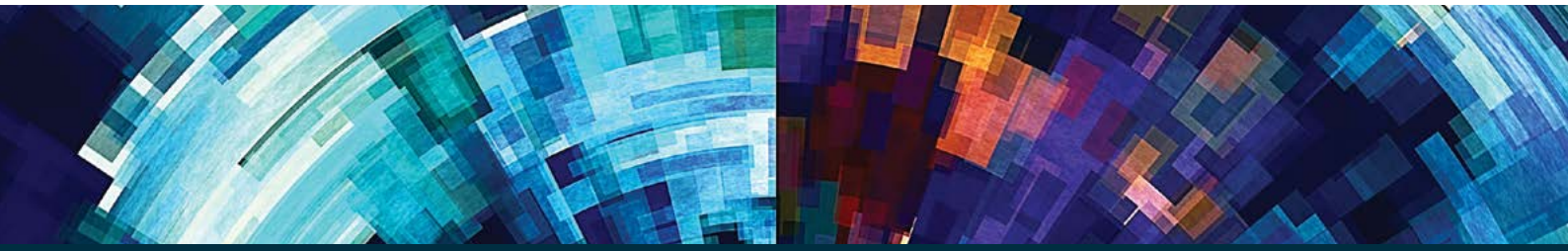
european communications office



ANNUAL REPORT 2016

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 countries across Europe collaborate to harmonise telecommunication, radio spectrum and postal regulations.

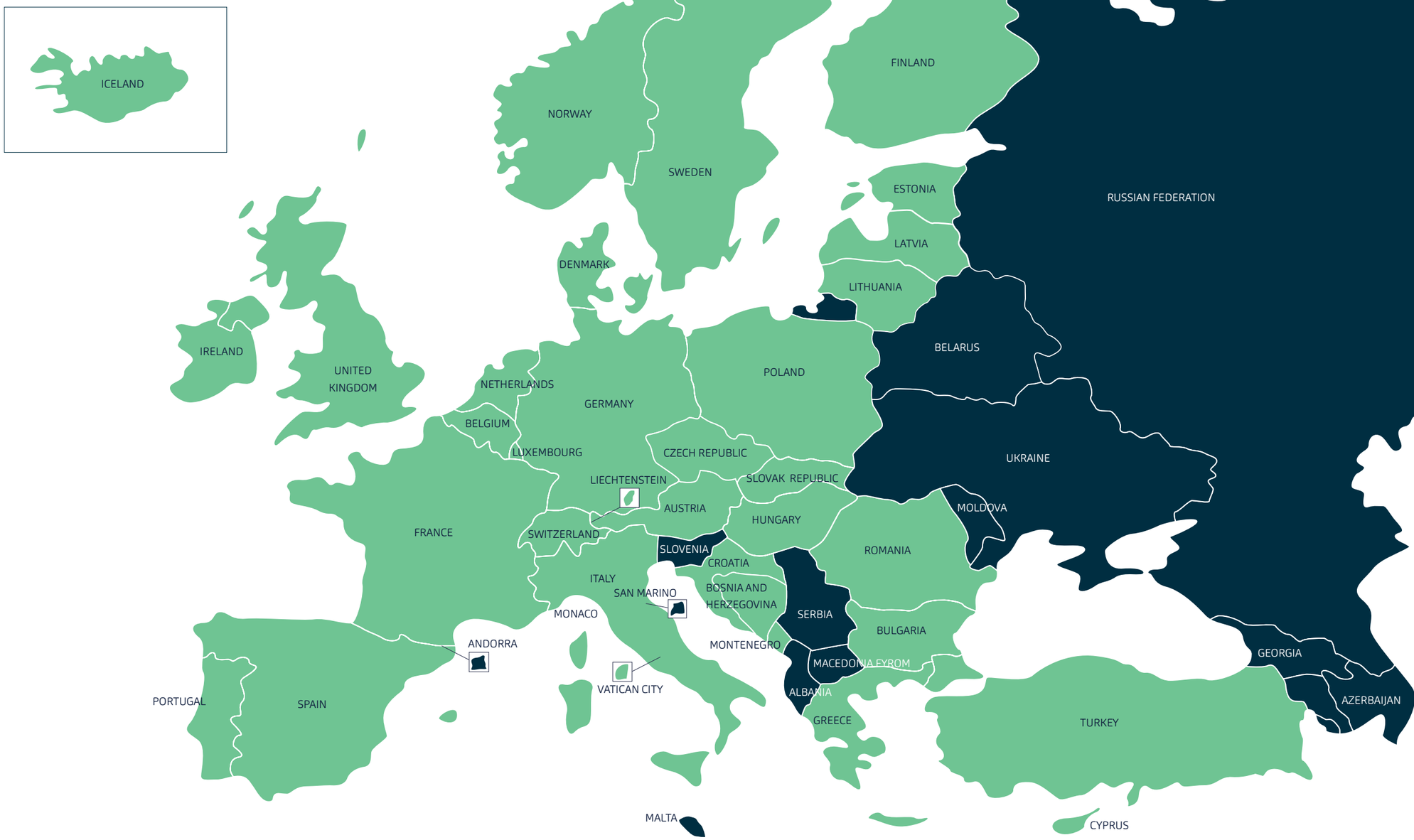
The ECO provides advice and support to the CEPT to help it to develop and deliver its policies and decisions in an effective and transparent way. The office's core duties are: to provide a European centre of expertise in electronic communications, to contribute to the work of the three CEPT committees and to manage CEPT's day-to-day activities.

The ECO further supports CEPT member countries and other stakeholders, and provides a forum to debate and advance European communications policy for the benefit of all Europe's citizens.

CONTENTS

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 2016, the following 35 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, Monaco, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and Vatican City.

CHAIR'S FOREWORD

Marta Leandro

DIRECTOR'S STATEMENT

Per Christensen

For many, 2016 was a year of turbulence, with worldwide events at a political, economic and even entertainment level dominating the headlines. After the European Communications Office's year of significant change in 2015, 2016 was marked by much action. As the Spanish artist Pablo Picasso is attributed as saying "action is the foundational key to all success".

In my second year as Chair of the ECO Council, since taking up the position in May 2015, I continued to witness the Trojan work of the 12-person team here at the ECO. All staff members are fully committed to strengthening and improving the role of our organisation and carrying out the Office's core duties to provide a European centre of expertise in electronic communications.

In 2016, the team continued to support the excellent collaboration in Council, to contribute to the work of the CEPT committees and to manage the CEPT's day-to-day activities. The team's actions were numerous: they prepared and submitted input to contributions for meetings and provided back-office support for ECC groups.

ECO staff led working groups such as the Project Team STG, which is responsible for the development of the CEPT compatibility tool SEAMCAT and the SRD Maintenance Group for Short Range Devices. The team played a key role in helping to deliver the CEPT Report 59 on Short Range Devices, and continued to carry out consultations, which informed the substance of ECC deliverables.

ECO provided support to the COM-ITU in the preparations for the World Telecommunication Standard Assembly (WTSA-16). They helped to meet the objectives of the ECC strategic plan through organising workshops, and they increased the visibility of the ECC through managing websites and online databases.

The ECO bulletins were as informative as ever. The multitude of questionnaires that were prepared and distributed helped to improve regulatory outcomes. It is not an exaggeration to say that our ECO experts are the go-to for specialist information. They produce tools and guides to assist CEPT members.

The members of the ECO team, who come from right across Europe, have at all times demonstrated commitment to their roles in supporting the CEPT family, including the ECC. Throughout 2016, their support and advice was vital. They helped the CEPT to develop and deliver its policies and decisions in an effective and transparent way - for the benefit of all Europe's citizens.

Again, the ECO team members demonstrated their hard work, tremendous knowledge and huge commitment to this work. I am grateful to all and particularly to the fruitful co-operation established with the Director of the ECO, Per Christensen, as well as with the Vice Chairman of the Council, Dr Samuel Ritchie.

We had no newcomers to the ECO Convention in 2016; 35 countries continue to contribute to the financing of the ECO, helping in our service provision. I'd like to take this opportunity, once again, to remind you that the Convention is open for accession by any State whose Administration is a Member of CEPT. We look forward to welcoming additional signatories to it in the future.

To paraphrase the great Irish poet James Joyce, the actions of men and women are the best interpreters of their thoughts. In 2016, the ECO once again reaffirmed its commitment to helping the CEPT meet the ongoing challenges in our rapidly changing electronic communications sector.

We believe this will be evident to you throughout the pages of this annual report. Enjoy reading.

Marta Leandro
Chair of the ECO Council

2016 was a milestone year for the European Communications Office: the 25th anniversary of our existence. It all began at a meeting in February 1990, in London when the Radiocommunications Committee proposed a new structure for itself. The aim was straightforward: to strengthen the radiocommunications area of the CEPT.

The Committee was renamed the European Radiocommunications Committee (ERC), and the nucleus was named the European Radiocommunications Office (ERO). The ERO was formally opened in Denmark on 6 May 1991, and it would be another three years, September 1994, by the time the European Telecommunications Office (ETO) was opened.

As technologies changed and advanced, both offices would eventually merge, on 1 January 2001. Eight years later, on 1 July 2009, the merger was formally recognised by a name change: to the European Communications Office.

Back in the early 1990s I was working in the Danish administration, and receiving access to the internet for the very first time. We didn't have laptops, so all documentation was in hard copy. I remember as I left the 1992 radiocommunications conference, I was carrying 520 documents with me. At that time I was certainly unable to imagine what the world would look like in 2016.

I could never have imagined that we would be living in a world where machines communicate with each other, where much of our lives would revolve around smartphones, where we would be gearing up to have cars drive themselves. I certainly could never have envisaged that the technological world would begin to evolve rapidly, become increasingly sophisticated and with it present increasing demands for spectrum and access to mobile and broadband services.

As the CEPT and its members work on progressive technical and regulatory measures, the ECO is here to provide support and advice to its committees, to help improve the efficiency of the ECC and to guide them through the rapidly changing communications sector. One of our primary responsibilities is to provide a European centre of expertise in electronic communications. We contribute to the work of the three CEPT committees and manage CEPT's day-to-day activities.

There is no doubting the work ethic of our colleagues at the ECO. In 2016, we participated in 90 in-person meetings and many more online ones. We helped to steer work streams, prepare and conclude meetings. We worked on upgrading and maintaining the ECO Frequency Information Systems and SEAMCAT spectrum analysis tools, two invaluable resources. In addition, we managed websites and online databases. We tackled many issues, among them those around 5G, satellite communications, and spectrum needs for Public Protection and Disaster Relief. Our numbering and networks experts worked to help make systems like eCall a reality, supporting the Working Group Numbering and Networks (WG NaN) to develop policies in numbering, naming and addressing.

There was much more, which you will read about throughout this annual report.

Here at the ECO, we continue to ensure that whatever we do brings value. I can look back on my second year as director with pride for our small but very dedicated team. Our experienced and knowledgeable staff remains up-to-date on all developments in varying technologies; at the start of 2016, we welcomed Peter Faris, our dear Irish colleague, who has become a valuable member of the team.

It is too easy to look back at the past through nostalgic, rose-tinted glasses. Twenty five years ago, there wasn't as much competition nor as many demands on the ECO but on the other hand, as technology has evolved it has made our work ever more interesting and has assisted us in it. I look forward to another fascinating year in 2017.

So what will the next 25 years bring? Nobody can predict it. What we know for certain is that the ECO is as committed as it ever was to meeting future challenges head on and to working in collaboration with the members of the CEPT for many years to come.

Per Christensen
Director of the ECO

THE ECO: OUR ROLE, OUR TEAM

Our role

The role of the European Communications Office (ECO) is to provide expert advice and support to CEPT. We help CEPT to develop and deliver its policies and decisions in an effective and transparent way. 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.

We not only provide operational support to CEPT and its three committees (ECC, CERP and Com-ITU), we also have a central duty to maximise the effectiveness of CEPT's Electronic Communications Committee (ECC).

The ECC brings together the 48 CEPT countries to develop common policies and regulations in electronic communications and related applications for Europe. In turn, it provides a focal point for information on spectrum use. Its primary objective is to harmonise the efficient use of the radio spectrum, satellite orbits and numbering resources across Europe. It takes an active role at the international level, preparing common European proposals to represent European interests in the ITU, the International Telecommunication Union, and other international organisations.

In this context, the ECO seeks to complement and support the ECC by:

- improving collaboration across its membership and extending its reach beyond;
- ensuring its communications are open, consistent and effective;
- delivering new initiatives and providing strategic input to its work; and
- helping CEPT's consensus model of working to operate effectively.

The ECO team, from left: Susanne Have, José Carrascosa, Stella Lyubchenko, Freddie McBride, Søren Conradsen, Per Christensen, Vibeke Hansen, Thomas Weber, Mette Tobiassen, Peter Faris, Bruno Espinosa, Bente Pedersen

Our team

Based in Copenhagen, Denmark, the ECO operates with a small team of 12. Our team comprises the Director, six experts in the field of electronic communications, recruited from right across Europe, and five colleagues from Denmark who are responsible for managing our support and administrative services.

Together, our staff members have the expertise and experience necessary to deliver the specialist services required of the ECO. We work effectively as a team: we collaborate closely to identify how best to maximise our value across our many specialised activities.

The ECO team and their main areas of responsibility in 2016

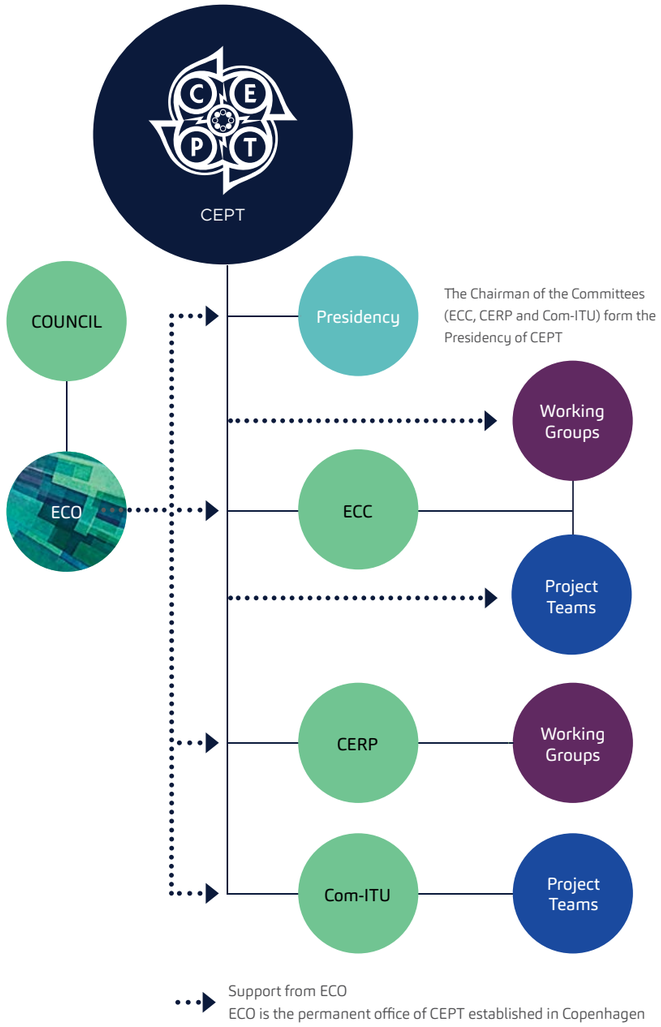
Per Christensen	Director, Denmark
Bruno Espinosa	Deputy Director, France (Frequency Management, Com-ITU, EC Coordination, ETSI Coordination)
José Carrascosa	Spain (Spectrum Engineering, SEAMCAT, Broadcast Plan Management)
Peter Faris	Ireland (Spectrum Engineering, Mobile broadband)
Stella Lyubchenko	Russian Federation (Spectrum Engineering, Frequency Management, Satellite Services, WRC preparation)
Freddie McBride	Ireland (Numbering and Networks, Com-ITU)
Thomas Weber	Germany (Frequency Management, EFIS Management)
Søren Conradsen	(Office IT, Technical enquiries)
Vibeke Hansen	(Webmaster editor, Reception, Premises)
Susanne Have	(CEPT, Council, Administration, SAT MoU)
Bente Pedersen	(Public consultations, ECC documentation database, EFIS, Administration)
Mette Tobiassen	(Finance, Human Resources)

SUPPORTING CEPT

European Conference of Postal and Telecommunications Administrations
– 48 European countries cooperating to regulate posts, radio spectrum and communications networks

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

Our structure



The Chairmen of the three committees are also co-Presidents of CEPT.

CEPT ECC
Electronic Communications Committee

The ECC is responsible for developing common policies and regulations in electronic communications and harmonising spectrum use, as well as European coordination and preparation for meetings in the Radiocommunication Sector of the ITU.

Mr Eric Fournier, France, is Chairman of the ECC.

CERP

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

Mr Ljubisa Mitevski of the Former Yugoslav Republic of Macedonia (FYROM) is Chairman of CERP.

Com-ITU

The Committee for ITU Policy (Com-ITU) is responsible for European coordination and preparation for meetings of the ITU.

Mr Manuel da Costa Cabral (Portugal) is Chairman of Com-ITU.

The CEPT co-presidency works together to deliver greater efficiency through the effective coordination of its work. Its core aim is to create a dynamic market in the field of European posts and electronic communications for the benefit of society.

The ECO supports the Presidency, mainly as a permanent office in the following areas:

1) the day-to-day handling of correspondence into and from the Presidency, with some secretarial and advisory support for coordination between the co-Presidents;

2) the provision and maintenance of content of the parts of the CEPT website, which relate to the Presidency and CEPT as a parent organisation for its three committees;

3) the preparation of reports to the membership on the activities of the Presidency and assistance to the Chairmen with other aspects of reporting to the membership;

4) the invoicing and collection of CEPT member financial contributions, used to pay for the ECO's support and such external expenditure as required, namely the costs of Assemblies, and some of the facilities provided for CEPT delegations and international conferences;

5) as required, preparation of facilities and secretariat support for CEPT Assemblies.

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 2016.

Highlights 2016

JANUARY

Tools
We released SEAMCAT 5.0.0, a brand new version of our spectrum engineering tool

MARCH

Events
We supported ECC in the preparation and running of CEPT workshop on M2M

Cooperation
We worked with ETSI towards the revision of the ECC-ETSI MoU approved in March

APRIL

Tools
We improved our SEAMCAT tool and released its version 5.0.1

Communications
We developed and published a special edition of the ECC newsletter on M2M communications

MAY

Governance
ECO Council approved the 2015 ECO annual accounts and the 2015 ECO Annual Report

JULY

Communications
We published an ECC newsletter covering SEAMCAT, SRDs and preparation for WRC-19

Cooperation
We cooperated in the publication of the updated ECC-ETSI brochure on the European framework for spectrum

SEPTEMBER

Cooperation
We helped organise a joint ETSI-CEPT workshop on PPDR

Operational Support
We were involved in providing assistance and operational support to CERP for UPU Congress

OCTOBER

Communications
We published the ECC newsletter addressing connectivity on-board moving vehicles and PPDR

Operational Support
We supported Com-ITU in preparation for and during WTSA-16

NOVEMBER

Events
We supported ECC in the preparation and the running of CEPT workshop on 5G

Cooperation
ETSI approved its MoU with Com-ITU, drafted in cooperation with ECO

DECEMBER

Communications
We published a special edition of the ECC newsletter on spectrum for 5G

Tools
We released an upgraded version of the CEPT webportal with new and responsive design

Governance
We submitted for approval by the ECO Council the 2017 ECO budget and 2017 ECO work programme

2016 in brief

COMMUNICATIONS

We developed articles and published ECC electronic newsletters distributed to some

5 200
stakeholders

TOOLS

The CEPT webportal, which we manage and edit, has been visited

more than
1.2 million times
in 2016

We enhanced our **EFIS frequency information system**, which has been visited

around 235 000 times in 2016

The **ECO Documentation database**, gathering the ECC deliverables in force, has been visited around

845 000 times in 2016

SERVICES

We managed and processed

64 public consultations

and

15 questionnaires
to support ECC policy development

EVENTS

We supported ECC in the organisation of

5 specialised workshops

and we delivered presentations at

7 external events
to promote the ECC activities

EXPERT SUPPORT

Our experts actively contributed to over

90 meetings
across working groups and project teams within CEPT's leading business committees: the ECC and Com-ITU

OPERATIONAL SUPPORT

We hosted

36 meetings
attracting more than
770 participants
mostly from all over Europe to Copenhagen

SECTION 2

REVIEW OF THE YEAR

2.1 PROVIDING SPECIALIST SUPPORT TO THE CEPT COMMITTEES

One of ECO's main roles is to provide a European centre of expertise in electronic communications. We contribute to the CEPT committees, in particular its Electronic Communications Committee (ECC).

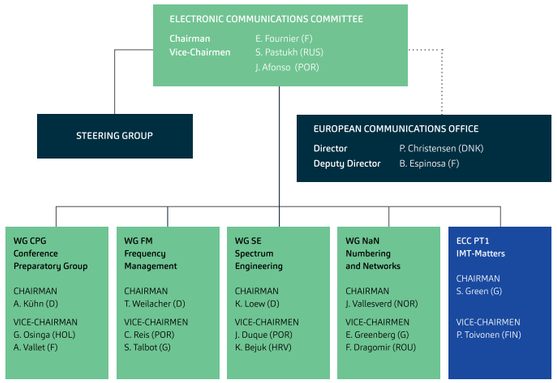
Through our expertise, our range of specialist support services and our active involvement in ECC projects and activities, we maximise the Committee's effectiveness and improve its efficiency.

2.1.1 Contributing to improving the efficiency of the ECC and its working processes

The primary contribution of ECO experts to the ECC is their continuous activity as embedded members of various Working Groups and Project Teams. ECO experts participate in almost all of the meetings of the ECC and its many subsidiary bodies. They assist in the preparation and management of the meetings and the follow-up work thereafter.

Thanks to this significant presence and to its central position, the ECO's role is essential to improve the efficiency of the ECC and streamline its working processes.

Structure of the ECC – October 2016



In 2016, ECO colleagues participated in more than 85 physical meetings within the ECC, the equivalent of 250 man-days shared mainly between the six international experts from our team, plus the Director.

ECO's participation within a group is driven by the goal to positively contribute to its work and to help achieve fruitful outcomes, in particular during the development of ECC Deliverables.

This is first reflected by the preparation and submission of input contributions to meetings, in areas where our expertise is beneficial to the work. As described in subsequent sections, the analyses developed by our experts of the responses from public consultations and from questionnaires have been essential to the development and completion of ECC deliverables. In addition, in relation to the development of EFIS and SEAMCAT, we have contributed to ECC activities by either analysing spectrum usage and related information within EFIS or by carrying out detailed compatibility and sharing studies within SEAMCAT. More generally, we have also often developed supporting material, in particular to initiate drafting activities.

During the running of the meetings, our role is mainly to provide assistance to the Chairman and to advise and support the group in its activities. Specifically, thanks to our central (resulting from our involvement in the full range of ECC activities) and neutral (independent from any one administration) position, we have often been invited to lead drafting activities and to provide guidance to solve specific issues.

When a meeting is over, our supporting role does not end. We editorialise and process draft deliverables, as well as develop summaries of meeting outcomes for publication on the ECC website.

Peter Faris, ECO, front row, providing support to Project Team SE19 during its meeting in ECO, 1 September 2016

We continuously maintain a strong awareness within the ECO staff of the issues under consideration within each group. This helps us to facilitate coordination between different groups on topics of mutual interest. Again, it increases efficiency and consistency within the ECC.

In addition, we have a specific role in ensuring the application and the maintenance of the ECC Rules of Procedure and the ECC Working Methods. In this context, we were tasked in 2016 to coordinate a review, with the support of the ECC Steering Group, of the ECC Working Methods. We drafted an updated version of the Methods, which has resulted in streamlining of work processes. This latest version was approved in June 2016.

In some cases, the ECO is invited to provide a Chairman for a Project Team or a Forum Group, in particular when the specific nature of the group and the central role of the ECO on the related topics justify our leadership of these bodies.

In this context, we have continued in 2016 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);
- SRD Maintenance Group of the Frequency Management Working Group (WG FM) responsible for Short Range Devices (SRD). An illustration of our role in leading this group is provided on the next page.

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 of the CEPT regulatory framework on amateur radio aspects, dealing with issues related to certificates and licences.

In addition, our presence within ECC groups is visible across a wide range of services, involving the ECO experts and back-office support from the ECO's general staff. In particular, we assist in the implementation in groups of many specialist and operational facilities operated by the ECO as described later in this Report.

ECO Bulletin

Another illustration of the ECO contribution to the ECC process is the development of ECO Bulletins on relevant activities in electronic communications in other regions outside CEPT. We aim to inform the ECC about new initiatives in other regions of the world, to enable comparisons with the regulatory approach in other regions and to identify issues which could potentially be addressed in Europe in the near future. In 2016, we produced three Bulletins, which have been submitted to each of the three ECC Plenary meetings and then spread within the relevant sub groups. They addressed more than 30 different items covering a broad range of developments in spectrum management.

STEERING A WORK STREAM WITHIN THE ECC FRAMEWORK

The WGFM Short Range Device Maintenance Group (SRD/MG) is chaired by Mr Thomas Weber, spectrum management expert, from the ECO. The SRD/MG has a considerable number of work items within the ECC/WGFM. An important part of this work is the development of responses (CEPT Reports) to the European Commission under the permanent mandate to CEPT for Short Range Devices (SRDs).

The ECC reached a key milestone in June 2016 with the final approval of CEPT Report 59 (sixth update process for the EC Decision for SRDs). During the public consultation for CEPT Report 59, 22 stakeholders requested a stronger harmonisation proposal for the bands 870-876 MHz and 915-921 MHz. This triggered an agreement between ECC and the European Commission in March 2016 that an Addendum to CEPT Report 59 should be developed, related to those bands. The Addendum had to be ready for public consultation approval for the ECC meeting in November 2016. This gave the SRD/MG a limited time – from April to October 2016 for the creation of the Addendum.

Its development was a sensitive task due to the requests from ETSI and individual stakeholders for the creation of new spectrum use opportunities for SRD in data networks and UHF RFID (Radio-Frequency IDentification) applications. There was also a range of views from CEPT administrations, which, on one hand, wanted to promote such opportunities and, on the other hand, had to protect existing radio service use in these bands, mainly military and other governmental use, as well as national extensions of GSM-R networks. In this context, the steering of work within SRD/MG was rather challenging in triggering contributions from all concerned stakeholders within a short timeframe.

The SRD/MG meeting in London, September 2016, was mainly devoted to the development of the Addendum to CEPT Report 59

The SRD/MG chairman had a key role in the process: he helped to establish the structure of the Addendum, to gather contributions to set up the framework of the task and to identify the essential questions for which answers had to be found and agreed within the Addendum.

Since the regulatory proposals included in the Addendum had to be supported by related spectrum compatibility studies, which were taking place in parallel in the ECC Working Group Spectrum Engineering (WG SE), careful monitoring of these activities and an appropriate cooperation mechanism had to take place, in order to achieve the best possible result within the given timeframe.

As outlined in the graph below, the final steps of the process were quite intense with two physical meetings and six web-meetings in less than five weeks. This required a lot of work – both before and after the meetings – to reflect on a timely basis the continuous developments. During the meetings, many efforts were devoted in maintaining the right balance between the various interests and in identifying solutions acceptable for all stakeholders. It has to be emphasised that this process also required a lot of work on streamlining and cleaning the various versions of the draft deliverable.

MARCH 16	Decision to develop an addendum to CEPT Report 59 **ECO develops first skeleton of the draft Addendum**
APRIL 16	SRD/MG holds one physical meeting and two dedicated web-meetings **ECO further works on the draft version of the draft Addendum** **Result:** version 3 of the draft Addendum
JUNE 16	SRD/MG holds one extraordinary meeting devoted to the topic **ECO further revises the draft and develops a contribution identifying critical areas** **Result:** version 5 of the draft Addendum
JULY – SEPTEMBER 16	SRD/MG holds one physical meeting and four dedicated web-meetings **ECO develops a document on proposals for harmonisation and further revisions of the draft** **Result:** iterative process leading to version 15 of the draft Addendum
OCTOBER 16	SRD/MG holds one extraordinary meeting devoted to the topic and two dedicated web-meetings **ECO collects the latest proposals and produces versions 16 to 20 of the draft Addendum** **Result:** draft Addendum completed by SRD/MG and endorsed by WG FM
NOVEMBER 16	**ECC approves the draft Addendum to CEPT Report 59 for public consultation**

The positive outcome of the work is clearly the result of a collective effort where all involved participants devoted a lot of energy and demonstrated a good spirit of cooperation but the influence of Thomas Weber, in his double role of SRD/MG Chairman and ECO expert, has to be highlighted.

2.1.2 Upgrading and maintaining the ECO Frequency Information System (EFIS)

In 2016, we continued to upgrade the EFIS tool, with two main objectives in mind:

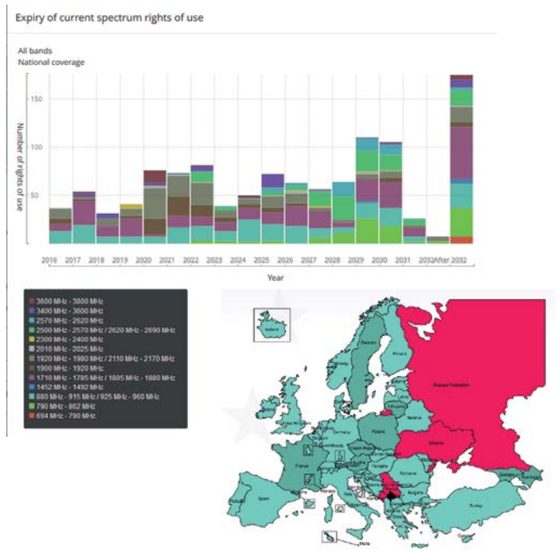
- To enhance the amount and quality of information on frequency use in Europe available in the database;
- To improve the interface, in order to make EFIS easier to use for stakeholders and to help CEPT administrations in making its national information available in the database.

Concerning additional features related to frequency information, the main improvements brought in 2016 are the following:

- The implementation of national information regarding Fixed Service use in Europe (ECO Report 04) has been finalised.
- The module on information on licensing of mobile bands in Europe (ECO Report 03) has been complemented with an additional search function based on the name of the mobile networks operators.
- The inclusion of the European Common Allocation Table (ERC Report 25) in EFIS has been enhanced with the availability of the Table in Excel format for download by any user.

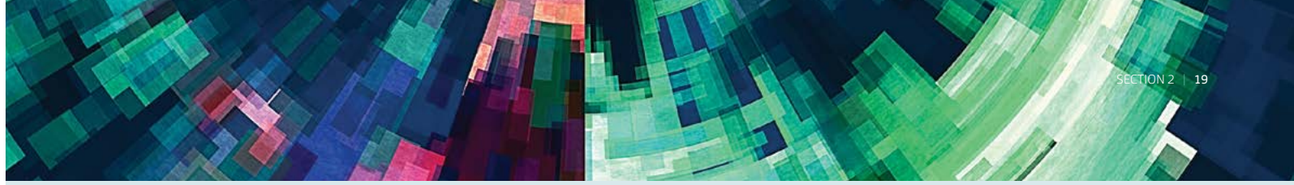
In addition, major improvements have been implemented with the interface and the graphical features to increase the usefulness and friendliness of EFIS:

- Update of the EFIS homepage;
- Improvement of the electronic export and import functions;
- Enhancements to the search functions in EFIS;
- Additional improvements of the functions and graphical visualisations.



Examples of the rights-of-use statistics and national implementation information

The EFIS database was visited approximately 235 000 times in 2016 with a 14-minute average visit duration by the interested public (e.g. frequency managers in industry, operators, administrations, test houses, vendors, as well as interested users). A substantial number of users were from outside Europe.



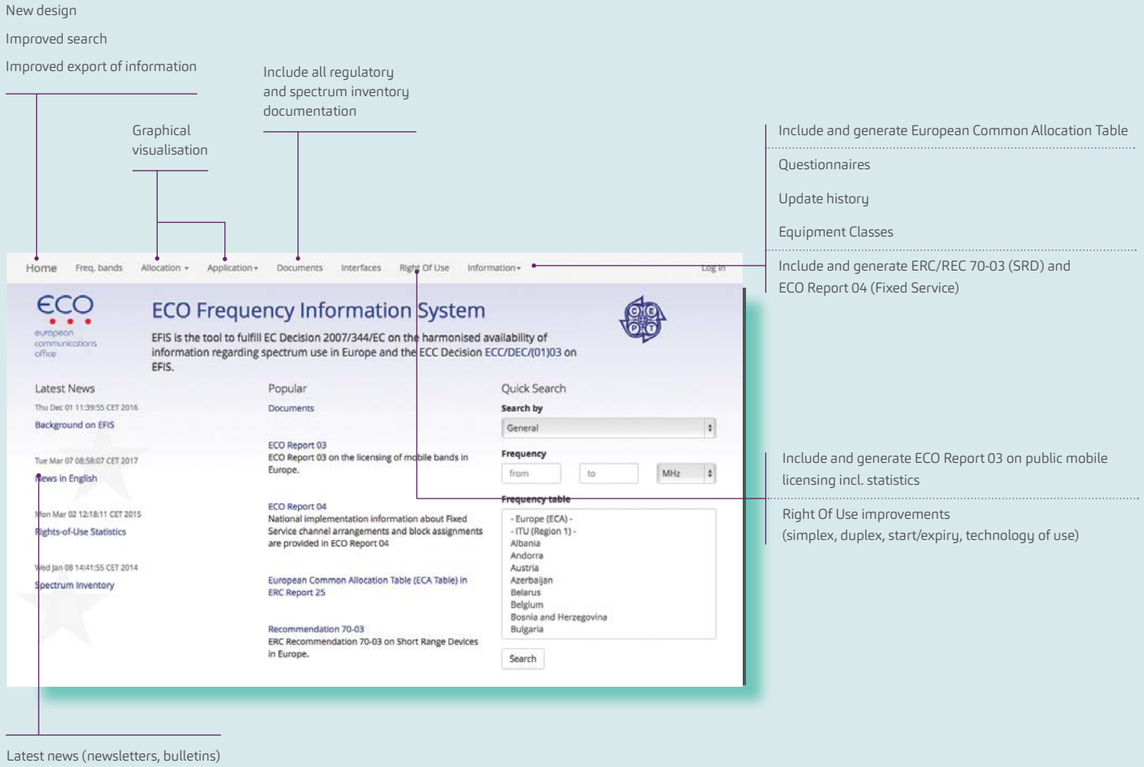
EFIS: A KEY TOOL FOR INFORMATION ON SPECTRUM UTILISATION

Since the beginning in 2002, EFIS has been administered by the ECO and managed under the supervision of the ECC through its ECO Frequency Information System 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 also plays a key role in the European Union's spectrum inventory, which is part of the programme of initiatives set out in the EU Radio Spectrum Policy Programme (RSPP). According to Recital 24 of the Radio Equipment Directive (2014/53/EU), Member States are to use the Frequency Information System (EFIS) of the European Communications Office (ECO), to make comparable information regarding the use of radio spectrum in each Member State available to the public via the internet. Notified bodies and manufacturers can refer to information in EFIS.

Some 45 CEPT administrations now publish data in EFIS; the scope of the content is wider and there are many new features and facilities.

All information in EFIS is available to the public either via the ECO website or directly under **www.efis.dk**.



An overview of the main evolutions brought to the EFIS database across the last four to five years is shown above. During this period, EFIS has been significantly expanded regarding the nature and amount of available data and documentation on spectrum usage in Europe. Additional developments increased its usefulness, such as the implementation of graphical display tools and of modules for specific applications (mobile networks, short range devices, fixed service) and the enhancements of the interfaces (visualisation, import/export of information).

The benefit of these continuous improvements is demonstrated by the statistics of EFIS use which have more than quadrupled during this period.

2.1.3 Developing the SEAMCAT spectrum analysis tool to match users' needs

Efforts on SEAMCAT development aim to produce a recognised, flexible and reliable platform for assessing the compatibility among various radio systems in a realistic manner, with satisfactory computation speed and user-friendliness. These main goals for SEAMCAT development are key to the achievement of a continuous improvement of the tool over time.

After the release of the first two versions of SEAMCAT 5 in 2016, the overall efforts of SEAMCAT development during 2016 have been dedicated to improving the stability and robustness of the tool, preparing the path for future releases scheduled in 2017.

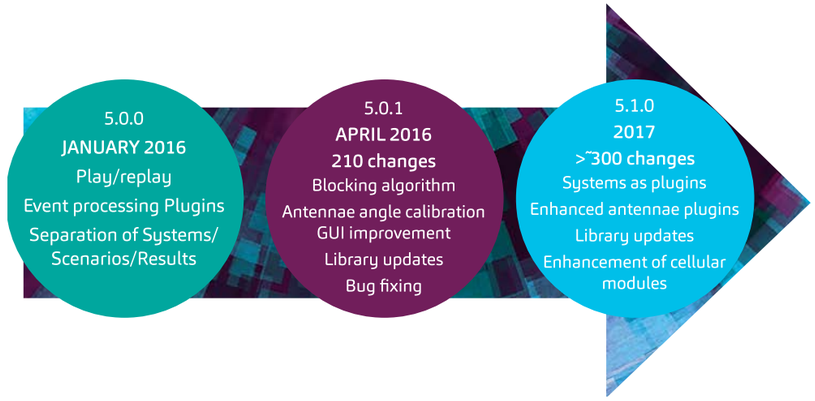
SEAMCAT in brief

SEAMCAT (Spectrum Engineering Advanced Monte Carlo Analysis Tool) is an open source and free-of-charge software tool. It is based on the Monte-Carlo simulation method, which permits statistical modelling of different radio interference situations. SEAMCAT has been developed to deal with a diversity of complex spectrum engineering and radio compatibility problems. It is developed and enhanced by the ECO, in cooperation with the SEAMCAT Technical Group (STG), an entity of the ECC Working Group Spectrum Engineering (WG SE).

SEAMCAT can assess the potential interference between different radiocommunication systems that operate in shared or adjacent frequency bands. It can also evaluate radio equipment parameters (e.g. transmitter emission masks, receiver sensitivity, density of interfering transmitters, etc), taking into account all interference mechanisms.

SEAMCAT is a system-oriented tool, which allows the user to build customised libraries (such as radio systems, antennae, spectrum masks, propagation models etc.) or use those provided by other users, to ease the effort in building complete scenarios for investigation. SEAMCAT is distributed with a predefined set of libraries, so that the user does not need to reinvent the wheel every time there are studies to perform. It is possible to join the SEAMCAT community to contribute to the development of the software and its libraries.

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



Since the release of version 5.0.0 in January 2016, efforts were concentrated around achieving a higher reliability of the tool. Some 210 modifications were made to the program between the versions 5.0.0 and 5.0.1. These modifications included enhancements to the graphical user interface (GUI) in order to increase the user-friendliness of the tool, but most importantly improvements to the way SEAMCAT performs certain calculations (e.g. blocking algorithm, antenna angle calculation, etc.)

Thanks to the visibility that an official release provides, a number of bugs were identified with the release of 5.0.0, leading to the release of version 5.0.1 that solved many of them.

After the release of version 5.0.1 in April 2016, a new period of SEAMCAT development started in order to introduce the functionality "Systems as plugins", which allows for greater flexibility in the use of SEAMCAT for compatibility studies. This development required a major restructuring of the source code in order to allow new systems to be defined and implemented as plug-ins in a more flexible way.

Populating the SEAMCAT libraries has been an important aspect for the development of the tool in 2016. In that respect, close cooperation between ECO and ECC project teams has resulted in the update of libraries to respond to their needs for new compatibility studies.

Besides the development of the tool, SEAMCAT has been introduced in workshops, conferences and publications. The following timeline presents the main activities related to SEAMCAT promotion during 2016:

APRIL	SEAMCAT workshop for beginners, ECO, Copenhagen, Denmark
JULY	Article in the ECC Newsletter Global Conference on Applied Computing in Science and Engineering, Rome, Italy
SEPTEMBER	EMC Europe Conference, Wroclaw, Poland
NOVEMBER	Update of report ITU-R SM.2028, ITU, Geneva, Switzerland

The ECO organised a SEAMCAT workshop on 4 April 2016, which was attended by 30 participants from 13 different countries. This workshop was dedicated to those users with little or no previous knowledge about SEAMCAT, but also to those users that wanted to get acquainted with the new features introduced in SEAMCAT 5.0.0. SEAMCAT workshops, which the Office organises on a regular basis, are free of charge for administrations, industry and universities. Details of our 2016 workshops are set out on page 28-29.

In 2016, SEAMCAT was downloaded 1 317 times from 99 different countries around the world. Five ECC Reports published in 2016 included compatibility studies performed with SEAMCAT.

2.1.4 Conducting consultations to deliver better policies

In the context of the development of ECC deliverables, the ECO is responsible for conducting consultations on behalf of the ECC (available at **http://cept.org/ecc/tools-and-services/ecc-consultation**).

Our public consultations are an important part of the process since they offer the opportunity to receive proposals and views from a wide range of stakeholders to improve our policies.

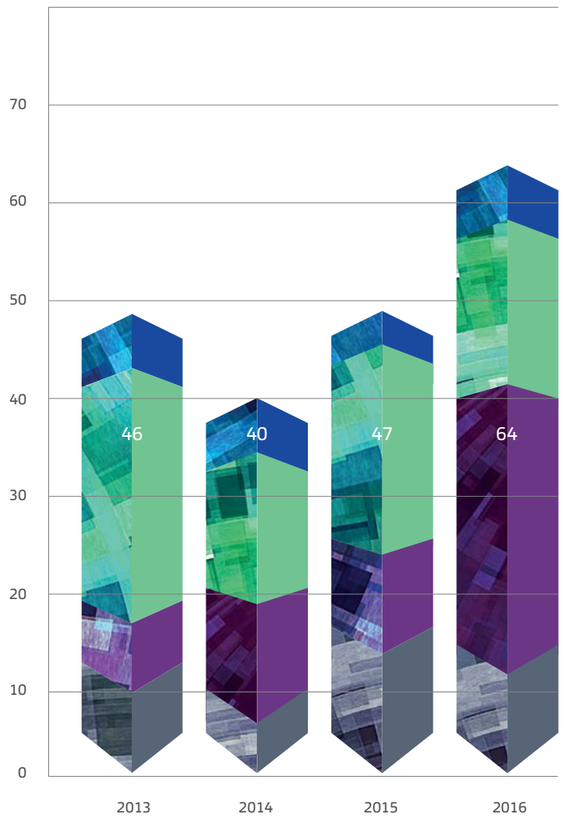
The role of the ECO in the consultation process has two dimensions:

- Administrative responsibility in launching the consultations and collecting the responses;
- Applying our expertise in performing a detailed analysis of the responses received. Those responses can include on one hand general comments, providing views on the topic under consideration and on the other hand, specific proposals (editorial, substantial or technical) intended to amend the draft deliverable under consultation. As a result, we develop, when appropriate, a revised version of the draft ECC deliverable under consultation, so that the views expressed by stakeholders are properly reflected. This activity is an essential element of the final approval process of draft ECC deliverables towards their adoption and publication.

In 2016, we carried out 64 public consultations, which were used to inform the substance of new or revised ECC deliverables, all of which were then published in the ECO Documentation Database (see page 38.)

As a result of these 64 public consultations, we processed and analysed a total of 234 responses from administrations and other stakeholders. The number of responses triggered by each draft deliverable during a public consultation can differ significantly. While nine of them did not lead to any comment, seven public consultations generated between 10 and 20 replies.

Number of consultations managed by ECO



2.1.5 Conducting questionnaires for improved regulatory outcomes

In most cases, the ECO also processes the information collected through the questionnaire and develops an analysis of the responses, which is then considered by the responsible group in order to decide how to benefit from this information.

In 2016, the ECO managed 15 questionnaires on behalf of ECC groups. These questionnaires were designed for administrations and, where appropriate, other stakeholders in the 48 CEPT countries. They covered a broad range of topics in the spectrum and numbering areas and have been very helpful in the development and the streamlining of relevant ECC regulations.

In 2016, for the very the first time, all of them were developed and processed through the electronic questionnaire tool available on the CEPT portal. This tool, which we developed and implemented in 2013, is now fully part of the recognised working arrangements. It is widely used by CEPT administrations and stakeholders to submit their responses, including in the case of long and complex questionnaires, such as some of those issued in 2016. We believe ECC members are now familiar with this feature, based on the high number of responses submitted for several questionnaires.

In 2016, we also managed for the first time an electronic questionnaire on behalf of CERP, the CEPT committee on postal matters.

As with previous years, we also managed 11 questionnaires through our electronic tool triggered by CEPT administrations willing to collect views from other administrations on numbering and networks matters.

QUESTIONNAIRES MANAGED BY THE ECO IN 2016	REPLIES RECEIVED
Electronic questionnaires conducted on behalf of ECC groups	
Supplementary questionnaire addressing transnational emergency calls in Europe	22
Questionnaire to CEPT Administrations on interference statistics in 2015	39
Questionnaire to CEPT Administrations on interference cases caused by DECT 6.0 equipment in the 1920-1980 MHz frequency range	34
Questionnaire to CEPT Administrations on implementation and review of the amended ERC Decision (99)01 related to General Operator's Certificate (GOC) and the Restricted Operator's Certificate (ROC) for maritime communications	27
Questionnaire to CEPT Administrations on the bands 1427-1452 MHz and 1492-1518 MHz: Timing for availability and harmonisation for MFCN	31
Questionnaire to CEPT Administrations and industry on the use and future plans for frequency bands in relation to studies in CEPT on WRC-19 Agenda item 1.13	41
Questionnaire to CEPT Administrations on national coordination between GSM-R and MFCN	20
Questionnaire to CEPT Administrations on the implementation status of Numbering and Networks related ECC Deliverables	23
Questionnaire to CEPT Administrations and industry for the revision of ECC Report 173 on current use and future trends for the fixed services in Europe	36
Questionnaire to CEPT Administrations on the use of 700 MHz coordination information repository	14
Questionnaire to CEPT Administrations and industry on the availability of the 3400-3800 MHz band for 5G	40
Questionnaire to CEPT Administrations on sub-assignment of E.164 numbers	25
Questionnaire to CEPT Administrations and industry on best practices for mobile indoor coverage	40
Questionnaire to CEPT Administrations on treatment of Foreign Maritime Radio Operator's Certificates	20
Questionnaire to CEPT Administrations on national conditions for PMSE applications in the frequency ranges included in ERC/REC 25-10	28
Electronic questionnaires conducted on behalf of CERP	
Second questionnaire about Istanbul UPU Congress proposals	6
Electronic questionnaires on numbering and network matters triggered by national administrations	
Ireland: Questionnaire on number utilisation thresholds	18
Belgium: Questionnaire on human resources deployed by public authorities for numbering	19
Russian Federation: Questionnaire on charges associated with number assignment and use	21
Portugal: Questionnaire on nomadic use of numbers	23
Belgium: Questionnaire on procedures to address malicious or prank calls to emergency services	14
Croatia: Questionnaire on assessment of the conformity of operations of eCall PSAPs	7
Norway: Questionnaire on 116117 – non-emergency medical assistance	25
France: Questionnaire on Extra-Territorial use of national E.164 / E.212 numbers	13
Ireland: Questionnaire on numbering for OTT and M2M services	22
Russian Federation: Questionnaire on ownership and financing of National NP databases	17
Portugal: Questionnaire on the review of Number Portability regulation	18

2.1.6 Providing a central source of specialist information

In order to support the ECC in its goal to act as a focal point in Europe for information on electronic communications, the ECO works to provide accurate and up-to-date operational information on various areas. It does this through the ECC website and through our various tools, which are further described within this Report.

A short, non-exhaustive guide is provided below. It describes the main types of information made available on the ECC website and our databases and outlines where they can be found.

	SUBJECTS	DOCUMENTS	NATIONAL INFORMATION	SPECIALIST SERVICES	EVENTS
ECC Website http://cept.org/ecc	**Group area:** Information on running activities and progress within each group belonging to the ECC structure **Topics:** Information on a wide range of topics and long-term studies on which ECC is currently working or has recently developed regulations	**Meeting documents:** Access to contributions, working documents and meeting reports from all groups within ECC **Newsletters:** Three to four ECC electronic newsletters published each year to promote ECC achievements **Framework:** Reference documents which set up the framework and targets of ECC activities	**Contact points:** National contacts of CEPT administrations and on special topics **Regulatory information:** Information on national regulations applicable in specific spectrum and numbering topics	**Consultation:** Information on public consultation and links to draft deliverables under consultation **Questionnaires:** Links to current and past questionnaires carried out to improve the development of deliverables	**ECC Meeting calendar:** Information about upcoming meetings **News:** Information and summary of recent meetings and events **Workshops:** Information, presentations and summary **Presentations:** Made by ECO and ECC officials at different fora
ECO Documentation Database (ECODOCDB) http://www.ecodocdb.dk/		**Deliverables:** Library of Decisions, Recommendations, Report approved by ECC	**Implementation status:** National implementation of ECC deliverables		
ECO Frequency Information System (EFIS) http://www.efis.dk/		**Regulatory references:** Links to ECC, EC and EC relevant documents **Spectrum inventory:** Library of information documents for spectrum inventory purposes	**Frequency tables:** Tables of frequency use in national CEPT administrations **Spectrum inventory:** National information on frequency usage and spectrum rights		
ECC Work Programme Database (ECC WP DB) http://eccwp.cept.org/	**Work items:** Information on the individual items in the work programme of ECC and its subordinate groups				
700 MHz Information Repository http://700mhz.cept.org/countries			**700 MHz repository:** National information on the coordination status in the 700 MHz band		

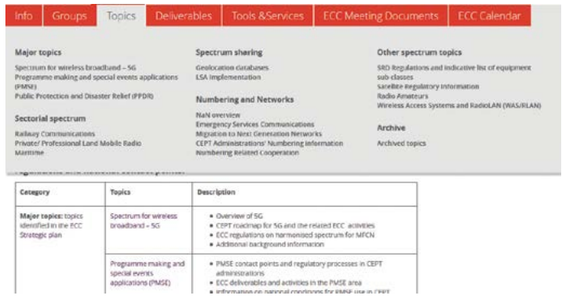
To respond to some needs identified within the ECC by CEPT administrations and other stakeholders, ECO develops and maintains some pages on the ECC website, dedicated to key topics, such as those highlighted in the ECC strategic plan. The main objectives are to reflect the progress of ECC activities on these items, to develop material which may complement, support or illustrate published ECC deliverables and to make specific information (national contact points, national regulatory information, information not available elsewhere on the ECC website) available to stakeholders.

In 2016, we developed new articles on the following topics:

- Spectrum for 5G
- Railway Communications;
- Radio Amateurs.

When appropriate, we updated the information available (e.g. ECC deliverables, relevant activities, contact points...) on the already existing webpages.

Thanks to the upgrade of the CEPT webportal (see page 38), we were able to make this information more structured and visible with a categorisation of the subjects addressed in these webpages.



2.1.7 Providing specialist support to Com-ITU

In 2016, the main focus of the ECO's support to Com-ITU was to facilitate preparations for the World Telecommunication Standardisation Assembly (WTSA-16), which took place in Hammamet, Tunisia from 25 October to 3 November 2016. Throughout the year, the ECO provided assistance to Com-ITU and its Project Team dealing with ITU-T matters (PT ITU-T) for the development and processing of the European Common Proposals (ECP) to WTSA-16. In the weeks leading up to the Conference, the ECO also coordinated inputs to the CEPT brief, with the inclusion of the different regional views to help Com-ITU in developing positions for the various topics considered at WTSA-16. We provided administrative and expert support on this issue at meetings of Com-ITU and at meetings of the project team dedicated to making preparations for WTSA-16.

Com-ITU meeting in Luzern, Switzerland, April 2016

Com-ITU held two of its three meetings in 2016 at the ECO. The first meeting took place on 20-22 January 2016, and one of the main agenda items was the appointment of Com-ITU vice-chairs. An election was anticipated and, in preparation for the election, the ECO prepared an information document for Com-ITU members to clearly outline the election process. During the meeting the election was conducted by the office in coordination with the chairman.Two vice-chairs were duly elected following a single round of voting.

We supported the Com-ITU Chairman in the establishment of a new Project Team (PT WTDC17) created for the CEPT preparation to the World Telecommunications Development Conference 2017. We have continued to provide ad hoc assistance to Com-ITU and its Project Teams in their preparation for relevant ITU activities.

As part of our fruitful collaboration with ETSI (see page 32), we identified the need to strengthen the cooperation between Com-ITU and ETSI and drafted a first version of a Memorandum of Understanding (MoU) between both organisations in order to replace the previous cooperation agreement from 2006. After some exchange between ECO and the ETSI secretariat, an agreed text of the MoU was endorsed by Com-ITU in September 2016 and approved by the ETSI General Assembly in November 2016.

In addition, we have continued our efforts in maintaining the Com-ITU website. We have continued to publish timely news releases about the main events relevant to the Committee and summarised the main outcomes from the Com-ITU Plenary meetings. We also set up a Twitter account for Com-ITU, which is managed by the ECO to share formal information.

CEPT cross-committee cooperation was necessary again in 2016, and the ECO liaised between Com-ITU and the ECC Working Group on Numbering and Networks on a topic of mutual interest: to promote the CEPT position of ITU-T Study Groups taking the lead on areas of competence. WG NaN prepared a liaison statement detailing its views on the respective roles of Study Groups 2 and 20 in the area of numbering, naming, addressing and identifiers for M2M/IoT. Com-ITU took account of the ECC's views in preparing its position for WTSA-16.

2.2 MEETING THE OBJECTIVES OF THE ECC STRATEGIC PLAN

One of the ECO's main activities is to help implement the ECC's **five-year strategic plan, from 2015-2020**. The in-depth strategy outlines the policy goals, key challenges and priorities that constitute the framework for the ECC's activities during the five-year period.

The ECO contributes to the overall fulfilment of the ECC strategic plan through its specialist support as described in the previous section. It has also been explicitly assigned particular tasks in the context of the ECC's role as a focal point in Europe on electronic communications and its cooperation with other bodies.

Our actions performed in 2016 were against the following objectives:

- To promote the ECC's achievements through the development of electronic newsletters and communications initiatives;
- To faciliate the 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 cooperation with other bodies, including the European Commission, ETSI, other external organisations, academia and research programmes.

2.2.1 Promoting ECC deliverables and activities through electronic newsletters and communications initiatives

In 2016, we strengthened the implementation of the ECC's communications programme, to promote ECC achievements and increase its reach to potential newcomers in the area of electronic communications. We published four ECC electronic newsletters as the main thrust of the programme.

- In April 2016, we drafted and published a special edition of the newsletter devoted to Machine-To-Machine Communications (M2M). It was triggered by the corresponding CEPT workshop organised on 21-22 March 2016 in Mainz, Germany (see page 28). This newsletter gave us the opportunity to bring to the attention of all the stakeholders the outcome from this important event in three steps: a general overview of the workshop and its main results, and two articles focussed on the requirements and developments related to M2M in the numbering and spectrum areas respectively.
- In the July 2016 edition of the newsletter, our experts wrote two articles: the first outlined the latest ECC activities related to spectrum regulations for Short Range Devices (SRDs); the second provided an overview of the SEAMCAT tool. In a third article, we worked together with the Chairman of the ECC's Conference Preparatory Group to describe the first steps of the European preparation for the 2019 World Radiocommunication Conference (WRC-19).
- The October 2016 edition of the newsletter included two articles, which addressed the increasing interest and demand for broadband connectivity (both voice and data) to passengers on board moving vehicles, including aircraft, ships and trains. On one hand, we coordinated with satellite experts involved in ECC activities to describe the recent regulatory developments regarding Earth Stations on Mobile Platforms and on the other hand, we provided an overview of the update of the regulations applicable to mobile communications on board aircraft and passenger ships. In a third article, we reported on the joint ETSI-CEPT Workshop, held on 29 September 2016 which discussed the regulatory changes and new opportunities for Broadband Public Protection and Disaster Relief (PPDR) applications.

- We published a special edition of the newsletter in December 2016 dealing with the recent initiatives within ECC on spectrum for 5G. After an introduction from the ECO Director providing some background on 5G and its development, the ECC Chairman and the ECO Deputy Director developed an explanatory article of the 'CEPT roadmap for 5G', which outlined the main targets to be addressed by CEPT on spectrum regulations for 5G. In a third article, the ECO experts, who attended the CEPT workshop on 5G held in November (see page 29), reported on the views expressed around industry requirements and developments outside Europe.

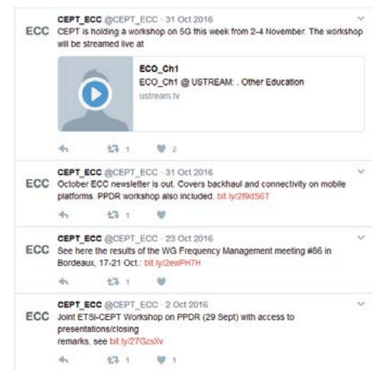
The newsletters were distributed electronically to some 5 200 stakeholders and were published on the ECC website.

You can subscribe to the **ECC e-Newsletter** for free on our ECC newsletter page, where an online archive of past copies is also available.

In order to describe the more routine activities within the ECC in greater detail, we have also continued the development and publication of monthly news summaries on the ECC website. These bulletins provide a round-up of the main outcomes of ECC Working Group and Project Team meetings and events that have taken place each month. They are developed from contributions of the ECO's experts with responsibility for the various groups. Through the year, 10 monthly summaries have been published in the news area of the ECC main page (**http://www.cept.org/ecc**).

We have also published news releases covering in particular the outcome from the main events such as the three ECC Plenary meetings held in 2016 and from the specialised workshops organised within the ECC.

Publications of ECC Newsletters and of news releases have been backed up by short notifications, spread through the ECC Twitter account, **@CEPT_ECC**, managed by the ECO. Our use of Twitter remains very focussed on the communication of factual information concerning ECC, covering in particular the most significant meetings and workshops.



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

In 2016, the ECO was extremely active in supporting the ECC in the organisation of two workshops for specialist audiences: dealing with Machine-to-Machine (M2M) communications and 5th Generation (5G) mobile communications systems. In addition, under the ECC-ETSI cooperation process, we worked together with the ETSI Secretariat to organise a joint CEPT-ETSI workshop on Public Protection and Disaster Relief.

We have also organised and led one workshop on European spectrum management and numbering specifically designed for newcomers in the area of electronic communications regulations. As well as this, we organised a training session for beginners on the use of the SEAMCAT tool. Some details on these events are given on this page and the next. Additional information on the workshops is available at: **http://www.cept.org/ecc/tools-and-services/cept-workshops**.

CEPT WORKSHOP ON MACHINE-TO-MACHINE COMMUNICATIONS

Mainz, Germany, 21-22 March 2016

The ECO coordinated this event, a first for Europe, bringing as it did experts from the numbering and spectrum arena into the same room to discuss spectrum, numbering and harmonisation needs of Machine-to-Machine (M2M) communications. Some 134 participants attended from national regulatory authorities, industry representatives, experts and professionals. The two-day event addressed harmonisation needs for spectrum, as well as for numbering and addressing, of existing and future M2M applications. A web-stream, set up by ECO, allowed remote participants to follow most of the sessions. We were not just involved in the preparation of the workshop (we developed the agenda and selected the speakers), we also directly contributed during the workshop, giving a presentation on 'eCall – A case study on the numbering requirements for M2M'. Throughout the two days, we collected the key elements from various speeches and debates for the results presented during the closing session.

We also led the development of articles for a special edition of the ECC newsletter on the workshop, as outlined on page 26.

The speakers panel during the session on numbering for M2M at the CEPT workshop in Mainz, March 2016

SEAMCAT TRAINING SESSION

ECO, Copenhagen, Denmark, 4 April 2016

The ECO organised a full day, hands-on SEAMCAT workshop for beginners at its premises in Copenhagen. Around 30 participants from 13 different countries attended the workshop. Its structure was designed to give a general introduction to the tool at the beginning, and to build the participants' knowledge of SEAMCAT by introducing the different modules that compose the programme. Furthermore, each feature was explained and linked to exercises, so that participants could familiarise themselves with the graphical user interface. Finally, participants had the opportunity to practise with SEAMCAT through an exercise based on a real compatibility study.

Besides the comments and suggestions received directly from the participants during the workshop, the Office issued an electronic questionnaire afterwards. The aim was to receive measurable feedback from participants and to improve the content and structure of future workshops. Around 70% of the participants provided answers, from which an average success rate of 87.7% can be concluded.

FOURTH CEPT WORKSHOP ON EUROPEAN SPECTRUM MANAGEMENT AND NUMBERING

ECO, Copenhagen, Denmark, 5 April 2016

For the fourth time since the start of this initiative in 2012, the ECO organised a workshop on European Spectrum Management and Numbering. It was specifically designed for newcomers in the area of electronic communications, both working for national regulators and in the industry, as well as for those who would like to broaden their knowledge of modern regulation of spectrum management and numbering in Europe.

The workshop was attended by 35 participants. Presentations were delivered by ECO staff and by Michael Sharpe (ETSI Director of Spectrum and Equipment Regulation). They addressed the following areas:

- CEPT-ECC-ECO, who we are, what we do
- European Framework for the use of spectrum - ECC, EC, ETSI: who does what?
- Major topics from ECC strategic plan
- ECO tools and softwares: overview of EFIS, SEAMCAT and the CEPT portal.

JOINT ETSI/CEPT WORKSHOP ON 'REGULATORY CHANGES AND NEW OPPORTUNITIES FOR BROADBAND PPDR'

ETSI, Sophia-Antipolis, France, 29 September 2016

This one-day workshop on Broadband Public Protection and Disaster Relief (BB-PPDR) provided a platform for all relevant parties: especially standardisation and manufacturing industry; PPDR organisations (authorities, service providers); spectrum regulators, and PPDR users (police, fire brigade, ambulance services). The workshop, attended by approximately 100 participants, provided an overview about the existing achievements in the CEPT/ECC on Broadband PPDR, as well as the resulting ETSI standardisation activities. It also identified the areas for which solutions are still outstanding or still need to progress.

The ECO cooperated with the involved ECC officials and the ETSI secretariat to set up the programme of the workshop and to gather the set of expert speakers. In addition, Thomas Weber made a presentation on the ECC-ETSI cooperation process, outlining the interactions between the ECC technical and regulatory activities and the ETSI standardisation initiatives. The ECO also contributed to the development of the conclusions of the workshop and wrote a corresponding article in the October 2016 edition of the ECC newsletter (see page 27).

CEPT WORKSHOP ON 5G MOBILE COMMUNICATIONS

Mainz, Germany, 2-4 November 2016

The CEPT Workshop on 5G gathered approximately 150 participants, including delegates from CEPT members, from the mobile sector, from vertical industries and from administrations outside Europe. In addition, an average of 40-50 viewers followed remotely the webstream made available by the ECO to broadcast the event.

CEPT workshop on 5G, Mainz, November 2016

The aim of the workshop was to establish CEPT's priorities for 5G, taking into account the views from all stakeholders and also the ongoing 5G developments outside Europe. Some 38 speakers representing ECC groups, international organisations, standardisation groups, industry, vertical industry, mobile operators and other regions presented on 5G developments and requirements. As a result of the workshop discussions, a CEPT roadmap for 5G was developed.

The ECO's role in the organisation and running of the workshop is outlined across the page.

ECO ROLE IN CEPT WORKSHOPS – THE EXAMPLE OF THE 5G WORKSHOP

The ECO played a key role in organising the 5G workshop, in recognition of the tasks identified in the ECC strategic plan to facilitate exchange of views on relevant topics. Our support covered a broad range of actions during the preparation and the running of the event and also for the follow-up activities to further develop the CEPT 5G roadmap.

We worked as a facilitator for the development of the eight-session, three-day programme, and assisted ECC officials to select suitable speakers. We co-ordinated the contact with all 38 speakers and the session chairs to prepare the presentations for the eight workshop sessions, in order to ensure a structured programme, which met the objectives of the event.

We only had a short time to prepare for the workshop following the decision in June to hold it in November, so we had to work hard over the summer to ensure we could deliver an interesting and engaging event with a dynamic range of speakers. We wanted to ensure we had representatives from different sectors and with different viewpoints in order to draw a full picture of 5G opportunities.

During the workshop we assisted the session Chairs and the ECC Chairman to summarise the key conclusions from each session. We helped to build up preliminary conclusions for the final panel discussion where the draft CEPT 5G roadmap was defined. In the preparation of elements towards the CEPT 5G roadmap, we needed to ensure the viewpoints from different parties were taken into account.

Panel during the final session - CEPT workshop on 5G, Mainz, November 2016

The ECO provided a live web stream of the workshop to allow interested parties to follow it remotely. Some 290 unique viewers were recorded, with an average of 40-50 simultaneous viewers throughout the sessions. The videos were made available on YouTube after the workshop.

After the workshop we assisted the ECC chairman in developing the elements from the CEPT 5G roadmap into specific action points to be fulfilled by the working groups and project teams of the ECC.

We also reported on the workshop in a special edition of the ECC newsletter dealing with 5G (see page 27).

2.2.3 Increasing the visibility of the ECC through presentations at events

In order to promote ECC deliverables and activity, especially towards external parties, we actively participated in a range of conferences and workshops where we delivered presentations on behalf of ECC. The main target was to share information and increase awareness and understanding about the ECC's areas of expertise, its policies and regulations.

INTERACTIVE WORKSHOP ON TRENDS IN AUTOMOTIVE RADAR AND IMPACT ON SYSTEM ARCHITECTURE

Munich, 14 – 17 March 2016

This workshop was organised by the International Wireless Industry Consortium in order to address current state and future trends related to active safety and highly automated driving technology.

We informed the workshop's participants about the ECC activities relevant for applications in transport and traffic telematics, such as automotive radars, intelligent transport systems (ITS) and use of RLAN on board vehicles.

GLOBAL CONFERENCE ON APPLIED COMPUTING IN SCIENCE AND ENGINEERING

Rome, 27-29 July 2016

The Global Conference on Applied Computing in Science and Engineering creates an international forum for academics, researchers and scientists to discuss innovative topics related to Applied Computing in Science and Engineering.

In this context, a plenary talk was scheduled to introduce SEAMCAT, the spectrum engineering analysis tool developed by the Office. During this session, we presented the main functionalities of SEAMCAT and its most recent implemented features for use in sharing and compatibility studies between radiocommunication systems.

EMC EUROPE SYMPOSIUM 2016

Wroclaw, 5-9 September 2016

EMC Europe is the leading electromagnetic compatibility yearly conference in Europe and was held in Wroclaw in 2016. For the sixth time in seven years, ECO was invited to contribute to a session dedicated to "Frequency Policy and Spectrum Engineering – Perspectives of Terrestrial Broadcasting and Mobile Networks".

We provided an overview of SEAMCAT and its role in compatibility studies, with a particular focus on the recently introduced features such as antenna plugins and event processing plugins.

GSMA IOT DINNER DEBATE

Brussels, 4 October 2016

This event was organised by the GSMA Connected Living Programme and represented an opportunity for government officials, mobile operators and key regional policy influencers to network and discuss the latest trends and developments in Machine-to-Machine (M2M) and Internet of Things (IoT). A panel of policy makers and industry representatives discussed the importance of a sustainable regulatory and policy environment for the IoT with numbering as a key theme.

Our expert on numbering activities was part of the panel and used this opportunity to promote the numbering related work the ECC has done, and is currently doing, in the M2M/IoT sector.

Freddie McBride, third from left, in the speakers panel at GSMA IoT Dinner Debate

ETSI WORKSHOP ON MANAGING RAIL MOBILE COMMUNICATIONS EVOLUTION

Sophia-Antipolis, 2-3 November 2016

This workshop organised by ETSI was devoted to the development of GSM-R, the railway telecommunications system standardised by ETSI, and its evolution towards the Next Generation Radio for Rail.

In the context of the close cooperation between ECC and ETSI, we provided a presentation, on behalf of ECC, on the spectrum regulations for railway systems and on the planned activities related to the Future Railway Mobile Communication System.

INTERACTIVE WORKSHOP ON VEHICLE TO VEHICLE (V2V) AND VEHICLE TO INFRASTRUCTURE (V2X) CONNECTIVITY

San José, 14-16 November 2016

This workshop, organised by the International Wireless Industry Consortium, explored opportunities and challenges for connectivity systems to address advanced driver assistance systems and highly automated driving use-cases.

We gave a remote presentation to the workshop providing an overview of the European regulatory framework applicable to automotive applications and intelligent transport systems.

ETSI WORKSHOP

"53 shades of RE-D: 6 months to go. *How to place compliant radio equipment on the European market"*

Sophia-Antipolis, 1 December 2016

After a first session in November 2015, ETSI organised a second workshop to discuss the implications of moving from the R&TTE Directive to the Radio Equipment Directive on making radio equipment available on the market.

We introduced to the audience the ECO Frequency Information System (EFIS) and explained how it can be used by the various stakeholders to gather information on spectrum inventory and to assist in the process of placing radio equipment on the European market.

2.2.4 Supporting the ECC through continuous cooperation with other organisations

The ECO plays a fundamental role in helping the ECC extend its reach beyond CEPT member administrations. During the year, we continued to build effective business relationships with the ECC's key partners such as ETSI, the European Commission and the relevant entities of the European Union framework, and the ITU. When appropriate, we also acted as a point of contact on behalf of the ECC for a range or external organisations. The aim was to promote the views and results reached within the ECC.

ETSI

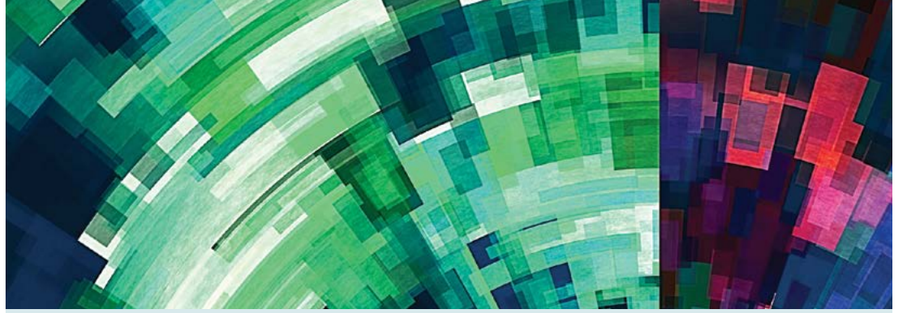
The European Telecommunications Standards Institute, ETSI, is an essential partner of CEPT and its committees, in particular the ECC. The ECO plays an important role in this fruitful co-operation through its participation in ETSI activities and a range of initiatives in collaboration with the ETSI secretariat.

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

The ETSI Technical Committee on EMC and radio spectrum matters (TC ERM) is our main focus concerning radio spectrum issues. One of TC ERM's duties is to be responsible for ETSI's interface with ECC on radio matters. In 2016, we attended all three meetings that TC ERM held at the ETSI headquarters in Sophia-Antipolis. At these meetings, we submitted information documents on recently approved ECC deliverables and provided, when appropriate, the necessary explanations to support ECC activities and outcomes.

ETSI Technical Committee Network Technologies (TC NTECH) is ETSI's centre of expertise on network technologies, which provides architecture and protocol specifications for network interoperability and interconnection. NTECH is active in the areas of numbering, naming, addressing and routing, and its activities align with the work of the ECC's Working Group Numbering and Networks (NaN). The ECO participates in NTECH meetings and reports back to the NaN's Project Teams on relevant matters. A dedicated NaN technical liaison officer from ETSI NTECH also participates in WG NaN and provides a bi-annual progress report on NTECH's work programme. In 2016, we actively participated in NTECH'S work on progressing Stage 3 of a standard. This was in response to a mandate from the European Commission on caller location information for emergency calls originating on IP-based networks.

During 2016, the ECO, on behalf of NaN, also engaged with ETSI's TC Smart Card Platform (SCP). TC SCP is responsible for the development and maintenance of a common universal integrated circuit card (UICC) platform, application independent specifications and advanced security methods, for mobile telecommunication systems and applications. TC SCP is currently developing a standard for over-the-air provisioning of SIM profiles, which builds upon the GSMA's specification for the embedded UICC card. The ability to remotely manage SIM profiles will be a key enabler for mobile-based M2M/IoT. This is a subject of considerable importance for ensuring competition and avoiding operator "lock-in" as the M2M/IoT market continues to develop.



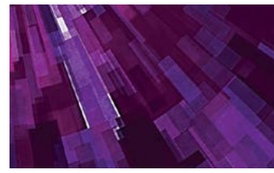
ECO AS FOCAL POINT BETWEEN ETSI AND CEPT COMMITTEES

In 1988, ETSI, the European Telecommunications Standards Institute (ETSI), was created under the auspices of CEPT, which transferred all of its telecommunication standardisation activities to ETSI. Since then, the work relations between CEPT, its committees and ETSI have been very fruitful, and the ECO is actively involved in the process, acting as a focal point between ETSI and CEPT committees, in particular, ECC and Com-ITU.

In 2016, we cooperated closely with the ETSI Secretariat and ETSI officials on a broad range of joint initiatives to strengthen the cooperation between ECC and ETSI as detailed below:

- We completed the review initiated in 2015 of the cooperation framework between ECC and ETSI, in particular to reflect the recent changes in the European regulatory environment for radio equipment and spectrum. This led to the approval at the March 2016 ECC meeting of a revised Memorandum of Understanding between ECC and ETSI.
- As another consequence of the changes in the relevant European regulatory framework, we took part in the update of a brochure which provides an introduction to the regulatory environment in Europe for radio equipment and spectrum and some key information for newcomers. The initial version of this document, developed jointly by the ECC and ETSI with support from the European Commission, had been released in 2011. We published the new version on the ECC website in July 2016.
- ECO's activities in support of ECC cooperation with ETSI have been substantial in the context of workshops. We worked together with ETSI on the organisation of the joint ETSI/ECC workshop on Broadband Public Protection and Disaster Relief (BB-PPDR) and also on the identification of speakers to present the progress on standardisation activities in the different events we organised on behalf of ECC (see page 28). We also delivered presentations on the ECC activities at various workshops hosted by ETSI (see page 31).
- We maintained, on the ECC website, a dedicated page (**http://www.cept.org/ecc/ecc-and-etsi**) describing how these two organisations work together. This page contains tools to strengthen the synergy between both organisations and highlights relevant information related to ETSI.

As outlined on page 25, noting that ETSI has some mutual interests not only with ECC but also with Com-ITU, we worked on the establishment of a new cooperation framework between ETSI and Com-ITU with the development of a draft Memorandum of Understanding approved by both parties in the second half of 2016.



European Commission and European Union relevant activities

The ECO continued its task of providing regular support to the ECC by attending all the 2016 meetings of both the Radio Spectrum Committee (RSC) of the European Commission (EC) and of the Radio Spectrum Policy Group (RSPG). In these meetings, it acted as an observer representing the ECC.

In particular, the ECO prepared, in cooperation with the ECC Chairman, the summary report of ECC activities for each RSC meeting. This meeting is a key interface between the Commission and the EC in implementing the Radio Spectrum Decision. We have also participated at the ECC-EC consultation meeting as part of the ECC delegation. Furthermore, as part of our activities within ECC's groups, we have contributed extensively to the development of CEPT Reports in response to Mandates from the European Commission.

In 2016, the ECO participated in TCAM (Telecommunication Conformity Assessment and Market Surveillance Committee) activities on an ad-hoc basis. Specifically, we contributed to the work on radio equipment subclasses in the context of the implementation of the new Radio Equipment Directive. This helped in ensuring the consistency between the definition of sub-classes and the corresponding spectrum regulations.

With regard to numbering and network issues, we performed a range of actions to support ECC interests within various EU initiatives or institutions:

- The European eCall Implementation Platform (EeIP), a multi-stakeholder group chaired by the European Commission, established a task force called Life Cycle Management (LCM). Its aim is to look at the numbering and network needs of the eCall in-vehicle system over the course of the vehicle's lifetime. The LCM developed a Report on the subject, which was presented to the EeIP Plenary in June 2016. The ECO participated in the task force which met via web meeting on several occasions in the first half of 2016 to coordinate ECC input to the Report developed within its Working Group Numbering and Networks (WG NaN).
- In September 2016, the European Commission published the European Electronic Communications Code (EECC), which contains proposals for amending the EU regulatory framework for electronic communications. We organised a focus session at the 13th WG NaN meeting in Brussels (22-24 November 2016) to facilitate dialogue between the CEPT administrations and the EC on the numbering and networks proposals contained in the EECC. Those attending the meeting considered the exchange to be very informative.

ADCO RED and RED CA

In 2016, we continued to fulfil our role of ECC focal point with two influential bodies for the implementation of the Radio Equipment Directive (RED): the Administrative Cooperation in RED (ADCO RED) and the RED Compliance Association (RED CA). We helped to bridge the gap between the ECC and other organisations in the radio equipment compliance area.

Consequently, we attended all the meetings of both ADCO RED and RED CA held in 2016, where we presented overviews from the latest ECC Deliverables and from the most relevant ECC activities.

More specifically, we reported to ADCO RED, the major group of the European regulators in the RED compliance area, about the results from surveys carried out within ECC on interference cases encountered by national administrations. We also presented the ECC's views and positions on topics of mutual interest.

RED CA gathers the RED Notified Bodies and any interested testing or manufacturing organisation. Within the group, we highlighted the value in the radio equipment compliance area of the documentation (ECC Deliverables, ECC newsletters) and tools (EFIS, Documentation Database) developed within ECC.

ITU

As part of our support to the ECC, we have also been involved in relevant ITU-R (Radiocommunication Sector) and ITU-T (Telecommunication Standardisation Sector) activities. This provides us with the opportunity to promote European achievements to other regions of the world and also to increase our awareness of the activities and developments outside of Europe, and to significantly enlarge our range of valuable contacts.

In 2016, we continued our participation in the spectrum management ITU-R working groups (WP 1B, and SG 1), mainly to support the ECC's work on SRD and to promote the EFIS and SEAMCAT tools. In particular, we actively contributed to the inclusion of the European views into a reference document on SRD classification and terminology. Regarding SEAMCAT, the Office prepared within the ECC framework a revision of ITU-R Report SM.2028-1, which contains specifications of the Monte Carlo simulation methodology for use in sharing and compatibility studies between radio systems. The intention with this revision was to align the content of the report to the current implementation of SEAMCAT, as well as to add some additional content of interest for future readers of the updated ITU-R Report.

The ECO participated in ITU-T Study Group 2 (SG2), the lead study group for service definition, numbering and routing of electronic communications traffic, at two meetings which took place in January and September 2016. These meetings provide an opportunity for CEPT to engage and exchange views with regulatory experts outside of Europe. During the September meeting the ECO updated SG2 participants on activities taking place within CEPT. The Office provided a presentation on recently adopted deliverables and ongoing work. ECC Report 248 was of considerable interest to the participants of SG2 as Calling Line Identification (CLI) spoofing represents a major challenge for international regulators in combatting fraud. The Report identifies several ways in which CLI may be used in an increasingly flexible way. It examines the regulatory issues and current regulatory practices associated with each type of use, including the need for validation mechanisms to retain and restore trust in CLI. The ECO also reported back to the ECC's Working Group Numbering and Networks (WG NaN) on SG2 work items relevant to the WG NaN work programme.

Other organisations

In 2016, we continued our cooperation with various other organisations, in order to identify the issues of mutual interest between these communities and the ECC, and to trigger their active involvement in some areas dealt with by the ECC.

To name some examples in 2016, ECO strengthened the cooperation with the railway communications community through its participation in UIC (International Railway Union, an ECC LoU partner) meetings and in an ETSI workshop concerning radio spectrum considerations for present and future rail communication systems.

ECO also kept track of the developments towards sensor platforms for more semi-automatic and autonomous driving and parking systems in road traffic and the related spectrum requirements. In this context, the Office actively participated in relevant events.

Together with the International Amateur Radio Union (IARU Region 1), ECO was instrumental in setting up a new concept for self-declaration statements in the implementation of the CEPT framework around the mutual recognition of amateur licences. This led ultimately to modifications of the respective ERC/ECC Recommendations.

Concerning broadband PPDR, in addition to our active role in the dedicated joint ETSI-ECC workshop (see page 28), we promoted the outcome of the ECC work by means of articles in professional PPDR related magazines.

This all helps to identify needs for the future in a timely manner, to foster communications between communities, and to bring these communities closer to the ECC work, both in terms of participation and contribution.

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

The ECO is acting as a permanent point of contact with the other regional telecommunication organisations recognised by the ITU. In particular, we are the point of the contact in the course of preparations for the World Radiocommunication Conferences (WRC).

In 2016, we started the process of coordination and exchange of information between the ECC Conference Preparatory Group (CPG) and the other regional organisations for the preparation of the next WRC in 2019 (WRC-19). Among other things, we covered the participation from CEPT representatives to other regional organisations and vice-versa.

The Office, as part of its support to CPG and its Project Teams, also actively contributed to the development and the exchange of relevant documentation such as the presentations providing CEPT positions to other regional organisations.

Collaboration with research programmes

As continuation of an effort started in 2010, in its latest strategic plan in 2015, the ECC assigned the ECO with the task of further strengthening collaboration with universities, relevant scientific institutes and research programmes. In addition, the Office was further advised by the ECC Steering Group to focus on monitoring the relevant developments on 5G and to strengthen the cooperation with the European Commission Joint Research Centre (JRC).

In this context, the ECO agreed to participate on the advisory board of the COHERENT project. This is one of the H2020 5G-PPP projects funded by European Commission.It aims to research, develop and showcase a unified programmable control framework for 5G heterogeneous radio access networks.

2.3 MANAGING OUR OPERATIONAL SERVICES

We are committed to delivering high quality support to CEPT and its committees across a wide range of operational and professional services.

This back-end support is vital in the day-to-day operations of the CEPT, and helps to provide necessary information and logistical services for our colleagues throughout Europe. Our objective is to ensure that the correct information is available to people when they need it, and we do this through managing, maintaining and updating various information sources throughout the year.

Logistically, we also develop electronic working arrangements and we provide meeting facilities, as well as offering administrative support to CEPT and its committees.

2.3.1 Managing CEPT's family of websites

The CEPT portal, launched in 2011, is a key instrument to promote and support the work of CEPT and its committees. It provides a common platform with harmonised functionalities to the five websites of the bodies which constitute the CEPT family: CEPT, its three business committees (ECC, Com-ITU and CERP) and its permanent Office (ECO).

After four years of moderate developments, we undertook in 2016 a significant upgrade of the portal, which was deployed live in December. It included substantial improvements of the design and the implementation of a responsive layout in order to accommodate the evolving user needs, such as tablets and smartphones.

THE CEPT PORTAL IN BRIEF

	2016	2015
Number of user profiles registered to the portal	4 200	3 335
Number of visits during the year	1 247 000	1 025 000
Average number of visits per day	3 400	3 150
Average visit length	19.40 minutes	22.40 minutes
Number of meeting documents uploaded during the year	8 000	8 500
Total number of meeting documents hosted by the CEPT portal	45 500	39 000

A NEW DESIGN FOR THE CEPT PORTAL

Driven by the wish to modernise the five-year-old CEPT web portal and by the need to respond to new user requirements, more and more inclined to access our websites through mobile platforms, we carried out an extensive review of the portal, which led to the deployment on 14 December 2016 of its upgraded version.

Taking into account the feedback we received from the stakeholders since the launch of the portal in 2011, especially through a dedicated survey in 2014, we put most of our efforts into improving its design.

We did it with the following key objectives in mind:

- The improvements should apply in the same way to the five websites hosted by the portal;
- The new design should respond to the needs of users with a broad range of platforms (desktop, laptop, tablet, smartphones);
- Thanks to the implementation of modern design components, the general layout should be simplified, where appropriate;
- Due to our specialised audience, the focus should be put on the content;
- Efforts should be made to make the information more visible;
- Readability of text should be improved because of the nature of the information included in the portal (pre-eminence of text and documents);
- The overall structure, approach and the main functionalities should not be affected.

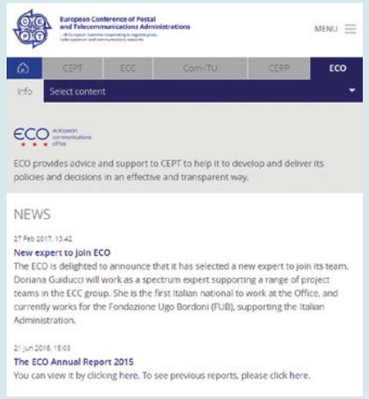
We also used the opportunity of the project to update some of the logos (Com-ITU, CERP) and to further harmonise the structure and layout between the different websites of the portal.

ECO website (new design)

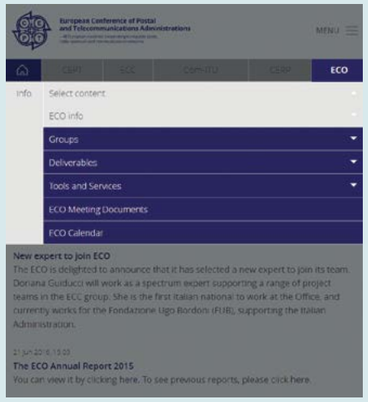
ECO website (previous design)

ECC page with menu (new design)

ECC page with menu (previous design)



Responsive view (normal)



Responsive view (menu)

2.3.2 Managing our online databases

Besides the specialist tools described in section 2.1, the ECO manages and updates other important online information systems on which many of our European stakeholders rely.

Managing the ECO Documentation Database – ECODOCDB

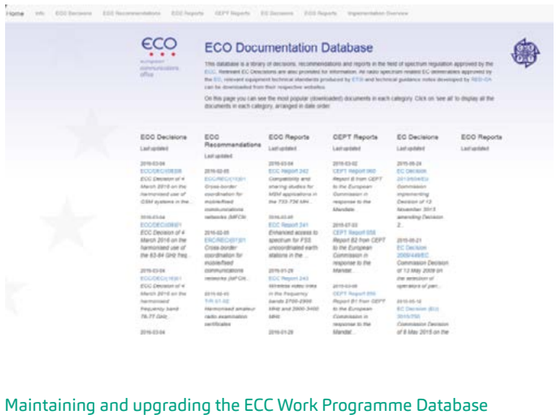
The ECC's work to consider and develop policies on spectrum and numbering matters and to manage these scarce resources is given effect mainly through its deliverables, namely Decisions, Recommendations and Reports. Once these deliverables are approved by the ECC or one of its Working Groups, we publish them in the ECO's Documentation Database (**www.ecodocdb.dk**). The database also gives access to European Commission Decisions related to ECC activities and includes some helpful information such as related documents.

At the end of 2016, ECODOCDB contained the 693 ECC Deliverables in force, an archive of withdrawn or superseded deliverables and many additional informative documents.

In 2016, there have been around 845 000 visits to the ECODOCDB, representing about 2 300 visits per day from users from all over the world. The visit average duration is approximately 41 minutes.

In parallel to maintaining the existing Document Database, the Office progressed the work on a new documentation database in 2016. The basic functionality has been put in place in a test system. One of the key principles of the new developments is to ensure a full consistency between the new ECODOCDB and the documentation system included in EFIS. ECODOCDB and EFIS databases will remain separate but will use the same content management platform type. Document categories and principles of handling, displaying and archiving the documents have been agreed.

In the summer of 2016, the ECO tested the new basic documentation database for all possibilities that can be foreseen with ECC deliverables. The new documentation database is expected to go live during Spring 2017.



Maintaining and upgrading the ECC Work Programme Database

The ECC Work Programme Database (WP DB) is part of the suite of ECO software tools that support CEPT. The purpose of the WP DB is to provide the ECC and its constituent bodies with online facilities for maintaining and updating their work programme on an ongoing basis. This is done with the assistance of the ECO team. It consists of a number of work items, allocated to the various groups within the ECC, with the possibility to filter them according to a set of parameters.

In 2016, we upgraded the layout of WP DB to improve its readability. In particular, the presentation of the work items has been enhanced, both in the tabular mode and in the detailed view. We also improved the export function, which allows the user to download the database in excel format with a layout consistent with the tabular view of the database. The management system was also made more intuitive in order to facilitate a consistent update of the database content.

The ECC WP DB is available at **http://eccwp.cept.org/**. At the end of 2016, it provided the up-to-date status of 112 ECC work items in progress and, in addition, information related to 356 finalised work items. It has been visited more than 31 000 times in 2016.

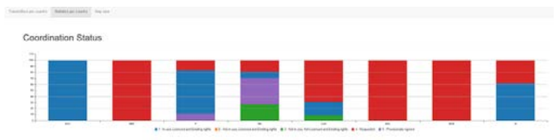
Enhancing the information repository on progress for coordination for the 700 MHz band

In the context of the implementation of a new digital dividend in the 700 MHz band (i.e. change of the use of the band 694-790 MHz from broadcasting to mobile service), the ECO was tasked by the ECC to develop an information repository, which would allow users to monitor and review the progress of bilateral and multilateral coordination negotiations between CEPT countries.

The Office developed and released a first version of the repository on the CEPT portal in November 2015.

In response to a survey issued by the Office on the use of the 700 MHz repository in September 2016, 14 answers were received providing suggestions on how to enhance the repository and how to help administrations in providing the relevant information. These suggestions were discussed with the interested stakeholders and implemented in the 700 MHz repository.

The modifications to the repository involve both a refinement on the way that data is uploaded into the repository and enhancements to the graphical display. These enhancements include the addition of statistics on the coordination status and the possibility to export data contained in the repository into Google Earth format so as to visualise the coordination status on a world map.



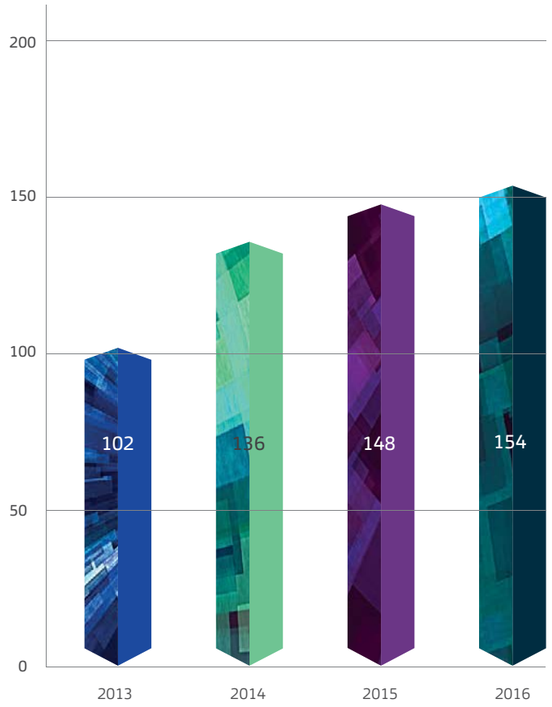
At the end of 2016, the repository included relevant information from eight CEPT administrations. The repository was consulted by 2 770 unique visitors during 2016. Approximately 4 500 visits of the repository exceeded five minutes.

2.3.3 Promoting electronic working arrangements

There is a general agreement within CEPT and its Committees that the efficiency of the working processes can be increased by making use of the available electronic systems. In this respect, we make available to our stakeholders four main tools and services dedicated to electronic working.

- **Web-meeting facilities:** Fully operational since 2012, 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 term of meeting management.

Number of webmeetings organised by ECO



In 2016, the ECO organised approximately 155 web-meetings, generally running for two to three hours and ranging from small meetings of four to five experts in preparation for a physical meeting to larger ad hoc sessions of Project Teams gathering around 25 to 30 participants. The average participation for web-meetings organised by ECO is around 10 participants.

- **Email reflectors:** For the three CEPT Committees and their sub-groups, we provide and manage a range of dedicated email reflectors, used to exchange information and to complement the physical and web-meetings to progress the activities. Most of these reflectors (referred to as groupmail) are processed through the CEPT portal, which offers the opportunity to users to manage their subscriptions, including a change in email address, through the CEPT portal. In 2016, more than 40 groups hosted within the CEPT portal have been using the groupmail feature.

  We also provide, for ad-hoc correspondence activities, the possibility to set up email reflectors, which are externally managed without connection to the web-portal.

- **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.

- **CEPT Chat system:** This system is designed to facilitate CEPT coordination at major events through the availability of a real-time chat function, which is interfaced to the CEPT portal.

  - CERP during the 26th UPU Congress in Istanbul, September 2016;
  - Com-ITU during the World Telecommunication Standardisation Assembly (WTSA-16, Hammamet, 25 October – 3 November 2016);
  - ECC to support the CEPT coordination during relevant sessions of ITU-R Working Party 4A (dealing with fixed and broadcasting satellite services) and ITU-T Study Group 2 (Numbering, naming and addressing).

2.3.4 Providing facilities for collaborative working

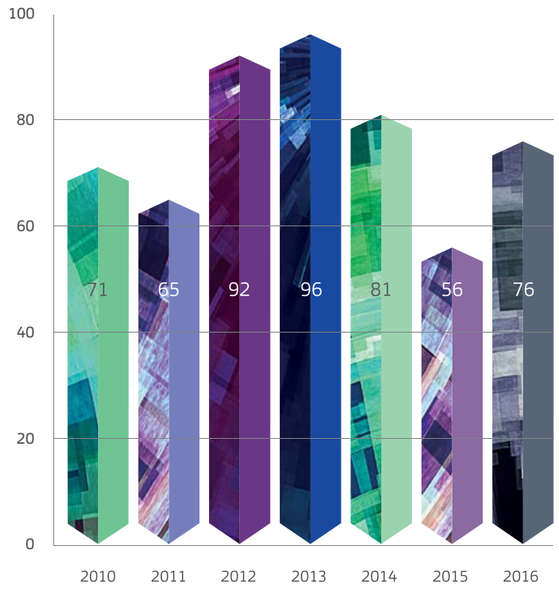
CEPT's work is based on collaboration between regulators and industry representatives from different countries across Europe. In our premises at Nyropsgade 37, in central Copenhagen, where we have been located since May 2014, we provide facilities for physical meetings.

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 for approximately 20 seats. Our meeting rooms have internet access for delegates and projection facilities.
In addition, the main room has video and audio webcasting features.

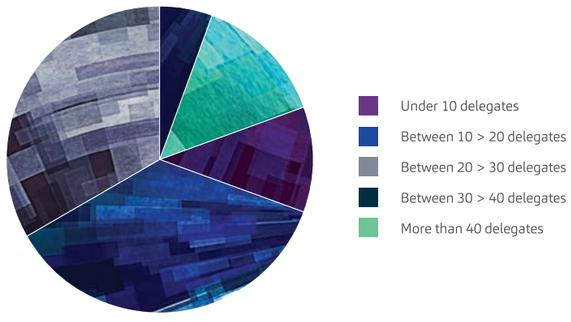
CPG PTB had its first meeting in our premises in June 2016 with 45 participants

After a significant decrease in 2015, the use of our meeting facilities has risen in 2016 to reach an extent comparable to previous years. We hosted 36 meetings, spread across 76 days, which attracted in total more than 770 participants, mostly from around Europe, to Copenhagen. These meetings ranged from small working sessions with five participants to larger events involving more than 50 attendees.

Number of meeting days



Number of delegates per meeting in ECO in 2016



2.3.5 Supporting the CEPT Presidency

In 2016, ECO support to the CEPT Presidency was mainly an administrative activity involving the invoicing and collection of CEPT member financial contributions, correspondence with the CEPT Co-Presidency, responding to requests about CEPT and maintenance of the part of the website which relates to the Presidency.

2.3.6 Supporting the European Committee for Postal Regulation (CERP)

In 2016, ECO support to the CERP was mainly an administrative activity. It involved: secretarial support; correspondence with the CERP Chairmanship; responding to mails from outside bodies and forwarding mails to the CERP Secretariat,and maintenance of the CERP section of the website and upload of documentation.

ECO also increased its operational support to CERP Working Group UPU (Universal Postal Union), helping to prepare for the 26th UPU Congress held in Istanbul in September 2016.

Specifically, we hosted for the first time in June 2016 a meeting of the WG UPU in our premises. At that meeting, we presented a range of services used by other CEPT committees which may be beneficial to the CERP members. This led to a more extensive use by CERP WG UPU of some of the resources developed by the Office (CEPT portal, questionnaire, CERP forum, email reflector).

The CEPT chat system developed by the Office was used by CEPT delegates during the 26th UPU congress together with a dedicated email reflector set up for the event, allowing CERP members to make internal coordination prior and during different meeting sessions.

CERP Working Group UPU meeting in ECO, Copenhagen, June 2016, from left: Jenny Lønn Barvik (Chair, Norway), Stella Lyubchenko (ECO), German Vazquez (Vice-Chairman, Spain).

2.3.7 Supporting the Satellite Monitoring Memorandum of Understanding

Due to the highly specialised and costly nature of satellite monitoring facilities, a group of seven national authorities have established an agreement under the Satellite Memorandum of Understanding (Sat MoU) to have access to the space radio monitoring station in Leeheim, Germany. The agreement facilitates satellite monitoring activities within CEPT, particularly to investigate interference to and from the satellites.

In 2016, the signatories of the agreement are: France, Germany, Luxembourg, The Netherlands, Spain (leaving Sat MoU from 1 January 2017), Switzerland and the United Kingdom.

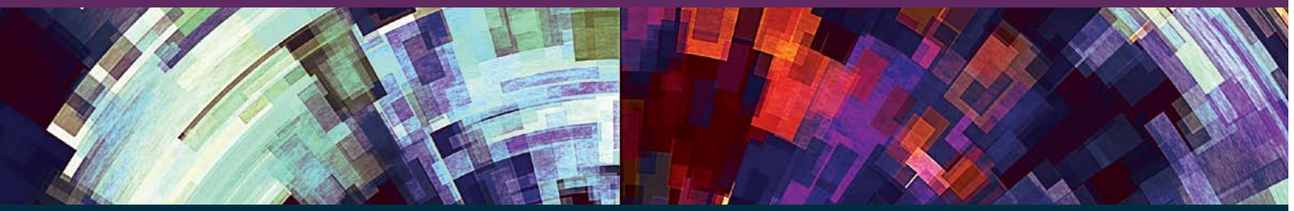
The ECO provides secretariat support to the management committee responsible for the Sat MoU, and manages CEPT's Sat MoU account set up to cover the costs of using the Leeheim facilities.

In 2016, the ECO provided assistance to the Sat MoU in its final evaluation of the study on the creation of the geolocation software.

The ECO also acts as the interface between the Sat MoU and the ECC. In 2016, the ECO reported to the Sat MoU the status of the activities carried out within Project Team SE40. SE40 responsibilities will trigger an extended satellite monitoring campaign of IRIDIUM's NEXT constellation in 2017. The content of the campaign was extensively debated in ECC groups in 2016 and brought to the attention of Sat MoU by the ECO. The first step of this campaign will be measurements of the unwanted emission limits of a number of the satellites from the new constellation. The second step will be to measure the statistically relevant number of satellites, and to carry out relevant analysis and calculations by the Leeheim staff supported by the ECO team.

The ECO actively participated in development of the SAT MoU leaflet describing the first 12 years of activities of the SAT MoU and promoting its role in the satellite monitoring business.

Further information on the Sat MoU is available from our website at: **http://www.cept.org/eco/groups/eco/sat-mou**



SECTION 3

GOVERNANCE AND FINANCIAL SUMMARY

STRUCTURE AND GOVERNANCE

The ECO is governed by the ECO Council, consisting of representatives of the Contracting Parties to the 'Convention for the establishment of the European Communications Office'. This defines the terms of reference for the ECO and its funding arrangement. In 2016, 34 countries were officially Contracting Parties to the ECO Convention and 35 countries[1] are contributors to the financing of the ECO. The ECO Council Chair 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 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 14th meeting in Dublin in May 2016 and its 15th meeting in ECO, Copenhagen in December 2016.

Ms Marta Leandro of Portugal has been Chair of the Council since her election in May 2015 and Dr Samuel Ritchie of Ireland Vice-Chairman since December 2015.

Per Christensen (ECO Director), Samuel Ritchie (Council Vice-Chairman) and Marta Leandro (Council Chair) during the 15th ECO Council meeting in December 2016, ECO, Copenhagen.

FINANCIAL SUMMARY

The ECO was approximately 98% financed by the following 35 countries in 2016:

Austria, Belgium[1], Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, 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 2016.

	DKK	EUR
INCOME	18 251 568	2 455 016
EXPENDITURE		
Staff Costs (salaries, pension contributions, etc.)	11 400 998	1 533 546
Running Expenses(outsourcing, projects, professional fees, travel)	3 962 774	533 032
Office Facilities (rent, building related expenses)	1 735 145	233 394
Expenditure total	**17 098 917**	**2 299 973**
Operating balance for end of year	**1 152 651**	**155 043**

Based on exchange rate of DKK 1 = EUR 0.135

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

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