



Annual Report

2017



# Croatia Control Ltd

## Annual Report 2017





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# 1. Message from the Director General



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I am very pleased to present our accomplishments in 2017, which was a very successful year for Croatia Control (CCL) in many respects. It is worth mentioning at the very beginning that we reached all KPI target values set for the year.

After a few years of minor traffic increase, the number of aircraft managed in Croatian airspace in 2017 for the first time almost reached the number of 581,000 operations, which translates to an increase of nearly 9 percent in traffic compared to 2016. The continuity of proactive and dynamic capacity management also proved adequate this year, and resulted in a record ATFM delay of 0.12 minute per flight, outperforming the RP2 target by some 43%.

In 2017 CCL made significant progress in the enhancement of service provision, especially by developing new products and solutions with the aim of ensuring sustainable growth.

In cooperation with our partners SMATSA and BHANSA, the multinational South-East Axis Free Route Airspace (SEAFRA) project was in place in 2017, introducing for the first time in Europe free route airspace over the territories of four states: Croatia, Bosnia and Herzegovina, Serbia, and Montenegro. The project was recognized by the European Commission and CCL received the Single European Sky Award 2017.

It is also considered as one of the key improvements within the EU initiative for establishing the Single European Sky (SES) regardless of the state or even FAB borders, aiming at enhancing safety and efficiency, and increasing the capacity of the European air traffic on the one hand, and improving

environmental protection by reducing fuel consumption, CO<sub>2</sub> and NO<sub>x</sub> emissions on the other hand.

The next step which followed was the SECSI FRA project, involving the cooperation of SEAFRA partners with the partners from SAXFRA (Austro Control and Slovenia Control) in order to establish a unique FRA airspace over 6 states. The preparatory activities for the implementation of SECSI FRA were taking place in 2017 in order to be launched in early 2018.

The most significant achievement in 2017 was the release of the first operational tool for real-time airspace management of all activities known as the AMC Portal. This unique airspace management solution developed by our own experts provides relevant information to all airspace users giving them at the same time an opportunity to make airspace reservations by communicating directly with the ASM organisation. The AMC portal is designed as a forum for the aviation community, including new airspace users such as RPAS/UAS operators.

CCL is an active promoter of regional cooperation through its participation in the COOPANS Alliance and FAB CE. In 2017, our five projects were co-financed in the framework of the European Union's CEF programme, where at the same time CCL's experts actively participated in SESAR 2020 projects together with our partners from the COOPANS Alliance.

New challenges are ahead of us and CCL will continue following new technologies and the related requirements, simultaneously developing its technical and human capabilities to meet the challenges at the regional and EU level.

Vlado Bagarić

Director General



## 2. Company Profile

### 2.1. History of Croatia Control Ltd

Croatia Control Ltd (CCL) is a state-owned limited liability company providing air navigation services. It was founded in 1998, a year after Croatia's accession to EUROCONTROL (European Organisation for the Safety of Air Navigation). Croatia was already a member of the International Civil Aviation Organisation (ICAO) and the European Civil Aviation Conference (ECAC) since 1992. Before 1998, the Air Traffic Services Authority as a part of Ministry of Transport was responsible for the provision of air traffic services in Croatia.

The key founding steps in the history of the company are:

- **until 1991:** the Zagreb Area Control Centre operated within the Federal Air Traffic Control Authority;
- **January 1992:** the Air Traffic Services Authority of Croatia was founded as part of the Ministry of Maritime Affairs, Transport and Communications;
- **February 1998:** CCL was founded as a limited liability company;
- **March 2009:** CCL was certified as air navigation service provider by relevant national body;
- **May 2011:** Croatia signed the Agreement on the Establishment of Functional Airspace Block Central Europe (FAB CE);
- **June 2011:** CCL became a full member of the cooperation of ANSPs of Ireland, Denmark, Sweden and Austria called COOPANS;
- **April 2014:** CCL became a full member of CANSO (Civil Air Navigation Services Organisation);
- **December 2014:** CCL, as part of COOPANS, became a member of the SESAR Deployment Alliance (SDA), which was appointed as the SESAR Deployment Manager by the European Commission.
- **July 2015:** CCL, as a member of COOPANS, joined the "A6 Group". Memorandum of Cooperation was signed by DFS, DSNA, ENAIRE, ENAV, NATS, PANSA, NORACON, B4 and COOPANS.
- **July 2016:** CCL, as a part of COOPANS Consortium, became the member of SESAR Joint Undertaking (SJU).

Over the years, the traffic in Croatia was undergoing strong growth, especially during the 2000s. At the same time, the equipment was becoming obsolete and consequently upgraded or replaced. CCL was faced with more demanding requirements so the ATM system Eurocat 2000E (CroATMS) was put into operational use in 2005 - it was a relevant and well-planned response to these changes.

The development continued along similar lines with a view to finishing a multiannual investment cycle marked by the projects of improved radar coverage, CroATMS upgrade and its extension to remote Adriatic operational units. In the last few years, intensive activities associated with the launching of a new investment cycle took place, including the CroATMS upgrade and modernisation to the Top Sky COOPANS ATM system as the most significant one.

### 2.2. Mission

Our mission is to provide safe and top quality air navigation services, to full satisfaction of our users and shareholders. The mission will be achieved in cooperation with our partners in the European ATM network, with highly competent staff and a motivating work environment.

## 2.3. Vision

We aim to be among leading air navigation service providers in Central Europe. Our vision will be achieved through a flexible organization that meets its user requirements.

## 2.4. Core Business

CCL's operation in 2017 was based on its Annual Plan, and its services to the customers were provided in a genuinely transparent and non-discriminatory manner.

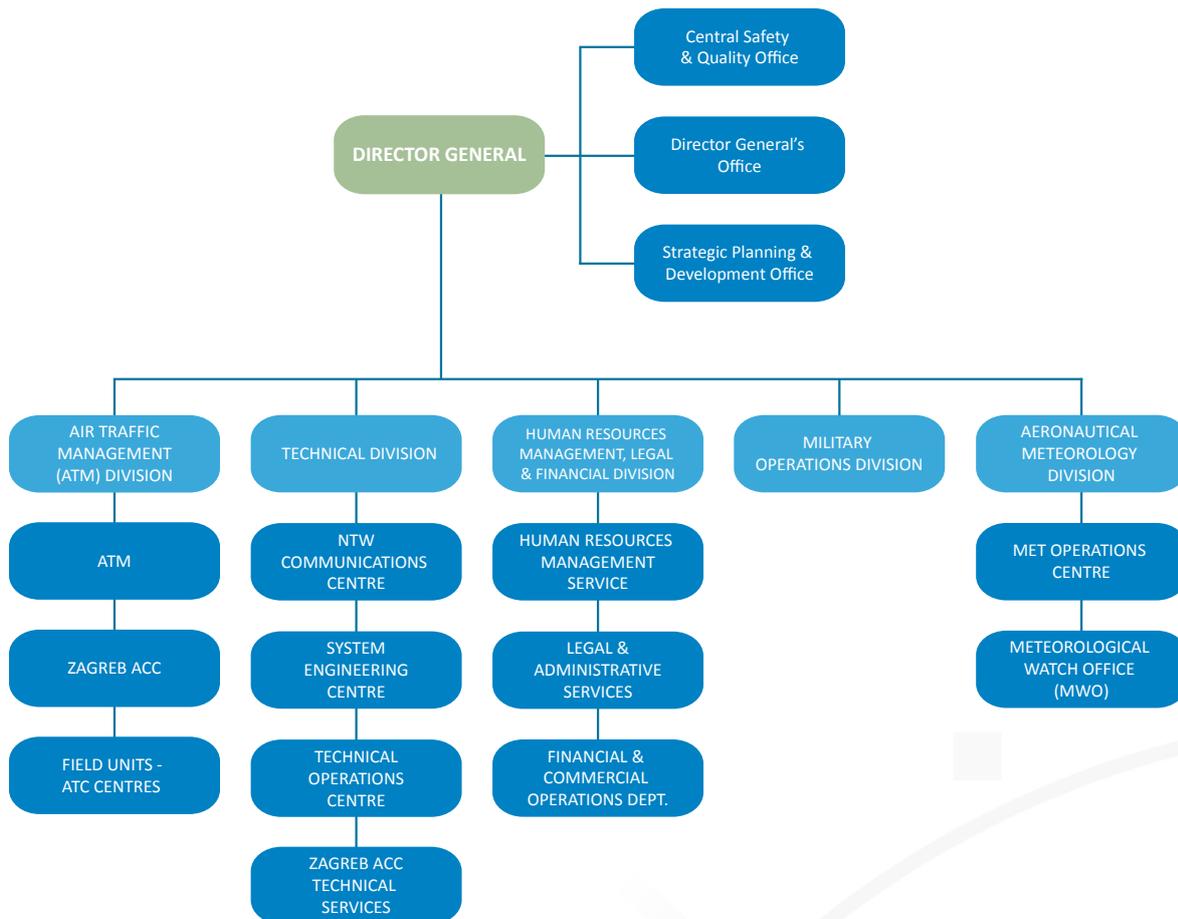
The core business of CCL comprises the provision of air navigation services (ANS), including:

- provision of air traffic services (ATS), particularly air traffic control, alerting service, flight information and pre-flight information service, all aimed at providing a safe, orderly and smooth air traffic, as well as flight data processing and storage, promulgation of safety-related information, management of air traffic flow and airspace utilization;
- provision of communication, navigation and surveillance services (CNS);
- provision of aeronautical information services (AIS);
- provision of aeronautical meteorological services (MET).



## 2.5. Organizational Structure

The company is organised into five divisions. These are: Air Traffic Management, Technical, Aeronautical Meteorology, Military Affairs, and Human Resources, Legal and Financial Affairs. Beside the CCL's Headquarters which is located in Velika Gorica near Zagreb, there are also regional ATC centres in Pula, Rijeka, Lošinj, Split/Brač, Zadar, Dubrovnik and Osijek. These operational units are responsible for the provision of air traffic services, technical support, meteorological, ARO and administrative services required for smooth air traffic flow.



Main divisions and departments of CCL

## 2.6. International Activities

### Services for Bosnia and Herzegovina

CCL is providing air traffic services in the western part of the airspace of Bosnia and Herzegovina. For 15 years CCL had provided services in the entire lower airspace until BHANSA took over the responsibility for the service provision in most of the airspace below FL 325 in November 2014.



### Countries & ANSPs

- Austria**, Austro Control
- Hungary**, HungaroControl
- Bosnia & Herzegovina**, BHANSA
- Slovak Republic**, LPS SR
- Croatia**, Croatia Control
- Slovenia**, Slovenia Control
- Czech Republic**, ANS CR

Total number of flights: **2,153,000** (2017)  
**Growth: 4.5%** on 2016

**Arrivals**  
 329,700  
**Growth 5.8%** on 2016

**Departures**  
 329,600  
**Growth 5.8%** on 2016

**Overflights**  
 1,418,100  
**Growth 3.9%** on 2016

**Internal flights**  
 75,600  
**Growth 3.9%** on 2016



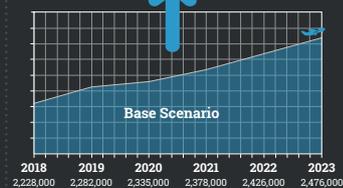
### Flights share by market segment

- Traditional Scheduled 54%
- Lowcost 30%
- Business Aviation 6%
- Charter 4%
- All-Cargo 3%
- Military 1%
- Others 2%



### Flights forecast for 2018-2023

(dated: Sep. 2017)



Source: EUROCONTROL Statfor

Functional Airspace Block Central Europe (FAB CE) is a joint initiative of seven states and their respective ANSPs, sitting in the heart of Europe and managing critical air traffic flows across the continent. FAB CE airspace covers more than 529,000 km<sup>2</sup>, which is managed within 63 airspace sectors and from 8 area control centres. The aim of FAB CE activities is to improve safety, reduce flight delays and costs to all airspace users as well as control the impact of aviation on the environment regardless of the increase of demand for air travel.

The FAB CE Agreement as well as the FAB CE ANSP Cooperation Agreement were signed in May 2011. The legal entity, FAB CE Aviation Services Ltd., was founded by FAB CE ANSPs, and it enables facilitation of project management and procurement as well as other benefits. The step by step realisation within FAB CE will result in incremental benefits by applying FRA structures and principles and deploying FRA stepwise across the borders to a FAB CE-wide implementation within regulatory given timeframe.



COOPANS (COOPeration of ANS Providers) is an international partnership between the air navigation service providers of Austria (Austro Control), Croatia (Croatia Control), Denmark (Naviair), Ireland (Irish Aviation Authority) and Sweden (LFV). Thales is a chosen supplier (industry partner) for COOPANS. The COOPANS Alliance capitalises on joint, innovative and harmonised system development among COOPANS Alliance members through industry partnership, and it makes a positive impact on the European environment to operate a world class, safe and cost-effective ATM system, delivering an efficient service to customers.

The harmonisation of ATM systems is one of the most important tasks to achieve for implementing the SES. It can be considered as the backbone of the SES and brings significant benefits to the operators and service providers of the entire ATM system. The COOPANS Alliance obtained outstanding results in ATM harmonisation.

COOPANS has adopted a common managerial approach where the five ANSPs act almost as one organisation closely cooperating with the supplier Thales, focusing on common success. The harmonisation of functionalities and joint investments enable the implementation of an advanced and unified ATM system. COOPANS' highest priority is to provide a customer-oriented solution supporting economic efficiency and environmental protection, with a focus on maintaining the required level of safety whilst increasing capacity to meet our customers' demands.

COOPANS intends to be at the forefront of the European standards, implementing the latest proven ATM tools to minimise CO<sub>2</sub> emissions and improve situational awareness. COOPANS was well recognised by the European Commission at the World ATM Congress in March 2016, when the COOPANS was awarded the Single European Sky Award for the international cooperation.

## SESAR 2020, SESAR DM, SESAR JU

Based on the excellent success with the technical and operational cooperation, the COOPANS partners have decided to extend the scope of the alliance to partnership in SESAR 2020 and SESAR JU as well as in SESAR Deployment Manager. CCL, as a part of COOPANS, is a member of the SESAR Deployment Alliance (SDA), which has been appointed by the European Commission as the SESAR Deployment Manager (SDM).

# SESAR



Being a member of the Alliance enables CCL to take an active part in the deployment of the newest ATM functionalities in the European ATM system in the next long-term period as well as to have the access to the available EU funds, which will strengthen its position in the European environment and yield positive financial results. The SDA Consortium Agreement has established a framework of cooperation between the partners, aimed at providing customer value through improving of the ATM performance at European Network level, and increasing the pace and the degree of implementation of SES.

During 2017, the main tasks of the SDM were:

- supporting all stakeholders awarded for PCP-related projects in CEF Transport Call 2014 and 2015,
- finalizing the activities related to CEF Transport Call 2016,
- delivering the Deployment Programme 2017,
- preparing for submission the Pilot Common Project (PCP) related common proposals for the CEF Transport Call 2017,
- preparation works for the transformation of SESAR Deployment Alliance to the single legal entity (SLE).

## CO-FINANCING FROM CEF FUNDS

Connecting Europe Facility (CEF) is the new funding instrument for the period 2014 – 2020 intended for financing of EU infrastructure priorities in the field of transport, energy and digital technology.

It was established with the aim of strengthening and modernisation of the existing infrastructure network in the EU. It defines the requirements, types and procedures for the European financial support to the projects of common interest within the trans-European networks.

The second aim of CEF is:

- to enable the EU to reduce its greenhouse gas emission by 20%,
- to achieve energy savings of 20% and
- to increase the share of renewable energy to at least 20% of consumption by 2020.

The INEA 2016 CEF Call for Proposals was published in October 2016, and the results of evaluation of the projects applied were published in July 2017. The evaluation was done by the European Commission and INEA.

The following table presents the list of projects as well as their budget and maximum CEF 2016 co-financing amount approved. The stated amounts relate only to CCL share, while it is planned that CCL implements the projects together with its partners, in most cases with COOPANS members.

## CCL projects for CEF 2016 - awarded

Project	Budget (€)	Funding (€)
VCS-IP - Upgrade of Voice Communication Systems to Support ATM VoIP communications	3,500,000	2,975,000
Modernization of IP based G/G Data Network in CCL - CaRT/iWAN-NG - Phase II. - Implementation	1,928,300	1,639,055
FAB CE wide Study of DAM and STAM	49,194	41,815
DLS Implementation Project - Path 1 "Ground" stakeholders	28,500	12,255
DLS Implementation Project - Path 2	54,000	23,220
eGAFOR	400,000	340,000
<b>Total</b>	<b>5,959,994</b>	<b>5,031,345</b>



Co-financed by the European Union

Connecting Europe Facility





# 3. Corporate Governance

CCL's governance structure comprises the Assembly, the Supervisory Board and the Management.

## 3.1. Assembly

The Assembly consists of the Chairman - Minister of Maritime Affairs, Transport and Infrastructure and two members - Minister of Finance and Minister of Defence.

## 3.2. Supervisory Board

The Supervisory Board monitors the activities of the Company. It appoints the Director General of the Company on the basis of open competition for a period of five years.

In 2017, the members of the Supervisory Board were:

- **Dinko Staničić**  
Chairman of the Supervisory Board
- **Marijana Müller**  
Vice Chairman
- **Ksenija Bertić**  
Member
- **Ivan Selak**  
Member
- **Marko Neveščanin**  
Employee Representative

## 3.3. Management

- **Dragan Bilać** (until 29/9/2017)
- **Vlado Bagarić** (appointed 29/9/2017)  
Director General

## 3.4. Division Directors

There are five main divisions in CCL, managed by the following directors:

- **Mihajlo Jelisavčić**  
Director, Air Traffic Management (ATM) Division
- **Dario Grgurić**  
Director, Technical Division
- **Siniša Ljubić** (until 1/11/2017)
- **Nino Karamatić** (as of 1/11/2017)  
Director, Human Resources, Legal and Financial Division
- **Hrvoje Filipović**  
Director, Military Affairs Division
- **Alen Sajko**  
Director, Aeronautical Meteorology Division

## 3.5. Executive Directors

There are three Executive Directors within the ATM Division:

- **Ivana Baričević**  
Executive Director, Air Traffic Management (ATM)
- **Vladimir Bračević**  
Executive Director, Zagreb ATCC
- **Josip Josipović**  
Executive Director, Regional ATC Centres



# 4. Operations and Infrastructure

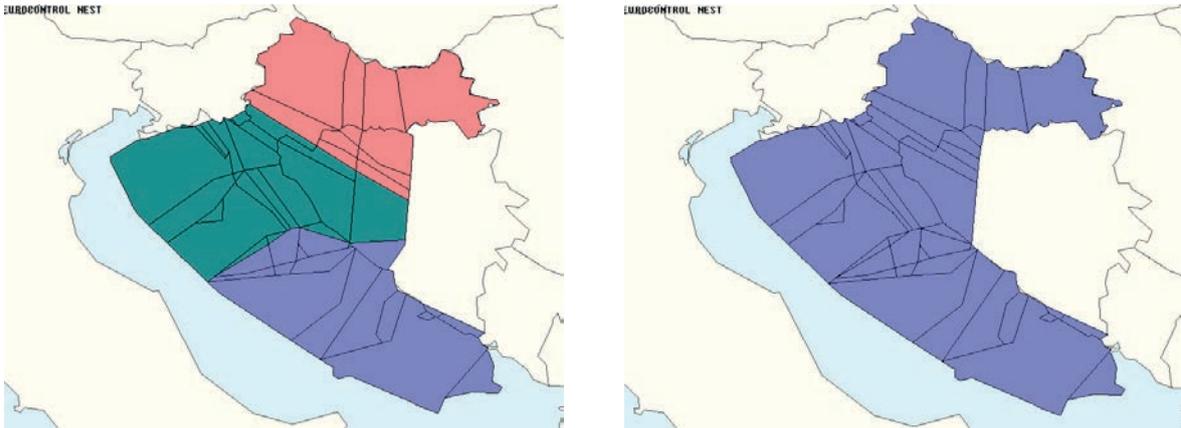
## 4.1. Operational Units

CCL's main operational units are as follows:

- Zagreb Air Traffic Control Centre: provides ANS over airspace of FIR Zagreb (outside TMA's and CTRs if not otherwise agreed within relevant LoA) from GND to UNL; airspace of FIR Sarajevo defined According to Agreement on delegation of ATS services between the Republic of Croatia and Bosnia and Herzegovina (as well defined in Letter of Agreement with ATCC Sarajevo). ATCC Zagreb AoR also encompasses the airspace where the ATS provision has been delegated from other organisations to CCL.
- Zagreb/Lučko Aerodrome Control: provides tower control services at Zagreb and Lučko aerodromes and approach control services in Zagreb TMA from Zagreb ACC premises
- Regional ATC centres providing approach / tower control services - Osijek, Rijeka, Pula, Zadar, Split, Dubrovnik, Lošinj and Brač.



Through the provision of air traffic services for Bosnia and Herzegovina, CCL has been providing air navigation services in the borderless manner, which means that borders of certain sector groups extend across national borders, thus contributing to improved efficiency and flow of international air traffic.

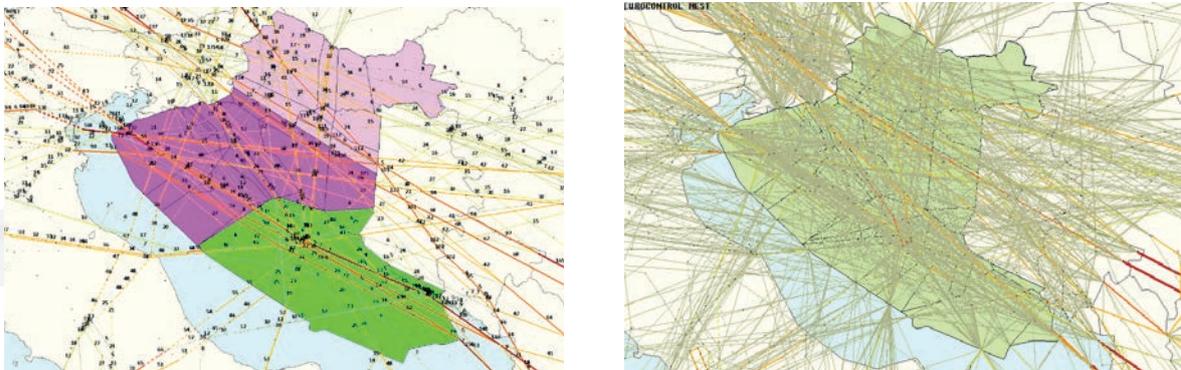


ACC Zagreb area of responsibility (AoR) in the "upper" and "lower" airspace

On the basis of mutual agreement between CCL and BHANSA, CCL is providing air navigation services in a part of Sarajevo FIR, thus providing efficient operational services to airline operators.

#### 4.2. Traffic Flows and Seasonality

By the replacement of route network with FRA in 2016, traffic flows became dispersed due to numerous combinations of entry/exit connections, which was especially evident during the peak season. The consequence of this is that the traffic flows were not as recognizable as it had been the case with the route network in previous years.



Main traffic flows - route network vs. FRA

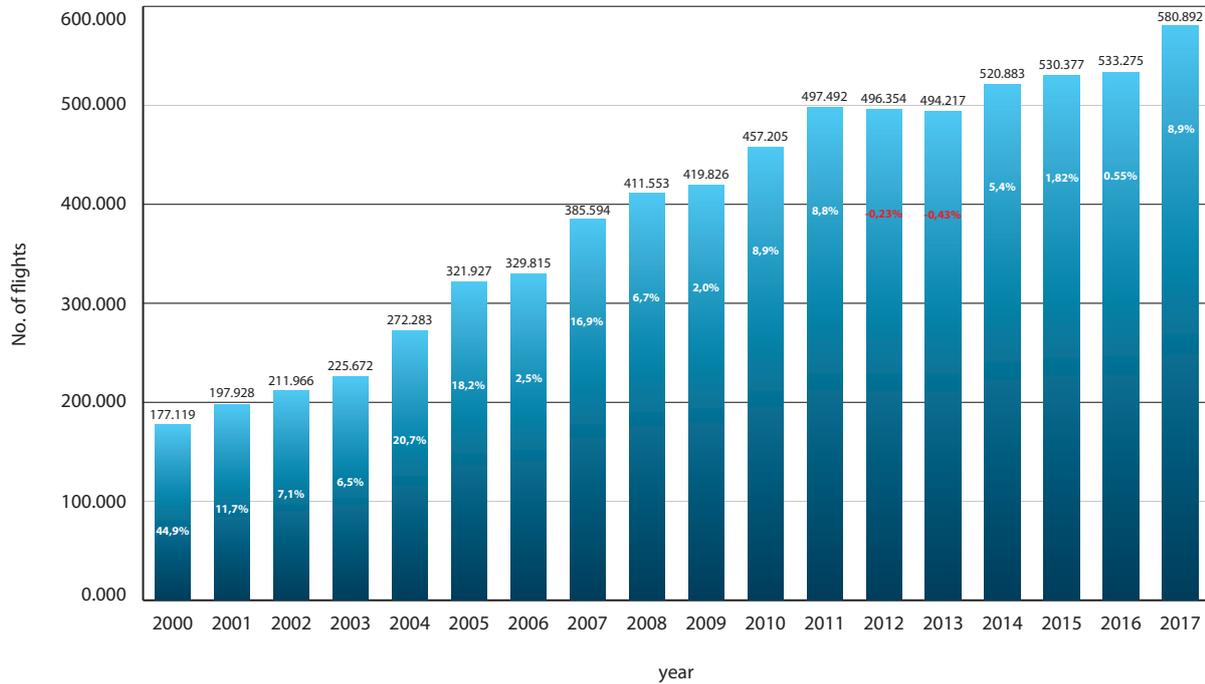
In general, traffic in CCL's AoR is highly seasonal and in 2017 the main flows ran in South East to/from North West direction, primarily from the UK and Germany to Greece and vice-versa. Flows towards Egypt, Cyprus, Turkey, Israel and tourist destination on Arabic Peninsula (Dubai, Doha etc.) should also be mentioned, as well as shorter flow between Italy and Romania which also extends over ATCC Zagreb area of responsibility.

All of these flows were managed by Zagreb Area Control Centre, since 83% of overall traffic is en route traffic.

In 2017 there was an increase of traffic on multiple levels – beside the increase on EU level there was also an increase on national level as well as on the level of airports.

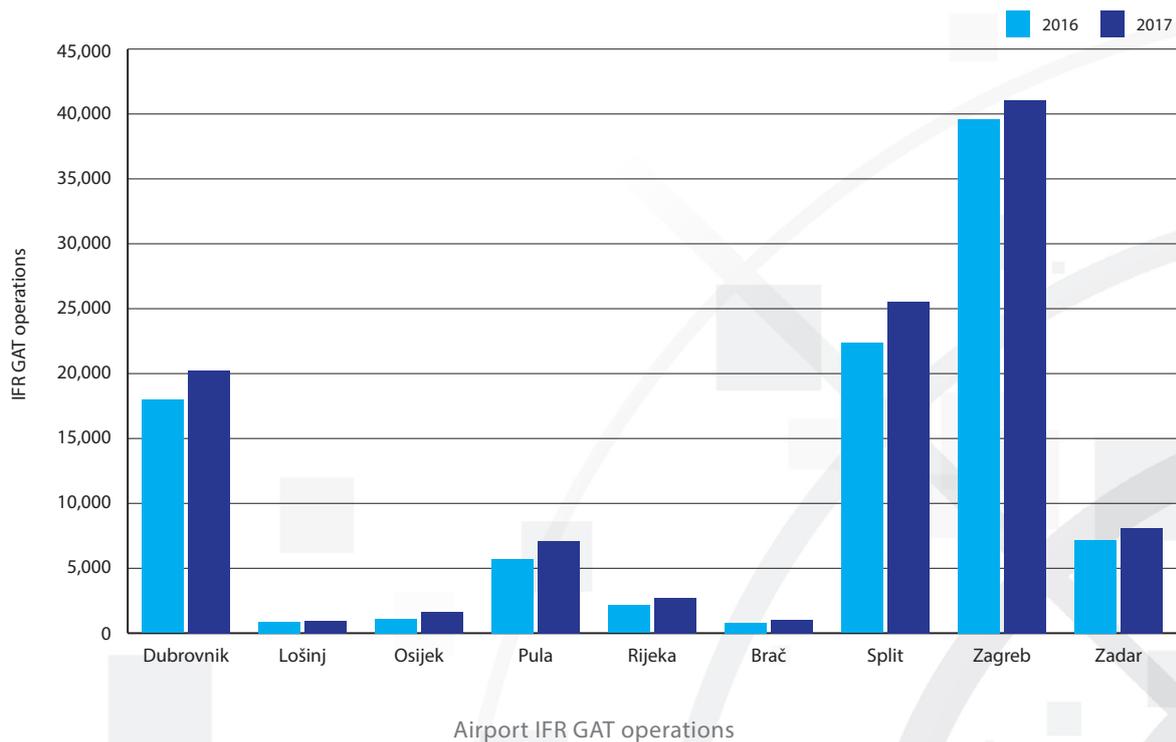
Some new records were set in that year: on national level there were more than 70,000 flights in one month; more than 2,800 flights on the peak day; more than 200 flights on an airport in one day, and more than 5,000 flights in one month on an airport. All of these values represent peak values which were recorded during the peak season from May to October. The intense seasonality of traffic means

that CCL faces particular challenges in achieving a balance between the required capacity and use of resources throughout the year.



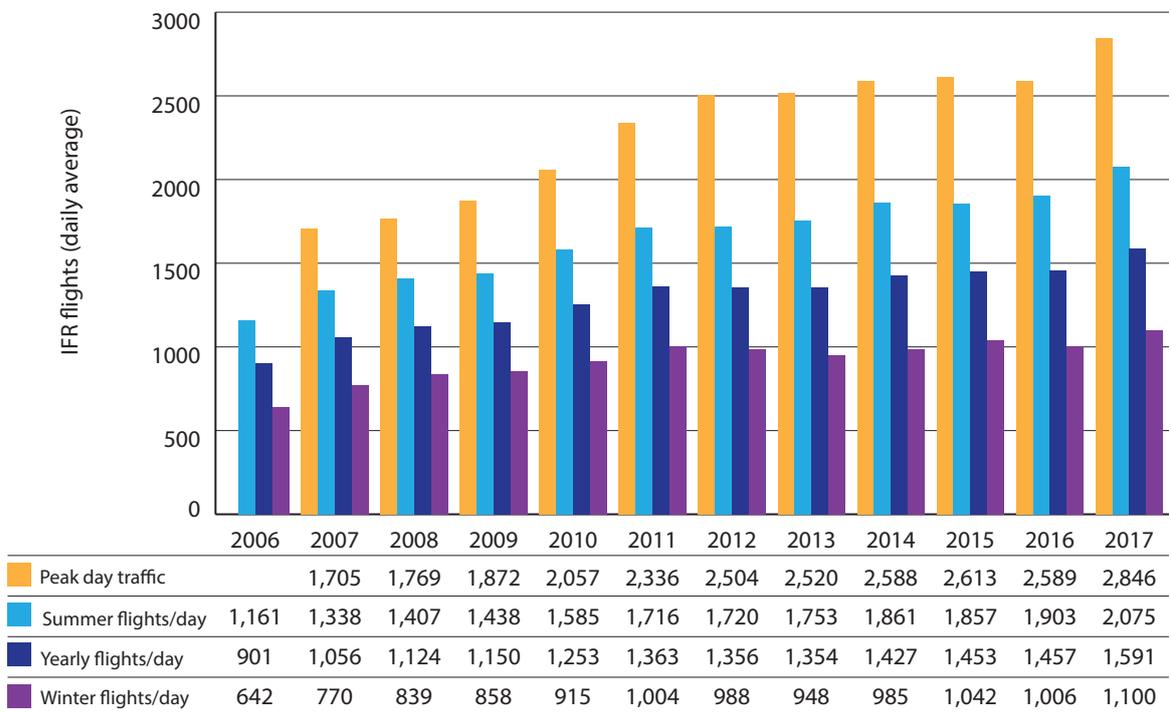
LDZOTOT Recorded IFR-GAT movements per year

In 2017, the overall traffic observed within the volume of traffic LDZOTOT increased by 8.93% compared to 2016. In December 2017, traffic increased by 9.51% compared to December 2016. The lowest increase in traffic was realized in February 2017 (1.88%), while the largest increase of 14.98% was recorded in April 2017. If viewed by period, in the summer period (May to October 2017), when compared to the summer period 2016 there was a 9% increase, and in the winter period 2017, when compared to the winter period 2016, there was an increase of 8.6%.



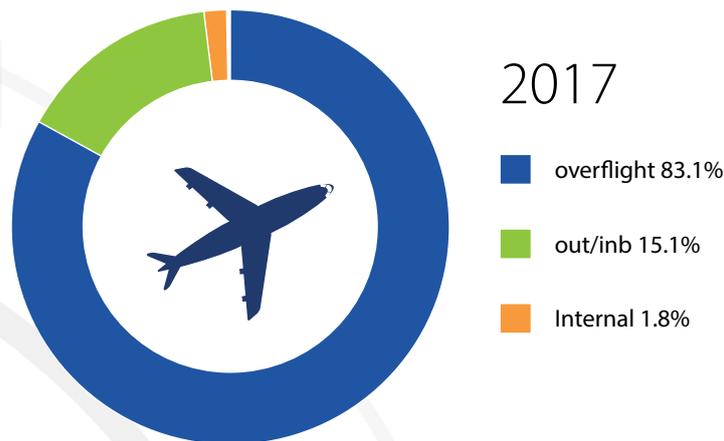
Airport IFR GAT operations

Summer daily averages have been continuously growing and in 2017 the average daily traffic was 1,591 operations per day, while the summer peak day counted for 2,846 flights.



LDZOTOT Peak day traffic, Summer, Yearly and Winter daily averages

In 2017, approximately 83% of the flights in Croatia were overflights, 2% were domestic flights and the remaining 15% were international flights, arriving to or departing from Croatian airports.



Distribution of flights in Croatia

The IFR GAT traffic in 2017 increased in the number of international arrivals and departures by 12%, internal traffic by 6% and overflights by 8.4% in comparison to 2016.

### 4.3. Civil-Military Coordination



In Croatian airspace CCL is also responsible for the provision of services to the Ministry of Defence of the Republic of Croatia and its Air Force, pursuant to the Air Traffic Act and other applicable regulations. For the purpose of maintaining a high level of safety and quality, relevant air traffic data are regularly exchanged between these two parties, which is the basis for creating the conditions for an efficient protection of the airspace without affecting the safety of all users. In order to enable more efficient and flexible use of the airspace, the civil-military Airspace Management Cell was established and it is continuously improving.

#### Web-based Airspace Management - AMC Portal

A need for a new means of communication between the airspace users and the Airspace Management (ASM) organization arose with the implementation of the Flexible Use of Airspace (FUA). The AMC Portal is a web-based airspace management tool, developed by CCL's ASM and IT experts in March 2017. It provides relevant information to all airspace users in real time and enables direct communication between all airspace users and the ASM organization. By providing targeted information, it gives users the opportunity of making reservations of airspace by directly submitting a request and communicating with the ASM organization.

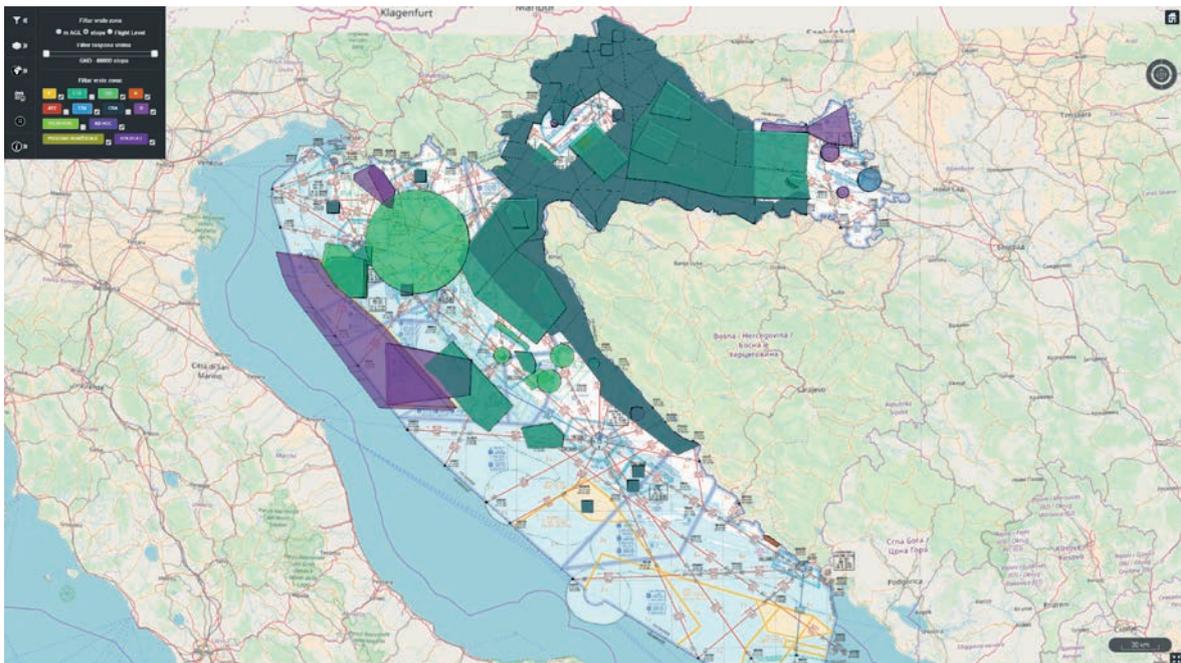


Croatia is the first to implement the AMC Portal, a unique ASM solution operationally used in the Republic of Croatia as from June 2017. The tool is adapted for use on wide variety of computers and mobile devices, with a special emphasis on smartphones and tablets (Android & iOS). All airspace users can use the tool to review the current status of the airspace and the planned airspace activities/restrictions. While it also provides easy access to the relevant textual NOTAM and AUP/UUP messages, it presents the practical implications for the airspace on different charts (satellite, VFR, IFR etc.) in 2D and 3D. This allows the users to quickly and effectively prepare themselves before conducting their own airspace activities.

Using a built-in messaging system, all users can quickly respond to the ASM organization's tactical requests. Especially in case of contingency and a need for an urgent termination of activities, this is especially useful for RPAS/UAS operators, and another way of putting safety first while taking

into account user needs and requests. Gathering all relevant services in a single place also allows to better monitor user activities, particularly any RPAS/UAS activities. Along with the aforementioned functionalities, the AMC Portal is designed as a forum for the aviation community in the broadest sense, including new airspace users such as RPAS/UAS operators. It allows them to obtain general information, announcements of important events, and an overview of the relevant aviation legislation, educational material and other useful material.

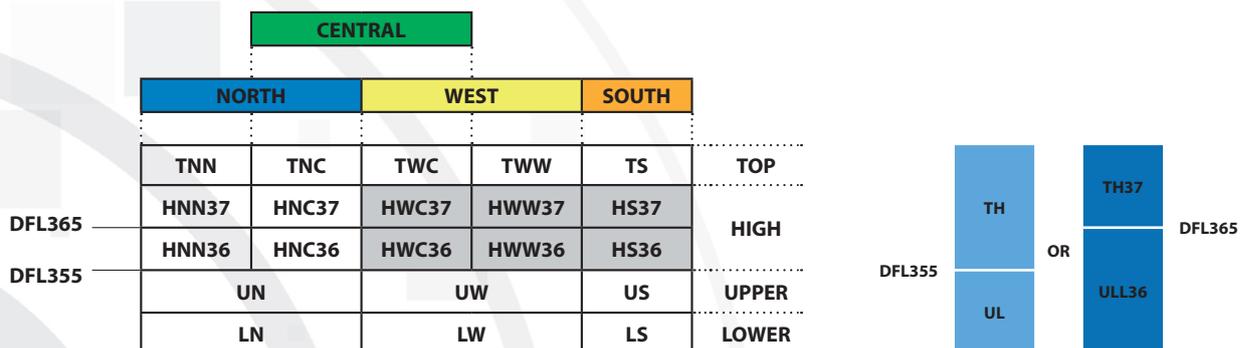
The AMC Portal, as a powerful ASM tool, enables the introduction of an advanced level of FUA. It goes a step further by including the RPAS/UAS airspace activities, thus increasing the awareness as well as the level of safety to all other, traditional airspace users. Its modular design and the philosophy of further development focused on recognizing and fulfilling the users' needs, are a guarantee of its indispensable role in the performance of airspace activities and the fulfilment of requests faced by the ASM organizations in the 21st century.



#### 4.4. Operational Improvements

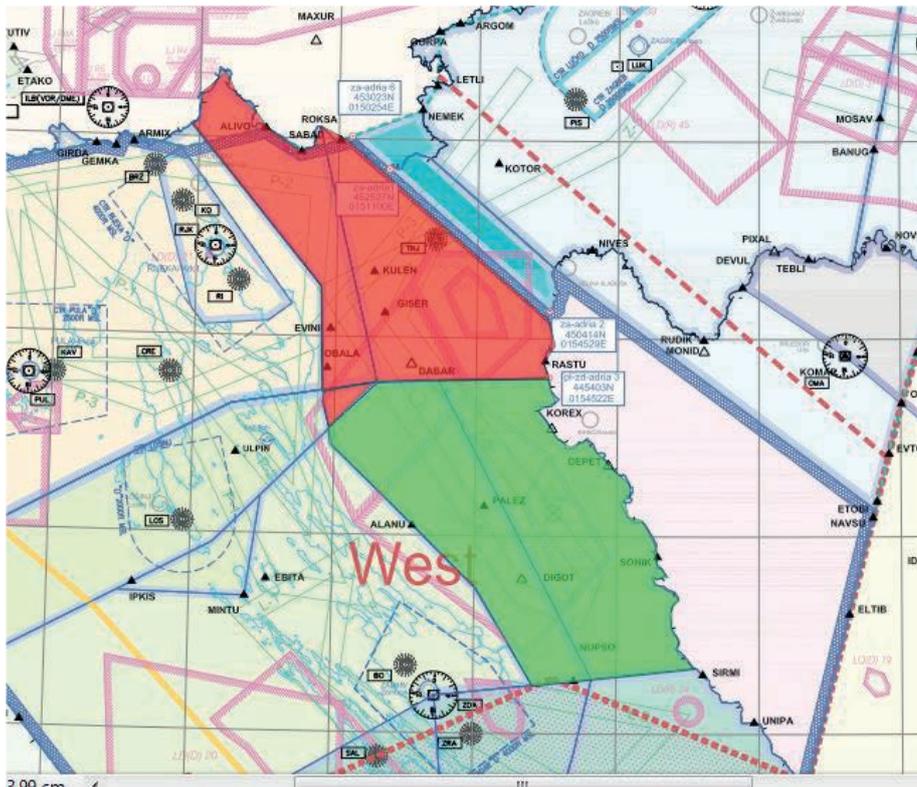
The SEAFRA concept was in place throughout 2017. Operational improvements within FRA framework were aimed at the adjustments of operational procedures with neighbouring ACC units in order to enhance safety and efficiency of air traffic within that area.

Although central sector was implemented and adjusted for operational use in season 2017, its operational use was not recognized as appropriate under given circumstances. However, the basic sectors were modified by implementation of dynamic sector Division Flight Level thus optimizing sector capacities whenever necessary.



Beside these changes, some changes were made in May 2017 within the area of responsibility of Zagreb, Zadar and Pula TMA in order to harmonize operational procedures with SERA regulation, optimize use of airspace, enhance air traffic flow and capacity, and improve overall quality of service both on TMA and ACC level. Previously mentioned areas were laterally extended, while TMA Rijeka was terminated and Pula APP was designated to perform approach procedures to Rijeka airport.

The purpose of these changes is to relieve Zagreb FIC sector from working with airplanes within "D" class airspace and to reduce the potential VFR traffic workload in ACC sector, since this type of traffic usually uses the mentioned airspace.



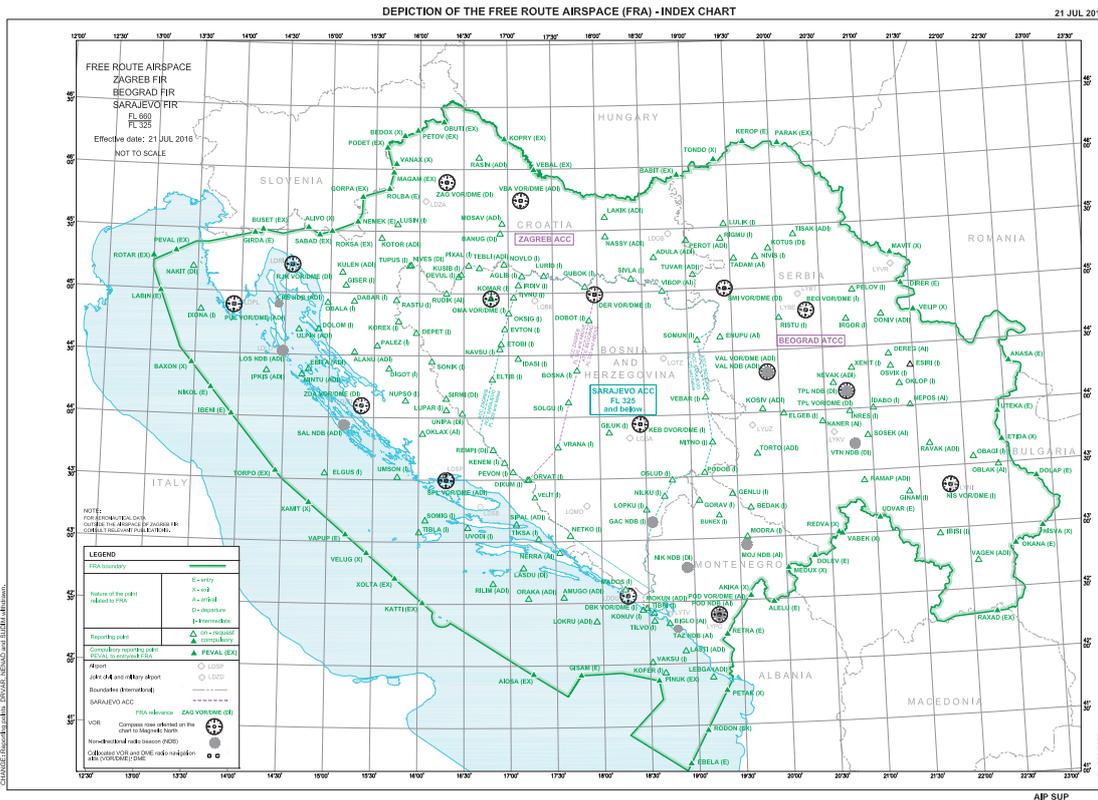
For the purpose of keeping the aircraft in the mentioned area and providing ATS services, Zagreb TMA takes over part of the airspace (blue), Pula TMA part of the airspace indicated by red, and the Zadar TMA part of the airspace marked in green.

### Free Route Airspace Concept and SEAFRA project

The implementation of the SEAFRA project started in April 2015 as night FRA; it became H24 FRA at the end of 2016 and continued throughout 2017. This is one of the key improvements in line with the EU initiative on establishing the SES regardless of state or even FAB borders, aiming to enhance safety and efficiency and to increase air traffic capacity in Europe.

SEAFRA area encompasses Zagreb ACC AoR and Beograd ACC AoR between FL325 and FL660 among the four states: Croatia, Montenegro, Serbia and Bosnia and Herzegovina. The benefits of SEAFRA are the improvement of ATS safety and efficiency, as well as the protection of the environment by reducing fuel, CO<sub>2</sub> and fuel NO<sub>x</sub> emissions. SEAFRA project was recognised by the European Commission and shortly after its completion it was awarded the Single European Sky Award.

The next step which followed was the project SECSI FRA, involving the cooperation of SEAFRA partners with the partners from SAXFRA in order to establish the unique FRA airspace over 6 states: Croatia, Austria, Slovenia, Montenegro, Serbia and Bosnia and Herzegovina. The preparatory activities for SECSI FRA implementation were taking place in 2017 in order to be launched early in 2018.



### Capacity

Capacity is defined as the ability to provide ATS in a defined volume of airspace, taking into consideration the high safety standards achievable without significant operational changes, impact on the environment and economy. It is the maximum number of aircraft which can safely transit through airspace within a defined time frame.

### Baseline Capacity

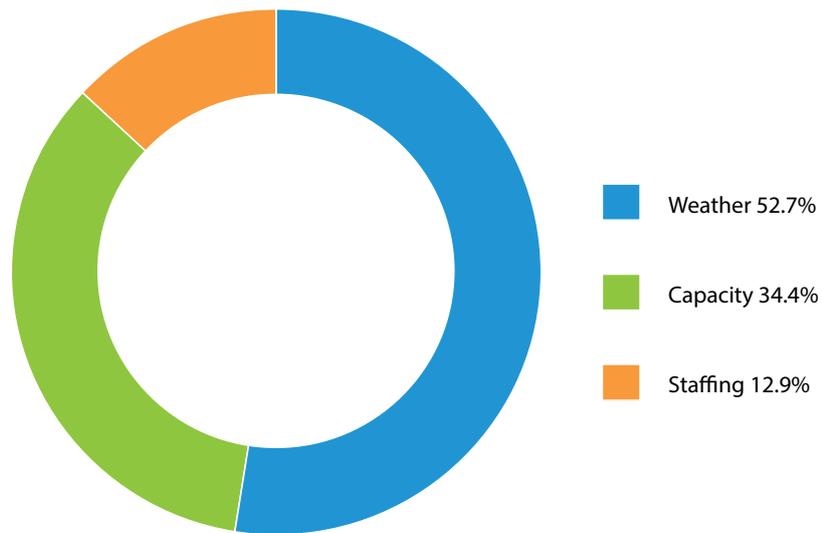
Baseline capacity is defined as an effective capacity which can be delivered and maintained in peak traffic periods and is determined annually by NM ACCESS process. This is done based on the recordings of a two week period during summertime and collection of all relevant inputs, such as exact sector opening times, DELAY produced as well as the number of operations and other relevant factors. ACC Baseline capacity is calculated on the basis of these information using the reverse CASA method.

Adequate capacity planning is the paramount in the overall planning as Croatia has further potential for growth arising from the shortest as well as the cheapest route options. In order to utilize sector capacities and to accommodate the traffic demand, CCL has introduced several airspace organization changes.

The goal for 2017 was to provide sufficient capacity to accommodate 149 operations per hour, which is 3% increase in comparison to 2016. After the process of measurement using ACCESS method, the baseline capacity of 155 operations per hour was measured, which is 7% increase in relation to 2016. This means that the goal to increase the baseline capacity in 2017 was completely realized.

### Delays

Plan for en route delays in 2017 was a part of a wider capacity management plan during RP2 in line with EU performance plan. The goal was set on national level as a part of FAB CE performance scheme. The target value for 2017 was 0.21 min per flight, and it was set as a value which directly contributes to decrease in delay on FAB CE level. In the third year of RP2, delay in Zagreb ACC was 66,774 minutes, i.e. 0.12 min per flight, which is significantly less than planned. The causes of delays were weather conditions (53%), capacity (34%) and staffing (13%).



ACC Zagreb - Regulation 2017

Since the average delay on FAB CE level in 2017 was 0,18 min per flight instead of planned 0,28 min per flight, it is clear that Zagreb ACC contributed to better delay results in FAB CE overall.



Significant element that contributed to better delay-related results were the continuous improvements in staff roster procedures that were aligned with daily traffic demand under new FRA circumstances and with new flight planning procedures.

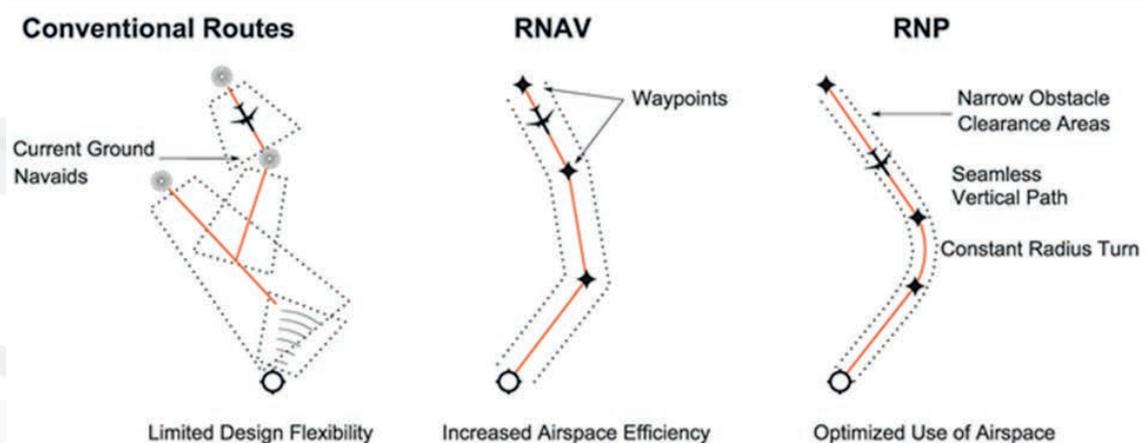
## Environment

CCL takes appropriate actions to decrease fuel consumption of airspace users. The introduction of FRA in 2017 resulted in optimizing traffic routes over the entire South-East axis of the European airspace that are already very close to the shortest routes, which is an advantage both in terms of flight efficiency as well as of reduced harmful emissions.



Besides the implementation of FRA concept, this is achieved also by introduction of performance based navigation (PBN) concept which was developed through 2017 with the aim of implementation to all TMA airspaces in Zagreb FIR. The PBN concept refers to design, publishing and operational use of a new airspace organisation concept by introduction of specific PBN SID/STAR routes for precision area navigation based on required RNAV 1 (or RNP 1 capability where appropriate) with complementing RNP approaches for all runway ends for all airports within TMAs Zagreb, Pula, Zadar, Split, Dubrovnik and Osijek.

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Environmental benefits of these procedures are reduction of aviation noise and the impact on the public in general, fuel burnt and consequently greenhouse gas emissions reduction, but most important is the reduction of operating costs to airlines.

These changes also include the implementation of CDO and CCO procedures at the airports within mentioned TMAs, where appropriate.

This comprehensive implementation requires the involvement of procedure designers, operational ATC staff, national regulatory agency and national airline operator. Due to its complexity, the implementation is divided in several phases with the aim to finalize all required elements by the end of 2019.

## 4.5. Technical Infrastructure

### Overview

More than a hundred technical facilities equipped with ATM/CNS technical systems are deployed throughout the country to enable the provision of the safe and effective operational services as well as to fulfil growing business demands. Highly qualified engineers and technicians have continuously been engaged in the supervision, control, maintenance and upgrading of the following systems: ATM Data Processing Systems, Voice and Data Communication Systems, Aeronautical Radio-navigation Systems, Surveillance Systems, Power Supply Systems, Network Systems, Meteorological Systems and business IT systems.

In line with CCL goals and required compliance with the EC Implementation Rules and ICAO mandates, we have successfully implemented and maintained various ATM/CNS Systems and infrastructure.

### 2017 Investment Plan

The domain projects included in the investment plan for 2017 were categorized as follows:

- ATM systems upgrade;
- DATA-COM domain projects;
- VOICE-COM domain projects;
- SUR domain projects;
- NAVAIDS projects;
- AWOS/MET domain projects;
- Reconstruction of buildings and infrastructure;



### ATM systems upgrade

The COOPANS ATM system in CCL, a product of joint undertaking of the COOPANS Alliance, comprising five European ANSPs and their seven ACCs, was further upgraded, which strengthened its world-class status. Its Build 3.2 brings improvements into system coordination related to the exchange of flight data by means of both OLDI and Network Manager's communication. Further system capacity increases and improvements in CPDLC protocol support were also implemented. COOPANS Build 3.2 is co-funded by the European Union CEF programme.

ARES system (ATM emergency system encompassing the "clear the sky" function for ACC/APP Zagreb and service continuity for APP Pula, APP Zadar, APP Split and APP Dubrovnik) was integrated into the CCL training facilities in Velika Gorica.

### DATA-COM domain projects

The project "Supply, installation and integration of AGDL system for CPDLC service in CCL" was successfully completed during 2017 in line with the planned schedule. Internal training, safety assessment and connectivity tests were performed in cooperation with EUROCONTROL, Bretigny. The contract with ARINC as NSP was signed and pre-operational tests with real aircrafts were finished. Finally, the CPDLC was put into operation in April 2017.

After the implementation of 6 international AMHS links, the link to DFS COM centre was agreed upon and the implementation activities started in 2018. The work on the new network Information Security block continued with the installation and Site Acceptance activities, while training, internal documentation and transition into operation are planned for 2018.

The project for the implementation of the software and services for the data network infrastructure upgrade on nationwide level was also launched.

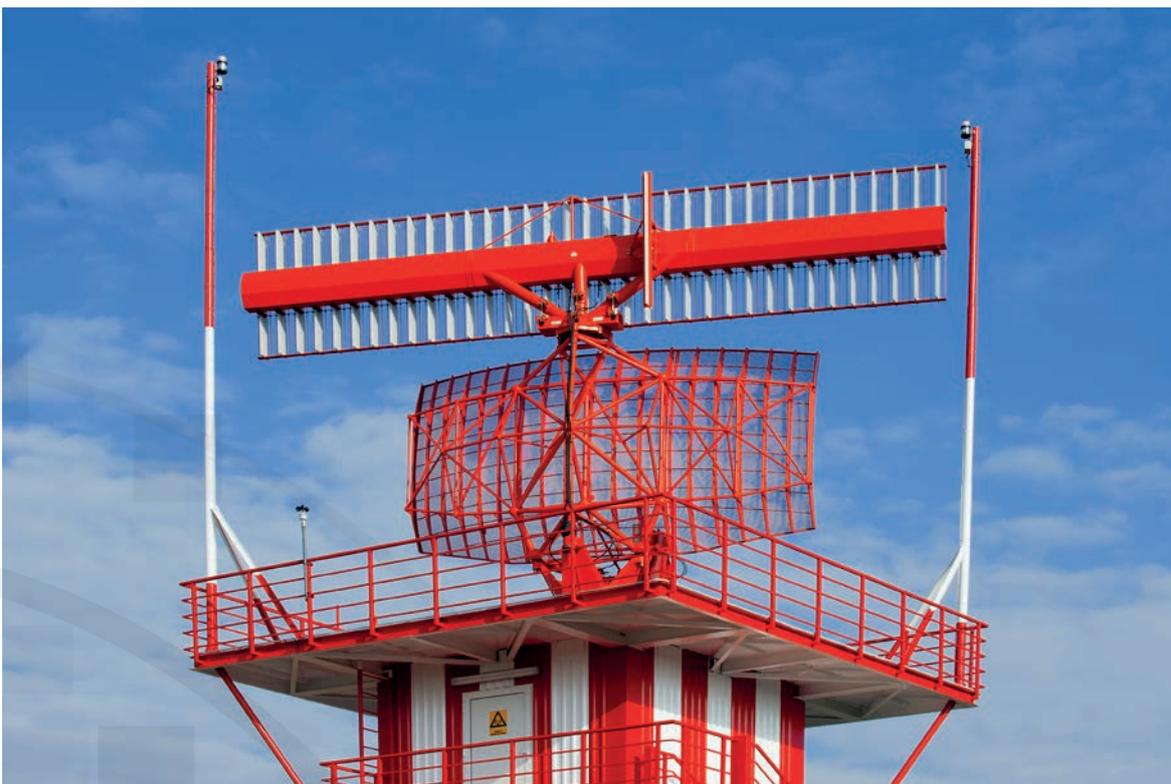
### VOICE-COM domain projects

The Project of the replacement and upgrade of VHF/UHF radio systems continued in 2017, aiming to replace and modernise the existing radio system of the older generation with the purpose to implement the 8.33 kHz voice channel spacing requirements below FL195 and to support the migration to VoIP. The procurement of new ATC radio systems was completed in 2017. As the VHF/UHF radio network was planned to be upgraded with additional VHF site at Northern Adriatic area, the process of obtaining necessary permits is ongoing as a prerequisite for the construction of infrastructure on the site.

The group of projects for upgrades of all VCS/BVCS to support migration to VoIP was started. Within the scope of those VoIP-related projects for upgrades of main and backup Voice Communication Systems, its monitoring and control subsystems were tested and factory accepted, the contracting for upgrade to new VoIP-ready system release was finished and the tender for upgrade of VCS/BVCS to VoIP and integration of all ATS units in IP based AGVN was published.

Integrated VCS intercom solution was factory accepted and the implementation will be synchronized with VoIP related projects in the forthcoming years. As a part of the modernisation of voice communications, five ATC units were not covered yet by the past CroATMMP modernization programme, so now the new recording systems were installed, tested and put into operation at those CCL branches. The existing PBX in Rijeka was upgraded to support DECT users as well as associated legal recorders serving this system.

### SUR domain projects



The A-SMGCS system for Zagreb Airport was delivered and the installation was finished. The final integration and optimisation will take place, and after the upon successful system site acceptance the operational work is expected in 2018. The project is co-funded by the European Union CEF programme.

The preparations for the construction of the new MSSR Mode S radar site in Dubrovnik TMA region are underway. It is expected that the implementation will start during 2018.

## NAVAIDS projects

During 2017, within the project of NAV system modernization in the current reference period RP2, VOR/DME VBA and ILS IPU were successfully replaced and commissioned. At the same time, the preparation activities for the next scheduled system and infrastructure replacements, foreseen for execution within the period from 2018 to 2020 (ILS IDU, VOR/DME DBK and VOR/DME RJK) were started.

## AWOS/MET domain projects

AWOS/MET domain projects continued with preparatory activities for the next project, aiming to replace the old and implement the total of eight new AWOS systems (with ATIS and/or VOLMET, where appropriate) for airports Zagreb, Zadar, Dubrovnik, Rijeka, Osijek, Lošinj, Brač and Lučko. Activities are scheduled to intensify in 2018.

Within VAMS50 project, upgrades of systems in Rijeka and Brač were implemented and transitioned into operational service with new functions (the replacement of the old wind measurement system in Rijeka, the new wind measurement site on Brač airport). The upgrade of the Lošinj VAMS50 system is started with expected completion in 2018.

Finally, the implementation of the ATIS function in Dubrovnik is expected to reduce ATCO workload, with transition into operation foreseen in April 2018.

## Reconstruction of buildings and infrastructure

The comprehensive reconstruction works were done on the old ACC building in CCL headquarters in Velika Gorica last year, as well as the reconstruction of air conditioning systems in Dubrovnik. The reconstruction of the air conditioning systems in Velika Gorica together with the reconstruction of power supply in Zagreb and reconstruction of TWR Rijeka are in progress.

## Croatia Control virtual info board for employees (CroVIBE)

Croatia Control virtual info board for employees (CroVIBE) system was successfully upgraded in 2017 with new functionalities (Competency and Roster) to support better communication and information access for air traffic controllers. Wireless printing solution for iPad devices is also implemented in ATM rooms.

## CCL centralised technical monitoring and control system

CCL is introducing more automation in order to increase the efficiency of the monitoring functions, thus requiring less staff presence on remote sites and enabling a more rational and cost-efficient use of technical staff involved in technical monitoring, control and maintenance of the systems concerned, enhancing quality and safety of ATM service provision, and introducing a possibility of information exchange about the condition of CNS systems at national and international levels.

In 2017, a radio communication network for monitoring the NAV domain device of the Pula region was put into service. A development platform was installed in Zagreb for developing applications for supervision and management of TEL domain equipment.



Full list of projects scheduled for implementation in 2017 is given in the table below.

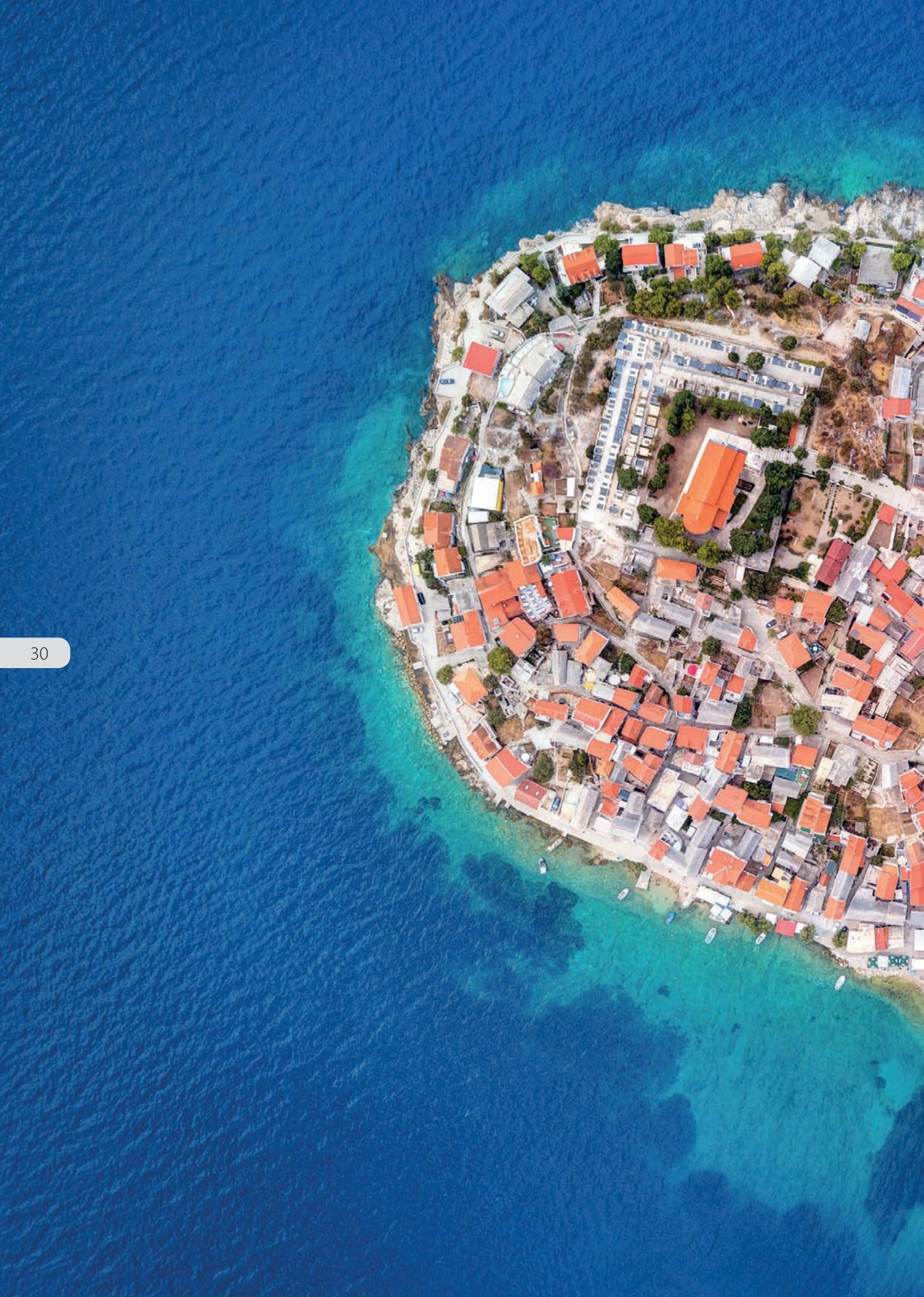
<b>Project name</b>	<b>Start</b>	<b>Operational</b>
CCL Centralised Technical Monitoring and Control System	Before 2012	2018
FUA Project	Before 2012	2018
DATA-COM Systems Modernization Project	2014	2015-2019+
VOICE-COM Systems Modernization and Replacement Project	2014	2015-2019+
NAV Systems Modernization and Replacement Project	2014	2015-2019+
Ground-based Surveillance Systems Upgrade	2014	2015-2019+
AWOS/MET Systems Modernization and Replacement Project	2014	2015-2019+
Security and Protection of Sites Improvement Project	2014	2019
ATM System Upgrade	2015	2015-2019+
Reconstruction of Buildings and Infrastructure	2015	2015-2019+
ICT Systems Modernisation Project	2015	2015-2019+
MET-ATM Domain Projects	2015	2015-2019+
Modernization of TWR and TMA Working Positions	2017	2019

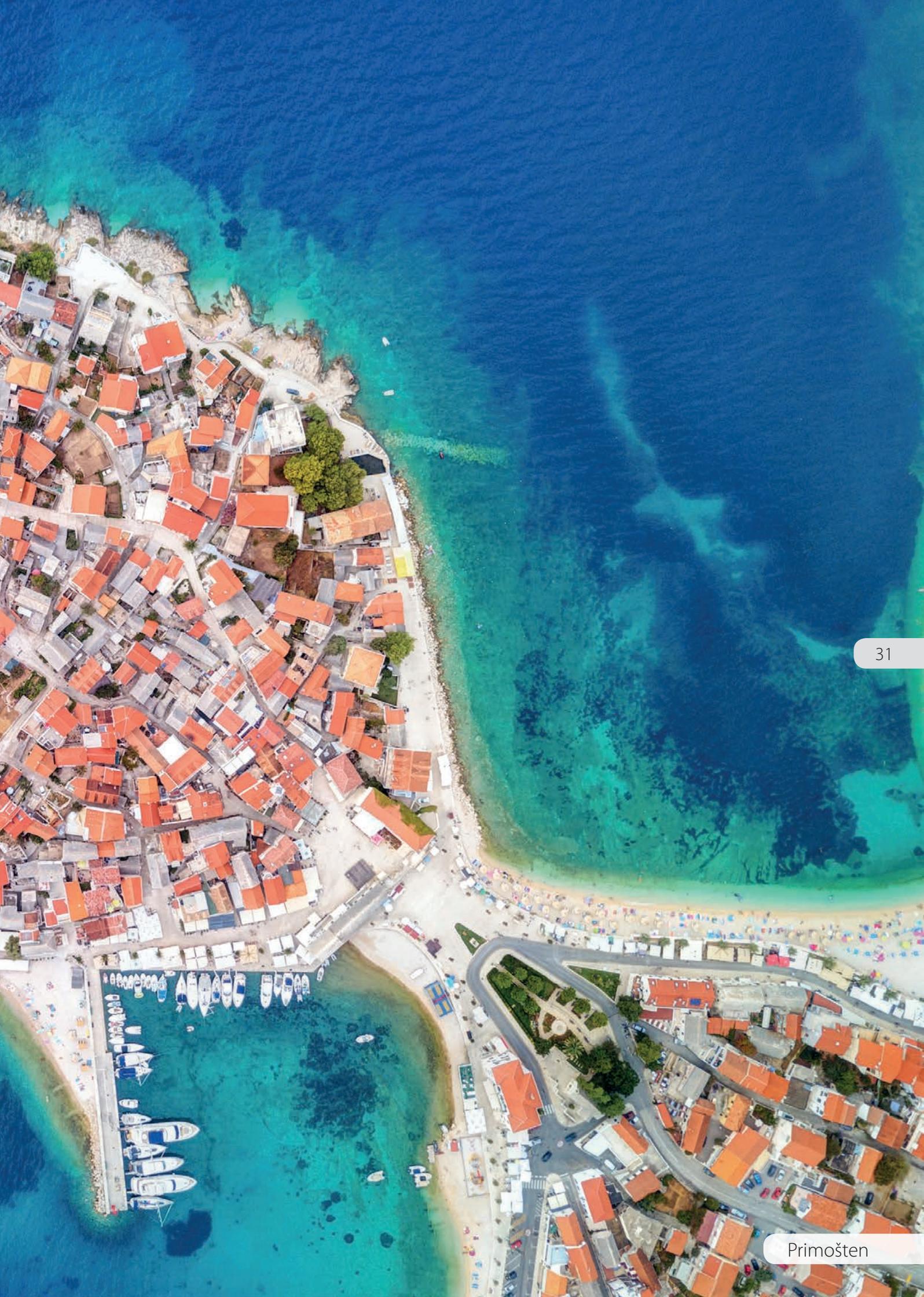
### Plans for investments in coming years

Projects scheduled for implementation during 2018:

<b>Project name</b>	<b>Start</b>	<b>Operational</b>
ATM System Upgrade	2015	2015-2019+
DATA-COM Systems Modernization Project	2014	2015-2019+
VOICE-COM Systems Modernization and Replacement Project	2014	2015-2019+
NAV Systems Modernization and Replacement Project	2014	2015-2019+
Ground-based Surveillance Systems Upgrade	2014	2015-2019+
AWOS/MET Systems Modernization and Replacement Project	2014	2015-2019+
Reconstruction of Buildings and Infrastructure	2015	2015-2019+
ICT Systems Modernisation Project	2015	2015-2019+
MET-ATM Domain Projects	2015	2015-2019+
CCL Centralised Technical Monitoring and Control System	Before 2012	2019
FUA Project	Before 2012	2019+
Security and Protection of Sites Improvement Project	2014	2019+
Modernization of TWR and TMA Working Positions	2017	2019+







# 5. Safety, Quality, Environment and Security

Air traffic safety is the highest priority to CCL. To further improve the quality of service provided to our users, a Central Safety and Quality Office has been established at the corporate level, reporting directly to the Director General.

The Central Safety and Quality Department covers the areas of:

- Safety management,
- Quality management,
- Environment management,
- Security management,
- Internal control and auditing.

This department also facilitates operation of the occupational health and safety management system, which has been certified in accordance with the standard BS OHSAS 18001, and coordinates appropriate activities with the OHS department and other relevant organisational units and employees.

requirements laid down in national regulations, SES requirements and EUROCONTROL Safety Regulatory Requirements (ESARRs) setting out European safety standards.

Intensive SMS-related activities were undertaken in CCL during 2017. These included:

- Safety Occurrence Reporting and Investigations;
- Safety Surveys;
- Safety Assessments;
- External Services Safety Impact;
- Safety Monitoring;
- Competence Assurance;
- Safety Culture Survey measurement;
- Safety Promotion;
- Just Culture Promotion;
- Safety Records;
- SMS Documentation.

## 5.1. Safety Management

### Safety Management System



Safety management system (SMS), including a safety management function, has been in place since January 2007. The Safety Committee, which is the highest corporate body responsible for safety issues, meets on a monthly basis and it consists of Director General, Division Directors, Executive Directors and Safety Manager.

The main component of the SMS is the Safety Management Manual which defines SMS organisation and processes as well as basic SMS procedures, in order to comply with the SMS

### Safety Performance Indicators

CCL key safety performance areas:

- a) the effectiveness of safety management (Safety Maturity);
- b) the application of the severity classification of the Risk Analysis Tool (RAT);
- c) reporting of Just Culture.

In 2017 CCL managed to increase Key Safety Performance areas by 3 percent (overall score is 85%). CCL plan for RAT usage (ATM ground element) is in line with EU-wide targets for 2017 and 2019.

Regarding the Just Culture, JC Policy is in place and it has been disseminated to the staff and the management through the intranet and safety promotion workshops in order to develop a culture in which front line operators and others

are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training but where gross negligence, wilful violations and destructive acts are not tolerated, as per definition laid down in the Regulation (EU) No 390/2013. Such approach makes employees accountable for deliberate violations of the rules but encourages and rewards them for providing essential safety-related information not blaming or punishing them for “honest mistakes”.

CCL developed the Action Plan for compliance with SES II regulatory requirements in the area of SMS. It is based on the results of an existing gap analysis report. This Action Plan sets out the actions to be performed by CCL in order to continue the transition towards full compliance with SES II regulatory requirements for RP2. In essence, this is a progression from Effectiveness of safety management level 3 (implementation) to level 4 (D) (managing and measuring) by the end of 2019.

In 2017 CCL's safety activities were focused on the following objectives:

- Continuous improvement of effectiveness of safety management;
- Continuous improvement of Safety Culture;
- Continuous improvement of Just Culture;
- Continuous improvement of Safety Tools;
- Minimising the number of serious incidents.

### International Safety Activities

As a part of its commitment to safety, CCL participates in a number of safety projects at the European level. Focusing its outcomes on the needs of SES and SESAR, EUROCONTROL's European Safety Programme (ESP-Plus) aims at facilitation of SMS regulation support in the deployments required by the European ATM Master Plan. ESP-Plus has been used to guide CCL SMS activities and many of its objectives have been successfully implemented in CCL. During 2017, CCL continued its active role in a number of international initiatives and processes in the safety domain, including the participation of its representative in EUROCONTROL Safety Team (comprising the safety managers of European air navigation service providers). As a part of its contribution to the FAB CE activities, CCL actively participated in the FAB CE Safety Sub-Committee.

## 5.2. Quality Management

The adoption of a Quality Management System (QMS) helps CCL to improve its overall performances and provides a solid base for sustainable development. In addition, it helps in continuous provision of services that meet customer, organizational and regulatory requirements through continuous improvement. CCL has established the QMS in compliance with ISO 9001:2009.



The scope of activities covered by ISO 9001 Certification includes the provision of:

- Air Traffic Services (ATS),
- Communication, Navigation and Surveillance Services (CNS),
- Aeronautical Information Services (AIS),
- Aeronautical Meteorological Services (MET).

These services are managed in compliance with national and international standards and requirements. The criteria for efficient management of CCL's business processes is set by the Quality Management Manual, whereas the services are described in relevant operating manuals. The manage-

ment ensures, by means of Quality Policy, that customer requirements are identified and taken into account. Director General is responsible for the CCL's Quality Policy, which is supported by the QMS that is subject to internal and external audits as part of ISO Certification. The quality of CCL's services is granted by an integrated QMS which is periodically reviewed and assessed for its long-term suitability, adequacy and effectiveness.

During 2017, CCL continued to upgrade the QMS and started the implementation of ISO 9001:2015. The end of implementation and ISO Certification is planned for 2018. CCL has established and applied an Occupational Health and Safety Management System in compliance with BS OHSAS 18001 and an Environment Management in compliance with ISO 14001.

### 5.3. Environment Management System

On the basis of the criteria for the evaluation of importance of environmental aspects, CCL has developed plans in which environmental objectives are described, such as:

- (1) reducing the level of EM radiation,
- (2) creating requirements for noise abatement,
- (3) route network and airspace optimization,
- (4) improvement of power supply management,
- (5) reducing the noise of central air conditioning system,
- (6) waste disposal site upgrade.

CCL is regularly monitoring the level of EM radiation, and it keeps and updates a database on sources of EM radiation. Periodical measurements after the setup of the first EMR source in CCL begun in 2015, and a three-year cycle of EMR measurements in CCL was successfully completed in 2017. CCL fulfils all obligations of compliance with legal regulations relating to the level of EM radiation.

Regarding the creation of requirements for noise abatement in 2017, the plan for PBN implementation at all aerodromes in Croatia was revised. In April 2017 the introduction of PBN airspace concept into FIR Zagreb as well as implementation proposal were initiated. The deadline for finalization has been extended to the end of 2019, i.e. a year later than initially planned because of modelling the FTS (Fast Time Simulation), i.e. because of assessment of the impact of new instrumental flight procedures on flexible use of airspace.

The activities related to the airspace optimization continued, the project of establishment of FRA was successfully implemented.

At the beginning of 2017 monitoring of reduction of CO<sub>2</sub> and NO<sub>x</sub> was initiated (route network and airspace optimization). The measurements of gases harmful to the environment in the FRA is done via Eurocontrol's NEST Tool.

The cycle of monitoring the CO<sub>2</sub> and NO<sub>x</sub> emission reduction was completed at the end of 2017, and the new methods and models of monitoring the reduction in the new SAXFRA integration are being considered.



A Procedure for monitoring the key electrical consumers in CCL has been established and it defines the electricity meters with pertaining electric consumers for which the relevant data on power (kW, kVAr, cos fi) are being collected regularly.

As regards the general aim of noise abatement related to the central air conditioning system and control measurement of noise in CCL yard, the new environmental goal was defined - "Monitoring the level of noise of the central air conditioning system". In June 2017 measurements were made on 7 sites, and it is stated in the minutes on measurement that the level of the noise is compliant with regulations.

The management of a temporary waste disposal site in CCL, the procurement of the containers for separate collection of raw materials for CCL as well as the procurement of a large press-container for municipal waste for CCL is currently under way.

In June 2017 the independent certification company Bureau Veritas Croatia performed the regular audit in CCL, in the course of which it reconfirmed the compliance of the established environmental management system with ISO 14001:2004 for Zagreb, Split/Brač, Dubrovnik, Pula, Rijeka, Zadar, Osijek and Lošinj locations and for ATS, CNS, AIS and aeronautical meteorological services. By this step, CCL confirmed its commitment to continuous improvement of the established processes and continuous emphasis at the elimination of non-compliances occurring in the environmental management system, with the priority on preventive actions and permanent control of all activities and preparedness for the recertification and transition with ISO 14001:2015.

## 5.4. Security Management



CCL proceeded with the upgrade of its security management system in the following important segments:

- protection of its staff and visiting personnel on its premises,
- protection of facilities and infrastructure,
- auditing, inspection and testing of security measures and procedures.

According to the Critical Infrastructure Act and the new Threshold Criteria for Critical Infrastructure, CCL submitted to the relevant authorities its proposal of items of the national critical infrastructure being managed by CCL and also prepared the list of other assets of high importance. Plans and programmes for the protection of these assets were revised and put into action. The risk register regarding those assets was revised.

CCL raised the level of physical protection of some of its assets at the Head Office, in the regional branches and at some of its remote sites. The electronic movement control system was installed in one of CCL regional branches and upgraded in another. The upgrade of electronic movement control was also carried out in B object of the HDQ building.

Within the scope of various CNS infrastructural projects, a number of security-related measures were either implemented, started or planned on various CCL remote sites.

Other technical protection measures (video surveillance, intrusion alarm systems and intrusion detection systems, security doors) were implemented at some radar stations and other CCL CNS remote sites, while other measures have been put into place or planned. The security protocols regarding various CCL sites were either revised (due to the changed external circumstance) or renewed.

Risk assessment was being made and documented for all major CCL assets.

Security awareness campaign for CCL staff and other personnel (contracting parties) was carried out according to the plan and subdivided in three different modules (including written exams):

- basic module,
- module for members of the CCL Security Committee,
- module for Airspace Management Cell members,
- special module for security officers working on outsourcing contracts at CCL Head Office.

According to the national legislation and in cooperation with the relevant authorities, background checks for security personnel and for other designated categories of CCL staff were carried out. Auditing, inspections and tests were performed in line with the national legislation, primarily on the sites that underwent major changes affecting their security status.



CCL security experts took part in other projects of security-related significance, i.e.:

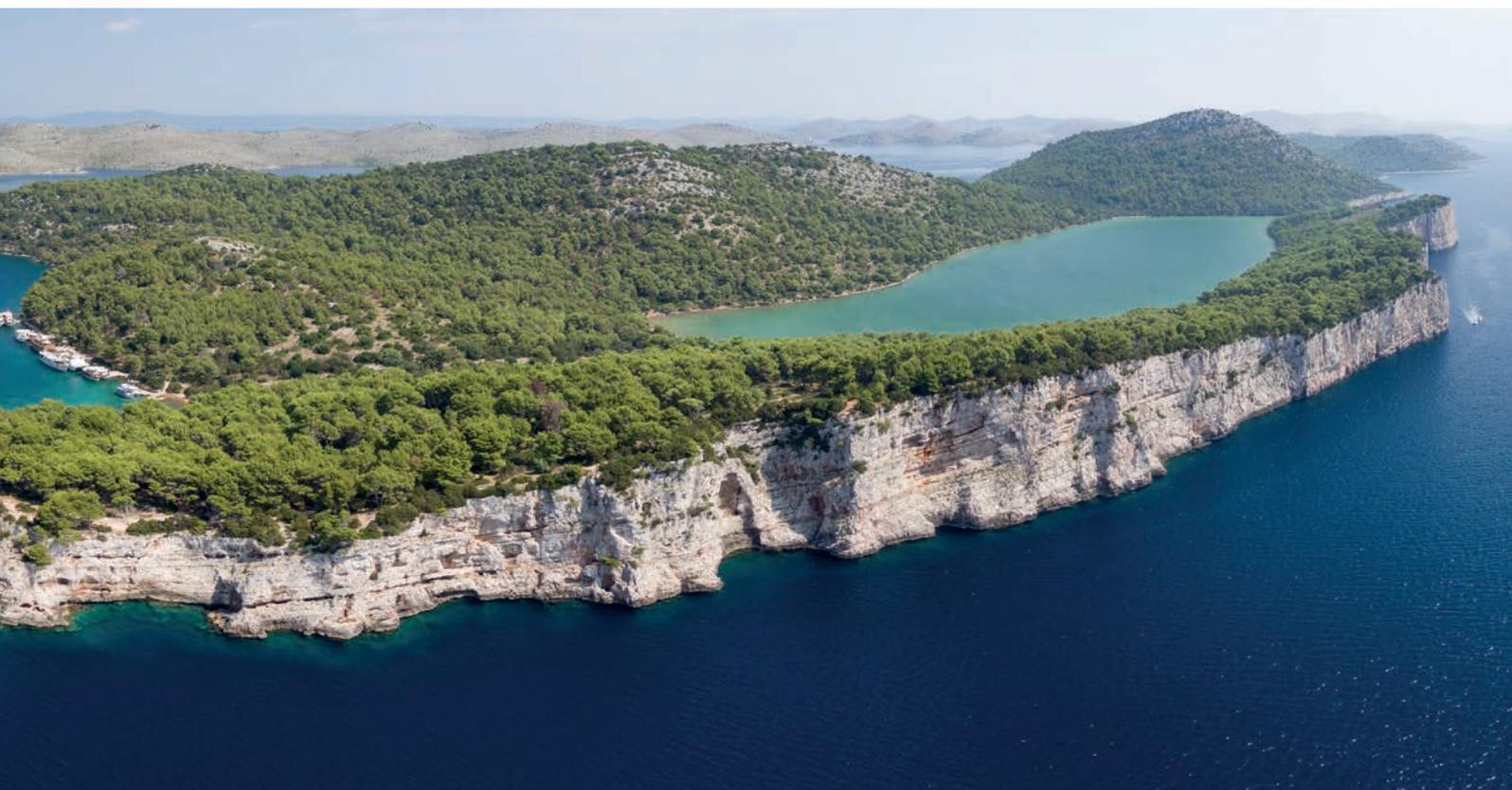
- coordination with military authorities on various issues of mutual interest;
- coordination with the Ministry of Interior on a number of issues of common security interest;
- coordination with the Ministry of the Sea, Transport and Infrastructure regarding critical physical and information infrastructure.

In preparation for challenges presented by the upcoming opening of the operational information systems to a new cyber environment, CCL put a lot of effort into protection of its data systems. A major network security project was finished. Administrative network system as the exchange point toward internet has been undergoing constant upgrade. In cooperation with state Information System Security Bureau, penetration tests on some CCL systems was being carried out, risks were assessed and those systems were revised accordingly. Under the auspices of the relevant state bodies, the preparatory regulatory work for the protection of the essential CCL ICT-supported services was being made.

## 5.5. SES Certification and Safety Oversight

CCL was certified in accordance with the Regulation on Terms and Conditions for the Certification of Air Navigation Service Providers, which is compliant with valid SES legislation, in particular with the Commission Implementing Regulation (EU) No 1035/2011.

Subsequently an extensive safety inspection programme was undertaken by the Croatian Civil Aviation Agency, and CCL contributed by allocating significant resources in order to facilitate the relevant audits. In August 2013 CCL was re-certified in accordance with relevant SES regulations and the inspection programme has continued.



## 6. Additional Services

### 6.1. Aeronautical Meteorology (MET)



CCL also provides aeronautical meteorology services, paying special attention to the continuous improvement of services, staff education and regional cooperation.

Two seminars for MET forecasters were attended by many MET services in the region. In March CCL organized and hosted SIGMET Coordination Workshop, including MET providers from the region of South-East Europe, and the representatives of MET Alliance who played an important role in the EANPG/METG SIGMET coordination ad-hoc group.

MET Division personnel actively participated in the International workshop on verification methods, the European Conference for Applied Meteorology and Climatology (ECAMC), the Rainbow 5 workshop, the WMO Scientific Conference on Aeronautical Meteorology, the ESSL Seminar for Forecasting Severe Convection, the ESSL Testbed workshop, the SWIM workshop for integration of MET, AIS and ATM information services, the IBL User Group Meeting and in several EUMETCAL and ECMWF workshops. They were also active in ICAO's regional office meteorology group (METG) regarding SIGMET coordination within the EUR Region. CCL has observer status in MET Alliance and participated in the MET Alliance SIGMET Coordination group, the AUTO METAR MET Alliance group and in the MET Alliance group on TAF verification and MOS guidance.

MET personnel actively participated in CCL's involvement in the SESAR 2020 program and within these activities LIDAR was set up in Dubrovnik and the first 3D wind measurement campaign in Croatia was initiated.

A new product for ATM called ATM Convection Nowcast, which covers a 6 hours forecast period, was tested during the summer. A network of 13 web cameras for VFR flights have been installed. An agreement was signed with the Meteorological and Hydrological Service of Croatia on the use of meteorological data, which also ensures data backup via the Internet. Agreements on scientific and expert

cooperation were signed with the Meteorological and Hydrological Service and the Faculty of Science of the University of Zagreb.

CCL's MET Division elaborated the ideas for the project "Bura Dubrovnik" in order to create a decision support system for strong wind events at Dubrovnik Airport. The MET Division had several meetings with partners on the Project in order to define the major characteristics and technical needs of a decision-making system for Bura events at Dubrovnik Airport. A cost benefit analysis was made.

The eGAFOR Project was launched on 03/07/2017. Project is 85% co-financed by INEA through CEF Transport Call 2016. The goal of the Project is to provide general aviation pilots with easily understandable meteorological information on the condition of a particular route. Along with CCL as the leading partner, METSPs from Slovenia, Hungary, Slovakia, Bosnia and Herzegovina, Serbia, Montenegro and Romania are partners on the project, while the Slovakian IBL is the industrial partner. The project will present a great improvement in the existing MET products for general aviation, since the pilots will be able to see a unified and harmonized forecast for the substantial part of Europe at one place on the website.

## 6.2. Aeronautical Information Services (AIS)



CCL also provides Aeronautical Information Service (AIS) – provision of aeronautical data and information necessary for the safety, regularity and efficiency of both international and national air navigation in Croatian airspace.

AIS department was certified to ISO 9001 standard from 2005-2011. The current CCL certificate for all services, including complete AIS, confirms

the compliance with the requirements of ISO 9001. AIS department consists of:

- International NOTAM office, operational 24 hours a day,
- Aeronautical Publications office.

It provides all elements of the Integrated Aeronautical Information Package - IAIP - (AIP AMDT/SUP, AIC, NOTAM and PIB, a list of valid NOTAMs and checklists) and additional publications such as VFR Manuals and VFR Chart with recommended VFR routes. All products are available in English or as bilingual publications, except for AICs series B that are in Croatian, which are for that reason distributed only in Croatia.

Since late 2007, AIS department has fully migrated to the European Aeronautical Database (EAD), where all aeronautical information are available in electronic format via EAD SDO, INO and PAMS modules. A new EAD Agreement was signed in 2016, taking into account new regulatory requirements since the first migration.

All the elements from the IAIP are based on the same data source in the database (SDO), except for charts that are currently provided from a separate source and as such incorporated in the eAIP. The electronic AIP of the Republic of Croatia has been available, both in English and Croatian, since early 2012.

Charts are prepared by the Aeronautical navigation, procedure design and cartography department. Pre-flight briefing is provided by the ATS reporting offices (ARO) located at the aerodromes. The AROs use a local system NOTAM database for pre-flight briefing and combining it with other relevant documentation for briefing purposes.

A new local database was obtained and will allow the provision of digital aeronautical data and information as well as advanced pre-flight briefing in the course of 2018.

Evolution of the AIS has been achieved in terms of processes and integrated management systems enhancements through the CroQADI project of this report and is further planned for the originating data quality improvements, as well as for data sets exchange through the Project of modernisation of the AIS Data Base, as stated above.

Aeronautical information is also provided for reference purposes through the CCL/AIS web pages, and through web pages of the EAD.

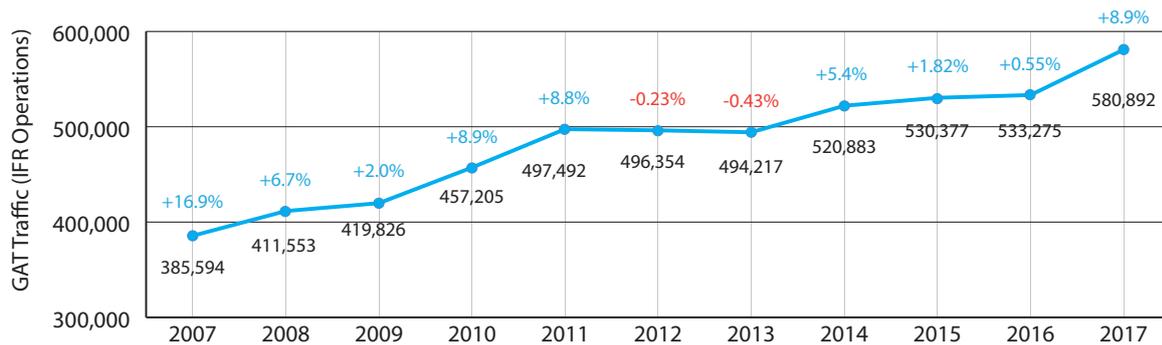




# 7. Performance

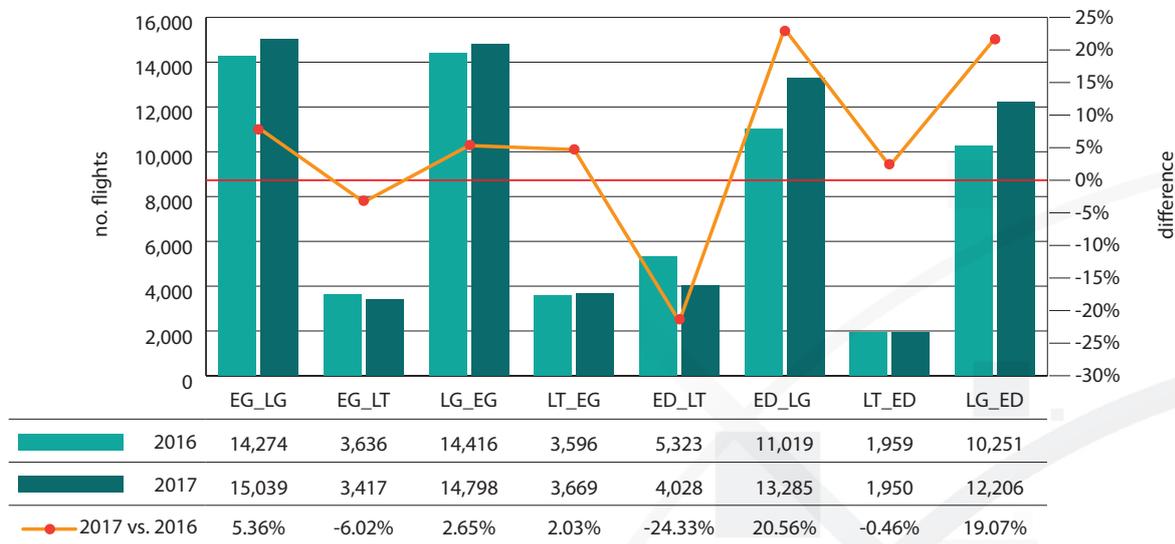
## 7.1. Traffic

There were more than 580.000 IFR GAT operations in 2017 within CCL area of responsibility, which is the increase of 8.9% compared to 2016. During the summer season (May to October), traffic in Croatia increased by 9% when compared to the same period in 2016.



Traffic growth in Croatia (source: NM DWH through FMP)

Variations in traffic patterns resulted in change in the most frequent country pairs through Croatian airspace, mainly between UK and Greece as well as between Germany and Greece, while other frequent country pairs situated on the South-East Axis also produced a change as shown in the picture:

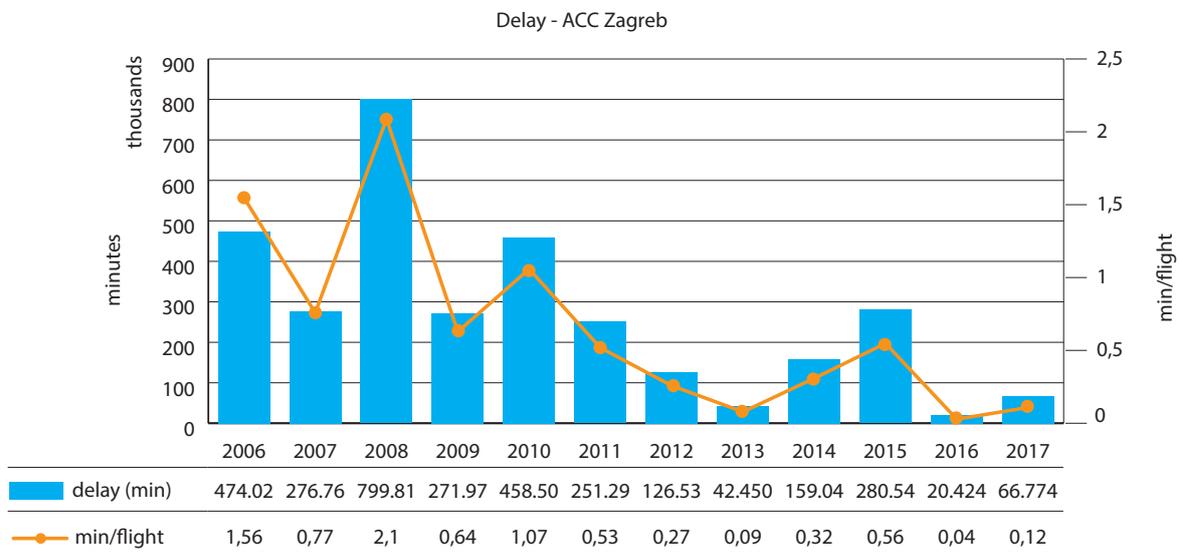


ACC Zagreb Country-pairs from May to October 2017 vs. 2016

## 7.2. Delay

The year 2017 ended with total delay of about 66.00 minutes or 0.12 min/flight, which is less than the target value described through Performance Plan that was 0.21 min/flight. Substantial amount of produced delay is attributed to weather causes (53%) while capacity shortage portion amounts about 34%. The remaining 13% was produced due to staffing. Mentioned ATFCM delay was produced during the busiest period of the year, May to October.

The plan of delays for 2018 is 0.21 min/flight decreasing this value over the next year in order to achieve 0.19 in 2019.

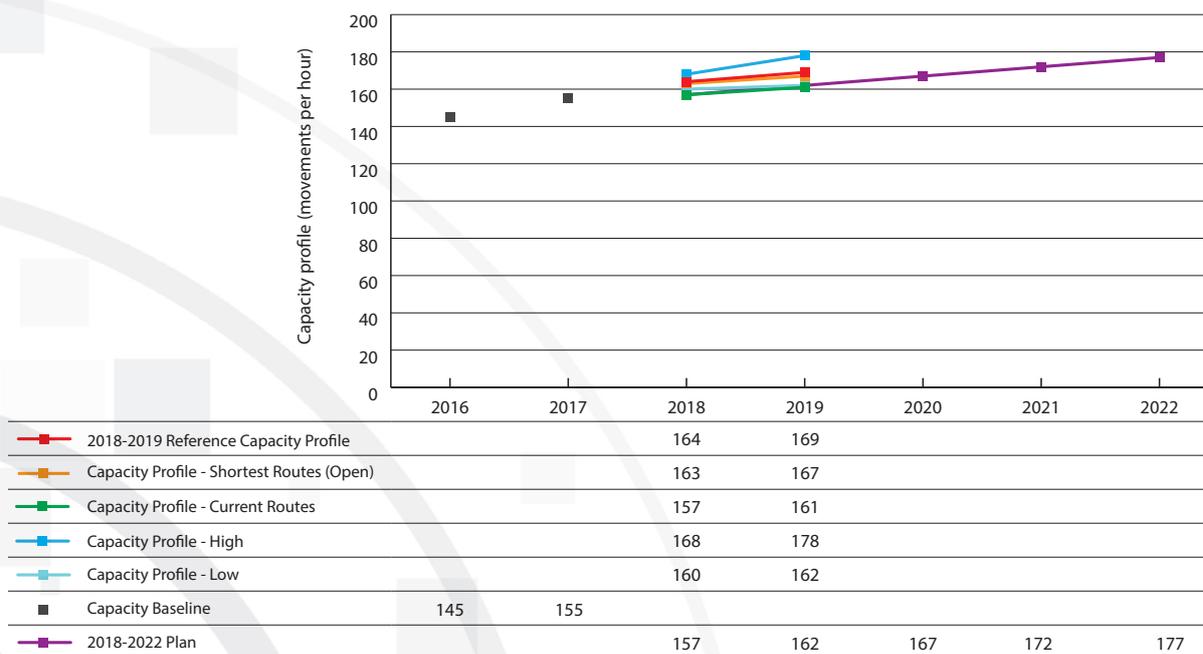


Trend of delays over the years (source CCL FMP)

### Capacity Developments

Zagreb ACC baseline capacity has increased by 7% in 2017 and now amounts to 155 IFR GAT operations per hour. The ACC capacity baseline is the result of many combined factors.

CCL is now facing further challenges in keeping the performance within the planned and set limits.



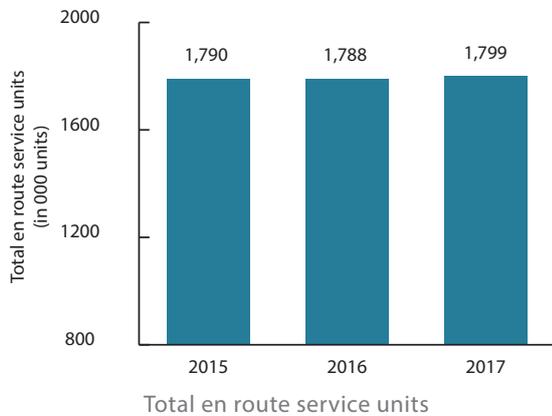
LDZOCTA - Reference capacity profile and alternative scenarios

Though continuous improvements are planned (3% average capacity increase per year based on local capacity plan 2015-2022), a potential capacity gap could be expected during the planning period depending on the actual evolution of the traffic distribution.

During RP2 a steady growth of ACC baseline is predicted, in line with the available STATFOR forecast.

### 7.3. Service Units and Unit Rate

After a minor decrease during 2016, the positive trend continued again in 2017 and CCL realised historically highest total of 1,799 thousand in total en route service units provided to the airspace users within the Croatia en route charging zone, representing an 0.7% increase, compared to 2016.



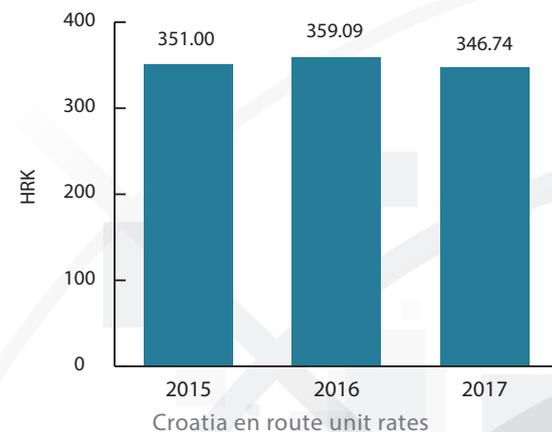
In regard to traffic performance recorded in Croatian terminal charging zones, CCL continued its historical upward development in service unit provision. During 2017, it managed to further increase the total number of terminal service units by 13.3% overall (combined for terminal Zone1 and Zone2), reaching some 53.7 thousand overall.



Furthermore, total budgeted en route costs for 2017 associated with the approved FAB-CE/Croatia RP2 Performance plan (PP) were initially proposed, critically reviewed (both in the process of developing RP2 PP as well as during the consecutive CER sessions) and accepted by the regular EC/EUROCONTROL governing bodies at the level that resulted in budgeted 2017 en route unit rate (of HRK 346.74; excl. administrative fee) being nominally decreased by -3.4% compared to 2016.

Reason for that was mostly defined by assumed relatively more dynamic 2017 traffic development (+1.4%) compared to planned total costs, which for 2017 were expected to be slightly above the 2016 planned cost base (i.e. +0.2% for CCL representing the most significant cost base entity). As was the case in 2016, budgeted 2017 cost development had to allow for the challenging RP2 targets in operational capacity, which develops along with the recorded and expected traffic magnitude and structure, all associated with CCL's commitment to the highest level of safety and complex and continual engagement in BH ATM transition process – phase II.

The following further depicts the budgeted unit rates for Croatia.

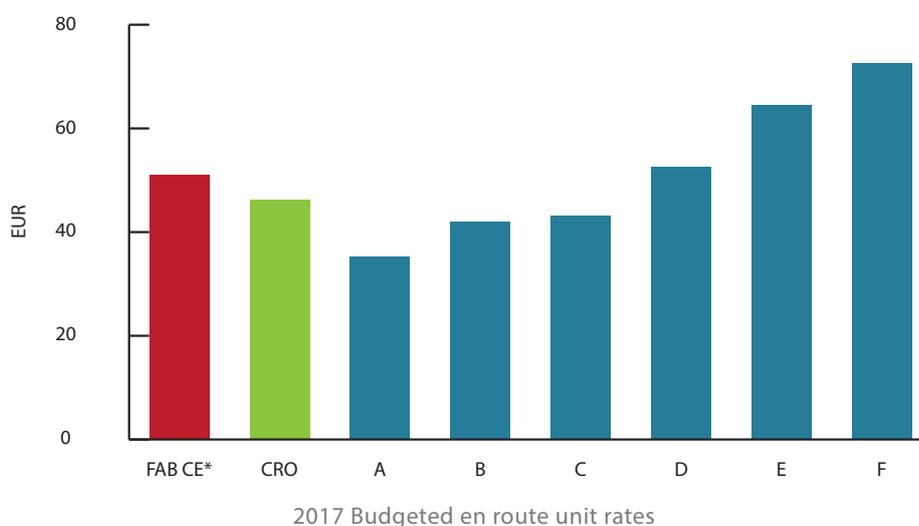


As was the case in previous periods, in 2017 CCL managed to deliver, both regionally and FAB CE - wide, highly competitive and cost efficient performance. The proof of that was reflected in 2.6% better cost efficiency performance (ER DUC KPI) than what had been initially targeted

in Croatia RP2 PP for 2017, even though the necessity was an engagement of additional business resources in terms of 2017 total en route costs compared to 2016. These additional resources were of utmost necessity for the purpose of financing a required delivery on challenging KPA targets set in RP2 PP (specially in CAP KPA), while continually working on highly complex, multilateral and cross-border projects such as the extension of SEAFRA to SECSI FRA and BH ATM transition. As was the case throughout the previous years, the fundamental prerequisite for such a performance again was the condition of safety tools and processes being in place and running effectively.

As a result of such commitment and as was the case during the previous consecutive periods as well, Croatia (most significantly supported by CCL performance) managed to provide en route ANS at a competitive unit rate during 2017.

According to finally approved en route unit rates for 2017 (CER 107), en route unit rate comparison between Republic of Croatia and relevant neighbouring countries, most of which being FAB CE partners as well, is presented on the graph below.



\* Note: FAB CE indicative 2017 UR, for the purpose of this comparison, excludes values for Croatia.

Furthermore, Croatia operates two terminal charging zones with two individual terminal unit rates. Budgeted 2017 terminal unit rates were HRK 1,787.63 (2016: HRK 1,789.35) for terminal Zone 1 (LDZA including LDZL) and HRK 1,929.20 (the same as for 2016) for other ATC centres in Croatia – terminal Zone 2.

## 7.4. Costs and Income

Despite the historical highest IFR GAT operations controlled, for which the adequate operational capacity had to be developed and maintained, CCL managed fully to contain its actual total cost incurred during 2017 at the 2016 level (+0.03%). This resulted in 2017 actual total costs in the amount of EUR 90.1 million.

The aforementioned cost development proves to be disciplined given the:

- traditionally, highly seasonable air traffic demand pattern, which substantially characterizes Croatian air traffic (i.e. traffic in August was 2.5 times higher than February traffic), puts a significant adverse pressure on the capacity associated costs and capacity management,
- continuity of a proactive and dynamic capacity management proved adequate this year too, resulting in a recorded AFTM delay of 0.12 min/flight, outperforming the RP2 target for 2017 by some 43%,
- significantly increased operational activities recorded in IFR GAT movements (+8.9%), further supported by significant operations development in Croatian terminals (+10.9% combined for both Z1 and Z2),

- continuity of substantial investment activities delivered during 2017 (which recorded 100% of the RP2 target for 2017) was most significantly based upon the multinational/COOPANS initiatives, all aimed at continuous development of efficient and effective Croatian ATM system,
- continued 2017 traffic developments in terms of adverse and more demanding IFR GAT to service provision mix and
- anticipated business risks and potential contingencies for which the adequate provisions against had to be created in 2017.

Nonetheless, CCL fully managed to comply with RP2 cost efficiency targets set for 2017 in line with the Croatia/FAB CE RP2 PP. Moreover, recorded 2017 performance in cost efficiency KPI proved:

- 2.6% target outperformance in en route cost efficiency, and
- 8.7% target outperformance in terminal cost efficiency.

As is the case with the ANS industry in general, the most significant part of the CCL's total cost relates to staff costs (some 64% share in total costs for 2017), which were 5.2% lower than CCL's annual plan for 2017 but still assuring the adequate operational capacity in 2017.

In 2017, recorded other OPEX spending was by some 4.5% less dynamic than the year before, and approximately EUR 5 million was saved compared to Company-wide annual plan for 2017 in Other operational costs (share of approx. 19% in CCL's total costs), for the following reasons:

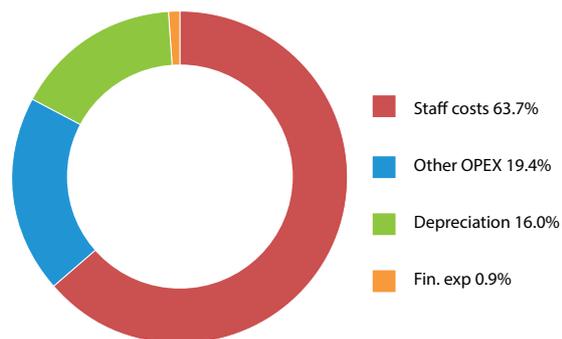
- a part of cost provisions in regard to anticipated business risks and future commitments (expected to materialize during RP2 and further), had already been substantially provided for in previous periods, with only incremental effects being recorded in 2017,
- somewhat improved macro climate and economy perspective in general resulting in less stringent asset write-off assumptions that have favourably affected 2017 accounts compared to those assumptions affecting the 2016 records,
- savings earned in the consumption of external

services materialised in 2017 due to realised 2016 favourable outcomes of the price down push associated with the extensive public procurement processes,

- stable level of general utilities supported by general inflation pressure lower than expected for 2017.

Financial effects stemming from the activation of long term, strategic and the most critical investment project for CCL – CroATMS, significantly contributed to 2017 depreciation costs being some +2% over the 2016 actuals and reaching some 16% in CCL's total costs.

Financial expenses accounted for approximately 1% of the CCL's total costs, decreased during 2017 for the reason of trends recorded on international debt market supported by continuous deleveraging.



2017 Costs structure

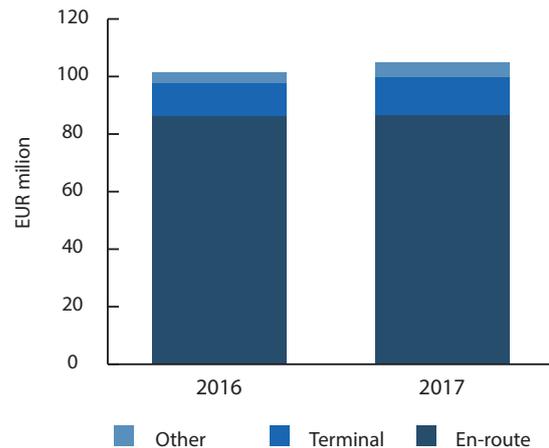
Having in mind that:

- a few consecutive tourist seasons have been continuously breaking records in terms of arrivals,
- during 2017, as was previously noted, CCL managed to pull off competitive ANS rates supported by adequate operational capacity levels, and
- during 2017 Croatia witnessed opening of modern and high-capacity airport in Zagreb which allowed for further development of terminal Zagreb traffic,

then a record of earned EUR 99.7 million in core business revenues (+2.3% compared to 2016) does not come as a surprise. Combined with an increase in other non-core and non-sales

revenues (mainly provision reversals, deferred income and other non-core and non-sales revenues), CCL earned approx. 3.5% higher total revenues compared to previous year (2017: 104.9 million EUR).

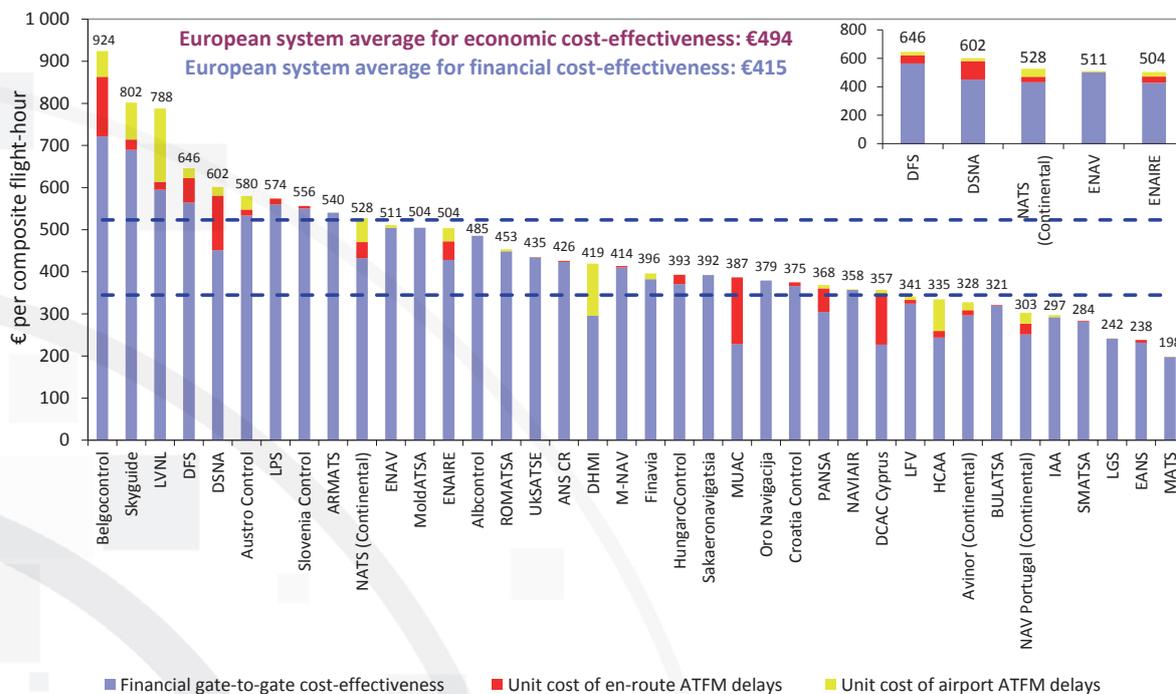
In the total revenue composition, en route charges were traditionally the most significant revenue source, accounting for approximately 82% of total revenues, followed by terminal charges which accounted for approximately 13%, while other revenues together with unrealized positive foreign exchange differences accounted for some 5%.



Total revenues development (2017 average FX rate)

### 7.5. Cost Effectiveness

European ATM performance is regularly monitored by the Performance Review Unit (PRU). PRU's economic cost-effectiveness indicator gives an indication of how well an ANSP is providing an ANS in terms of cost-effectiveness. According to the final ATM Cost-Effectiveness (ACE) 2016 Benchmarking Report dated May 2018, average Pan-European system-wide gate-to-gate economic cost-effectiveness was EUR 494. During the same period CCL has performed 24% better than the European system average in terms of economic cost effectiveness. Such a performance pushed CCL close to the very bottom quartile, meaning that CCL performance in terms of economic cost effectiveness is close to group of 25% best performers in the EUROCONTROL system.



Economic gate-to-gate cost-effectiveness indicator, 2016 (final figures)

## Cost efficiency KPI

In regard to RP2 KPIs set and declared in Croatia/FAB CE PP for cost efficiency KPA, it is to be noted that CCL managed to pull off 2.6% and 8.7% better performance in terms of en route and terminal Zone 1 cost efficiency KPI respectively (DUC in 2009 prices, real terms) compared to target set for 2017. Such performance was based on -4.8% and -2.3% in nominal costs savings for en route and terminal Zone 1 further effected by -0.5% and +8.8% in 2017 en route and terminal Z1 traffic trend respectively, materializing in fully favourable cost sharing for both and partially beneficial traffic risk sharing effects for terminal Z1. In terms of financial and business indicators, in 2017 CCL recorded the following performance compared to 2016:

<b>Financial stability, indebtedness and liquidity indicators</b>	<b>2017</b>	<b>2016</b>
1. Coverage of fixed assets and inventories by equity capital and long-term sources	1.80	1.61
2. Share of equity capital in the sources of funding, in %	51.57	54.62
3. Debt factor, number of years	1.6	2.1
4. Total asset turnover coefficient	0.68	0.70
5. Overall liquidity coefficient	5.36	4.38
6. Time of collection of short-term receivables, in days	55	55
7. Inventories, in days kept	1	1

<b>Business performance indicators</b>	<b>2017</b>	<b>2016</b>
1. Total income-expenditure ratio	1.16	1.13
2. Profit/loss share in total income, in %	11.67	9.11
3. Profit/loss share in assets, in % 1	7.98	6.37
4. Profit/loss share per employee, in HRK	123,403	95,332

## 7.6. Performance scheme

Croatia, as well as CCL, did not contribute to the performance management during the RP1. After becoming the EU member (in July 2013), Croatia started with preparatory activities for the contribution to RP2 performance management as of 2015.

For RP2, with a view to achieving sustainable development of the ATM system and improvement of overall efficiency of ANS, the EC adopted the Commission Regulation (EU) No. 390/2013 defining key performance areas (KPAs), key performance indicators (KPIs) and respective performance targets, performance indicators (PIs), as well as the performance planning and measurement processes. The regulation mandates the development of performance plans on FAB level.

This has implied CCL's participation in the development of FAB CE PP for RP 2 (2015-2019). Since late 2013, CCL has together with ANSPs from Austria, Czech Republic, Hungary, Slovakia and Slovenia actively participated in the development of FAB CE PP. After the iterative assessment process between FAB CE members and the PRB (EC), the EC has adapted by Commission Implementing Decision (EU) 2016/599 that the targets included in the revised FAB CE PP submitted pursuant to Regulation (EC) No 549/2004 are consistent with the Union-wide performance targets for RP2 set out in Implementing Decision 2014/132/EU.

During 2017 CCL has participated in the performance monitoring process at the EU level by developing FAB CE Monitoring Report 2017 together with the FAB CE partners. All the CCL's performance related results achieved in 2017 are included in respective FAB CE Monitoring Report. The results have been assessed by NSA and EC.

In 2017 CCL reached all KPI target values set for the year, same as FAB CE (except minimum underperformance in Horizontal en-route flight efficiency (KEA)).



## 8. Human Resources

CCL employs the staff with adequate qualifications, to enable safe, high quality and continuous provision of services. It pays special attention to human resources management, with a training system geared to ensure training, acquiring and continuous maintaining of competencies and experience, to achieve international and national standards.

### 8.1. Employees

In 2017, the total number of employees was 740 – 526 men and 214 women. The total number of newly employed was 21, while 13 employees left the Company.

#### The number of employees by divisions

Air Traffic Management Division	516
Technical Division	92
Human Resources Management, Legal & Financial Division	77
Aeronautical Meteorology Division	32
Director General's Offices	18
Military Operation Division	5

Air traffic controllers and on-the-job trainees make a large share of the workforce. Their numbers at different operational units are shown below (status on 31 Dec 2017):

Location	ATCOs	ATCO Students
Zagreb ATCC - ACS	103	23
Zagreb ATCC - APS	20	0
Zagreb ATCC - ADI/ADV	20	0
Osijek ATCC	3	0
Pula ATCC	21	0
Split/Brač ATCC	30	0
Zadar ATCC	18	0
Dubrovnik ATCC	25	1
Rijeka ATCC	7	0
Lošinj ATCC	2	0
ATCOs on other duties in ATM Division	19	0
<b>TOTAL</b>	<b>268</b>	<b>24</b>

## 8.2. Employment and Recruiting

CCL is fully committed to pursuing the principle of equal opportunities and dignity of every individual in its recruiting and employment policy.

The employment is performed pursuant to the Labour Agreement, the Staff Rules, as well as the Organisational Structure and Job Classification Rules.

The selection of candidates is conducted in compliance with the predefined testing procedures. In addition to the FEAST (First European Air Traffic Controller Selection Test) program, the assessment centre was introduced in the recruitment process of air traffic controller candidates. The selection of technical staff, supporting aeronautical staff and administrative staff is conducted in CCL according to the internal testing procedures.



## 8.3. Training

In compliance with relevant EU regulations and respective training plans, the following courses were performed in 2017:

- The ACS Initial Training for a group of 12 ATCO trainees started at Deutsche Flugsicherung GmbH (DFS), and is to be completed in July 2018.
- 6 ATCO trainees completed the ACS Rating Training at Entry Point North (EPN) and started the Unit Training, where 1 trainee terminated the training.
- 9 ATCOs with an ADI/TWR rating completed the APS Rating Training at EPN and started the Unit Training at relevant units.
- 6 ATCO trainees started the ADV/ADI Rating Training at EPN, which is to be completed in February 2018.
- 28 ATCOs with an ADI/TWR rating completed the RAD/GMS Rating Training at Entry Point North and started the Unit Training at respective units.
- 13 ATCOs completed the OJTI Course and acquired a relevant licence endorsement.
- 2 OJTI instructors completed the Controller Competence Assessor Course and acquired a relevant licence endorsement.
- Staff development, refresher and emergency training courses were provided either by CCL or in cooperation with EPN, DFS and the EUROCONTROL Institute of Air Navigation Services (IANS).





# 9. Outlook and Priorities for 2018

In 2018, CCL is still faced with challenging and critical activities. Besides the short-term goals and priorities, CCL continues to undertake some activities of critical importance given the strategic orientation. Goals and priorities for 2018 comprise the following:

## Safety

- reach the goals from 'Safety area' in Performance Plan

## Capacity

- average annual ATFM en-route delay at 0.21 minutes/flight
- annual increase of baseline capacity by 1%

## Environment

- reduce inefficiency of the actual route to 1.85% compared to "great circle distance"

## Cost efficiency

- achieving DUC values (in EUR 2009) on routing and Z1 terminal activities

## FUA

- improvement in functionality and efficiency of Airspace Management Cell (AMC)
- preparation of AFUA concept implementation at AMC level
- establishment of modular flexible structures in the lower airspace of Republic of Croatia
- development of an operational ANS concept for RPAS/UAS activities in FIR Zagreb

## Technical systems

- continuous upgrade of ATM system based on harmonized COOPANS platform

## Quality management systems

- Re-certification to new ISO standards in an area of QMS and environment

## MET

- preparation of two MET projects to be co-financed by EU

## Cooperation with the Ministry of Defence of the Republic of Croatia

- conclusion of bilateral agreements between the Ministry of Defence and CCL

## Human resources management

- continuous (initial and unit) ATCO training

## Finance

- maintaining the financial stability indicator less than 1
- keeping the total income to expenditures ratio above 1

## Other

- preparation activities towards the development and set up of a local education center
- preparation activities on setting up a document management system
- preparation activities on setting up a new ERP resource.

# 10. Financial Statements and Auditor's Report

## Responsibility for the Financial Statements

The Management Board of the Company CROATIA CONTROL Ltd, Velika Gorica, Rudolfa Fizira 2 ("the Company") is responsible for ensuring that the annual financial statements of the Company for the year 2017 are prepared in accordance with the Accounting Act (Official Gazette No 78/15, 128/16) and the International Financial Reporting Standards, to give a true and fair view of the financial position, the results of operations, the changes in equity and the cash flow of the Company for that period.

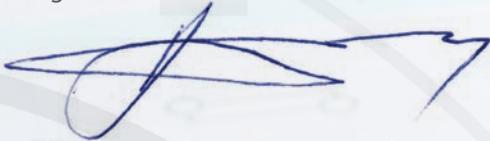
The Board has a reasonable expectation that the Company has adequate resources to continue in operational existence for the foreseeable future. For this reason, the Board continues to adopt a going concern basis in preparing the financial statements.

In preparing these financial statements, the Board is responsible for:

- selecting and consistently applying suitable accounting policies in line with the effective International Financial Reporting Standards;
- giving reasonable and prudent judgments and evaluations;
- preparation of the annual financial statements on the going concern principle unless such an assumption is not further appropriate.

The Board is responsible for keeping proper accounting records, which disclose with reasonable accuracy at any time the financial position, the results of operations, the changes in equity and the cash flow of the Company and their compliance with the Accounting Act (Official Gazette No 109/07, 54/13, 121/14) and the International Financial Reporting Standards. The Board is also responsible for safeguarding the assets of the Company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Signed on behalf of the Board



Vlado Bagarić, Director General

CROATIA CONTROL Ltd  
Rudolfa Fizira 2,  
10 410 Velika Gorica  
Croatia

7 May 2018

# Independent Auditor's Report

To the owner of the company CROATIA CONTROL Ltd

## Report on the audit of annual financial statements

### Opinion

We have audited the accompanying annual financial statements of the company CROATIA CONTROL Ltd. Velika Gorica, Rudolfa Fizira 2 ("the Company") for the year ended 31 December 2017, which comprise the Statement of Financial Position / Balance Sheet as at 31 December 2017, Profit and Loss Statement, Statement of Comprehensive Income; Statement of Changes in Equity and the Cash Flow Statement for the year ended; and the accompanying notes which concisely set out the significant accounting policies and other explanations.

In our opinion, the accompanying financial statements give a true and fair view, of the financial position of the Company as at 31 December 2017, its financial performance and the cash flows of the Company for the year then ended, in accordance to the Accounting Act and the International Financial Reporting Standards (IFRSs) as adopted by the European Union and published in the Official Journal of the European Union.

### Basis for Opinion

We conducted our audit in accordance with the Accounting Act, Audit Act and International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Annual Financial Statements section of our report. We are independent of the Company in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants (the "IESBA Code") and we have fulfilled our other ethical responsibilities in accordance with these requirements and the IESBA Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the annual financial statements of the current period, and they include identified most significant risks of material misstatement due to error or fraud and they include recognized most significant risks of significant misstatement due to error or fraud and which had the greatest impact on the audit strategy, resources required and the work of the engagement team. These matters were addressed in the context of our audit of the annual financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

### *Fixed intangible and tangible assets*

#### Description

Non-current intangible and tangible assets as at 31 December 2017 amount to HRK 465,720 thousand, which represents 40.6% of the total assets. Total value of current assets was HRK 656,567 thou-

sand (57.3% of the assets), and its largest share in the amount of 303,002 thousand HRK relates to the item Cash. Having in mind the material significance of non-current intangible and tangible assets, its role as the key material resource in the functioning of the Company, as well as the complexity of recording of these assets (procurement, calculation of depreciation, measurement, costs capitalization etc.), it is our opinion that these positions in the Statement of Financial Position /Balance Sheet represent the Key Audit Matters.

During 2017, the procurement of non-current assets totalled 134,424 thousand HRK and related mostly to the projects of upgrade of various IT systems, infrastructure upgrade projects and procurement of IT equipment and radio navigation equipment.

Pursuant to IAS 16, a part of the gross salary in the amount of HRK 3,808 thousand in 2017 was capitalized to projects of the ATM system upgrade, DATA-COM projects, VOICE-COM domain projects, SUR system upgrade project

#### How these issues were addressed in the audit

Our audit procedures included, among others:

- Assessment of the harmonization of recognition of the non-current intangible and tangible assets with the relevant financial reporting standards;
- Testing the internal controls related to the process of procurement of non-current assets on the sample basis for 30 procurement transactions.
- We assessed the reasonableness of assets useful life, used by the Company when calculating the depreciation, as well as the depreciation start date for activated assets and depreciation end date for assets no longer in use.
- New procurements of non-current assets in 2017 were tested on the representative sample basis of 55,626 thousands HRK or 41.4% of the total procurement transactions.
- On the basis of 20 representative transactions, we tested the disposals and write-off of non-current assets
- We examined the capitalization of staff costs

The process of establishing and registration of real estate ownership rights has not been completely settled. The settlement of these property legal issues is currently ongoing.

#### Other Matters

The audit of the annual financial statements of the Company for the year ended 31 December 2016 was conducted by the audit company BDO Croatia d.o.o. Zagreb, which in its Independent Auditor's Report dated 2 May 2017 expressed an unmodified opinion on these financial statements.

#### Other information in the Annual Report

The Company management is responsible for the other presented information. The other information contains the information included in the Annual Report, but do not include the annual financial statements and our Independent Auditor's Report on these statements.

Our opinion on the annual financial statements does not cover the other information except as clearly stated in a part of our Independent Auditor's Report under the title Report on other legal requirements, and we do not express any form of assurance conclusion thereon.

Related to our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

## Responsibilities of Management and Those Charged with Governance for the Annual Financial Statements

Management is responsible for the preparation and fair presentation of the annual financial statements in accordance with IFRSs, and for establishing internal control, as necessary, to enable the preparation of annual financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the annual financial statements, the Management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless Management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

The Management is responsible for overseeing the Company's financial reporting process.

## Auditor's Responsibilities for the Audit of the Annual Financial Statements

Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these annual financial statements.

As part of an audit in accordance with ISAs, we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the annual financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal controls relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal controls
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Management.
- Conclude on the appropriateness of the Management's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the annual financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report.
- However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the annual financial statements, including the disclosures, and whether the annual financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with the Company governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

## Report on Other Legal Requirements

### Report in view of requirements of Regulation (EU) No. 537/2014

1. On 28 June 2017 we were appointed by the Assembly of the Company on the basis of the proposal of the Supervisory board of the Company to carry out an audit of the annual financial statements for 2017.
2. At the date of this report, we have been continuously engaged in carrying out the Company's statutory audits, from the audit of the Company's annual financial statements for 2017, for a total of 1 year.
3. Besides issues that our independent auditor's report identified as key audit matters within the subsection Report on the audit of annual financial statements, we have nothing to report regarding Article 10 item (c) of Regulation (EU) No. 537/2014.
4. By our statutory audit of the Company's annual financial statements for the year 2017, we were able to detect irregularities, including fraud in accordance with Section 225 of the IESBA Code, Responding to Non-Compliance with Laws and Regulations, which requires us, in carrying out our audit engagement, to establish whether the Company complied with laws and regulations that are generally recognized to have a direct impact on the determination of significant amounts and their disclosures in annual financial statements, as well as other laws and regulations that do not have a direct effect on the determination of significant amounts and their disclosures in annual financial statements, but where observing them may be crucial for operational aspects of the Company's business, its ability to continue as a going concern or its avoidance of significant penalties.

Except where we encounter or become aware of disrespect of any of the aforementioned laws or regulations which is considered insignificant according to our judgment of its content and its influence, financial or otherwise, regarding the Company, its stakeholders and the wider public, we are obliged to inform the Company thereof and seek to investigate such case, as well as take appropriate measures to resolve irregularities and prevent the occurrence of such irregularities in the future. Should the Company fail to correct irregularities at the date of audited balance sheet which arise from incorrect disclosures in audited annual financial statements that are cumulatively equal to or greater than the amount of significance for financial statements as a whole, it is our legal obligation to modify our opinion in an independent auditor's report.

In the audit of the Company's annual financial statements for the year 2017, we determined the materiality for financial statements as a whole in the amount of HRK 18,200,000, representing approximately 1.59% of total assets. For the purpose of the calculation of materiality the assets were taken as a criterion because the Company is responsible for rendering air navigation services to civilian and military users of the airspace of the Republic of Croatia as well as of the airspace the management of which had been delegated to the Company pursuant to international conventions and agreements. In line with the aforementioned, the primary goal of the Company is not to make profit or to increase the value for its owners, as it is the case with other economic entity operating on the market, therefore it is not the revenues that are the key category when reviewing the financial statements of the Company, but the assets which enable the Company to perform its function.

5. Our audit opinion is consistent with the additional audit report prepared for the Company's Audit Committee in accordance with provisions of Article 11 of Regulation (EU) No. 537/2014.
6. During the period between the initial date of the Company's audited annual financial statements for the year 2017 and the date of this report, we have not provided the Company with any prohibited non-audit services. In the business year before that period, we did not provide services regarding the design and implementation of internal control and risk management procedures related to the preparation and/or control of financial information or the design and implementation of technological systems for financial information. Moreover, we have maintained our independence in the performance of the audit in relation to the Company.

## Report in view of requirements of the Accounting Act

1. In our opinion, based on activities we have carried out during the audit, the data contained in the accompanying management report of the Company for 2017 have been aligned with the accompanying annual financial statements of the Company for 2017.
2. In our opinion, based on activities we have carried out during the audit, the accompanying management report of the Company for 2017 was prepared in accordance with the Accounting Act
3. Based on our knowledge and understanding of the Company's business and its environment gained within the scope of our audit, we have not established any significant misstatements in the accompanying management report of the Company.

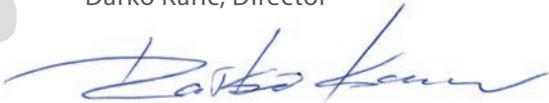
Zagreb, 7 May 2018

Audit d.o.o.

Radnička cesta 54

10000 Zagreb

Darko Karić, Director



Dubravka Tršinar, certified auditor



**INCOME STATEMENT AND STATEMENT OF OTHER COMPREHENSIVE INCOME**  
**for the year ended 31 December 2017**

	<b>2017</b>	<b>2016</b>
	<b>in HRK</b>	<b>in HRK</b>
Sales revenue	747,711,629	732,495,453
Other operating revenues	30,209,898	18,460,714
<b>Operating revenues</b>	<b>777,921,527</b>	<b>750,956,167</b>
Raw material and material costs	(9,171,478)	(8,914,915)
Other external costs	(51,336,546)	(50,410,686)
Material costs	(60,508,024)	(59,325,601)
Net salaries and wages	(215,994,115)	(199,873,665)
Costs for taxes and contributions from salaries	(137,116,008)	(148,506,279)
Contributions on gross salaries	(75,219,565)	(74,772,405)
Staff costs	(428,329,688)	(423,152,349)
Depreciation	(107,274,303)	(105,033,105)
Other costs	(50,659,809)	(43,565,192)
Impairment of short-term assets	(2,144,386)	(574,134)
Impairment	(2,144,386)	(574,134)
Provisions	(15,962,142)	(28,810,063)
Other operating expenses	(823,719)	(3,899,256)
<b>Operating expenses</b>	<b>(665,702,071)</b>	<b>(664,359,700)</b>
<b>Financial income</b>	<b>4,578,352</b>	<b>6,428,032</b>
<b>Financial expenses</b>	<b>(6,302,701)</b>	<b>(7,468,427)</b>
<b>TOTAL INCOME</b>	<b>782,499,879</b>	<b>757,384,199</b>
<b>TOTAL EXPENSES</b>	<b>(672,004,772)</b>	<b>(671,828,127)</b>
<b>PROFIT BEFORE TAXATION</b>	<b>110,495,107</b>	<b>85,556,072</b>
Profit tax	(19,176,861)	(16,583,116)
<b>PROFIT FOR THE PERIOD</b>	<b>91,318,246</b>	<b>68,972,956</b>
<b>NET OTHER COMPREHENSIVE INCOME FOR THE PERIOD</b>		
<b>COMPREHENSIVE INCOME FOR THE PERIOD</b>	<b>91,318,246</b>	<b>68,972,956</b>

**STATEMENT OF FINANCIAL POSITION / BALANCE SHEET  
at 31 December 2017**

	At 31 Dec 2017	At 31 Dec 2016
<b>ASSETS</b>		
Concessions, patents, licenses, software and other rights	170,832,782	197,311,408
Advances for intangible assets	4,472,592	6,948,780
Intangible assets in progress	22,196,072	17,301,179
<b>Intangible assets</b>	<b>197,501,446</b>	<b>221,561,367</b>
Land	48,649,949	48,649,949
Buildings	68,096,529	79,991,385
Plant and equipment	95,757,501	105,461,028
Vehicles, tools and office equipment	14,878,315	14,984,284
Advances for tangible assets	3,443,899	3,942,249
Tangible assets in progress	37,392,703	18,772,519
<b>Tangible assets</b>	<b>268,218,896</b>	<b>271,801,414</b>
<b>Financial assets</b>	<b>120,219</b>	<b>120,924</b>
<b>Deferred tax assets</b>	<b>16,807,040</b>	<b>17,527,097</b>
<b>NON-CURRENT ASSETS</b>	<b>482,647,601</b>	<b>511,010,802</b>
Raw material and inventories	2,463,493	2,051,511
Advances for inventories	-	2,719
<b>Inventories</b>	<b>2,463,493</b>	<b>2,054,230</b>
Accounts receivable	120,743,201	112,441,210
Receivables from employees and shareholders	474,273	418,604
Receivables from government and other institutions	3,527,314	7,994,139
Other receivables	89,575	255,125
<b>Receivables</b>	<b>124,834,363</b>	<b>121,109,078</b>
Loans, deposits and similar	226,266,607	228,065,580
<b>Financial assets</b>	<b>226,266,607</b>	<b>228,065,580</b>
<b>Cash at bank and in hand</b>	<b>303,002,157</b>	<b>216,402,392</b>
<b>CURRENT ASSETS</b>	<b>656,566,620</b>	<b>567,631,280</b>
<b>Prepaid expenses and accrued income</b>	<b>5,581,663</b>	<b>3,607,430</b>
<b>TOTAL ASSETS</b>	<b>1,144,795,884</b>	<b>1,082,249,512</b>
<b>OFF-BALANCE SHEET ITEMS</b>	<b>392,751,722</b>	<b>390,578,796</b>

**STATEMENT OF FINANCIAL POSITION / BALANCE SHEET**  
**at 31 December 2017 - continued**

	At 31 Dec 2017	At 31 Dec 2016
	in HRK	in HRK
<b>CAPITAL AND LIABILITIES</b>		
<b>Subscribed capital</b>	<b>450,000,000</b>	<b>450,000,000</b>
<b>Other reserves</b>	<b>101,900,120</b>	<b>32,927,163</b>
<b>Retained earnings</b>	<b>38,481,567</b>	<b>38,481,567</b>
<b>Profit for the current year</b>	<b>91,318,246</b>	<b>68,972,956</b>
<b>CAPITAL AND RESERVES</b>	<b>681,699,933</b>	<b>590,381,686</b>
Provisions for pensions, severance pays and similar liabilities	92,781,066	96,584,175
Other provisions	323,750	412,000
<b>Provisions</b>	<b>93,104,816</b>	<b>96,996,175</b>
Liabilities to banks and other financial institutions	190,832,994	233,541,763
<b>Long-term liabilities</b>	<b>190,832,994</b>	<b>233,541,763</b>
Loan liabilities and deposits	359,801	-
Liabilities to banks and other financial institutions	43,129,621	54,237,971
Accounts payable	26,634,081	26,583,081
Liabilities to employees	20,339,000	20,439,621
Liabilities for taxes, contributions and similar fees	24,095,487	21,010,554
Other short-term liabilities	7,861,581	7,208,518
<b>Short-term liabilities</b>	<b>122,419,571</b>	<b>129,479,745</b>
<b>Accrued expenses and deferred income</b>	<b>56,738,570</b>	<b>31,850,143</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>1,144,795,884</b>	<b>1,082,249,512</b>
<b>OFF-BALANCE SHEET ITEMS</b>	<b>392,751,722</b>	<b>390,578,796</b>

**STATEMENT OF CHANGES IN EQUITY**  
**for the year ended 31 December 2017**

	Share (subscribed) capital	Other reserves	Retained earnings	Profit for the current year	Total
	in HRK	in HRK	in HRK	in HRK	in HRK
<b>At 31 Dec 2015</b>	<b>412,759,600</b>	<b>21,527,557</b>	<b>38,481,567</b>	<b>48,640,006</b>	<b>521,408,730</b>
Share capital increase	37,240,400	(37,240,400)	-	-	-
Distribution of profit	-	48,640,006	-	(48,640,006)	-
Profit for the current year	-	-	-	68,972,956	<b>68,972,956</b>
<b>At 31 Dec 2016</b>	<b>450,000,000</b>	<b>32,927,163</b>	<b>38,481,567</b>	<b>68,972,956</b>	<b>590,381,686</b>

	Share (subscribed) capital	Other reserves	Retained earnings	Profit for the current year	Total
	in HRK	in HRK	in HRK	in HRK	in HRK
<b>At 31 December 2016</b>	<b>450,000,000</b>	<b>32,927,163</b>	<b>38,481,567</b>	<b>68,972,956</b>	<b>590,381,686</b>
Distribution of profit	-	68,972,956	-	(68,972,956)	-
Profit for the current year	-	-	-	91,318,246	<b>91,318,246</b>
<b>At 31 December 2017</b>	<b>450,000,000</b>	<b>101,900,119</b>	<b>38,481,567</b>	<b>91,318,246</b>	<b>681,699,932</b>

### STATEMENT OF CASH FLOWS for the year ended 31 December 2017

	2017 in HRK	2016 in HRK
<b>I CASH FLOWS FROM OPERATING ACTIVITIES</b>		
<b>A</b> Profit before tax	110,495,107	85,556,072
<i>Adjustments:</i>		
Depreciation	107,274,303	105,033,105
(Gains)/ losses from asset disposal and non-current asset revaluation	(60,919)	(390,541)
Interest and dividend income	(1,437,721)	(2,638,849)
Interest expense	2,626,582	3,975,106
Provisions	(3,175,049)	17,023,248
Foreign exchange differences (unrealized)	535,487	(295,862)
Other adjustments for non-cash transactions and unrealized (gains / losses)	(7,382,507)	(2,906,467)
<b>B</b> Adjustments	98,380,176	119,799,740
<b>C= A+B</b> <b>NET CASH FLOWS BEFORE CHANGES IN WORKING CAPITAL</b>	<b>208,875,283</b>	<b>205,355,812</b>
(Increase)/ Decrease in short-term liabilities	1,398,864	3,874,914
(Increase) in short-term receivables	(10,689,470)	(2,795,796)
(Increase)/ Decrease in inventories	(308,420)	(168,355)
<b>D</b> <b>Changes in working capital</b>	<b>(9,599,026)</b>	<b>910,763</b>
<b>E</b> Interest expenses	(2,734,883)	(4,264,785)
<b>F</b> Profit tax paid	(10,757,593)	(31,487,781)
<b>I=Σ(A:F)</b> <b>NET CASH FLOWS FROM OPERATING ACTIVITIES</b>	<b>185,783,781</b>	<b>170,514,009</b>

**STATEMENT OF CASH FLOWS - continued**  
**for the year ended 31 December 2016**

	2017	2016
	in HRK	in HRK
<b>II</b>	<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>	
	32,480	63,108
	Cash inflows from sale of non-current tangible and intangible assets	
	1,438,490	2,639,572
	Cash inflows from interest	
	323,486,334	357,293,048
	Other cash inflows from investment activities	
<b>G</b>	<b>324,957,304</b>	<b>359,995,728</b>
	<b>Total cash inflows from investing activities</b>	
	(79,704,268)	(60,269,813)
	Cash outflows for purchase of non-current tangible and intangible assets	
	(515,075)	(450,000)
	Cash outflows for given loans and savings deposits for the period	
	(325,249,283)	(373,853,828)
	Other outflows from investing activities	
<b>H</b>	<b>(405,468,626)</b>	<b>(434,573,641)</b>
	<b>Total cash outflows from investing activities</b>	
<b>III</b>	<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>	
	880,952	5,923,208
	Cash inflows from the loan principals, debentures, credits and other borrowings	
	34,900,651	20,405,124
	Other inflows from financial activities	
<b>J</b>	<b>35,781,603</b>	<b>26,328,332</b>
	<b>Total cash inflows from financing activities</b>	
	(52,845,807)	(52,758,226)
	Cash outflows from the loan principals and bonds	
	(1,608,490)	(197,746)
	Other outflows from financial activities	
<b>K</b>	<b>(54,454,297)</b>	<b>(52,955,972)</b>
	<b>Total cash outflows from financing activities</b>	
<b>III=J+K</b>	<b>(18,672,694)</b>	<b>(26,627,640)</b>
	<b>NET CASH FLOWS FROM FINANCING ACTIVITIES</b>	
<b>I+II+III</b>	<b>86,599,765</b>	<b>69,308,456</b>
	<b>TOTAL NET CASH FLOWS</b>	
	<b>216,402,392</b>	<b>147,093,936</b>
	<b>CASH AND CASH EQUIVALENTS AT BEGINNING OF PERIOD</b>	
	<b>303,002,157</b>	<b>216,402,392</b>
	<b>CASH AND CASH EQUIVALENTS AT END OF PERIOD</b>	
	<b>86,599,765</b>	<b>69,308,456</b>
	<b>INCREASE/(DECREASE) IN CASH AND CASH EQUIVALENTS</b>	

# 11. Abbreviations

<b>ACC</b>	Area Control Centre	<b>ATS</b>	Air Traffic Services
<b>ACS</b>	Area Control Service	<b>AUP/UUP</b>	Airspace Use Plan/Updated Airspace Use Plan
<b>ACE</b>	Air Traffic Management Cost-Effectiveness	<b>AWOS</b>	Automated Weather Observing System
<b>AGDL</b>	ATC Air-Ground Data Link	<b>BVCS</b>	Back-up Voice Telecommunications System
<b>AGVN</b>	ATS Ground Voice Network	<b>CCL</b>	Croatia Control Ltd
<b>AIS</b>	Aeronautical Information Services	<b>CCO/CDO</b>	Continuous Climb Operations/Continuous Descent Operations
<b>AMC</b>	Airspace Management Cell	<b>CNS</b>	Communication, Navigation and Surveillance
<b>AMHS</b>	Aeronautical Message Handling System	<b>COOPANS</b>	Cooperation between Air Navigation Service providers
<b>ANSP</b>	Air Navigation Services Provider	<b>CPDLC</b>	Controller-Pilot Data Link Communications
<b>AoR</b>	Area of Responsibility	<b>CroATMP</b>	Croatian Air Traffic Management Project
<b>APP</b>	Approach Control Procedure	<b>CroATMS</b>	Croatian Air Traffic Management System
<b>APS</b>	Approach Control Surveillance	<b>CroVIBE</b>	Croatia Control virtual Info Board for Employees
<b>ARES</b>	ATM Emergency System	<b>CTR</b>	Controlled Traffic Region
<b>ARN</b>	Aeronautical route network	<b>DCT</b>	Direct Route
<b>ARO</b>	ATS Reporting Office	<b>DECT</b>	Digital Enhanced Cordless Telephone
<b>ASM</b>	Airspace Management	<b>DFL</b>	Division Flight Levels
<b>A-SMGCS</b>	Advanced-Surface Movement Guidance & Control System	<b>DME</b>	Distance Measuring Equipment
<b>ATC</b>	Air Traffic Control	<b>EAD</b>	European Aeronautical Information Database
<b>ATCC</b>	Air Traffic Control Centre	<b>EC</b>	European Commission
<b>ATCO</b>	Air Traffic Controller	<b>ECAC</b>	European Civil Aviation Conference
<b>ATIS</b>	Automatic Terminal Information Service	<b>FAB</b>	Functional Airspace Block
<b>ATM</b>	Air Traffic Management	<b>FAB CE</b>	FAB Central Europe

<b>FIC</b>	Flight Information Service	<b>PRU</b>	Performance Review Unit
<b>FIR</b>	Flight Information Region	<b>QMS</b>	Quality Management System
<b>FRA</b>	Free Route Airspace	<b>RNAV</b>	Area Navigation
<b>FUA</b>	Flexible Use of Airspace	<b>RNP</b>	Required Navigation Performance
<b>HRK</b>	Croatian Kuna	<b>RP2</b>	Second Reference Period, 2015-2019
<b>ICAO</b>	International Civil Aviation Organisation	<b>RPAS</b>	Remotely Piloted Aircraft Systems
<b>IFR</b>	Instrument Flight Rules	<b>SAXFRA</b>	Slovenian Austrian Cross Border Free Route Airspace
<b>ILS</b>	Instrument Landing System	<b>SEAFRA</b>	South-East Free Route Airspace
<b>ISO</b>	International Organisation for Standardisation	<b>SECSI</b>	South-East Common Sky Initiative
<b>KPI</b>	Key Performance Indicator	<b>SERA</b>	Standardised European Rules of the Air
<b>LoA</b>	Letters of Agreement	<b>SID</b>	Standard Instrument Departure Route
<b>Ltd</b>	Limited	<b>SMS</b>	Safety Management System
<b>MET</b>	Meteorological services	<b>STAR</b>	Standard Arrival Route
<b>MSSR</b>	Monopulse Secondary Surveillance Radar	<b>STATFOR</b>	EUROCONTROL Statistics & Forecasting Service
<b>MWO</b>	Meteorological Watch Office	<b>SWC</b>	Significant Weather Chart
<b>NAVAIDS</b>	Navigational Aids	<b>TMA</b>	Terminal Manoeuvring Area
<b>NDB</b>	Non-Directional Beacon	<b>TWR</b>	Tower Control Unit (Aerodrome Control Tower)
<b>NM</b>	Network Manager	<b>UAS</b>	Unmanned Aerial Systems
<b>NOTAM</b>	Notice to Airmen	<b>UHF</b>	Ultra High Frequency
<b>NSP</b>	Network Service Provider	<b>VCS</b>	Voice Communication System
<b>OLDI</b>	On-Line Data Interchange	<b>VFR</b>	Visual Flight Rules
<b>OJT</b>	On the Job Trainee	<b>VHF</b>	Very High Frequency
<b>PBN</b>	Performance Based Navigation	<b>VOR</b>	VHF Omnidirectional Radio Range
<b>PBX</b>	Private Branch Exchange	<b>WAFC</b>	World Area Forecast Centre

# Impressum

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