment in 2002, the ECO Frequency Information System (EFIS) has been administered by the ECO and managed under the supervision of the ECC through its EFIS Maintenance Group (EFIS/MG). In 2007, EFIS became the 'European Spectrum Information Portal', fulfilling EC Decision 2007/344/EC on harmonised availability of information regarding spectrum use in the European Union Member States. EFIS is also referred to in Recital 24 of the Radio Equipment Directive (2014/53/EU). ECC Decision (01)03 defines the needs for EFIS for the whole CEPT membership. Some 46 CEPT Administrations now publish national frequency information in EFIS. All information in EFIS is available to the public either via the ECO website or directly under <https://www.efis.dk/>.



Providing a central source of specialist information

To support the ECC in its goal to be a focal point in Europe for information on electronic communications, the ECO provides relevant and up-to-date information on various topics. It does this through the ECC website and through our suite of tools, which are further described in this Report. A short, non-exhaustive guide is provided below. It describes the main types of information made available on the ECC website and in our databases, and includes links to the respective areas.

	SUBJECTS	DOCUMENTS	NATIONAL INFORMATION	SPECIALIST SERVICES	EVENTS
 <p>ECC Website http://cept.org/ecc</p>	<p>Group area: provides access to information on ongoing activities and progress within each group belonging to the ECC structure</p> <p>Topics: information on a wide range of topics and long-term studies on which the ECC is currently working or has recently developed regulations</p>	<p>Meeting documents: access to contributions, working documents and meeting reports from all groups within the ECC</p> <p>Newsletters: three to four ECC electronic newsletters published each year to promote ECC work items and their context within regulatory and market developments</p> <p>Framework: reference documents which set up the framework and targets of ECC activities</p>	<p>Contact points: national contacts of CEPT administrations and on special topics</p> <p>Regulatory information: information on national regulations applicable in specific spectrum and numbering topics</p>	<p>Consultation: information on public consultations and links to draft deliverables under consultation</p> <p>Questionnaires: links to current and past questionnaires carried out to fully inform the development of ECC deliverables</p>	<p>ECC Meeting calendar: information on upcoming meetings</p> <p>News: information outcomes of recent meetings, events and monthly summaries of ECC activities</p> <p>Workshops: information, presentations and summary</p> <p>Presentations: made by ECO and ECC officials at different fora</p>
 <p>ECO Documentation Database (ECODOCDB) http://www.ecodocdb.dk/</p>		<p>Deliverables: library of Decisions, Recommendations, Reports approved by ECC with associated archive and information</p> <p>Related documentation: links to relevant documents (from EC and ETSI) related to ECC deliverables</p>	<p>Implementation status: national implementation of ECC deliverables</p>		
 <p>ECO Frequency Information System (EFIS) http://www.efis.dk/</p>	<p>Modules: specific features gathering information (ECC deliverables, national usage, associated statistics) on key spectrum topics (short range devices, mobile bands, fixed service, PMSE)</p>	<p>Regulatory references: links to ECC, EC and ETSI relevant documents</p> <p>Spectrum inventory: library of information documents for spectrum inventory purposes</p>	<p>Frequency tables: tables of frequency use in national CEPT administrations</p> <p>Spectrum inventory: national information on frequency usage and spectrum rights</p>		
 <p>ECC Work Programme Database (ECC WP DB) http://eccwp.cept.org/</p>	<p>Work items: Follow the progress of, and find additional information on, individual items in the work programme of ECC and its subordinate groups</p>				
 <p>SEAMCAT http://www.seamcat.org/</p>	<p>Software: Access to SEAMCAT software, source code, release information and system requirements</p>	<p>SEAMCAT Handbook and ECC Report 252 as well as links to the document area of the SEAMCAT Technical Group</p>		<p>SEAMCAT community: Information on bug reporting, related templates, bug reporting instructions and practical tips</p>	<p>SEAMCAT Workshops: Links to information on upcoming SEAMCAT workshops</p>
 <p>700 MHz Information Repository http://700mhz.cept.org/countries</p>			<p>700 MHz repository: national information on the coordination status in the 700 MHz band</p>		

In addition to the tools and services described in other sections of this Report, the ECO develops and maintains some pages on the ECC website dedicated to key topics such as those highlighted in the ECC strategic plan. They are designed to respond to some of the needs identified within the ECC by CEPT Administrations and other stakeholders.

The main objective is to reflect on the progress made in the ECC Work Programme on work items related to these topics, to develop material which may complement, inform, support or promote ECC Deliverables and to make specific information – national contact points, national regulatory information, information not available elsewhere on the ECC website – available to stakeholders. For historical purposes, we also maintain an archive of past topics which were previously the focus of ECC work.

ECO Bulletins

Another example of the ECO’s role as a source of specialist information is the development of ECO Bulletins, which highlight activities the area of electronic communications in regions outside of Europe. This further informs the ECC’s work by examining and comparing the policy approaches taken in other regions of the world in response to legislation, new technology and market developments, and to help identify issues that could potentially be addressed in Europe in the near future. In 2018, we produced three ECO Bulletins, which were submitted to each of the three ECC Plenary Meetings and then disseminated to the subordinate groups. They addressed 42 different items covering a broad range of developments in spectrum and networks management.

Providing specialist support to Com-ITU

The main focus of the ECO’s support to Com-ITU in 2018 was to help CEPT’s preparations for the ITU Plenipotentiary Conference (PP-18), which took place in Dubai from 29 October to 16 November.

The ECO assisted Com-ITU and its two Project Teams that were specifically tasked with co-ordinating preparations for the conference – PT PP18 Policy and PT PP18 FIMO (Financial, Management and Organisational Issues). The ECO contributed to the development of a document on CEPT’s aims, principles and priorities for the conference. This document served as a brief for the conference for the national delegations of each CEPT country in attendance. The ECO also assisted with the preparation and submission of 37 ECPs and the further development of the CEPT brief in the weeks leading up to the conference. We also provided administrative support on these activities at four physical meetings of Com-ITU during 2018, one of which was held at the ECO.



CEPT delegation at PP-18

In addition, the ECO provided its usual assistance to Com-ITU and its Project Team on ITU-T strategic issues (PT-ITU-T) in preparation for ITU Council 2018 and regular meetings of council working groups, expert working groups and the Telecommunications Standardisation Advisory Group (TSAG).



ECO Deputy Director Bruno Espinosa and ECO Council Vice-Chairman Samuel Ritchie at Com-ITU in Prague, June 2018



Com-ITU Chairwoman Cristiana Flutur (ROU) at PP-18 in Dubai

ECO support to CEPT’s co-ordination activities during PP-18

Although not physically present in Dubai at PP-18, the ECO still played an important role in facilitating co-ordination between the national delegations of the CEPT countries during the conference proceedings. A dedicated co-ordination group was created on the CEPT portal with a dedicated group email address to allow communications between the delegates. The ECO managed requests for access to the co-ordination group from the national delegations and provided technical support and information as required. To further enhance and complement the co-ordination activities, the ECO also introduced a new chat system based on an open-source, team-chat software solution. This solution was integrated with the PP-18 co-ordination group page on the Com-ITU webpage of the CEPT portal. The chat system facilitated real time discussions between CEPT delegates following various issues in the different committee meetings at PP-18. The chat system was also supported on Android and iOS smartphones and this feature proved popular with the delegates as they were able to follow and contribute to discussions while on the move. Feedback from the delegates on the use of the chat tool was broadly positive and plans are already in place to make it available, with improvements, for the Conference Preparatory Meeting (CPM19-2) and World Radio Conference (WRC-19) next year.

2.2

MEETING THE OBJECTIVES OF THE ECC STRATEGIC PLAN

An important role of the ECO is to help implement the ECC’s five-year strategic plan. The current strategic plan (2015-2020) outlines the policy goals, key challenges and priorities that lay the foundation for the ECC’s activities over the course of the five-year period. The ECO contributes to the overall fulfilment of the plan through its specialist support, which was outlined in previous sections. We are also assigned particular tasks in the context of the ECC’s role as a focal point in Europe on electronic communications and its co-operation with other bodies.

Our actions in 2018 were executed with the following objectives in mind:

- To promote the ECC’s achievements through the development of electronic newsletters and communications initiatives;
- To facilitate an exchange of views through the organisation of workshops on thematic issues and the development of training sessions to increase stakeholders’ awareness of ECC activities;
- To increase the visibility of the ECC through presentations at relevant workshops and events;
- To support the ECC through continuous co-operation with other bodies, including the European Commission, ETSI, other external organisations, academia and research programmes.

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We are assigned particular tasks in the context of the ECC’s role as a focal point in Europe.



Promoting ECC Deliverables and activities through electronic newsletters and communications initiatives

As the administrative office of the CEPT, the ECO takes a lead in promoting the work of the three business committees. In particular, the Office has an explicit role in developing a communications programme to promote the activities, results and achievements of the ECC towards all of its stakeholders, both internal and external. As part of this brief, the ECO publishes an online newsletter three or four times per year. The ECC Newsletter is designed to provide readers with a greater insight into the world of spectrum management and numbering in an accessible form while providing information on some of the important technology, regulatory and market developments in Europe.

In 2018, the Office released three ECC Newsletters containing eight articles on various spectrum and numbering subjects. In addition to the publication and distribution of the three published editions, we also identified the topics for inclusion and our experts authored seven of the eight articles covered in those editions.

- The May 2018 edition included two articles. The first article was triggered by the approval of ECC Decision (17)05 on harmonised prefixes and short codes in national numbering plans. This Decision consolidated important elements of numbering harmonisation in Europe from different deliverables into a single ECC Deliverable. As these harmonisation measures are very significant, the ECC considered that it would be most appropriate to enshrine them in an ECC Decision. This would ensure that European countries considering changes to their national numbering plans are aware, and can take into account, these harmonisation measures. The second article of the May edition explored the subject of unwanted emissions and receiver performance in spectrum management. It provided an overview of the ECC’s ongoing work to better quantify and characterise both unwanted emissions and receiver parameters, taking into account recent developments in technology.
- The August newsletter contained three articles. The first of these was on drones, or unmanned aircraft systems (UAS). It provided commentary and analysis on the ongoing work of frequency regulators and stakeholders to examine the role of spectrum in realising the full potential of commercial drones in the future. The article also covered the outcomes of the CEPT Workshop on this subject which was held in Copenhagen on 29-30 May 2018. More information on the workshop is available on page 31. The second article of the August edition described a recently-adopted set of ECC Deliverables, which are shaping the harmonisation of the frequency bands 3.4-3.8 GHz and 24.25-27.5 GHz for 5G. The third article described the rationale for CEPT’s work to provide additional spectrum for mobile in the L-band (1427-1518 GHz).
- Finally, the most recent edition of the newsletter was published in December 2018 and also had three articles. The first explored CEPT’s priorities and preparations ahead of the World Radiocommunications Conference in 2019 where a series of proposals are being developed which will have an impact on radiocommunications for years to come. The second article examined the rise in demand for spectrum for mission-critical machine-to-machine communications, and explored the opportunities for broadband and IoT in the 400 MHz band. Finally, the third article analysed the regulatory implications for profile provisioning and service provider switching in the mobile service domain as embedded SIMs are now being widely deployed.

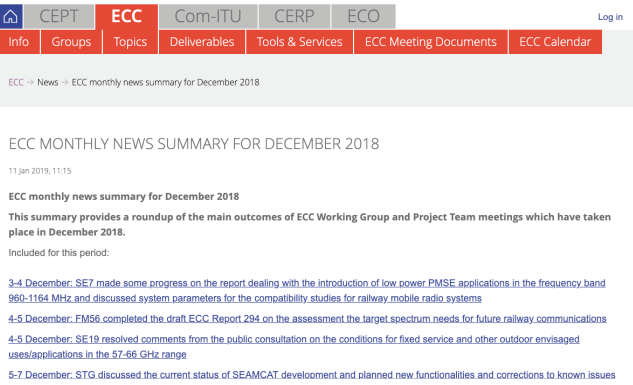
The newsletters were distributed electronically to almost 5 300 stakeholders and were published on the ECC website. You can subscribe to the ECC Newsletter for free on our [ECC newsletter](#) page, where an online archive of earlier editions is also available.

Throughout the year, the ECO also informed subscribers to the ECC Newsletters about the main activities and events, such as the results from the three ECC Plenary meetings held in 2018, notifications about upcoming workshops and the outcomes of those workshops, questionnaires, public consultations, and any releases of new versions of our tools and services.



The publication of ECC Newsletters and of news releases are backed up by short notifications, disseminated through the ECC Twitter account, @CEPT_ECC, which is managed by the ECO. Our use of Twitter remains very focused on the communication of factual information concerning the ECC’s activities, covering in particular the most significant meetings and workshops.

In order to describe the more routine activities within the ECC in greater detail, we also maintained our efforts in the development and publication of monthly news summaries on the ECC website. These news items provide a round-up of the main outcomes of ECC Working Group and Project Team meetings and events that take place each month. They are developed from contributions from ECO’s experts with responsibility for the various groups. Throughout the year, the monthly summaries were published in the news area of the ECC web page. (<https://www.cept.org/ecc>).



Organising workshops on thematic issues and developing training sessions to increase awareness of ECC activities

Thematic workshops provide an excellent platform for exchanging information, raising awareness of ECC activities and informing ECC Deliverables and follow-up activities. The ECO plays a central and leading role in organising these events. In 2018 two such workshops were organised. They addressed “spectrum for drones” and “the role of E.164 numbers in international fraud and misuse of electronic communications services”.

Public workshop on Spectrum for Drones/UAS (Copenhagen, Denmark, 29-30 May 2018)

The Office organised the CEPT Workshop on ‘Spectrum for Drones – Unmanned Aircraft Systems (UAS)’ in Copenhagen on 29 and 30 May 2018. The focus of the workshop was on drones which fly in circumstances where they do not need communications with air traffic control and which are related to ongoing activities to explore frequency opportunities for such services within ECC PT1 and WG FM.



This two-day event brought together 98 participants from CEPT Administrations, European organisations and associations, industry and the aviation sector to discuss the future requirements around UAS and spectrum. It was a packed schedule, with around 25 speakers delivering informative presentations across the two days, often leading to robust discussions.



ECO expert, Thomas Weber (right), at the Drones Workshop in May 2018



Photo by Josh Sorenson on Unsplash.com

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The ECO plays a central and leading role in organising thematic workshops.

The ECO was responsible for the complete organisation of the event, from selecting a suitable venue in Copenhagen, all practical arrangements, setting up a workshop webpage, handling the documentation and registration, as well as supporting the meeting session organisers and speakers in all aspects necessary for such a workshop. The ECO led on the development of the agenda for the event and the necessary co-ordination of the presenters, resulting in a comprehensive programme covering the main technical and regulatory aspects.

The workshop heard how drones are already being used for civil and commercial use, by everyone from flying model enthusiasts to those within agriculture and government (e.g. public protection and disaster relief). In some jurisdictions drones have already become vital tools in disaster situations. They are sent up to inspect fires, assess the impact of flood damage or to drop buoys into the sea to rescue swimmers, for example. As a follow up action, the ECO produced an ECC Newsletter article summarising the results of the workshop and providing information on the ECC’s follow-up activities.

Public Workshop on The Role of E.164 Numbers in International Fraud and Misuse of Electronic Communications Services (Brussels, Belgium, 11 December 2018)



This workshop was organised by the ECO and kindly hosted by the Belgian Institute for Postal Services and Telecommunications (BIPT) for the ECC’s Working Group Numbering and Networks (WG NaN). The aim of the workshop was to bring regulators, policy makers and industry together to discuss fraud and misuse of electronic communications services where E.164 numbers play a role. The workshop attracted over 90 representatives from a broad range of stakeholders to share experiences and insights on fraud and to co-operate and collaborate on finding solutions to effectively combat fraud. The ECO was instrumental in organising the agenda, liaising with speakers before and after the event, communicating with participants and organising the logistical arrangements. The ECO representative also chaired the final panel discussion where speakers from the Communications Fraud Control Association, BICS, AT&T and Voxbone shared their views on some of the main challenges and how to tackle them. The workshop provided a lot of food for thought. WG NaN is discussing the outcomes from the workshop and these discussions may lead to new work items in 2019 and beyond.



ECO expert, Freddie McBride, left, chairing the closing panel discussion at the fraud workshop in Brussels

SEAMCAT workshop for intermediate users (ECO, Copenhagen, Denmark, 16-17 May 2018)

ECO experts José Carrascosa and Peter Faris organised and led a two-day SEAMCAT training session for intermediate users on 16 and 17 May 2018 at the ECO premises in Copenhagen. The workshop was specifically designed for intermediate users with a focus on the more advanced functionalities of the software. The workshop also presented an opportunity for those who wished to get acquainted with the new features introduced in the latest SEAMCAT version 5.2.0, released in March 2018. Over the course of the two-day workshop a number of case studies were presented where participants were able to experience first-hand how the practical application of SEAMCAT facilitates statistical modelling of different radio interference scenarios for performing co-existence studies. The workshop also covered scenarios for multiple interfering links and working with Event Processing Plugins (EPPs).

SEAMCAT workshop for beginners (ECO, Copenhagen, Denmark, 10-11 October 2018)

A second SEAMCAT workshop for beginners was organised by José Carrascosa on 10 and 11 October 2018 at the ECO premises in Copenhagen. The workshop provided an overview of the tool, its main modules and a set of exercises that enabled participants to become familiar with the key functionalities and with the graphical user interface. The beginners’ workshop also provided an opportunity for new SEAMCAT users to experience the features introduced in the latest version of SEAMCAT. According to the participants’ feedback obtained through a questionnaire, the workshop responded to their expectations in terms of understanding the theoretical principles upon which the Monte-Carlo simulation is based. Positive feedback was specifically expressed in relation to the practical exercises during the workshop.

Increasing the visibility of the ECC through presentations at events

During the year, ECO experts continued to actively participate in a range of conferences and workshops where we delivered presentations on thematic topics while promoting the work of the ECC on related matters. These events provide the Office with an opportunity to share information with relevant stakeholders and to increase awareness and understanding about the ECC’s areas of expertise, its policies and regulations.

IWPC Workshop on New Features for Automotive Radars (Stuttgart, Germany, 20-22 February 2018)

The International Wireless Industry Consortium (IWPC) facilitates global knowledge-capital collaboration, delivering unfiltered real-time insight into vital technology, market and ecosystem evolution for all things wireless. The purpose of this workshop was to explore how the performance of wireless sensors can be improved towards imaging radar and which other systems and applications (e.g. high quality maps, road border detection and parking) can benefit from this data source. ECO expert Thomas Weber made a presentation on the regulatory framework in Europe using sensors in several frequency bands (e.g. 63-64 GHz, 76-77 GHz, 77-81 GHz) and on the ECC’s ongoing work in this area.

EENA Conference 2018 (Ljubljana, Slovenia, 25-27 April 2018)

The European Emergency Number Association (EENA) invited ECO expert Freddie McBride to its annual conference to make a presentation on the ECO’s ongoing work to implement a directory of contact information for public safety answering points throughout Europe (PSAP-Directory). The ECO commenced work on the directory in 2018 and provided an update on the project plan. A technical overview of the directory was also provided and PSAPs were informed on the steps that needed to be taken to join the directory.

ITU Regional Seminar for CIS and Europe (St Petersburg, Russian Federation, 6-8 June 2018)

This seminar, co-organised by the ITU and Peter the Great St. Petersburg Polytechnic University, gathered experts from industry, telecommunication operators, regulators and specialised agencies in Europe and CIS countries. Here, they presented and discussed their experiences in the latest technologies and trends in the development of radiocommunication systems. The seminar specifically focused on future spectrum requirements to facilitate the worldwide operation of radio systems. ECO expert Thomas Weber took part in the workshop and presented CEPT’s technology-neutral approach and activities for the future regulation of spectrum for intelligent transport systems (ITS).

IEEE PIMRC Symposium 2018 (Bologna, Italy, 9-12 September 2018)

The Institute of Electrical and Electronics Engineers (IEEE) is the world’s largest technical professional society. Its annual symposium on Personal, Indoor, Mobile and Radio Communications (PIMRC) is a premier conference in the field of radio communications. Each year, it attracts over 700 participants with scientific, academic and research backgrounds. ECO expert Doriana Guiducci made two presentations at this event. The first covered European 5G regulatory developments and the CEPT 5G Roadmap, while the second provided further insight in to how to evolve regulation with technologies for effective spectrum management. The presentation also emphasised the importance of the ECC’s work in spectrum engineering to assess under which conditions different systems can co-exist.

ETSI EMTEL - PT ES Joint Workshop (Sophia Antipolis, France, 17 October 2018)

As part of its ongoing co-operation with ETSI, the ECC’s Project Team Emergency Services (PT ES) and ETSI’s Special Committee on Emergency Telecommunications (EMTEL) hold joint workshops, typically on an annual basis, to discuss and co-operate on issues of mutual interest related to emergency services communications. ECO expert Freddie McBride attended and presented on the ECO’s progress on PSAP-Directory. A technical demonstration of PSAP-Directory was also given.

UIC Group for Frequency Aspects (UGFA) (Utrecht, The Netherlands, 23-24 October 2018)

The International Union of Railways (UIC) has a Group for Frequency Aspects (UGFA), which takes care of the expected needs for spectrum for railway communications. This event was organised by the UGFA, and ECO expert Thomas Weber attended and presented on the relevant CEPT/ECC activities for railway communications. In particular, details from ECC Report 294 were presented on assessing the spectrum needs for future railway communications.

Supporting the ECC and CEPT through continuous co-operation with other organisations

The ECC represents European interests in the ITU on matters related to the use of the radio spectrum, satellite orbits and numbering resources. The ECC also emphasises the benefits of a strong partnership with all relevant stakeholders including ETSI and the European Commission to facilitate the delivery of technologies and services for the benefit of society. In this context the ECO plays a fundamental role in building effective working relationships with these key partners of the ECC so that policy, regulation and standards development activities are aligned.

In order to increase the visibility of the ECC’s achievements, the ECO is also active in helping the ECC extend its reach on a range of topics towards other external organisations, including the other regional telecommunication organisations, and also towards universities and research institutions.

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The ECO plays a fundamental role in building effective working relationships with these key partners of the ECC so that policy, regulation and standards development activities are aligned.



ETSI

The European Telecommunications Standards Institute, ETSI, is an essential partner of CEPT and its committees, in particular the ECC. The ECO plays an important role in this partnership through its direct participation in ETSI activities and its close Vco-operation with the ETSI secretariat.

The primary objective of our involvement in ETSI activities is to ensure that the technical requirements resulting from the regulations and studies developed by the ECC are understood and properly taken into account in the related standardisation activities within ETSI.

In 2018, the ECC and ETSI published a revision of their European co-operation process of standardisation and regulation for radiocommunications devices and systems. The ETSI Technical Committee on EMC and Radio Spectrum Matters (TC ERM) is our main focus concerning radio spectrum issues. It is within this forum that the co-operation process is initiated in response to an industry proposal for a new system, service or application. A work item is created and considered for adoption in accordance with the ETSI Technical Working Procedures which are part of the ETSI Directives. The ETSI work programme is then updated accordingly (<https://portal.etsi.org/webapp/workprogram/SimpleSearch/QueryForm.asp>).

Sometimes a proposal for a new or revised radiocommunications system, service or application is first presented within the ECC, typically within the ECC Working Group Frequency Management (WG FM). In such cases, the relevant ECC group will inform ETSI TC ERM about the proposed new work item and, when relevant, will advise the promoter of the new system to initiate a system reference document (SRdoc) and/or European standard through the relevant ETSI mechanisms. You can read more about the co-operation process at: <https://cept.org/files/7326/ECC-ETSI%20cooperation%20process-2018%20final.pdf>

One of TC ERM’s duties is to be responsible for ETSI’s interface with the ECC on radio matters. In 2018, ECO Deputy Directory Bruno Espinosa attended all three meetings that TC ERM held at ETSI’s headquarters in Sophia-Antipolis in France. The main goal of this participation was to contribute to the continued consistency between ECC and ETSI activities. At these meetings, we submitted information documents on the most relevant developments within ECC and provided the necessary explanations to support ECC activities and outcomes, where appropriate.

The ECC website contains a dedicated page describing how our two organisations work together. It includes a set of documents and tools designed to strengthen the synergy between ECC and ETSI.

In 2018, we made efforts, in co-operation with the ETSI Secretariat, to enhance the following:

- A spreadsheet containing a list of ETSI Harmonised Standards under development which are related to ECC activities. The spreadsheet shows the list of ETSI Harmonised Standards (covering article 3.2 of the Radio Equipment Directive) under development or revision. It also shows their relation to the ECC Deliverables or ongoing ECC activities. Its purpose is to inform the ECC participants of the ETSI activities towards the development of Harmonised Standards and to support the consistency between ETSI Harmonised Standards and related ECC Deliverables.
- A relationship matrix reflecting the work and information connections between groups within both organisations, including where there is an ongoing co-operation between the different ECC and ETSI groups. The matrix is updated several times per year, subject to requirements.
- A brochure which provides an introduction to the regulatory environment in Europe for radio equipment and spectrum; the latest version was published in November 2017.

Links to the spreadsheet, the relationship matrix and the brochure can be found [here](#).

We also hosted a meeting of ETSI TG28 in August 2018 at our offices in Copenhagen and worked with the ETSI secretariat to improve and streamline how the ETSI Deliverables are referenced in our databases, namely through EFIS and the ECO Documentation Database.

In the field of numbering and networks, the ECC’s work on emergency services communications continues to increase in importance and, in 2018, the ECO continued its participation in ETSI’s Special Committee on Emergency Telecommunications (EMTEL). EMTEL has the status of a Special Committee (SC) within ETSI, which provides the group with the flexibility to produce Technical Reports (TRs) as well as Technical Specifications (TSs). ETSI and the ECO teamed up to organise a second joint workshop which took place at ETSI Headquarters on 17 October 2018. Both PT ES and ETSI SC EMTEL met back-to-back in conjunction with the workshop. The workshop proved to be a great success yet again and identified areas where synergies between the two groups could be exploited on subjects such as public warning services, implementation of advanced mobile location (AML) and emergency caller location information from private/corporate networks.

The ECO also maintained its close co-operation with ETSI’s Technical Committee Network Technologies (TC NTECH), ETSI’s centre of expertise on network technologies, which provides architecture and protocol specifications for network interoperability and interconnection. A dedicated NaN technical liaison officer from ETSI NTECH continues to participate in each WG NaN meeting and provides progress reports on NTECH’s work programme.



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European Commission and European Union relevant activities

The ECO continued its task of providing regular support to the ECC as an observer representing the ECC at all the 2018 meetings of both the Radio Spectrum Committee (RSC) of the European Commission (EC) and of the Radio Spectrum Policy Group (RSPG).

In particular, the ECO prepared the summary report of ECC activities for each RSC meeting and supported the ECC Chairman in his presentation, when required. We also participated in two ECC-EC consultation meetings held in 2018 as part of the ECC Delegation.

Our involvement in these activities is mainly driven by the need to ensure an efficient interface between the ECC and the EC in implementing the Radio Spectrum Decision. Furthermore, it also provides us with valuable background information that we can feed into our activities within ECC’s groups, in particular when developing CEPT Reports in response to Mandates from the EC.

In 2018, the ECO participated in three meetings of the Telecommunication Conformity Assessment and Market Surveillance Committee (TCAM) Working Group and also in one TCAM Expert Group on Reconfigurable Radio Systems (RRS). Specifically, we contributed to the work on the definition of radio equipment subclasses in the context of the implementation of the Radio Equipment Directive. This helped in ensuring the consistency between the definition of sub-classes and the corresponding spectrum regulations.

The ECO is also an invited expert at meetings of the European Commission’s Communications Committee (COCOM). In 2018, the ECO participated in one COCOM meeting to discuss the future of the 116 numbering range for harmonised services of social value. The ECO also continued to support ECC Working Group Numbering and Networks to foster and maintain a close working relationship between the CEPT and the Body of European Regulators for Electronic Communications (BEREC) through collaboration at the

working group level. The European Electronic Communications Code (EECC) entered in to force on 20 December 2018. ECO/ECC exchanged letters with BEREC on co-operating on numbering-related provisions in the code where BEREC has been assigned tasks and the ECC/ECO can provide technical expertise. The main objective of this relationship is to leverage the different skillsets of both groups to encourage further co-operation and avoid duplication of effort in the implementation of the new provisions.

ADCO RED and RED CA

Directive 2014/53/EU, “The Radio Equipment Directive (RED)”, specifies requirements that products must meet in order to be placed on the market and put into service. It includes the essential requirements for radio equipment to both utilise and support the efficient use of radio spectrum in order to avoid harmful interference.

The implementation of the RED at the European level involves a number of organisations including the European Commission and ETSI. The ECC has also a key role to play in this area through its technical expertise in radio spectrum. In this context, the ECO has been active for many years in supporting ECC in this context. It led us to act as an ECC focal point with two influential bodies for the implementation of the RED: the Administrative Co-operation in RED (ADCO RED) and the RED Compliance Association (RED CA), the major groups of the European regulators in the RED compliance area. In 2018, we attended the two meetings of ADCO RED and also hosted one of these meetings at our offices in Copenhagen.



ADCO RED event at ECO’s offices in Copenhagen, July 2018

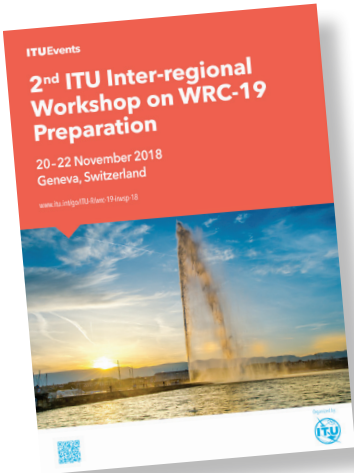
At these meetings, we reported on activities within the ECC on interference cases encountered by national administrations. We also contributed to the establishment of the co-operation process between ADCO RED and the ECC Working Group Frequency Management, which began assisting ADCO RED in its market surveillance of Radio LAN equipment in 2018.

We participated in the two meetings of RED CA in 2018. This group gathers together the RED Notified Bodies and any interested testing or manufacturing organisations. We informed the group about the latest ECC activities on 5G, drones/UAS and spectrum below 9 kHz. We also informed RED CA of relevant recently published deliverables – on L-band, on IoT/M2M, PMR446, UAS, Fixed Links and other ECC Reports on compatibility studies.

ITU

ECO experts participate in the relevant study group meetings of ITU within the ITU-R (Radiocommunication) and ITU-T (Telecommunication Standardisation) sectors. Our participation in these meetings provides us with the opportunity to promote European achievements to other regions of the world and to engage and exchange views with regulatory experts on activities and developments outside of Europe.

The CEPT’s engagement with ITU in 2018 was very much focused on Com-ITU’s preparations for PP-18 and the ECC’s preparations for WRC-19. In that respect the ECO participated, along with representatives of the ECC’s Conference Preparatory Group (CPG), in the 2nd ITU Inter-regional Workshop on WRC-19 Preparation. This workshop took place in Geneva from 20 to 22 November 2018 and provided participants from all regions of the world with the opportunity to discuss WRC-19 agenda items and issues, and to gain a better understanding of the possible solutions and preliminary regional positions on those. The ECO also participated in ITU World Radiocommunication Seminar (WRS-18) in Geneva from 3 to 7 December 2018. Organised on a biennial basis, the WRS deals with the use of the radio-frequency spectrum and the satellite orbits, and, in particular, with the application of the provisions of the ITU Radio Regulations.



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Our participation in these meetings provides us with the opportunity to promote European achievements to other regions of the world.

In the ITU-T sector, the ECO also participated in one meeting of Study Group 2 (SG2) which took place on 4-13 July 2018 at ITU Headquarters in Geneva in Switzerland. SG2 is the lead study group with responsibility for operational aspects of service provision and telecommunications management. During the July meeting the ECO contributed to a number of agenda items. These included best practices for policies for national numbering plan management and emergency caller location information, referring to work and related deliverables on these matters carried out by the ECC. The ECO also informed the meeting of the upcoming workshop on the role of E.164 Numbers in International Fraud and Misuse of Electronic Communications Services and of the recently adopted ECC Report 275 on the same subject.

We also followed the activities of ITU-T Study Group 20, which is responsible for identifying standardisation requirements of IoT technologies, with an initial focus on IoT applications in smart cities and communities (SC&C). There are common areas of interest between SG2 and SG20 as regards numbering and identifiers for M2M/IoT devices and it is important for the ECC to be briefed on these activities.

Overview of ECO initiatives since 2015 to strengthen the collaboration with academia and research projects

The ECC Strategic Plan 2015–2020 assigned the ECO with the task of further strengthening collaboration with universities, relevant scientific institutes and programmes willing to do research on spectrum issues. In addition, the ECC Steering Group advised that the Office should strengthen co-operation with the Joint Research Centre (JRC) of the European Commission and focus on developments in 5G. Projects funded under the Horizon 2020 European Research and Innovation Programme (H2020) should be considered, in particular the 5G-PPP.

The ECO insight on forward-looking studies and research is shaped by the CEPT roadmap for 5G, first approved in November 2016. The roadmap contains a comprehensive list of actions on 5G and identifies the related ECC activities, thus helping in further recognising research areas and initiatives of specific interest for the ECC.

Since the 5G-PPP was launched in 2015, the Office has continuously monitored and maintained exchanges with 5G-PPP-funded projects, also leveraging on the Letter of Understandings signed in June 2017 by the ECC and the 5G Infrastructure Association (5G-IA). 5G-IA is the private partner in the 5G-PPP contract while the European Commission is the public partner. In this context, the ECO has participated on the advisory board of the COHERENT Project on 5G heterogeneous radio access networks, funded under Phase 1 of 5G-PPP which closed in June 2018. Additional contacts have been maintained with other research projects under H2020, dealing with topics under study within the ECC such as novel millimetre wave technologies for fixed applications.

We have also intensified our working relationship with the JRC over the years on matters and objectives of mutual interest. This resulted in an exchange of information and a closer collaboration of the JRC in ECC activities, such as those in 2017 and 2018 related to the Wireless Access Systems/Radio Local Area Networks in the 6 GHz band.



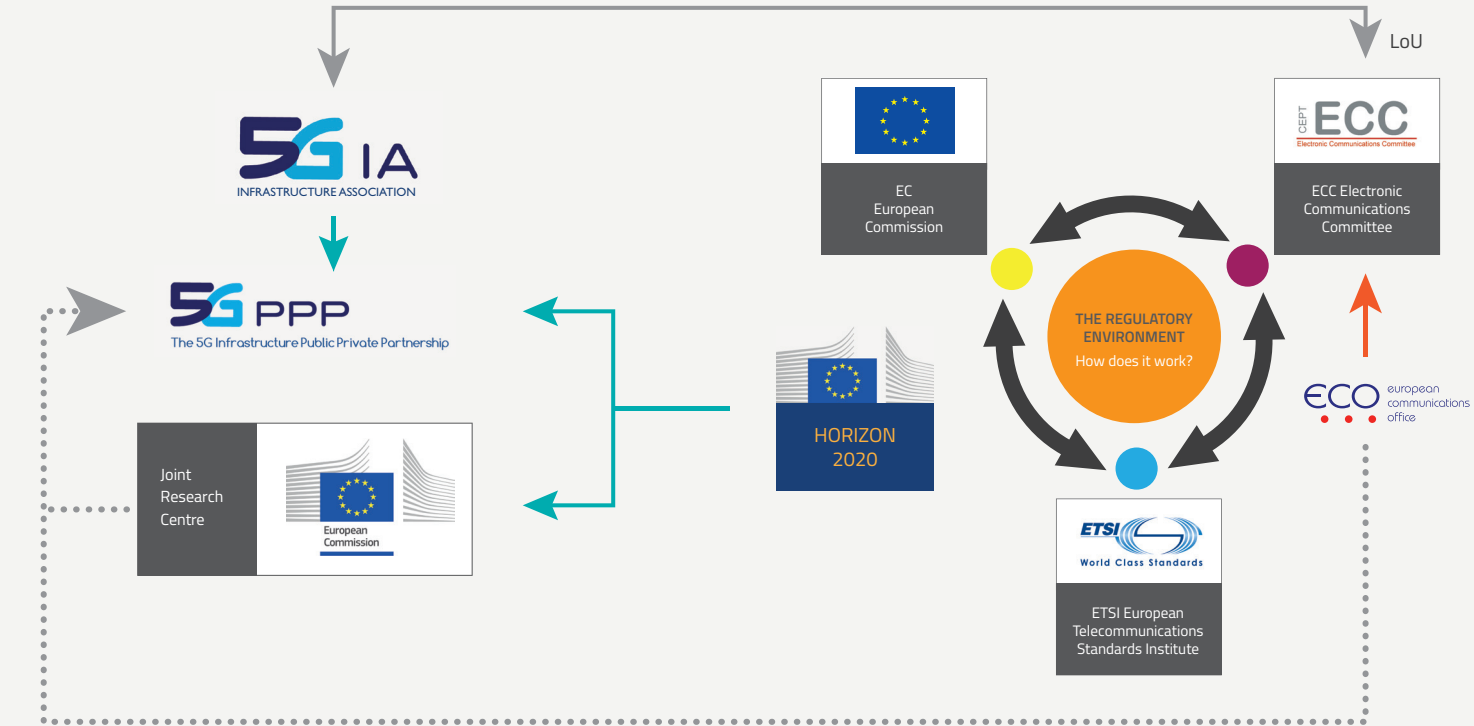
The ECO insight on forward-looking studies and research is shaped by the CEPT roadmap for 5G...



ECO expert Doriana Guiducci (left) at the PIMRC Symposium in Bologna.

Throughout 2018, the ECO continued to build on growing its list of contacts with academia, universities and research institutions. This has been done through the participation of ECO experts in a number of events, seminars, lectures and scientific symposia, including the recent presentations delivered in September 2018 at the University of Bologna and the IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC'18).

The European Framework for Spectrum Management and the EU Programme for Research and Innovation



Promoting the exchange between the ECC and the other regional telecommunication organisations

As the CEPT secretariat the ECO acts as a permanent point of contact with other regional telecommunication organisations recognised by the ITU. In particular, we are the point of the contact in the course of preparations for the main ITU conferences.

In 2018, we continued co-ordinating the process of co-operation and exchange of information between the ECC and the other regional organisations for the preparation of WRC-19. As part of this support to CPG, we participated in the second inter-regional workshop on WRC-19 preparation. It was organised by the ITU on 20-22 November 2018 in Geneva in Switzerland, and we were involved in the submission of the preliminary views from CEPT to the workshop. In addition, the Office contributed to the development and the exchange of relevant documentation such as the presentations providing CEPT positions to other regional organisations.

In 2018, we also arranged the participation of CEPT representatives in meetings of other regional organisations, and vice-versa, particularly in preparation for PP-18. The ECO organised the participation of CEPT delegations in meetings of: the Inter-American Telecommunication Commission (CITEL); the African Telecommunications Union (ATU); Arab Preparatory Group for PP-18; Asia-Pacific Telecommunity (APT); Regional Commonwealth in the field of Communications (RCC), and the third inter-informal regional preparatory meeting for PP-18.

Our central position in the exchange between the CEPT and the other regional telecommunication organisations helped us in developing good working relationships with these organisations to promote CEPT positions and achievements in advance of the ITU Conferences.



The ECO acts as a permanent point of contact with other regional telecommunication organisations recognised by the ITU.

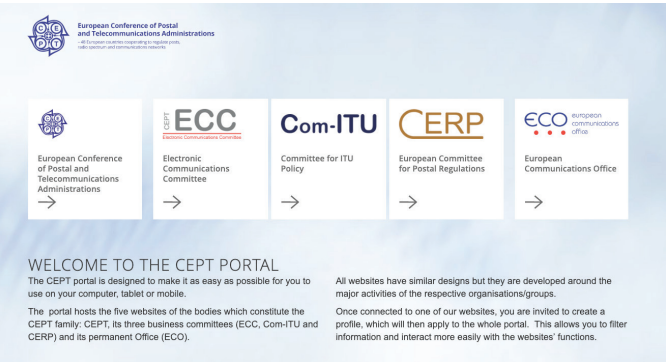
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MANAGING OUR OPERATIONAL SUPPORT

The ECO is committed to delivering first-class support to CEPT and its committees through the provision of a wide range of administrative, operational and expert services. This back-end support is vital in the day-to-day operations of the CEPT as it provides our stakeholders with timely and relevant information on technical, regulatory and market developments, as well as providing a central point for enquiries and a facilitator of communications between our members throughout Europe.

Our objective is to ensure that relevant information is available to people when they need it, and we do this through managing, maintaining and updating various information sources on our web portal throughout the year. We also provide meeting facilities, both physical and virtual, as well as offering administrative support to CEPT and its committees as required.

Managing CEPT’s family of websites



Launched in 2011, the CEPT portal provides a window for the world to explore the work of CEPT and its committees.

It provides a common platform with harmonised functionalities to the websites of CEPT, its three business committees (ECC, Com-ITU and CERP) and its permanent Office (ECO) – the five entities that constitute the CEPT family.

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The CEPT portal provides a window for the world to explore the work of CEPT and its committees.

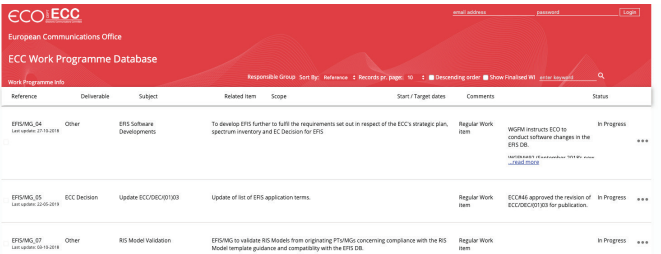
In 2016 and 2017 we implemented a significant upgrade of the CEPT portal which was followed by further enhancements following feedback from users. In 2018, our focus moved away from the user experience towards the more fundamental aspects of system backups, redundancy, data integrity and overall system performance. As a first step in this direction, we migrated our data backups from physical tape media to the cloud. This migration means that backups of all of our critical data are now securely stored off-site so it is safe from any outage or breach affecting our main onsite infrastructure while allowing for a speedy recovery in the event of any data loss or corruption. In 2019, we plan to comprehensively evaluate our system hardware and software components, with a view to implementing some upgrades that will further enhance our system performance and our users’ quality of experience.

THE CEPT PORTAL IN 2018	
Number of user profiles registered to the portal	5 030
Unique visits*	99 403
Page views	1 197 434
Bounce rate**	39.46%
* Multiple visits having the same IP and date are counted as one unique visit ** Bounce rate is calculated from single-page visits (visits where users have only seen one page) divided by the number of entries on the site	

Managing our databases

Apart from EFIS, DocDB and SEAMCAT, the ECO also manages and updates other important online information systems on which our main European stakeholders and other interested parties rely.

Maintaining and upgrading the ECC Work Programme Database

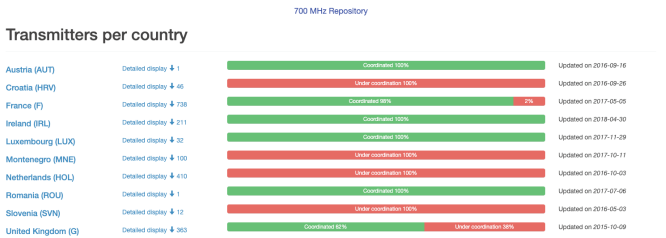


The ECC Work Programme Database (WP DB) is part of a suite of software tools developed by the ECO to provide the ECC and its constituent bodies with online facilities for maintaining and updating their respective work programmes on an ongoing basis. It provides our external stakeholders with visibility on our work items and associated timelines. ECO experts supporting the work of the various ECC groups, take the lead on maintaining the information on work items in the WP DB. This provides users with useful features in terms of providing an overview of current and past work items, a search and filtering facility and the ability to create Gantt charts to illustrate the work of any ECC group. The WP DB has become an integral tool for managing the ECC’s work while providing interested parties with a high level view on the overall scope of the ECC’s activities.

At the end of 2018, the WP DB contained information related to over 500 ECC work items, either active or finalised including an up-to-date status on the 100+ work items which were in progress over the course of 2018. The WP DB received 798 213 page views in 2019 from 11 069 unique visitors. The WP DB is available at <https://eccwp.cept.org/>.

Information repository on progress for co-ordination of the 700 MHz band

Following the implementation of the digital dividend in the 700 MHz band (i.e. change of use of the band 694-790 MHz from broadcasting to mobile services), the ECC tasked ECO to develop a tool that would allow users to monitor and review the progress of bilateral and multilateral co-ordination negotiations between CEPT countries on the use of this band. In 2015, the Office developed and released the 700 MHz information repository on the CEPT portal, which was continuously enhanced to improve its functionalities. At the 48th ECC meeting (3-6 July 2018, Rome, Italy), the ECC plenary discussed the status of the 700 MHz repository and agreed with the proposal from the Steering Group that the developments of the repository should be stopped and that the associated 700 MHz forum group should be closed. The repository remains available on the website with the possibility for administrations to continue to upload information when appropriate.



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The WP DB has become an integral tool for managing the ECC’s work while providing interested parties with a high level view on the overall scope of the ECC’s activities.

The PSAP-Directory

The PSAP-Directory is a new responsibility for the ECO. It is a directory containing contact information for Public Safety Answering Points (PSAPs) to be used as a back-office support tool for PSAPs to contact each other when a need arises. For example, the directory would be used in the event of an emergency call where assistance may be required in another country. Following the consideration of a feasibility study published in May 2017, the ECC decided that developing and hosting such a tool was a relevant activity for it to be involved in and, following consideration of the financial, legal and human resource implications, the ECO Council gave the project the green light in December 2017. The project kicked off in earnest in February 2018 through discussions with relevant stakeholders to scope the system requirements. Software development and testing then took place throughout the summer of 2018. The PSAP-Directory came in to service on 1 December 2018 and now contains contact information for 14 PSAPs throughout Europe. Participation is expected to increase in the years ahead which will make the PSAP Directory an integral tool to facilitate PSAP communications. The information contained in the PSAP-Directory is confidential in nature and is only accessible to participating PSAPs.



Promoting electronic working arrangements

The CEPT Committees broadly agree that the efficiency of working processes can be improved by making use of electronic methods of working to complement physical meetings. In this respect, we provide our stakeholders with access to four main tools and services dedicated to electronic working:

- **Web-meeting facilities:** Our web-meeting facilities are based on the use of the commercial 'GoToMeeting' platform combined with the meeting management features integrated into our portal. They are now part of CEPT's routine in terms of meeting management. In 2018 we hosted 168 web meetings, a significant increase on the 2017 figure of 121, for different groups within the three business committees. ECO experts can arrange on request the use of GoToMeeting to accommodate virtual participation in meetings hosted externally.
- **Group email facilities:** For the three CEPT Committees and their sub-groups, we provide and manage a range of dedicated group email addresses to facilitate ongoing communications between the individual members of each group and across groups. The groupmail functionality is enabled through an email list server which is integrated with the CEPT portal. When a user joins a group they are automatically added to the email address for that group. Users can customise their participation in various groups in their CEPT profile settings. In 2018, we managed more than 50 email reflectors to assist groups within the CEPT Committees.
- **CEPT Forum:** The forum features have been integrated into the CEPT portal since 2012 and have been further improved since then. The extent of its use depends upon the groups and project teams. It constitutes an efficient complement to the physical meetings, the web-meetings and the email reflectors to progress the work on specific work streams and to exchange views on emerging topics of interest.
- **CEPT Chat system:** This system is activated upon request to facilitate CEPT co-ordination at major events through the implementation of a real-time chat function. The chat function is integrated with the CEPT portal and, in 2018, we added a new feature to access the chat facility from a smartphone. This new feature was first used for CEPT co-ordination at PP-18 which took place in Dubai from 29 October to 16 November.

Providing facilities for collaborative working

CEPT's work is based on collaboration between regulators and industry representatives from different countries across Europe. We provide meetings facilities at our premises at Nyropsgade 37 in central Copenhagen in Denmark, where we have been located since May 2014.

Our main meeting room has a capacity of approximately 60 seats and can be divided into two rooms of 40 and 20 seats respectively. We also have a second meeting room with capacity for approximately 20 seats. In 2017, we made available a further small meeting room, for approximately eight people and, in 2018, we initiated plans for increasing meeting capacity further in 2019.

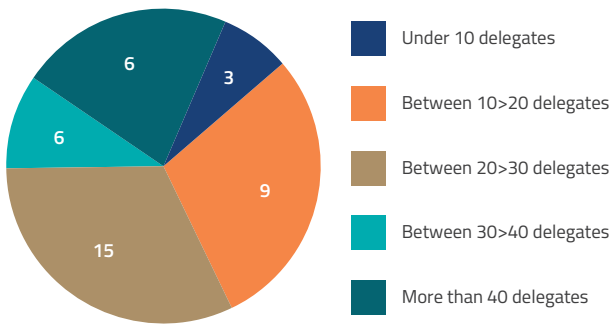
Our meeting rooms have internet access for delegates, as well as audio/visual facilities. We have supported remote participation in meetings hosted at our premises for many years. In 2018, we installed a new remote meeting system which allows remote participation in meetings hosted at the ECO with a very high quality of audio/visual experience.

In 2018, the ECO hosted 39 meetings, spread across 96 days, attracting 1 074 delegates to our premises in Copenhagen. While the figures for the total number of meetings and total number of meeting delegates were down slightly on the previous year (41 meetings in 2017 attracting 1 078 delegates) the number of meeting days rose by almost 10% from 86 days in 2017 to 96 days in 2018. These meetings ranged from small working sessions with fewer than 10 participants to larger events accommodating more than 50 attendees.

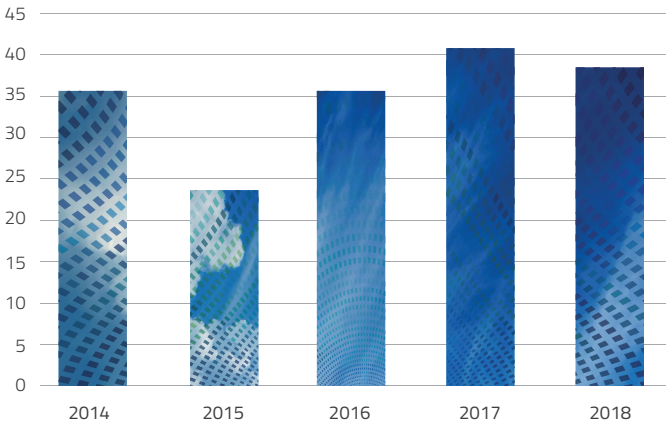


An FM44 meeting held at the ECO offices in Copenhagen, 23-26 April 2018

Number of delegates per meeting in ECO in 2018



Number of meetings at ECO 2014-2018



Collaboration in Action: A behind-the-scenes look at our operational and administrative support

The experts at the ECO often represent the face of the Office as they are embedded in many groups of the three business committees but it is our permanent staff who keep the day-to-day operations running smoothly.

Our permanent staff consists of five highly-valued members of our team: Susanne Have, Vibeke Hansen, Mette Tobiassen, Anne-Dorthe Hjelm Christensen and Kenneth Karlsson. They are, above all, team members who collaborate and communicate effectively both internally and externally, often working across a variety of roles when other members of the team are out of the office.



Susanne Have is the secretary of the ECO Council meetings. In this role, she prepares meeting documentation, invitations, and records and reports the minutes. She also provides administrative support to Com-ITU and CERP, and is the contact point for ITU and ETSI, as well as for other international organisations with whom we communicate. In addition, Susanne is an integral member of the ECO SAT MoU and ECC FM 58.



Kenneth Karlsson is the ECO's IT manager and has responsibility for the development and maintenance of all our IT systems and infrastructure. This is a critical role within our organisation given the high level of expectation from CEPT, its committees, administrations and stakeholders on the IT-based tools and services developed and maintained by the Office. In 2018, Kenneth led several projects to review our IT policies, to implement improvements and bug fixes on our existing tools and services and to formulate plans to rationalise our IT platforms in order to improve the reliability and efficiency of our resources including placing all of our system backups in the cloud. The plan will continue to be executed in 2019 with the focus shifting to our hardware and software components.



Vibeke Hansen has a multi-faceted role within the ECO. She works in reception and manages the day-to-day running of the office including making arrangements for meetings at our premises. In 2018, she assisted more than 1 000 meeting delegates with everything from welcoming them to the office to arranging transport and managing meeting facilities for ad hoc sessions. Vibeke is also the ECO's webmaster with responsibility for updating content on the CEPT portal and ensuring that the portal continues to remain an accurate and consistent source of information for our stakeholders.



Mette Tobiassen is our finance and human resources manager and is responsible for ensuring that our financial reporting and human resources policies are consistent with the financial and legal framework of the Office. Mette is also responsible for all liaisons with the relevant institutions of Danish Government on ECO matters. She reports to the ECO Director and to ECO Council.

In 2018, Mette led a project to implement a new data protection strategy following the entry in to force of the General Data Protection Regulation (GDPR).



Anne-Dorthe Hjelm Christensen provides invaluable assistance to our experts in supporting the work of the ECC. Public consultations are an integral part of the ECC's approach to developing deliverables and Anne-Dorthe manages the public consultation process end-to-end. She also carries out editorial reviews of draft Deliverables before final publication in DocDB, and is responsible for managing changes to EFIS in conjunction with our frequency management experts. In 2018, ECO representatives attended 126 meetings and events in 20 countries, mostly in Europe. Our representatives spent a total of 338 meeting days and 351 nights on international missions outside of the ECO. Anne-Dorthe was responsible for making travel arrangements for our staff to these meetings and liaising with our travel agency in the event of any issues.



ECO staff members, Susanne Have and Vibeke Hansen taking care of business at the Drones Workshop in Copenhagen 28-29 May 2018.

Meeting our GDPR obligations



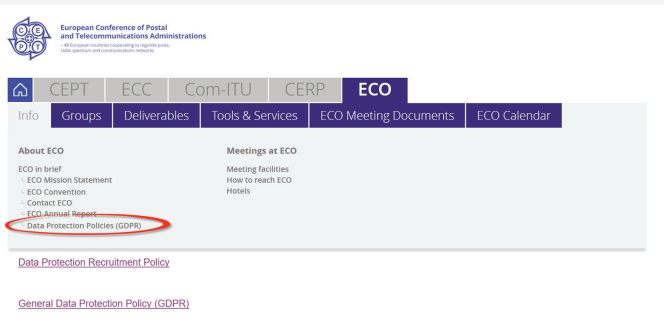
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The GDPR requires organisations such as the ECO to protect the personal data of their customers and employees at all stages of the data-processing lifecycle.

On 25 May 2018, the General Data Protection Regulation (GDPR) entered into force thereby implementing a robust set of rules to protect the personal information of Europe's citizens in a world of rampant technological change. The regulation also gives rights to individuals giving them more control over how any organisation processes their personal information.

Meeting the obligations of the GDPR requires an organisation to carry out an in-depth analysis of how it manages, processes, stores and deletes personal data. At the ECO, we process the personal data of our employees, our individual CEPT members and other stakeholders. In 2018, we started a project to assess our current personal data-processing practices and then developed and implemented policies in order to meet our obligations under the GDPR. These policies are now available on our website [here](#).

We take our obligations to protect your personal information seriously. If you require any further information on our GDPR policies please contact dataprotect@eco.cept.org



Supporting the CEPT Presidency

In 2018, ECO support to the CEPT Presidency was mainly confined to routine activities, such as: the invoicing and collection of CEPT member financial contributions; correspondence with the CEPT Co-Presidency; responding to requests about CEPT, and maintenance of the sections of the website which relate to the CEPT Presidency.



Supporting the European Committee for Postal Regulations (CERP)

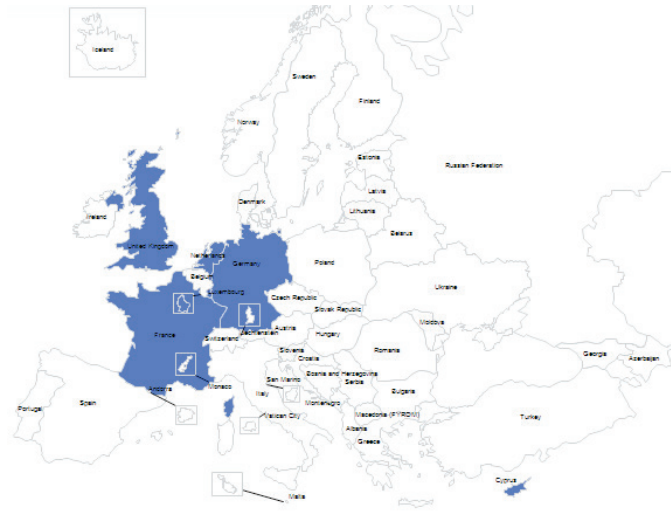
ECO maintained its operational support to CERP and its Working Groups in 2018. This involved secretarial support, correspondence with the CERP Chairmanship, responding to correspondence from external bodies, creating electronic questionnaires and collating results, and maintenance of the CERP section of the website and CERP documentation. We also assisted the CERP Chairman with the template development and distribution of the **CERP newsletter**.

In 2018, we hosted the 51st CERP Plenary Meeting and one meeting of the WG UPU in our premises, as well as organising and facilitating five web meetings of the CERP Steering Committee. We also continued to promote the use of our tools and services used by the other CEPT committees to CERP.

Supporting the satellite monitoring Memorandum of Understanding

A group of six national authorities have established an agreement under the Satellite Memorandum of Understanding (SAT MoU) to have access to the space radio monitoring station located in Leeheim, Germany. The agreement facilitates satellite monitoring activities within CEPT, particularly to investigate interference involving satellites with the benefit to share the costs associated with running and maintaining the satellite monitoring facility.

In 2018, the signatories of the agreement were: France, Germany, Luxembourg, The Netherlands, Switzerland and the United Kingdom. Cyprus will join the SAT MoU in 2019.



The monitoring activities carried out in Leeheim include those commissioned by the Working Group Spectrum Engineering Project Team SE40, which triggered a satellite monitoring campaign of IRIDIUM's NEXT constellation in 2017. It is expected that measurements on the full constellation of IRIDIUM NEXT satellites will be taken during 2019, once the full constellation is operational.

In this context, the ECO provides secretariat support to the SAT MoU management committee, and manages CEPT's SAT MoU account set up to cover the costs of using the Leeheim facilities. The ECO also acts as the interface between the SAT MoU and the ECC.

In terms of the promotion of the SAT MoU, the ECO maintains a document describing SAT MoU activities since July 2003 and a leaflet that summarises the importance of the SAT MoU in satellite monitoring activities.

Further information can be found on the **SAT MoU website**.



Leeheim Monitoring Station.

SECTION

3

Governance and Financial summary

STRUCTURE AND GOVERNANCE

The ECO is governed by the ECO Council which consists of representatives of the Contracting Parties to the Convention for the establishment of the European Communications Office ('The ECO Convention'). The Convention inter-alia defines the terms of reference for the ECO and its funding arrangement.

In 2018, 35 countries were officially Contracting Parties to the ECO Convention while 36 countries contributed to the financing of the ECO. The ECO Council Chairperson and the ECO Director have entered into discussions with some of the CEPT Administrations who are not currently members of the ECO Council in order to attract new signatories to the ECO Convention. The Council has governance responsibilities, which include agreeing the ECO's budget and work programme on an annual basis. These are prepared by ECO staff under the guidance of the Director. The Council's preferred method of working is by consensus.

The ECO Council held its 18th and 19th meetings at the ECO in Copenhagen, Denmark, in May and November 2018 respectively. Ms Marta Leandro of Portugal has been Chair of the Council since her election in May 2015 and was re-elected for a second three-year term in May 2018. Dr Samuel Ritchie of Ireland has been Vice-Chairman since December 2015 and was re-elected for a second three-year term in November 2018.



FINANCIAL SUMMARY

The ECO was approximately 97% financed by the following 36 countries in 2018:

Austria, Belgium¹, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and Vatican City.

The remainder is from directly funded services (e.g. administration of the CEPT and the Satellite Memorandum of Understanding).

The following figures provide a financial summary for 2018.

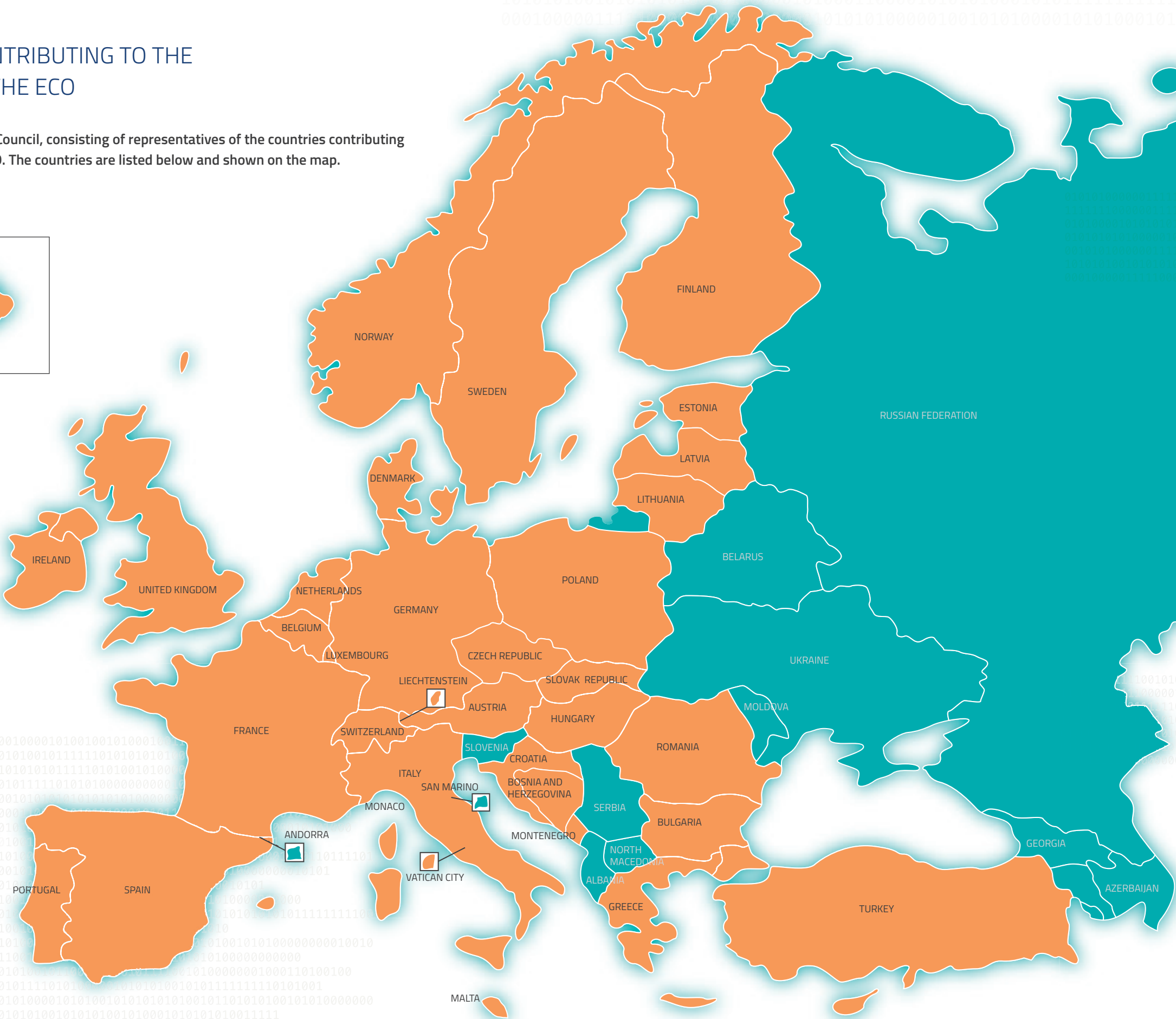
	DKK	EUR
INCOME	18 421 895	2 467 901
EXPENDITURE		
Staff Costs (salaries, pension contributions, etc.)	11 655 182	1 561 394
Running Expenses (outsourcing, projects, professional fees, travel)	4 773 011	639 420
Office Facilities (rent, building related expenses)	1 856 978	248 771
Expenditure total	18 285 171	2 449 585
Operating balance for end of year	136 724	18 316

Based on exchange rate of DKK 1 = EUR 0.134

¹ Belgium is not one of the Contracting Parties to the ECO Convention but contributes to the financing of the ECO.

COUNTRIES CONTRIBUTING TO THE FINANCING OF THE ECO

The ECO is governed by a Council, consisting of representatives of the countries contributing to the financing of the ECO. The countries are listed below and shown on the map.



In 2018, the following 36 countries were part of the ECO Council: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and Vatican City.



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