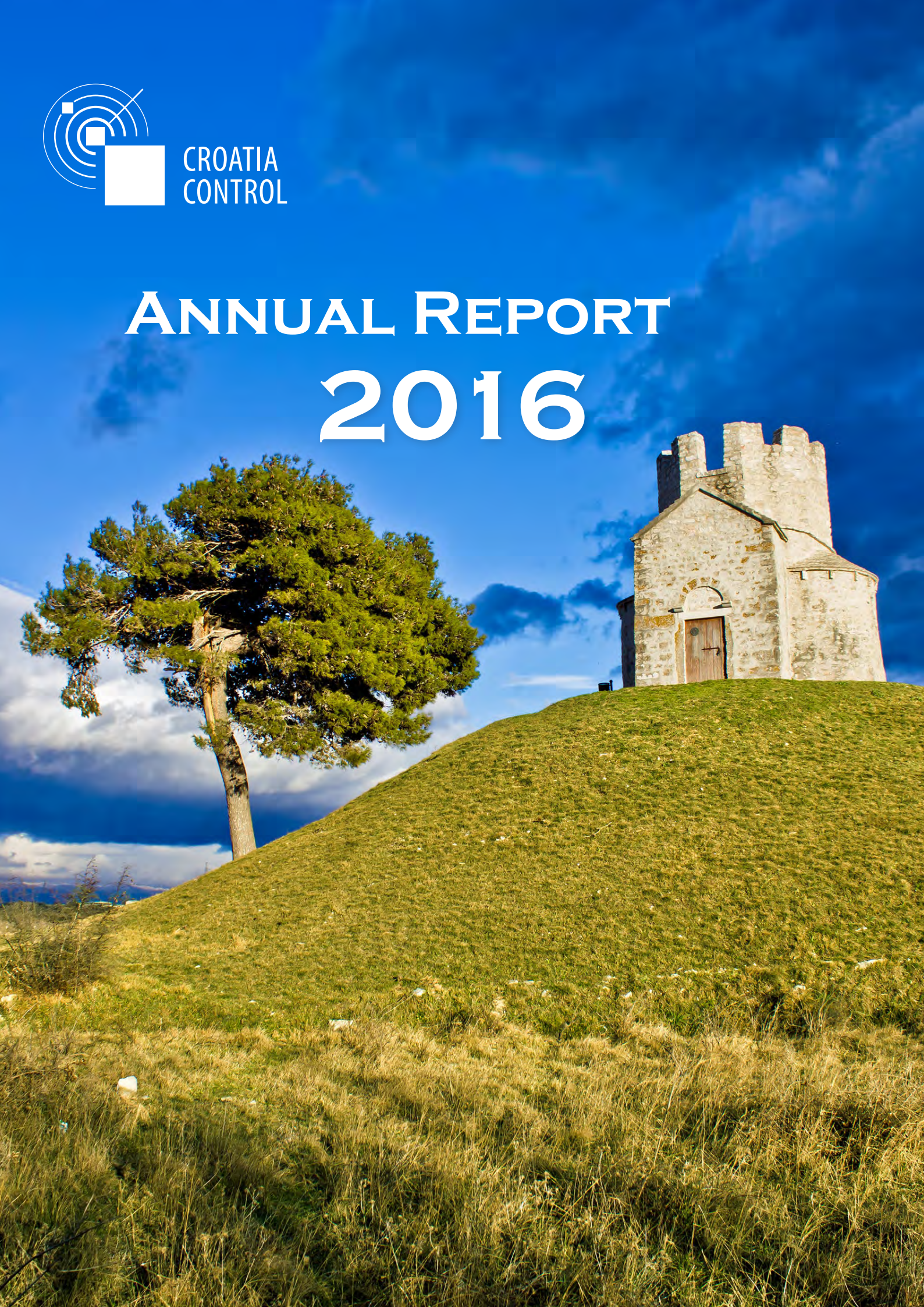
CROATIA CONTROL

Annual Report 2016



Croatia Control Ltd
Annual Report 2016

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1. Message from the Director General

Dragan Bilać

Director General

The year 2016 was very challenging for Croatia Control Ltd (CCL), as it was the second year of Reference Period 2 of the performance management, which required considerable organizational and operational efforts. The result was very successful in that the achieved delay target was much better than the objective set, keeping the cost within the required margins, and having also achieved positive results in the key performance areas of safety and environment.

CCL also played a very active role in international activities, especially within the COOPANS partnership and with the A6 partners. The year was filled with numerous regional activities within FAB CE and even beyond, with the Gate One partners. We continued to upgrade the Top Sky ATM system with our COOPANS Alliance partners, so all ACCs of the five COOPANS air navigation service providers operate with the same software version. In that way, COOPANS meets the Single European Sky aim of harmonizing ATM systems in Europe. This has been well recognized by the European Commission at the World ATM Congress held in March 2016, and COOPANS was awarded the Single European Sky Award for international cooperation. The COOPANS ANSPs have established a transversal deployment team to efficiently contribute to the SESAR Deployment Manager and to the SESAR 2020 preparation, and CCL became a member of SESAR Joint Undertaking in 2016 as part of these activities. The membership and participation in the SESAR 2020 program are among the key pillars of our cooperation with the COOPANS partners, as well as a strategic element of business with the purpose of being an active contributor to international processes and the development of new technologies.

In 2016 CCL was has again been the host of a big aviation event, the "Frequentis ATM Users' Experience Conference", which took place in Dubrovnik. The event brought together about 80 senior-level stakeholders from 25 European ANSPs, and these ATM professionals exchanged their experiences and views on how to enhance the value of assets and further improve performance, operational efficiency and the total cost of ownership in air traffic control.

The Monte Kope radar system near Pula was put into operation in May 2016. The project ensured multiple radar coverage in the busiest operational ACC sector West and in the Pula terminal zone, as well as necessary capacities and an enhancement of safety and quality of air navigation services in that part of Croatian airspace.

2016 was very successful regarding the preparation of projects to be funded by the EU. CCL was granted funds for eight air traffic related projects worth around EUR 18.4 million, with 85 % of that amount being co-funded by the EU.

CCL, in cooperation with its partners SMATSA and BHANSA, implemented the Free Route Airspace concept over four neighboring states above FL325, called "South-East Axis Free Route Airspace" (SEAFRA). The first phase of the project introduced FRA which was active only at night, while in December 2016 its H24 implementation was completed. The common goal of FRA is to improve safety and efficiency as well as environmental protection by reducing fuel consumption, CO2 and NOx emissions. The next step was taken immediately, by starting the "South-East Common Sky Initiative" project (SECSI) involving a cooperation of the SEAFRA with the SAXFRA ((Slovenia and Austria)) partners in order to establish a unique FRA airspace over six states.

New challenges are ahead of us, including the implementation of some outstanding projects in order to meet all relevant safety and quality standards across all segments of CCL's activity/operation. In the forthcoming period, CCL will – in addition to the proper strategic guidance, optimal use, and further development and improvement of all its human and material resources – enhance its business processes, maintain and raise the level of air traffic safety, the quality of services and the overall performance in accordance with the targets given in the FAB CE Performance Plan.

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;
- **May 1992**: Croatia acceded to ICAO;
- **July 1992**: Croatia acceded to ECAC;
- **March 1997**: Croatia acceded to EUROCONTROL;
- **February 1998**: Croatia Control Ltd. (CCL) was founded as a limited liability company;
- **December 1999**: CCL was registered as a limited liability company at the Commercial Court;
- **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 initiative 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, 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 outdated 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 2016 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:

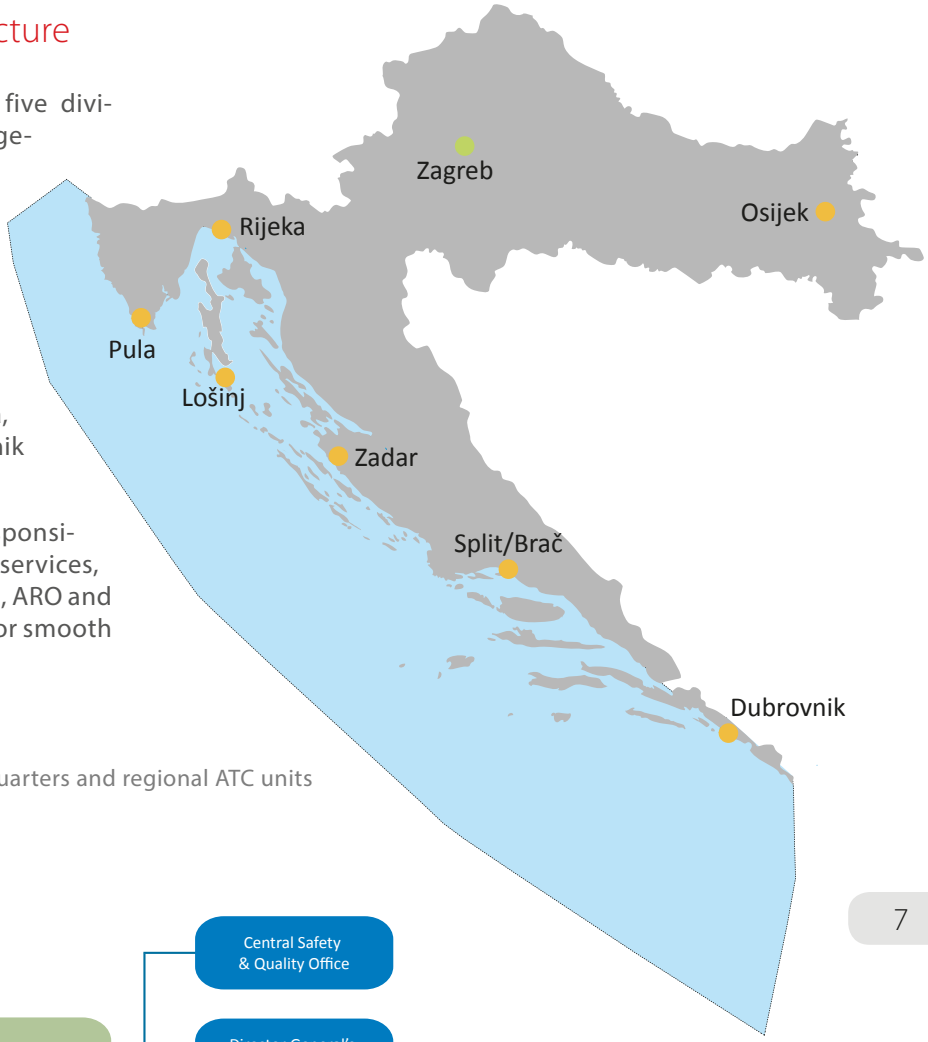
- provision of air traffic services (ATS), particularly air traffic control, alerting service, flight information and pre-flight information service, all aimed at providing a safe, orderly and smooth air traffic, as well as flight data processing and storage, promulgation of safety-related information, 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

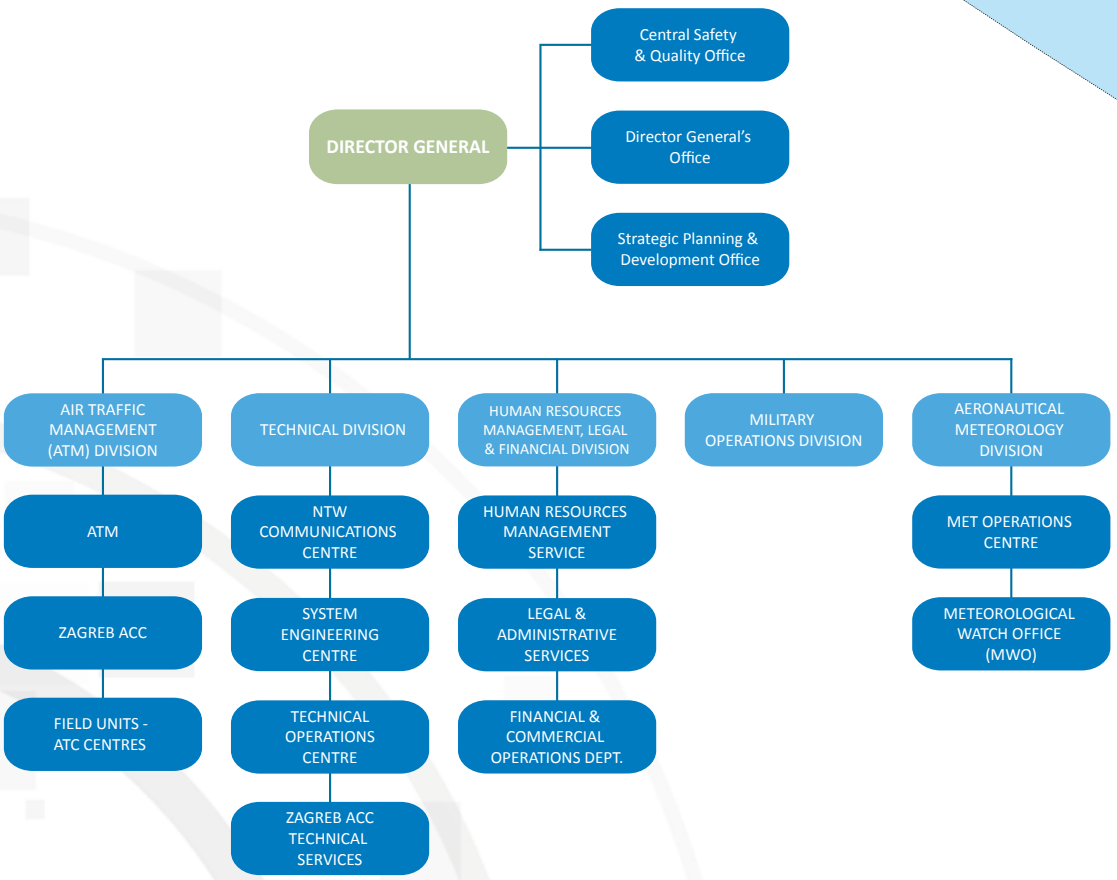
The company is organised into five divisions. These are: Air Traffic Management, Technical, Aeronautical Meteorology, Military Affairs, and Human Resources, Legal and Financial Affairs.

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.



CCL headquarters and regional ATC units



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.

Regional Co-operation

Functional Airspace Block (FAB CE) is a joint initiative of seven states: Austria, Bosnia and Herzegovina, Croatia, Czech Republic, Hungary, Slovak Republic and Slovenia, with their respective ANSPs, including CCL. To meet the future needs of the growing air travel and transport industry, the European ATM needs to become more flexible, harmonised and seamless.

The European Commission's SES initiative aims at the unification of European airspace so the creation of FABs independent of national boundaries optimises airspace usage and capacity, making the flow of air traffic over Europe more efficient. The FAB CE Agreement as well as the FAB CE ANSP Cooperation Agreement were signed in May 2011. The implementation of FAB CE maintains and, wherever possible, improves the current level of safety notwithstanding the increased traffic, through the establishment of a common safety management procedures and practices. The ATM services within the FAB CE should be provided in an environment characterised by the cross-border airspace design and sectorisation. The airspace design process therefore will not be constrained by the borders between the FAB CE States, but will be based on operational needs and air traffic flows resulting in better horizontal and vertical flight efficiency, improvements in productivity and the consequent increase in capacity.

With the FRA concept (Free Route Airspace), the users are able to freely plan the route between a defined entry and a defined exit point, with the possibility to route via intermediate (published or unpublished) way points, reference to the ATS route network. 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. However, CCL cooperated beyond FAB limits, and implemented H-24 South-East Axis FRA with SMATSA and BHANSA, encompassed four states and two areas of responsibility so far. Afterwards, the next step immediatelly started, by the project "South-East Common Sky Initiative" (SECSI) involving the cooperation of SEAFRA partners with the partners from "SAXFRA" (Austrocontrol, Slovenia Control) in order to establish the unique FRA airspace over 6 states: Austria, Slovenia, Croatia, Montenegro, Serbia and Bosnia and Herzegovina.

COOPANS
REAL COOPERATION, REAL RESULTS

COOPANS stands for "COOPeration of ANS Providers". COOPANS Framework Agreement between CCL, IAA, LFV, Naviair and Austro Control (providers from Sweden, Denmark, Ireland, Austria and Croatia) has gone further than the traditional relationship between Air Navigation Service Providers and the ATM supply industry, and has set the foundations for a strong and long-term partnership. Thales as the chosen industry supplier is additional valuable partner to the COOPANS.

The harmonisation of ATM systems is one of the most important tasks to achieve for implementing the Single European Sky (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. It is a perfect example of effective partnership between the air navigation providers (ASNP) and the industry working towards a common objective. By applying innovative technological solutions, the Alliance has enabled the reduction of capital expenditure for each member. The innovative solutions implemented by the COOPANS initiative have

a strong potential to be replicated in other countries, giving the initiative a broad European scope and making it a main contributor to SES performance objectives. 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. The members make joint investments and share expenses, thus realizing cost savings and safety benefits. The activities include, inter alia, common stepwise operational and technological evolution optimisation of life cycle costs, sharing the same system and support baseline for operation and maintenance. COOPANS members maximise benefits using common tools, methods and operational procedures throughout the system life cycle.

From a financial perspective, common procurement is defined for all major programme steps: development, integration, deployment and maintenance. 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 CO2 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).

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 2016, the main tasks of the SDM were:

- supporting all stakeholders awarded for PCP-related projects in CEF Transport Call 2014,
- finalizing the activities related to CEF Transport Call 2015 (supporting all concerned stakeholders during the evaluation of the proposals, consultations, adoption of selection decision, signature of individual grant agreements),
- delivering the Deployment Programme 2016,
- preparing for submission the Pilot Common Project (PCP) related common proposals for the CEF Transport Call 2016,
- preparation works for the transformation of SESAR Deployment Alliance to the single legal entity (SLE).

The COOPANS Alliance partners decided to take part in common in SESAR Joint Undertaking (private-public partnership under SESAR - EU research program for developing the next generation of European Air Traffic Management). SESAR (Single European Sky ATM Research) is a technological part of Single European Sky initiative. As a part of COOPANS Consortium, CCL became the member of SESAR Joint Undertaking (SESAR JU) in July 2016. In parallel, CCL and COOPANS consortium were preparing

all the necessary steps to participate in 19 projects under SESAR 2020 Programme. During October and November, all 19 Grant Agreements were signed between SESAR Joint Undertaking and CCL. The signed Grant Agreements were the formal start of the SESAR 2020 Programme, in which approximately 20 experts from CCL take part.

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 2015 CEF Call for Proposals was published on November 5, 2015, and the results of evaluation of the projects applied were published in July 2016. The evaluation was done by the European Commission and INEA. CCL was approved the co-financing for 8 projects (out of 11 projects applied). The total value of the projects is 18.4 mil EUR, and 15.7 mil EUR shall be co-financed from CEF funds. Out of this sum, the PCP-related projects, i.e. projects related to the third (implementation) level of DM (6 projects the total value of which is 13.2 mil EUR) shall receive 11.3 mil EUR of grants. Thus the amount of 117 mil HRK shall be co-financed from the EU funds.The following table presents the list of projects as well as their budget and maximum CEF 2015 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.

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INEA CEF 2015 Projects		
Project	**Budget**	**Funding**
VARP - VoIP ATC Radio Project	2.527.460 €	2.148.341 €
Modernization of IP based G/G Data Network in CCL - CaRT/ iWAN-NG	151.800 €	129.030 €
CCL cyber security architecture - ExCO-NG	942.288 €	800.945 €
SIMULATION SEAFRA H24	1.010.782 €	859.165 €
Harmonisation of Technical ATM Platform in 5 ANSP including support of Free Route Airspace and preparation of PCP program. (COOPANS B3.3 , B3.4 and B4.1)	8.479.240 €	7.207.354 €
NewPENS - Stakeholders contribution for the procurement and deployment of NewPENS	140.500 €	119.425 €
Implementation of the A-SMGCS System at Zagreb International Airport	4.383.700 €	3.726.145 €
Convergence of DSNA and COOPANS ATM Systems step 1B (CODACAS 1B) - Cohesion part	775.000 €	658.750 €
Total	**18.410.770 €**	**15.649.155 €**

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 2016, the members of the Supervisory Board were:

- **Prof. Darko Prebežac, Ph.D**
  Chairman of the Supervisory Board
- **Dinko Staničić**
  Vice Chairman
- **Marko Nevešćanin**
  Employee Representative
- **Marijana Müller**
  Member

3.3. Management

- **Dragan Bilać**
  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**
  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

Split, Diocletian's Palace - UNESCO World Heritage site

4. Operations and Infrastructure

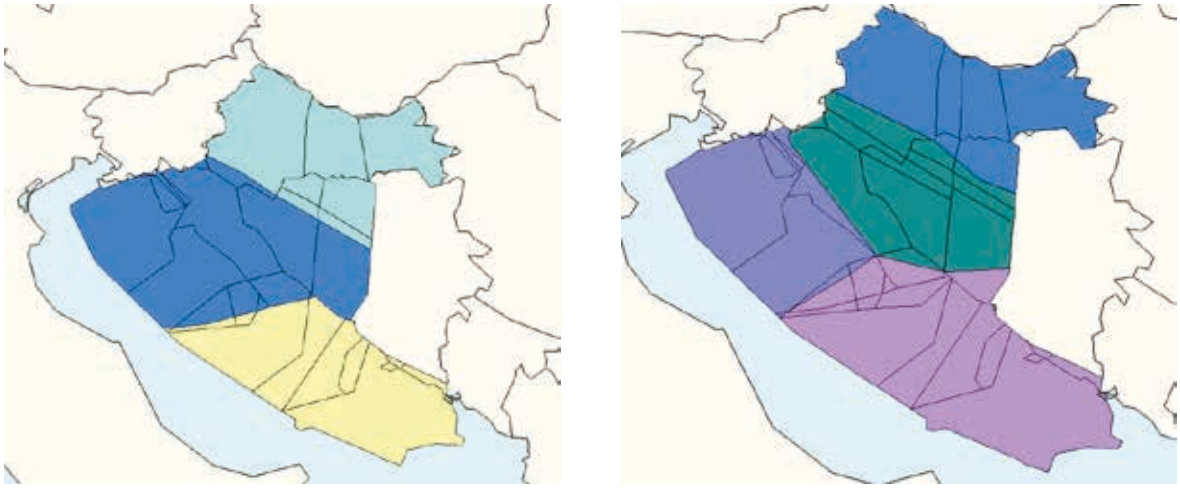
4.1. Operational Units

CCL's main operational units are as follows:

- Zagreb Air Traffic Control Centre provides area control services for Zagreb FIR as well as for a part of Sarajevo FIR, and the approach control services in Zagreb TMA,
- Zagreb/Lučko Aerodrome Control: provides tower control services at Zagreb and Lučko aerodromes,
- Regional ATC centres providing approach and tower control services - Osijek, Rijeka, Pula, Zadar, Split, Dubrovnik, Lošinj and Brač.

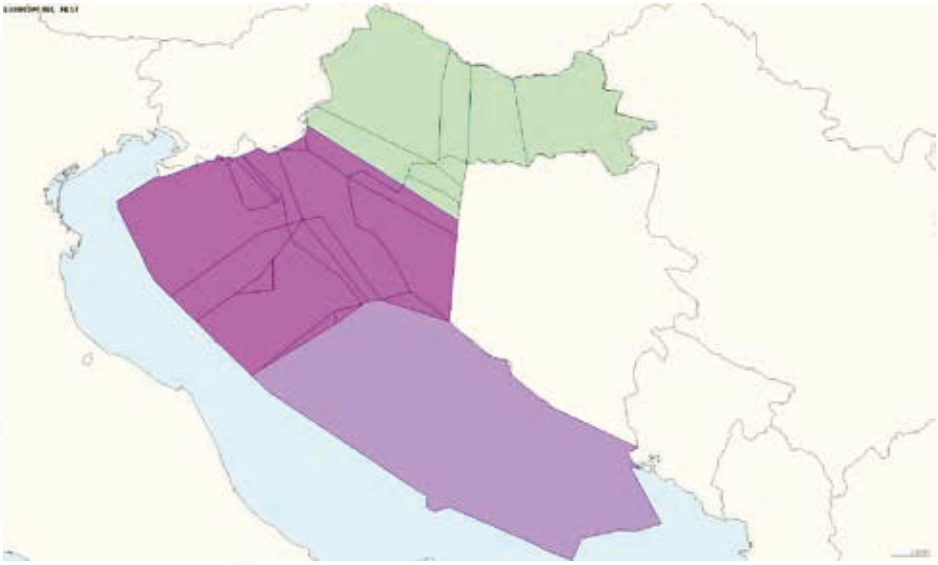
Main operational units

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" airspace above FL325

According to the mutual agreements among partners, BHANSA took over the major part of the lower airspace below FL 325, previously delegated to both CCL and SMATSA. It resulted in the changes in the Area of Responsibility as shown in the picture below:



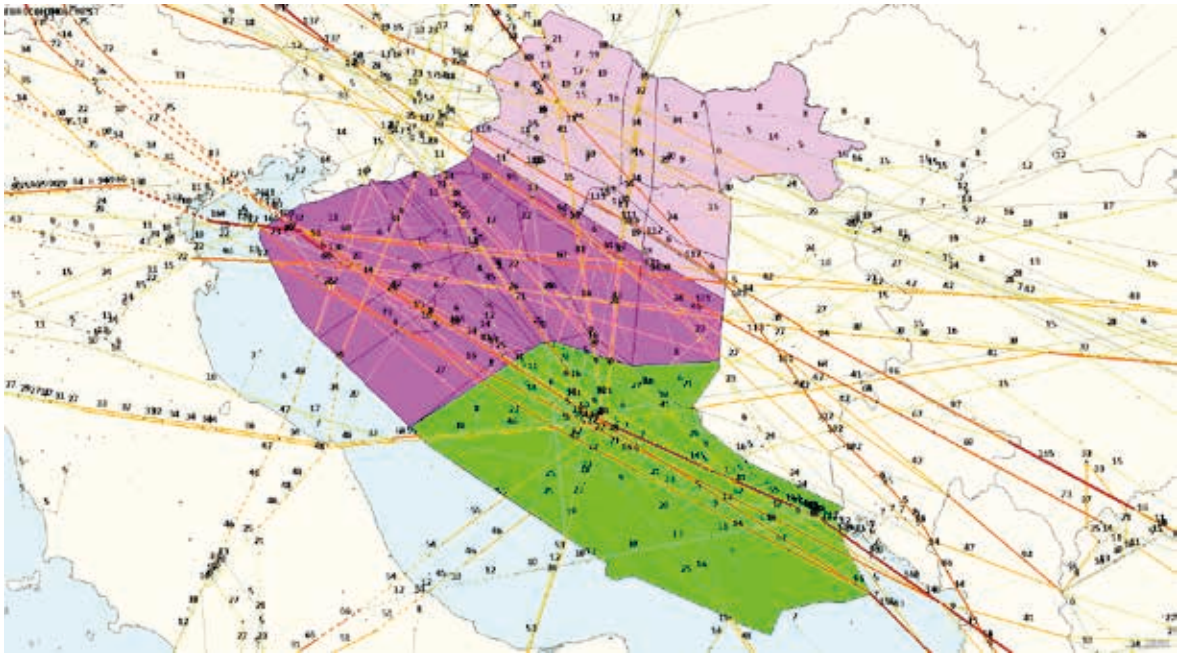
ACC Zagreb area of responsibility (AoR) in the "lower" airspace below FL325

4.2. Traffic Flows and Seasonality

The main traffic flows over CCL's Area of Responsibility in 2016 are shown in the picture below. The numbers represent the total number of IFR GAT operations on a particular route on the busiest day of summer 2016.

Traffic in CCL's AoR is highly seasonal and the main flows run in South East to/from North West direction.

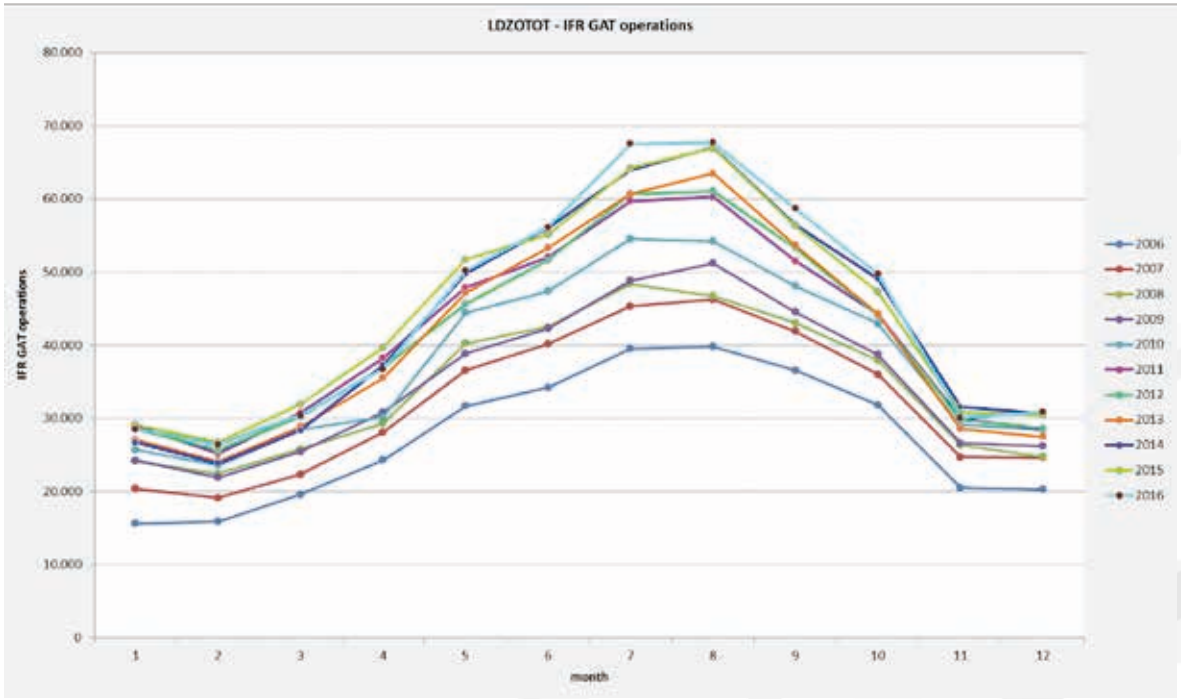
The amount of traffic in the period May - October is significantly larger compared to the rest of the year. The intense seasonality of traffic means that CCL faces particular challenges in achieving a balance between the required capacity and use of resources throughout the year.



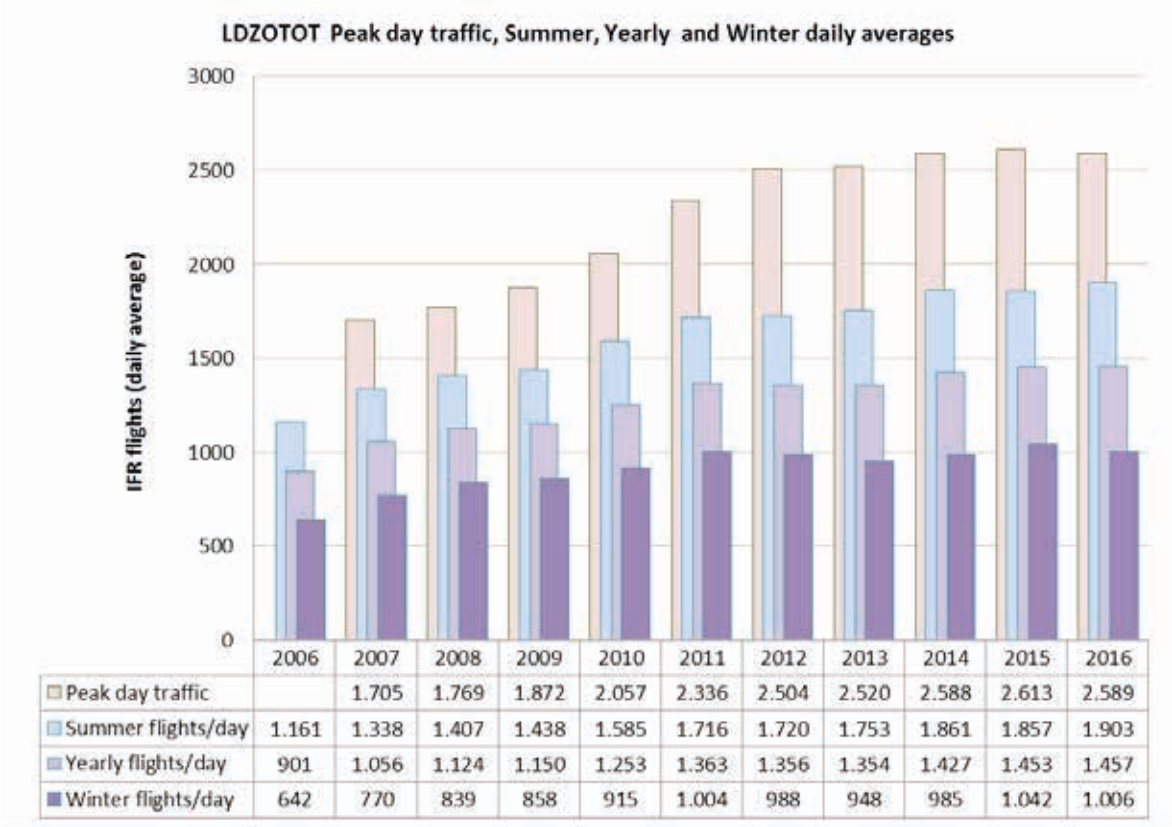
Main traffic flows

Traffic routes over the entire South-East axis of the European airspace 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.

The graph below shows the evolution in total number of IFR GAT flights controlled by CCL throughout the years:

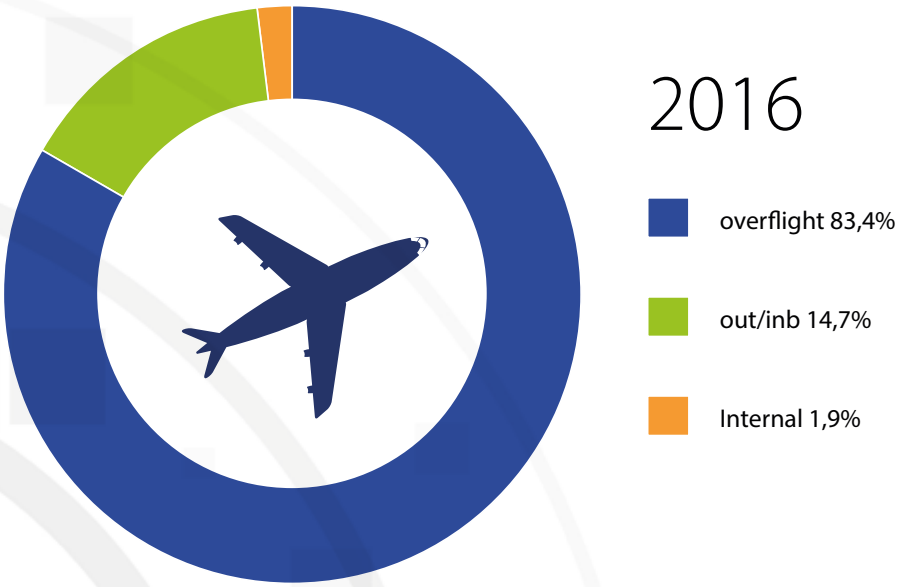


Summer daily averages have been continuously growing and in 2016 the average daily traffic was 1.457 operations per day, while the summer peak day counted for 2.589 flights.



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Peak day traffic		1.705	1.769	1.872	2.057	2.336	2.504	2.520	2.588	2.613	2.589
Summer flights/day	1.161	1.338	1.407	1.438	1.585	1.716	1.720	1.753	1.861	1.857	1.903
Yearly flights/day	901	1.056	1.124	1.150	1.253	1.363	1.356	1.354	1.427	1.453	1.457
Winter flights/day	642	770	839	858	915	1.004	988	948	985	1.042	1.006

In 2016, approximately 83% of the flights in Croatia were overflights, 2% were domestic flights and the remaining 15% were international flights, arriving at or departing from Croatian airports.



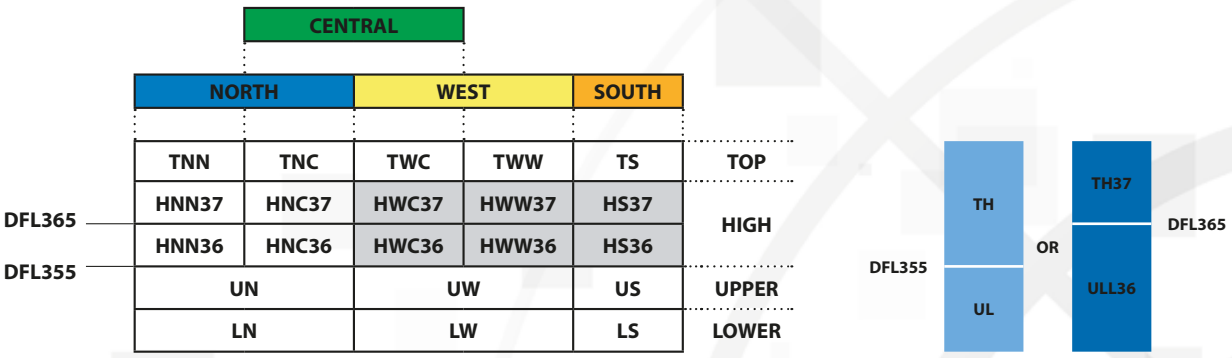
Distribution of flights in Croatia

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 continuously improved.

4.4. Operational Improvements

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 few airspace organization changes.

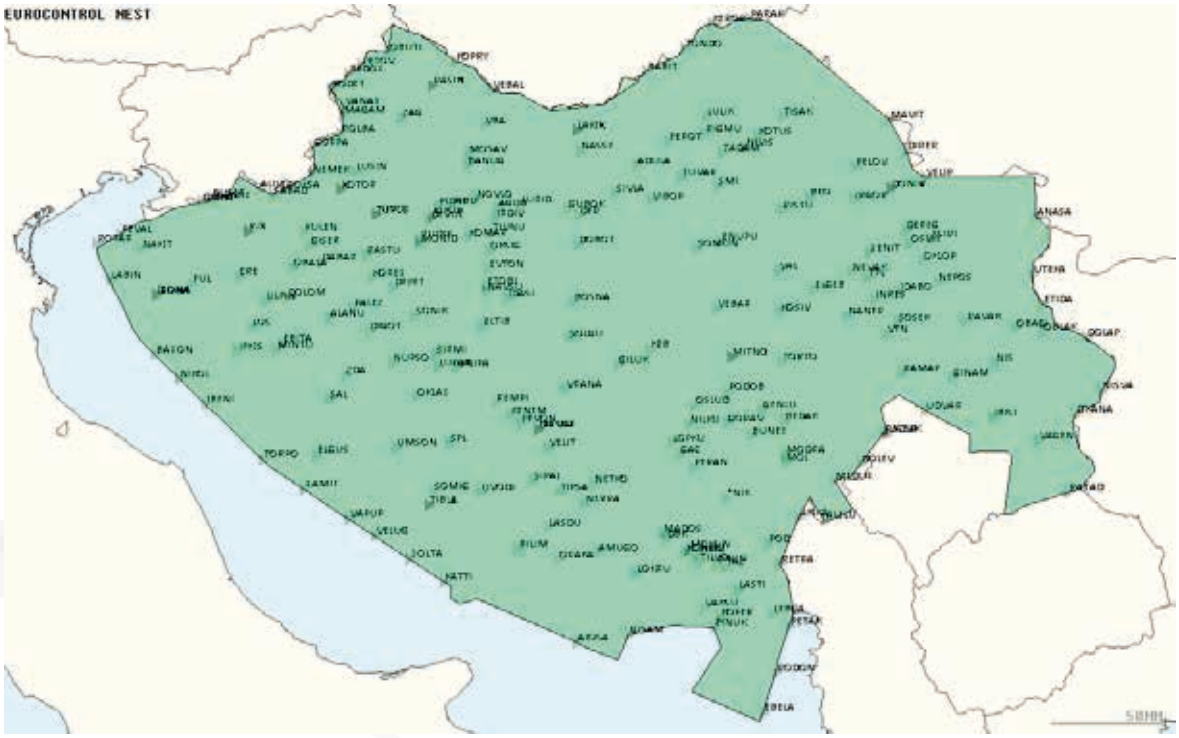


Free Route Airspace Concept and SEAFRA project

In 2016, CCL in cooperation with other partners in SEAFRA project (BHANSA and SMATSA) extended the availability of FRA airspace by implementing H24 availability within previously defined vertical limits. Also, a limited number of long range DCT options that go beyond SEAFRA boundaries were introduced, which corresponds to increasing developments within the European ATM Network and further growth of the ATM efficiency. This extended the positive impact on airline operators, increased the quality of our service and contributed to the reduction of the greenhouse emissions.

The utilisation of DCT routes has an impact on the efficiency of CCL, while reducing adverse impacts on the environment. Continuous monitoring of the use of these planning options (routes) and comparing the results with those related to the flights along RNAV routes, allow us to track the changes in fuel consumption, which in turn means less harmful emissions.

Connecting to other Free Route initiatives within the FAB CE, as well as other FABs, will be done through an overall network coordination. The SEAFRA project is one of the key improvements in line with the EU initiative on establishing the Single European Sky 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. H24 SEAFRA was completed by December 2016, and participating ANSPs have achieved a common goal to improve ATS safety and efficiency, as well as the protection of the environment by reducing fuel, CO2 and fuel NOx emissions.

SEAFRA project was recognised by the European Commission and shortly after the completion, it was awarded the Single European Sky Award. The next step immediatelly started, by the project "South-East Common Sky Initiative" (SECSI), involving the cooperation of SEAFRA partners with the partners from "SAXFRA" (Austrocontrol, Slovenia Control) in order to establish the unique FRA airspace over 6 states: Croatia, Austria, Slovenia, Montenegro, Serbia and Bosnia and Herzegovina.

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

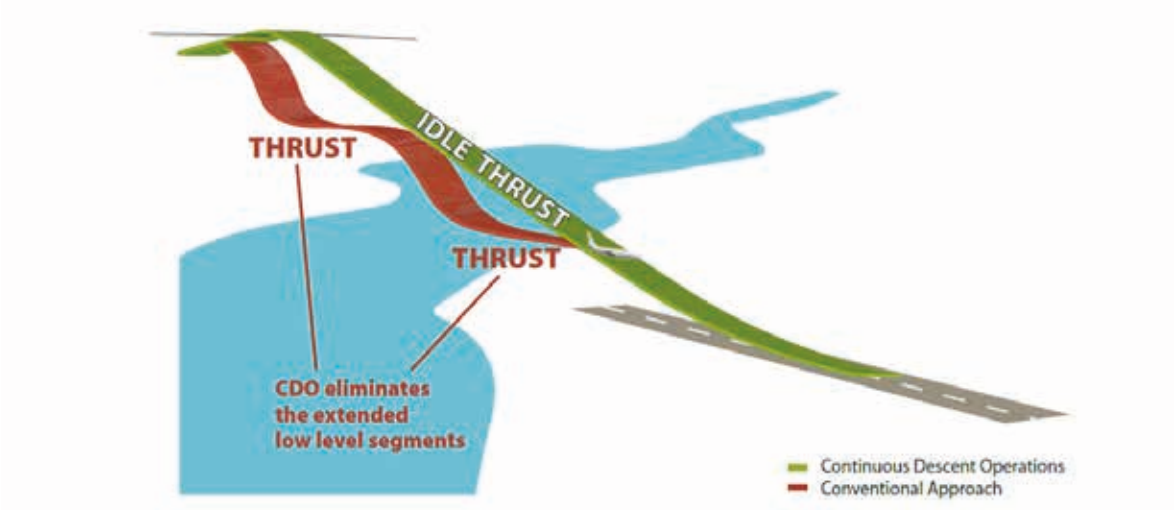
Baseline capacity is defined as an effective capacity which can be delivered and maintained in peak traffic periods and is determined annually by NM ACCESS process. This is done based on the recordings of a two week period during summertime and collection of all relevant inputs, such as exact sector 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.

Delays

Delay is measured for all regulations used throughout the year, and basically reflects a lack of capacity. The year 2016 ended with a delay of 0.04 min/flight which was an excellent result since the the target was 0.22 min/flight. The causes of delays were weather conditions (58%) and staffing/capacity (42%).

4.5. Environment

CCL takes appropriate actions to decrease fuel consumption of airspace users. This is achieved by route design (introduction of direct routes and FRA) and the development of new continuous descend procedures (CDO). Continuous Descend Approach is an operation, enabled by airspace design, procedure design and ATC facilitation, in which an arriving aircraft descends continuously, to the greatest extent possible, by employing minimum engine thrust, ideally in a low drag configuration, prior to the final approach fix.



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. In 2016 CCL has undergone thorough revision of the required elements previously described in the CDO implementation plan.

According to ithat plan, new TMA operations concept including CDO as a part of PBN RNAV/RNP approach procedures will cover eight Croatian airports. This comprehensive implementation requires involvement of procedure designers, operational ATC staff and national airline operator as well, and due to its size it is estimated that will take several years.

Regarding FRA concept which is the major contributor to environmental benefits, further development has been achieved in 2016. CCL in cooperation with its partners implemented additional cross-border direct routes between the areas of responsibility (AoR) of Zagreb and Belgrade Area Control Centres (ACCs). Furthermore, in order to further facilitate the savings, long range DCT's have been implemented, allowing airline operators to plan direct routes from Bulgaria to Austria and vice versa, as shown in the picture.

CCL is keeping records of possible savings by making calculations based on simulations done in Network Strategic Tool (NEST) using Scenario Economy module.

According to this calculation, overall savings in one day through SEAFRA are close to 28 tonnes of CO_2, and average flight lost -2,8NM of distance. Keeping in mind that about 30% of total cost airline operators spends on fuel gives FRA implementation a significant value.

Simple report

Scenario Economy for … (Potential gains/losses)					
Total impacted flights	**Length (NM)**	**Time (min)**	**Fuel (kg)**	**CO2 (kg)**	**NOx (kg)**
1488	-4152,268	-579,477	-27796,595	-87835,830	-391,212

By the end of the 2016 SEAFRA was extended to H 24 operations enabling airline operators to freely plan shortest routes between the entry and exit points across he airspace of four countries involved in this valuable project.

4.6. Technical Infrastructure

Overview

Highly qualified engineers and technicians have continuously been engaged in the maintenance and upgrading of the following systems: ATM Data Processing Systems, Voice and Data Communication Systems, Aeronautical Radionavigation Systems, Surveillance Systems, Power Supply Systems, Network Systems and Meteorological 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.

2016 Investment Plan

The domain projects included in the investment plan for 2016 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 Croatia Control, a product of joint undertaking of the COOPANS Alliance, comprising five European ANSPs and their seven ACCs, received further evolutions that strengthened its world-class status. In Build 3.1, Safety Nets subsystem was completely replaced by a new, modular and highly advanced component, which enables sophisticated and reliable detection of traffic safety infringements. Significant enhancements were implemented in the Flight Data Processing System in the areas supporting traffic coordination and transfer in terms of regulatory support but also the software stability and robustness.

Several system scarce capacities were also increased to ensure support for ever-growing operational demand and to prepare for anticipated future traffic growth. COOPANS Build 3.1 is co-funded by the European Union CEF programme. The ATM emergency system, ARES, encompassing the “clear the sky” function for ACC/APP Zagreb and service continuity for APP Pula, APP Zadar, APP Split and APP

Dubrovnik, was expanded in December 2016 with the TWR positions which allow TMA controllers to handle both TMA and TWR traffic from the tower during the low traffic periods. Additionally, the ARES training system was designed and procured and the final deployment activities are undergoing.

DATA-COM domain projects

The project for "Supply, installation and integration of AGDL system for CPDLC service in CCL" successfully continued according to the planned timeline during 2016. The Supply and Installation of the ATN G/G Router and the CPDLC Test Tool was performed and implementation was site accepted, contract with SITA as NSP signed and provisional acceptance performed.

After implementation of 5 international AMHS links, the link to Warsaw COM centre was also implemented and put into operation. The work on the new Information Security block is in the implementation phase. Low level design was accepted and equipment was delivered to the site.

The procurement of the WAN Transport Infrastructure modernization and upgrade was successfully finished and contracted.

VOICE-COM domain projects

In order to extend BVCS Zagreb ACC/APP lifecycle, the Technical Monitoring and Control Subsystem was upgraded. Procurement of integrated VCS intercom solution was also implemented. Implementation of the intercom solution will be synchronized with VoIP related projects in the forthcoming years.

The Project of replacement and upgrade of VHF/UHF radio system has been started in 2016 aiming to replace and upgrade existing radio system of older generation for the purpose of the implementation of 8,33kHz voice channel spacing requirements below FL195 and to support the migration to VoIP. Public tender for the procurement of radio systems has been issued in 2016.

As the VHF/UHF radio network is planned to be upgraded with additional VHF site at Northern Adriatic area, design of the facilities has been started as a prerequisite for the construction of infrastructure on site. PBX in Pula, Zadar, Split and Dubrovnik were upgraded to support DECT users. DECT Voice Recording and Replay Systems were deployed at these locations to allow operational use of DECT phones. The dedicated DECT VRRS in Zagreb was upgraded to redundant configuration.

SUR domain projects

The MSSR Mode S radar at Monte Kope station became operational in May 2016. A-SMGCS system for Zagreb Airport was procured and the installation phase is expected to be done in 2017. The Project is co-founded by European Union CEF programme.

The operational requirements and technical solution for the SUR sensor in Dubrovnik region were defined. The tenders for design, construction and main SUR system (sensor) are foreseen for the next year.

NAVAIDS projects

During 2016, within the project of NAV system modernization in RP2, we have successfully replaced and commissioned VOR/DME ZDA, VOR/DME PUL and ILS RWY23 IZG. At the same time, the preparation activities for the next scheduled replacements, foreseen for execution in 2017 (VOR/DME VBA and ILS IPU) were completed.

AWOS/MET domain projects

The project of the replacement of automatic meteorological systems (AWOS) at Pula and Split airports finished in 2016 with preparatory activities and transition into operational service of the both systems. The new systems replaced the old and obsolete systems AMS2 Split and Pula, introducing the improved performance and new functionalities (automatic mode of operation, ATIS, remote forecaster). Additionally, AWOS systems extension in Zagreb was implemented, enabling new functionality of remote forecaster in Zagreb where forecasters are able to work with up to four remote airports. Preparatory activities for the next project have already started, aiming to replace the old and implement new AWOS systems (with ATIS, where appropriate) for airports Zagreb, Zadar, Dubrovnik, Rijeka, Osijek, Lošinj and Brač. Within VAMS50 project, upgrades of systems in Rijeka, Brač and Osijek were installed and transitioned into operational service with new functions (measurement, display and logging of temperature, dew point and pressure on ATC and MET operational positions). The upgrade of the Lošinj system is scheduled to be done after Rijeka system upgrade. Activities are scheduled to continue during the year 2017.

Reconstruction of buildings and infrastructure

The comprehensive reconstruction works started on the old ACC building in Velika Gorica. The other planned works related to the reconstruction of facilities and infrastructure (reconstruction of air conditioning systems in Dubrovnik and Zagreb, reconstruction of power supply in Zagreb, reconstruction of TWR Rijeka) were not fully finished due to public procurement procedure or property and legal issues, but all preliminary activities were finished and all contracts were concluded.

Croatia Control virtual info board for employees (CroVIBE)

Croatia Control virtual info board for employees (CroVIBE) project was successfully implemented and completed in 2016 as one of the first implementations of this type of open system in the world. Furthermore, implementation of new functionalities is planned in the following years to support better communication and information access for air traffic controllers.

Full list of projects scheduled for implementation in 2016 is given in the table below.

Project name	Start	Operational
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	2018
Flexible use of airspace (FUA) project	Before 2012	2016
CMMS software procurement and installation	2013	2016
VAMS systems upgrade project (Rijeka, Brač, Osijek)	2014	2017
Security and protection of sites improvement project	2014	2018
Croatia control virtual info board for employees (CroVIBE)	2016	2016

Plans for investments in coming years

Projects scheduled for implementation during 2017:

Project name	Start	Operational
CCL centralised technical monitoring and control system	Before 2012	2018
Flexible use of airspace (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

Senj, Nehaj fortress

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.

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

Intensive SMS-related activities were undertaken in CCL during 2016.

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

Safety Performance Indicators

CCL key safety performance areas:

- the effectiveness of safety management (Safety Maturity);
- the application of the severity classification of the Risk Analysis Tool (RAT);
- reporting of just culture.

In 2016. CCL managed to increase Key Safety Performance areas by 5 percent (overall score is 82%). 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) 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 2016 CCL's safety activities were focused on the following objectives:

- Continuous improvement of effectiveness of safety management;
- Continuous improvement of Safety Culture and Just Culture;
- Continuous improvement of Just Culture;
- 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 (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 2016, 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

CCL pays special attention to the Quality Management System that ensures the prime quality of services to full satisfaction of our users and partners.

CCL established and documented a Quality Management System (QMS) and has been applying and maintaining it in compliance with the requirements of ISO 9001 International Standard.

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. The criteria for efficient management of Croatia Control's business processes are set by the Quality Management Manual, while the services are described in relevant operating manuals. The management ensures, by means of Quality Policy,

that the users' requirements are identified and complied with, in order to increase their measurable satisfaction. 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 2016, CCL continued to upgrade the quality management system. CCL established and applied British Standard for Occupational Health BS OHSAS 18001 and implemented the Environment Management in accordance with the international standard ISO 14001.

5.3. Environment Management System

On the basis of the criteria for the evaluation of the importance of environmental aspects, i.e. meeting the existing legal requirements, technical, technological, and financially feasible activities with the aim of reducing the pollution as well as the influence of the public, the environmental aspects in CCL were divided into the lists of significant and general aspects.

The mentioned aspects are regularly monitored and updated and the newly identified aspects are subject to analysis in line with the aforementioned criteria. 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 were continued in 2016 until when the measurements took place on 101 CCL sites/facilities out of 107, and soon a three-year cycle of EMR measurements in CCL shall be completed.

Regarding the creation of requirements for noise abatement, in 2016 CCL has started with the implementation of Performance Based Navigation (PBN) for area navigation approach in Zagreb and Osijek. The air check was done in May 2016, and the test results were without any restriction in their implementation. The drafting and publication of air navigation procedures STAR Area Navigation as well as Re-

quired Navigation Performance APCH for all international airports in Croatia started in 2016. The activities related to the airspace optimization continued, while the monitoring of reduction of CO2 and NOx was initiated (route network and airspace optimization). The measurements of gases harmful to the environment in the free route airspace (FRA) is done via Eurocontrol's NEST Tool.

The introduction of FRA H24 gives the airline operators the possibility of planning the most efficient route during the whole day (fuel consumption, time saving, cutting the costs and decrease in greenhouse gases emission).

In 2016 CCL, SMATSA and BHANSA continued with the joint initiative which had started by a successful implementation of cross-border direct routes and night South East Axis Free Route Airspace (SEAFRA). SEAFRA area covers the airspace of the 4 states: Croatia, BH, Serbia and Montenegro from FL 325 to FL 660. In the period March 14 - 27, 2016 the SEAFRA simulation exercise was carried out in Training Centre in Budapest, while the operational use of SEAFRA H24 above FL 325 started on December 8, 2016.

The next phases of FRA development include lowering of flight level and interconnection with the neighbouring FRA consisting of Slovenia and Austria airspace, but the mentioned goal shall be reached next year. As regards the improvements in the management of electric power system, at the end of 2016 the major consumers of electric power within CCL were identified, and the procedures of monitoring the significant consumers were set up. The Procedure for monitoring the major electric power consumers in CCL , containing the list of major consumers, was published.

On the basis of that list the calculation of consumption in kWh for each major consumer is done, and the data as well as the consumption are closely monitored. The results of measurements of the photovoltaic power plant electricity production are measured once a month and are accessible to all interested parties on our Fileserver pages. The data on electric power produces are monitored via the solar log and are analysed by various tools. Two new goals related to the management of electric power system are defined, and these are "The replacement of electric water heater by a heat pump" and "The replacement of chillers with more efficient cooling systems using, among other things, underground water or air". 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". Measuring of the level of noise shall be done on a few spots (positions) around the air conditioning device. These measurements shall be performed in three-year cycles.

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 2016, CCL concluded the contract with a company specialized in waste disposal and the company for mitigation of accidents which have valid permits for waste management and hazardous waste disposal. The same procedure has been instigated for CCL regional ATC centres, which shall result in the improvement in temporary waste disposal sites in Zagreb as well as in other regional ATC centres.

During the reference period, two emergency preparedness and response exercises were performed; the first one on TWR Zagreb, with the aim of testing the employers' procedures in the event of electrolytes spill from the battery, and the scenario of the second exercise was based on the hydraulic oil leakage from a machine. The evaluation of both exercises indicated that the CCL employees were familiar with the procedures in case of environmental emergencies.

5.4. Security Management

CCL contributes to maintaining the high level of security in air transport. During 2016, CCL proceeded to upgrade its security management system in the following important segments:

- protection of staff and other persons of concern,
- protection of facilities and infrastructure,
- security of information and procedures
- auditing, inspection and testing of security measures and procedures.

CCL raised the level of passive protection of some of its critical assets at the Head Office and in the regional branches. Within the scope of various CNS infrastructural projects, a number of security-related measures were either started or planned on various CCL sites.

The electronic movement control system projects for CCL regional branches Rijeka and Split, as well as for old building facility in Velika Gorica have been started. Other technical protection measures (video surveillance, intrusion alarm systems and intrusion detection systems, security doors, better metal wire-mesh fences) were implemented at some CCL CNS remote sites, while other measures have been put in place or planned too. New security protocols were prepared and put into effect with contracted security agencies.

Security awareness campaign for CCL staff and for the personnel who do not have full employee status in CCL (working either on various types of work contracts or in special trainee programmes) progressed according to the plan in three different modules (written exams included):

- basic module,
- special module for members of the CCL management,
- 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 designated categories of CCL staff were carried out. Extensive risk assessment for CCL critical infrastructure was completed, and continous improvement of security plans have been done. Auditing, inspections and tests have been carried on according to the national legislation, primarily on the sites that underwent major changes affecting its 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;
- ensuring the protection of operative and administrative data and systems (upgrading of protection architecture for CCL services accessible via internet)
- cooperation with major communication service providers for CCL in security matters.

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 EC Regulation No. 1070/2009, Regulation No. 1035/2011 and Regulation No. 1034/2011.

Later on an extensive safety inspection programme was undertaken by the Croatian Civil Aviation Agency, in which 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.

Zagreb, Medvedgrad fortress

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 were held for MET forecasters, and one for MET observers. An International Workshop on the Assessment of Personnel Expertise was held on the premises of CCL. The participant were the MET experts form Croatia, but also the experts from Slovakia, Hungary, Bosnia and Herzegovina, Montenegro, Serbia, Macedonia, Kosovo, Romania and Turkey.

The main goal of the Workshop was to facilitate the process of assessing the expertise of MET staff in services, and it was noted that CCL and ROMATSA have been most mature in implementing this process. The Workshop consisted of lectures, examples, discussions and group work. The feedback after the Workshop confirmed that the Workshop was very well organized and guided. CCL MET Division personnel actively participated in the European Conference on Applied Climatology (ECAC), the International Conference on Fog (FFCD), the EUMETSAT Conference on Satellite Meteorology, 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 acquired observer status in MET Alliance and participated in the AUTO METAR MET Alliance group and in the MET Alliance workshop on TAF verification.

MET personnel actively participated in CCL's involvement in SESAR 2020 program and SESAR project TOPLINK was completed. A new product for ATM called ATM Convection Nowcast, which covers a 6 hours forecast period, was tested during the summer. The website met.crocontrol.hr was redesigned and synchronized with the CCL corporate web page, and a mobile version of the page was created. 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.

The CCL MET Division elaborated the ideas for the project "Bura Dubrovnik" in order to create a de-

cision-making system for strong wind events at Dubrovnik Airport. CCL MET Division had several meetings with partners on "Bura Dubrovnik" 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 will be made. The following partners will participate in "Bura Dubrovnik" project: CCL, Meteorological and Hydrological Service of Croatia, the Faculty of Science of the University of Zagreb, the Faculty of Transport and Traffic Engineering of the University of Zagreb, Croatia Airlines and Dubrovnik Airport Ltd.

The eGAFOR Project was submitted to INEA CEF Call 2016, with the aim of further improving products for low-level flights. Along with CCL as a leading partner, METSPs from Slovenia, Hungary, Slovakia, Bosnia and Herzegovina, Serbia, Montenegro and Romania also participate in the project. In case of approved funding, the project will present a great improvement in the existing MET products for general aviation, since pilots will be able to see a unified and harmonized forecast for the whole region around Croatia at one place on the Web. Due to recently installed automatic MET stations at Pula Airport and Split Airport, the CCL MET Division started with the process of AUTO METAR implementation at these airports.

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 is expected to be obtained to allow the provision of digital aeronautical data and information as well as advanced pre-flight briefing in the course of 2018.

Evolution of the Aeronautical Information Services 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.

Dubrovnik, Lovrijenac fortress - UNESCO World Heritage site

7. Performance

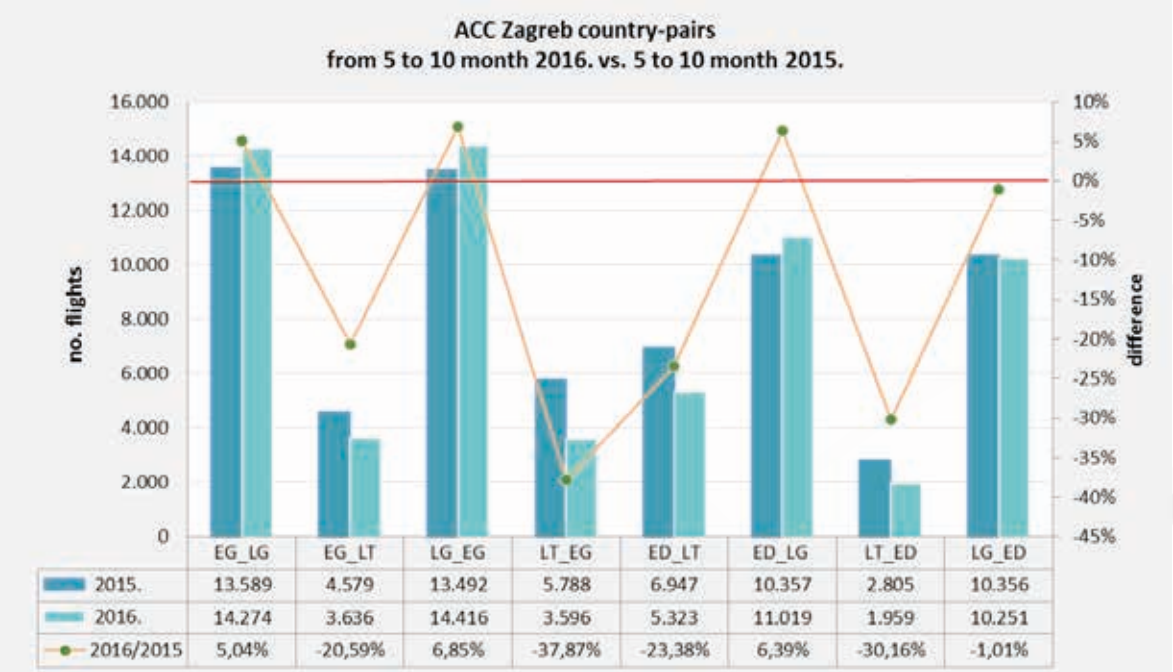
7.1. Traffic

There were more than 533.000 IFR GAT operations in 2016 within CCL area of responsibility, which is the increase of 0,55% compared to 2015. During the summer season (May to October), traffic in Croatia increased by 2,5% when compared to the same period in 2015.

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:

Year	GAT Traffic (IFR Operations)	% change
2007	385,594	+16.9%
2008	411,553	+ 6.7%
2009	419,826	+ 2.0%
2010	457,205	+8.9%
2011	497,492	+8.8%
2012	496,242	-0.25%
2013	**494,217**	**-0.43%**
2014	**522,026**	**+5.63%**
2015	**530,377**	**+1.82%**
2016	**533,275**	**+0,55%**

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

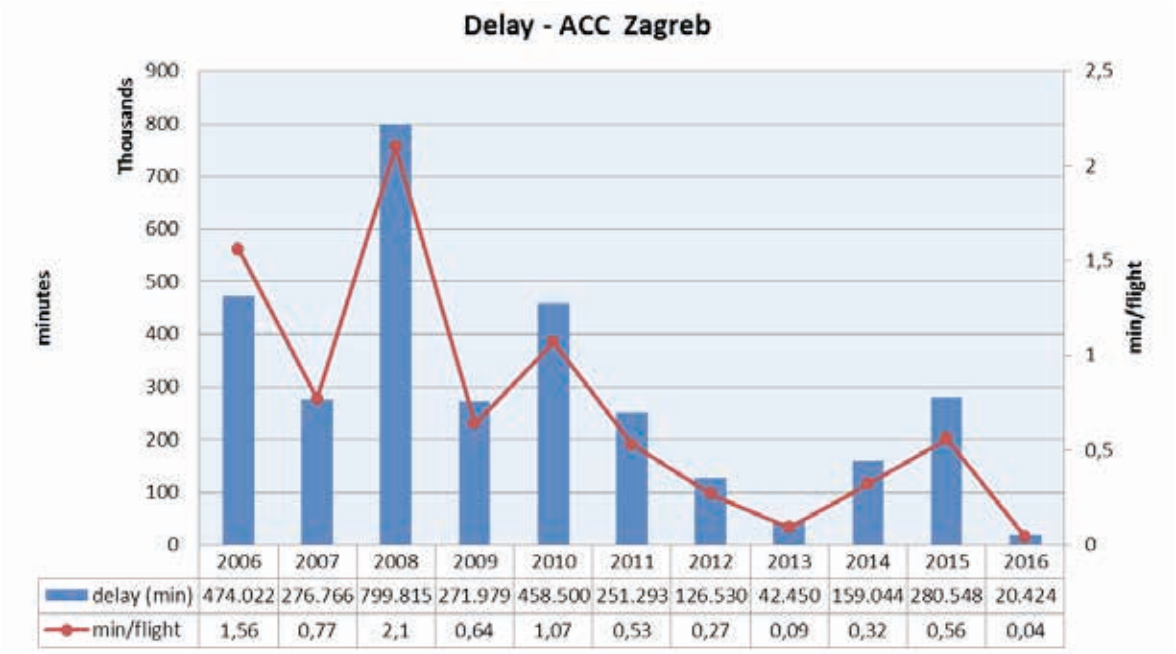


	EG_LG	EG_LT	LG_EG	LT_EG	ED_LT	ED_LG	LT_ED	LG_ED
2015.	13.589	4.579	13.492	5.788	6.947	10.357	2.805	10.356
2016.	14.274	3.636	14.416	3.596	5.323	11.019	1.959	10.251
2016/2015	5,04%	-20,59%	6,85%	-37,87%	-23,38%	6,39%	-30,16%	-1,01%

7.2. Delay

The year 2016 ended with total delay of about 20.00 minutes or 0.04 min/flight, which is significantly less than the target value described through Performance Plan that was 0.22 min/flight. Substantial amount of produced delay is attributed to weather causes (58%) while capacity shortage portion amounts about 37%. The remaining 5% was produced due to staffing. Mentioned ATFCM delay was produced during the busiest period of the year, June to October.

The plan of delays for 2017 is 0.21 min/flight decreasing this value over the next several years in order to achieve 0.19 in 2019.

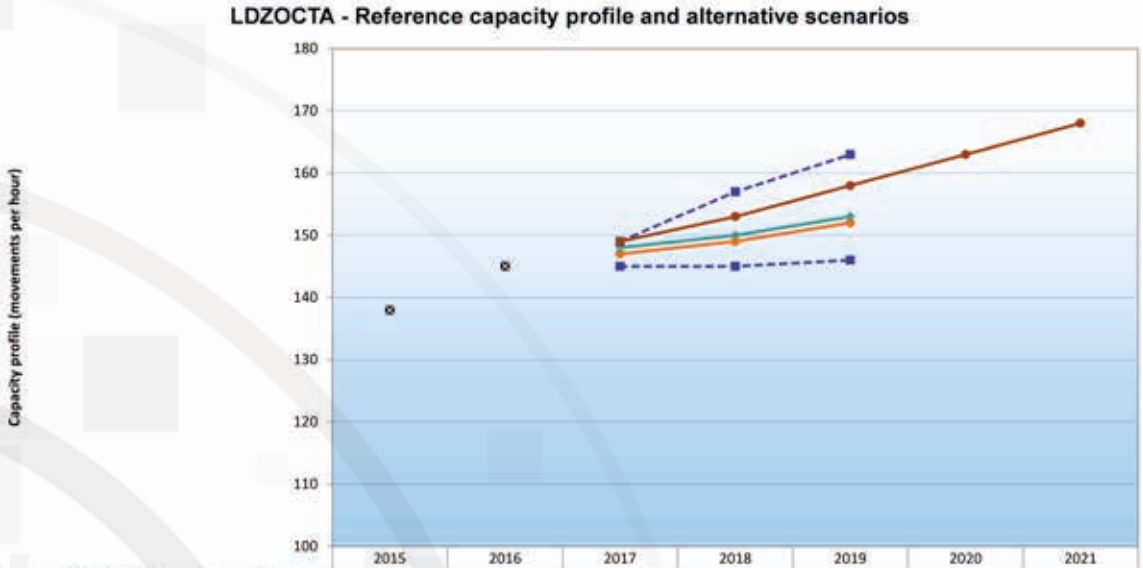


	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
delay (min)	474.022	276.766	799.815	271.979	458.500	251.293	126.530	42.450	159.044	280.548	20.424
min/flight	1,56	0,77	2,1	0,64	1,07	0,53	0,27	0,09	0,32	0,56	0,04

Trend of delays over the years (source CCL FMP)

Capacity Developments

Zagreb ACC baseline capacity has increased by 5% in 2016 and now amounts to 145 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.



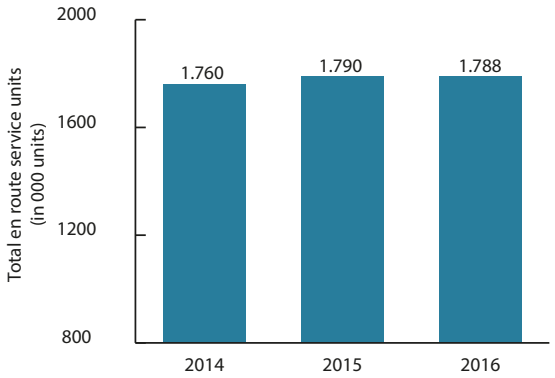
	2015	2016	2017	2018	2019	2020	2021
2017-2019 Reference Capacity Profile			147	149	152		
Capacity Profile - Shortest Routes (Open)			147	149	152		
Capacity Profile - Current Routes			148	150	153		
Capacity Profile - High			149	157	163		
Capacity Profile - Low			145	145	146		
Capacity Baseline	138	145					
2017 - 2021 Plan			149	153	158	163	168

CCL capacity targets are set with an emphasis on continuous improvements in manpower planning in order to reduce the capacity shortfalls, especially in peak summer periods.

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

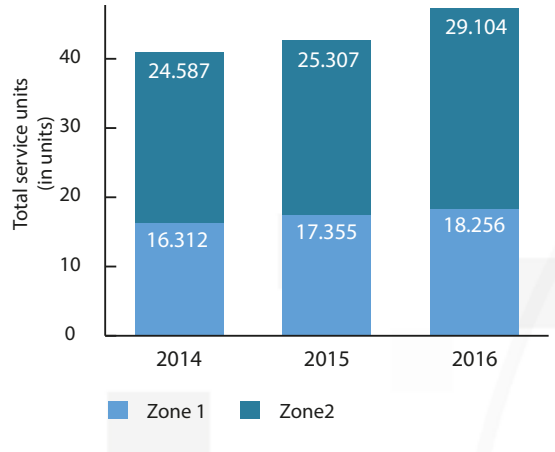
7.3. Service Units and Unit Rate

Following the 2015 traffic increase of +1.7%, reaching the historically highest 1.79 million in total en route service units provided to the airspace users within the Croatia en route charging zone, in 2016 the Company managed to realize almost the same performance in number of provided en route service units (-0,1%) at higher (+0.96%) IFR GAT level (source: NM DWH through FMP) compared to 2015.



En route total service units

In regard to performance in Croatian terminal charging zones performance, the Company continued its historical upward development in service unit provision. During 2016, the Company managed to further increase the total number of terminal service units by 11.0% overall (combined Z1 and Z2), reaching some 47.4 thousand overall.

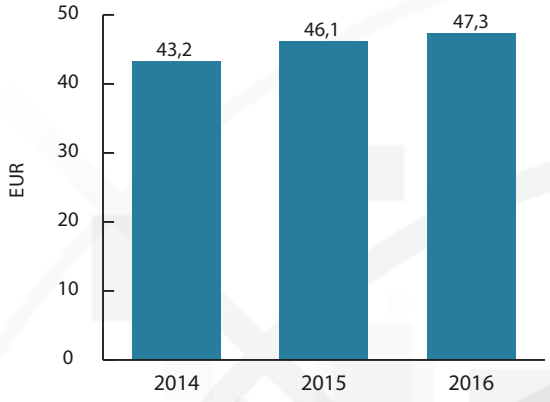


Terminal total service units

Furthermore, total budgeted en route costs for 2016 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 2016 en route unit rate (of EUR 47.,33) being increased by 2.3% compared to 2015 (expressed in 2016 FX rate).

Reason for that was based mostly upon the expected development in 2016 depreciation costs stemming from operational use of most significant strategic investment project - CroATMS/COOPANS and CroATMS/COOPANS related projects. Moreover, budgeted 2016 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 a paramount level of safety and complex and continual engagement in BH ATM transition process.

The following further depicts the Company's budgeted unit rates trend.



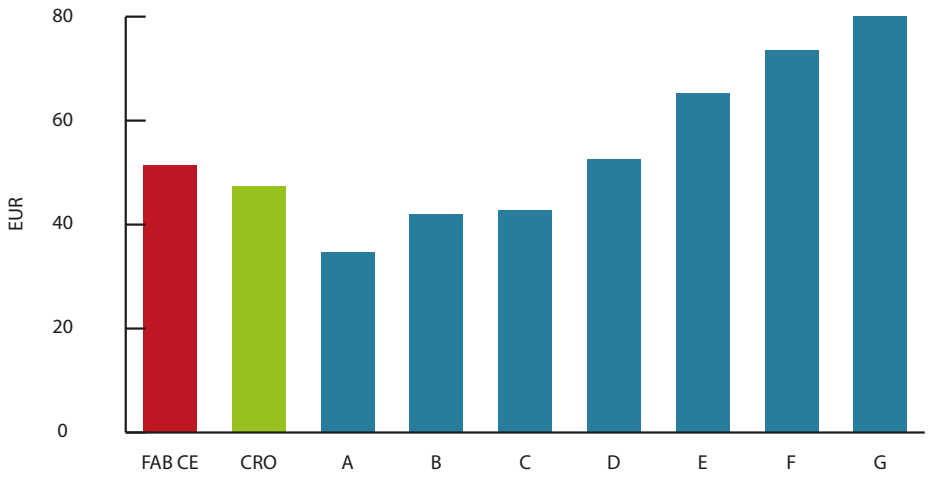
Croatia en route unit rates

As was the case in previous periods, in 2016 the Company managed to deliver, regionally and FAB CE -wide, highly competitive and cost efficient performance, the proof of which was reflected in what was considered as 4.6% better cost efficiency performance (DUC KPI) than what had been initially targeted for 2016, even

though necessary was a hiring of additional resources in terms of budgeted 2016 cost base was necessary. 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 delivering on highly complex, multilateral and cross-border project of BH ATM transition. As was the case throughout the previous years, the fundamental prerequisite for such a performance was that required safety initiatives were fully in place and running effectively.

As a result of such commitment and as was the case during the previous consecutive periods as well, Croatia (strongly and most significantly supported by CCL performance) managed to provide en route ANS at a competitive unit rate during 2016.

According to finally approved en route unit rates for 2016, en route unit rate comparison between Republic of Croatia (strongly and most significantly supported by CCL performance), compared to region neighbouring and FAB CE partners countries is presented below.



2016 budgeted en route unit rates

Furthermore, in January 2014 Croatia introduced two terminal charging zones with two individual terminal unit rates. Budgeted 2016 terminal unit rates were EUR 235.9 (2015 EUR 228.2) for Zone 1 terminal charging zone (LDZA including LDZL) and EUR 254.3 (2015 EUR 244.9) for other ATC centres in Croatia – terminal Zone 2.

7.4. Costs and Income

Even though the increase of the number of 2016 IFR GAT operations with significantly increased operational capacity was recorded in 2016, the Company still managed to control and contain its actual total cost incurred during 2016. This resulted in 2016 actual total costs incurred in the amount of EUR 89.2 million (-6.4% compared to 2015; 2015 normalized at 2016 FX rate).

The aforementioned cost development proves to be even more disciplined given the:

- traditionally recorded substantially seasonable air traffic demand pattern which highly characterizes Croatian airspace and puts adverse pressure on the capacity costs and management,
- operational capacity increased significantly during 2016 reaching the lowest-ever ATFM delay level of 0.04 min/flight,
- significantly increased (+11.0% combined for both Z1 and Z2) operational activities recorded in terminal zones,

- continuous investment activities in 2016 based upon the multinational/COOPANS initiatives, all put in place with the aim of continuous development of efficient and effective Croatian air traffic management system,
- continued 2016 traffic developments in terms of adverse and more demanding trend recorded in service provision mix and
- anticipated business risks and commitments for which the adequate provisions against had to be created in 2016.

Nonetheless, the Company fully managed to comply with cost efficiency RP2 targets set for 2016 in line with the Croatia/FAB CE PP. Moreover, recorded 2016 performance in cost efficiency KPI proved to be:

- 4.6% better than en route CEFF target set for 2016, and
- 3.7% better than terminal CEFF target defined for 2016.

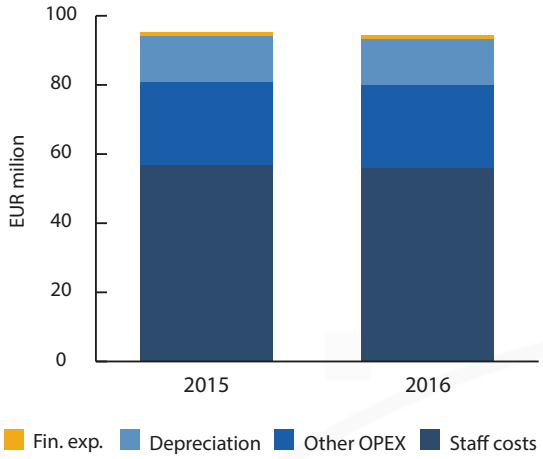
As is the case with the ANS industry in general, the most significant part of the Company's total cost relates to staff costs (some 64% share in total costs for 2016), which were 3,7% lower than consolidated plan for 2016 due to cost efficiency initiatives built in the staff costs related drivers reached during the latest round of social dialogue activities in late 2015.

In 2016, approximately EUR 3,8 million was saved compared to 2016 consolidated plan in other operational costs (share of approx. 19% in the Company total costs) due to:

- a part of cost provisions in regard to anticipated business risks and future commitments expected to materialize during RP2 and further, which have already been provided for substantially in previous periods with only 2016 incremental effects being recorded in current year,
- more optimistic business perspective resulting in less stringent write-off assumptions that have favourably affected 2016 accounts compared to those assumptions effecting the 2015 records,
- savings realized in the consumption of external services given the favourable outcomes of the robust public procurement round conducted during 2015. Furthermore, dynamics recorded in delivery of capital investment projects which were initially planned for 2016 delivery resulted also in certain postponement recorded in maintenance spending and other external project and support services,
- stable level of general utilities associated services supported by general deflation pressure recorded during the year, which also favourably affected the use of general operating resources during 2016.

Operating effects stemming from the activation of long term, strategic and for Company the most critical investment project – CroATMS, significantly contributed to 2016 depreciation costs being 3% over the 2015 actuals and reaching 16% in Company's total costs.

Financial expenses, accounted for approximately at 1% of the Company's total costs, decreased during 2016 by approximately 7% compared to 2015 records, mostly due to optimized debt structure and recorded 2016 dynamics in average cost of debt.



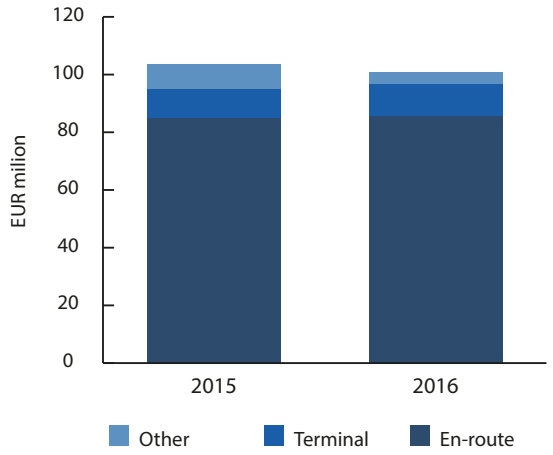
Total costs development (@2016 average FX rate)

Having in mind that:

- a few consecutive tourist seasons have been continuously breaking records in terms of arrivals and
- during 2016 the Company managed to pull off competitive ANS rates supported by more than adequate operational capacity levels,

then a record of earned EUR 97.1 million in core operational revenues (2.2% more compared to 2016) does not come as a surprise. After facing a lack in other non-core and non-sales revenue component (provision reversals and other non-core and non-sales) the Company earned approx. -2.8% in total revenues compared to 2015 (2016: EUR 100.1 million).

En route charges for the services provided within the Company's area of responsibility accounted for approximately 85% of total revenues, terminal charges accounted for approximately 11%, while other income mostly comprising non-cash reversals of provisions created in prior periods and unrealized positive foreign exchange differences accounted for some 4%.



Total revenues development (@2016 average FX rate)

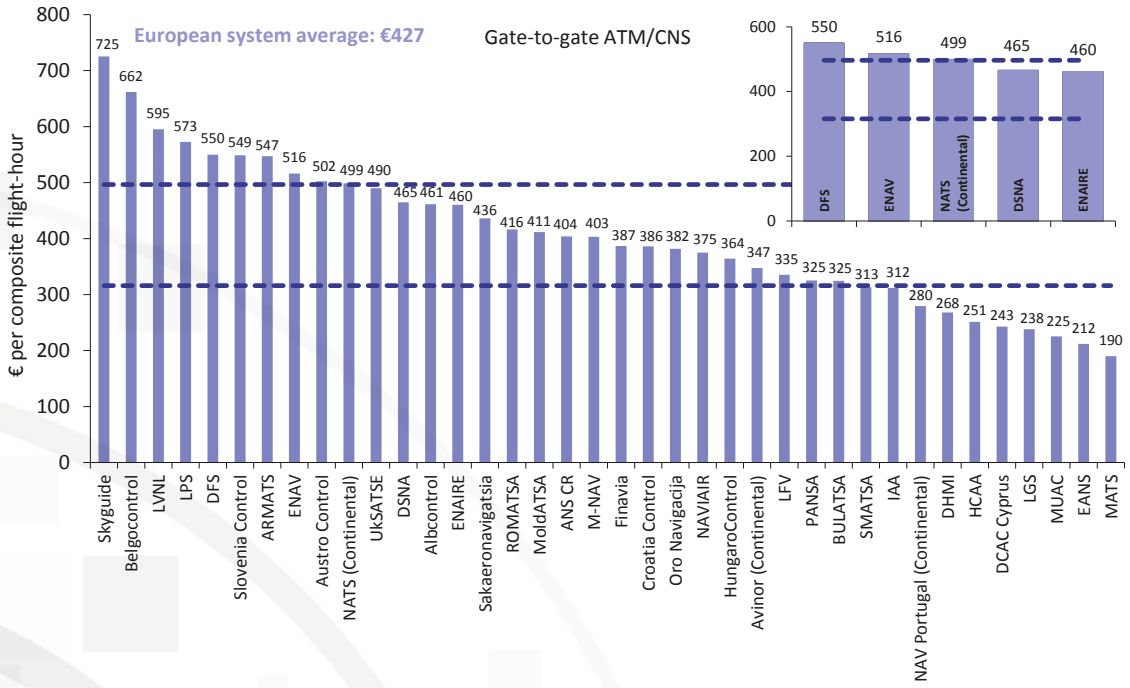
7.5. Cost Effectiveness

European ATM performance is regularly monitored by the Performance Review Unit (PRU). PRU's financial cost-effectiveness indicator gives an indication of how well an air navigation service provider is providing an ANS in terms of cost-effectiveness.

According to the ATM Cost-Effectiveness (ACE) 2015 Benchmarking Report dated May 2017, average Pan-European system-wide gate-to-gate financial cost-effectiveness was EUR 427.

During the same period the Company has performed almost 10% better than the European system average in terms of financial cost effectiveness.

Such a performance pushed the Company close to the bottom quartile, meaning that the Company performance is close to group of 25% best performers in terms of financial cost effectiveness.



Financial gate-to-gate cost-effectivness indicator, 2015

Cost efficiency KPI

In regard to RP2 KPIs set and declared in Croatia/FAB CE PP for en-route cost efficiency KPA, it is to be noted that the Company managed to pull off 4.6% and 3.7% better performance in terms of en route cost efficiency KPI and Zone 1 terminal cost efficiency KPI (DUC in 2009 prices, real terms) compared to target set for 2016. Such performance was based on 5.8% and 1.1% in nominal costs savings for en route and Zone 1 terminal supported with 0.3% and 4.4% higher traffic than planned in RP2 Performance plan, allowing for favourable performance risk sharing effects.

In terms of financial and business indicators, in 2016 the Company achieved the following performance:

Financial stability, indebtedness and liquidity indicators	**2015**	**2016**
1. Coverage of fixed assets and inventories by equity capital and long-term sources	1.45	1.61
2. Share of equity capital in the sources of funding, in %	50.54	54.55
3. Debt factor, number of years	3	2
4. Total asset turnover coefficient	0.75	0.7
5. Overall liquidity coefficient	3.56	4.38
6. Time of collection of short-term receivables, in days	56	55
7. Inventories, in days kept	1	1

Business performance indicators	**2015**	**2016**
1. Total income-expenditure ratio	1.09	1.13
2. Profit/loss share in total income, in %	6.76	9.11
3. Profit/loss share in assets, in %	5.07	6.37
4. Profit/loss share per employee, in HRK	75,332	96,466

Source: Financial Agency - FINA, BON – 1 Form

7.6. Performance scheme

Croatia, as well as CCL, did not contribute to the performance management during the first reference period (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 air traffic management system and improvement of overall efficiency of air navigation services, 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 performance plan for RP 2 (2015-2019).

Since late 2013, CCL has together with air navigation service providers (ANSPs) from Austria, Czech Republic, Hungary, Slovakia and Slovenia actively participated in the development of FAB CE Performance Plan. 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 Performance Plan 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 2016 CCL has participated in the performance monitoring process at the EU level by developing FAB CE Monitoring Report 2015 together with the FAB CE partners. All the CCL's performance related results achieved in 2015 are included in FAB CE Monitoring Report 2015. The results have been assessed by NSA and EC.

Mljet, Monastery of Saint Mary

8. Human Resources

CCL 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. The Company employs the staff with adequate qualifications, to enable safe, high quality and continuous provision of services.

8.1. Employees

In 2016, the total number of employees was 732 – 522 men and 210 women. The total number of newly employed was 34 – 24 in the ATM Division, 2 in the DG's Office, 4 in the Technical Division, 2 in the HR, Legal and Financial Division and 2 in the MET Division. During 2016, 17 employees left the Company and 1 employee was retired pursuant to valid regulations and the Retirement Plan.

The number of employees by divisions	
Air Traffic Management Division	510
Technical Division	93
Human Resources Management, Legal & Financial Division	78
Aeronautical Meteorology Division	32
Director General's Office	6
Safety & Quality Department	7
Strategic, Planning & Development Office	2
Military Operation Division	4

Air traffic controllers and on-the-job trainees make the largest share of the workforce. Their numbers at different operational units are shown below (status on 31 Dec 2016):

Location	**ATCOs**	**ATCO Students**
Zagreb ATCC - ACS	102	23
Zagreb ATCC - APS	19	0
Zagreb ATCC - ADI/ADV	18	2
Osijek ATCC	3	0
Pula ATCC	21	0
Split/Brač ATCC	30	0
Zadar ATCC	18	2
Dubrovnik ATCC	23	2
Rijeka ATCC	7	0
Lošinj ATCC	2	0
ATCOs on other duties in ATM Division	22	0
TOTAL	**265**	**29**

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

All training plans comply with current EU regulations. The following training was performed in 2016:

- 15 ATCO trainees completed the Basic Training at the Faculty of Traffic and Transport Engineering, University of Zagreb in the 1st half of 2016,
- The Basic Training for a group of 12 ATCO trainees started at the Faculty of Traffic and Transport Engineering, University of Zagreb, and is to be completed in March 2017,
- 6 ATCO trainees completed the ACS/RAD Rating Training at Entry Point North (EPN) and started with the Unit Training,
- 6 ATCO trainees completed the ADV/ADI Rating Training at EPN and started the Unit Training at relevant units,
- 2 ATCO trainees completed the ADI/TWR Rating Training at EPN and the Unit Training at respective units and acquired licences with relevant ratings and endorsements,
- 7 ATCOs completed the ADI/TWR LDSB Unit Training,
- 1 ATCO completed the ADI/TWR LDSP Unit Training,
- 1 ATCO completed the ADI/TWR LDOS Unit Training,
- 4 ATCOs completed the OJTI Course and acquired a relevant licence endorsement,
- 5 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 and the EUROCONTROL Training Institute in Luxembourg (IANS).

Šibenik, St. Nicholas Fortress - UNESCO World Heritage site

9. Outlook and Priorities for 2017

Like it was the case in 2016, during 2017 the Company is still faced with challenging and critical activities. Besides the short-term goals and priorities, the Company continues to undertake some activities of critical importance given the strategic orientation. Goals and priorities for 2017 comprise the following:

- **Organizational structure**
  - performance of all preparatory actions and necessary consultations needed to implement the new organizational structure, job systematization and the Collective Agreement amendments,
- **Technical systems**
  - continuous upgrade of ATM system based on harmonized COOPANS platform,
  - realization of critical investment projects according to an investment plan (min. 60%),
- **Safety**
  - reaching 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 3%,
- **Cost efficiency**
  - realization of DUC values (in EUR 2009) on en route and Z1 terminal activities,
- **Environment**
  - reduction of inefficiency of the actual route to 1.9% compared to 'great circle distance,
- **FUA**
  - improvement in functionality and efficiency of Airspace Management Cell (AMC) and preparation of AFUA concept implementation at AMC level,
  - establishment of modular flexible structures in the lower airspace of Republic of Croatia,
- **Management systems**
  - initiation of Information Security Management System project to comply with ISO 27001,
- **Cooperation with the Ministry of Defense of the Republic of Croatia**
  - further development of bilateral legal platform between the Ministry of Defense and CCL,
- **Human resources management**
  - continuous staff education aimed at delivery of required service quality to airspace users,
- **Finance**
  - maintenance of the financial stability indicator less than 1,
  - keeping the total income to expenditures ratio above 1,
- **International cooperation and projects**
  - feasibility study and cost-benefit analysis of EPN business combination,
  - continuation with SESAR 2020 activities.

10. Financial Statements and Auditor's Report

Responsibility for the Financial Statements

The Management Board of **CROATIA CONTROL d.o.o.**, Velika Gorica, Rudolfa Fizira 2 ("the Company") is responsible for ensuring that the annual financial statements for the year 2016 are prepared in accordance with the Accounting Act (Official Gazette No 78/15, 120/16) and the International Financial Reporting Standards to give a true and fair view of the financial position, the financial performance, the changes of equity and the cash flows of the Company for that period.

After making enquiries, the Management Board reasonably expects the Company to have adequate resources to continue to operate in the foreseeable future. Accordingly, the Management Board prepared the annual financial statements using the going concern basis of accounting.

In preparing the annual financial statements, the Management Board is responsible for:

- selection and consistent application of suitable accounting policies in accordance with the applicable financial reporting standards;
- giving reasonable and prudent judgments and estimates;
- using the going concern basis of accounting, unless it is inappropriate to presume so.

The Management Board is responsible for keeping the proper accounting records, which at any time with reasonable certainty present the financial position and the financial performance of the Company, and also their compliance with the Accounting Act and the International Financial Reporting Standards. The Management Board is also responsible for safe keeping the assets of the Company and also for taking reasonable steps for prevention and detection of fraud and other irregularities.

For and on behalf of the Management Board:

Dragan Bilać, Director General

CROATIA CONTROL LTD

Rudolfa Fizira 2

10 410 Velika Gorica

Croatia

2 May 2017

Independent Auditor's Report

To the owner of CROATIA CONTROL Ltd, Velika Gorica

Report on the Audit of the Annual Financial Statements

Opinion

We have audited the enclosed annual financial statements of **CROATIA CONTROL Ltd.**, Velika Gorica, Rudolfa Fizira 2 (the "Company") for the year ended 31 December 2016, which comprise the Statement of financial position (Balance Sheet) as at 31 December 2016, the Income Statement, the Statement of other comprehensive income, the Statement of changes in equity and the Statement of cash flows for the year then ended, and Notes to the financial statements, including a summary of significant accounting policies and other explanations.

In our opinion, the accompanying annual financial statements, give a true and fair view of the financial position of the Company as at 31 December 2016, and of the financial performance and the cash flows of the Company for the year then ended in accordance with the Accounting Act and the International Financial Reporting Standards (the "IFRS").

Basis for Opinion

We conducted our audit in accordance with Accounting Act, Auditing Act and International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the annual financial statements section of our Independent Auditor's report. We are independent of the Company in accordance with the Code of Ethics for Professional Accountants (IESBA Code), and we have fulfilled our other ethical responsibilities in accordance with the IESBA Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other Information in the Annual Report

The Management Board is responsible for other information. Other information include information included in the Annual Report, but do not include the annual financial statements and our Independent Auditor's Report on them.

Our opinion on the annual financial statements does not include other information, except to the extent explicitly stated in the part of our Independent Auditor's Report, entitled Report on compliance with other legal or regulatory requirements, and we do not express any kind of conclusion with assurance on them.

In connection with our audit of the annual financial statements, it is our responsibility to read the other information and consider whether other information have significant contradictions to annual financial statements or our knowledge gained while performing the audit, or otherwise appear to be materially misstated. If, based on the work we have performed, we conclude that there is material misstatement of these other information, we are required to report this fact. In this sense, we do not have anything to report.

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

The Management Board is responsible for the preparation of annual financial statements that give a true and fair view in accordance with IFRS, and for such internal control as the Management Board determines is 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 Board 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 the Management Board either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are 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 Independent 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 control 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 control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Management Board.
- Conclude on the appropriateness of the Management's Board 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 Independent 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 Independent 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 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 Compliance with Other Legal or Regulatory Requirements

The Management Board is responsible for the preparation of the Management Report as part of the Annual Report of the Company. We are obliged to express an opinion on the compliance of the Management Report as part of the Annual Report of the Company with the annual financial statements of the Company. In our opinion, based on our audit of the annual financial statements of the Company, information in the Management Report as part of the Annual Report of the Company for the year ended 31 December 2016, are in accordance with the financial information stated in the annual financial statements of the Company set out on pages 6 to 49 on which we expressed our opinion as stated in the Opinion section above.

In our opinion, based on the work that we performed during the audit, the Company's Management Report for 2016, which is an integral part of the Annual Report for 2016 is prepared in accordance with the Accounting act.

Based on the knowledge and understanding of the Company and its environment obtained while performing the audit, we have not found that there are material misstatements in the Company's Management Report for 2016, which is an integral part of the Company's Annual Report for 2016.

The Management Board is responsible for the preparation of annual financial statements for the year ended 31 December 2016 in prescribed form based on the Statute of structure and content of annual financial statements (Official Gazette 95/16) and in accordance with other regulations governing the operations of the Company ("Standard annual financial statements"). Financial information presented in Company's standard annual financial statements are in accordance with the information presented in the Company's annual financial statements set out on pages 6 to 49 on which we expressed our opinion as stated in the Opinion section above.

In Zagreb, 2 May 2017

BDO Croatia d.o.o.

Trg J. F. Kennedy 6b

10 000 Zagreb

Zdenko Balen, Member of the Management board

Darko Karić, Certified Auditor

INCOME STATEMENT AND STATEMENT OF OTHER COMPREHENSIVE INCOME for the year ended 31 December 2016

	2016	2015
	in HRK	in HRK
Sales revenue	732,495,453	716,796,363
Other operating revenues	18,460,714	56,493,067
Operating revenues	**750,956,167**	**773,289,430**
Raw material and material costs	(8,914,915)	(11,116,388)
Other external costs	(50,410,686)	(49,075,865)
Material costs	(59,325,601)	(60,192,253)
Net salaries and wages	(202,948,059)	(199,685,449)
Costs for taxes and contributions from salaries	(152,062,960)	(151,828,152)
Contributions on gross salaries	(76,363,132)	(75,531,113)
Staff costs	(431,374,151)	(427,044,714)
Depreciation	(105,033,105)	(101,772,030)
Other costs	(35,343,390)	(31,813,311)
Value adjustments of short-term assets	(574,134)	(826,991)
Value adjustments	(574,134)	(826,991)
Provisions	(28,810,063)	(82,333,278)
Other operating expenses	(3,899,256)	(5,663,186)
Operating expenses	**(664,359,700)**	**(709,645,763)**
Financial income	**6,428,032**	**5,696,997**
Financial expenses	**(7,468,427)**	**(8,066,452)**
TOTAL INCOME	**757,384,199**	**778,986,427**
TOTAL EXPENSES	**(671,828,127)**	**(717,712,215)**
PROFIT BEFORE TAXATION	**85,556,072**	**61,274,212**
Profit tax	(16,583,116)	(12,634,206)
PROFIT FOR THE PERIOD	**68,972,956**	**48,640,006**
NET OTHER COMPREHENSIVE INCOME FOR THE PERIOD	**-**	**-**
COMPREHENSIVE INCOME FOR THE PERIOD	**68,972,956**	**48,640,006**

STATEMENT OF FINANCIAL POSITION / BALANCE SHEET at 31 December 2016

	At 31 Dec 2016	At 31 Dec 2015
	in HRK	in HRK
ASSETS		
Concessions, patents, licenses, software and other rights	197,311,408	227,818,394
Advances for intangible assets	6,948,780	4,795,373
Intangible assets under construction	17,301,179	6,730,369
Intangible assets	**221,561,367**	**239,344,136**
Land	48,649,949	48,649,949
Buildings	79,991,385	88,972,937
Plant and equipment	105,461,028	111,175,095
Vehicles, tools and office equipment	14,984,284	11,611,654
Advances for tangible assets	3,942,249	4,381,060
Tangible assets under construction	18,772,519	34,233,133
Tangible assets	**271,801,414**	**299,023,828**
Financial assets	**120,924**	**45,810**
Deferred tax assets	**17,527,097**	**19,260,756**
LONG-TERM ASSETS	**511,010,802**	**557,674,530**
Raw material and inventories	2,051,511	2,255,710
Advances for inventories	2,719	-
Inventories	**2,054,230**	**2,255,710**
Accounts receivable	112,441,210	111,851,595
Receivables from employees and shareholders	418,604	51,121
Receivables from state and other institutions	7,994,139	2,359,639
Other receivables	255,125	222,239
Receivables	**121,109,078**	**114,484,594**
Loans, deposits and similar	228,065,580	214,935,526
Financial assets	**228,065,580**	**214,935,526**
Cash at bank and in hand	**216,402,392**	**147,093,936**
SHORT-TERM ASSETS	**567,631,280**	**478,769,766**
Prepaid expenses and accrued income	**3,607,430**	**3,180,537**
TOTAL ASSETS	**1,082,249,512**	**1,039,624,833**
OFF-BALANCE SHEET ITEMS	**390,578,796**	**392,555,273**

STATEMENT OF FINANCIAL POSITION / BALANCE SHEET at 31 December 2016 - continued

	At 31 Dec 2016	At 31 Dec 2015
	in HRK	in HRK
CAPITAL AND LIABILITIES		
Subscribed capital	**450,000,000**	**412,759,600**
Other reserves	32,927,163	21,527,557
Other reserves	**32,927,163**	**21,527,557**
Retained earnings	**38,481,567**	**38,481,567**
Profit for the current year	**68,972,956**	**48,640,006**
CAPITAL AND RESERVES	**590,381,686**	**521,408,730**
Provisions for pensions, severance payments and similar liabilities	96,584,175	79,387,319
Other provisions	412,000	1,056,500
Provisions	**96,996,175**	**80,443,819**
Liabilities to banks and other financial institutions	233,541,763	283,978,303
Long-term liabilities	**233,541,763**	**283,978,303**
Liabilities to banks and other financial institutions	54,237,971	54,412,185
Accounts payable	26,583,081	26,716,171
Liabilities to employees	20,439,621	18,052,294
Liabilities for taxes, contributions and similar fees	21,010,554	33,723,949
Other short-term liabilities	7,208,518	5,642,966
Short-term liabilities	**129,479,745**	**138,547,565**
Accrued expenses and deferred income	**31,850,143**	**15,246,416**
TOTAL CAPITAL AND LIABILITIES	**1,082,249,512**	**1,039,624,833**
OFF-BALANCE SHEET ITEMS	**390,578,796**	**392,555,273**

STATEMENT OF CHANGES IN EQUITY for the year ended 31 December 2016

	Share (subscribed) capital	Other reserves	Retained earnings	Profit for the current year	Total
	in HRK	in HRK	in HRK	in HRK	in HRK
Note	28	29	30	31	
At 31 Dec 2014	**412,759,600**	**1,808,624**	**38,481,567**	**19,718,933**	**472,768,724**
Distribution of profit	**-**	-	-	(19,718,933)	**(19,718,933)**
Profit for the current year	**-**	19,718,933	-	48,640,006	**68,358,939**
At 31 Dec 2015	**412,759,600**	**21,527,557**	**38,481,567**	**48,640,006**	**521,408,730**

	Share (subscribed) capital	Other reserves	Retained earnings	Profit for the current year	Total
	in HRK	in HRK	in HRK	in HRK	in HRK
Note	28	29	30	31	
At 31 December 2015	**412,759,600**	**21,527,557**	**38,481,567**	**48,640,006**	**521,408,730**
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	**68,972,956**
At 31 December 2016	**450,000,000**	**32,927,163**	**38,481,567**	**68,972,956**	**590,381,686**

STATEMENT OF CASH FLOWS
for the year ended 31 December 2016

		2016	2015
		in HRK	in HRK
I	**CASH FLOWS FROM OPERATING ACTIVITIES**		
A	Profit before tax	85,556,072	61,274,212
	Adjustments	105,033,105	101,772,030
	Depreciation	(390,541)	808,247
	(Gains)/ losses from asset disposal and non-current asset value adjustment	(2,638,849)	(3,905,656)
	Interest and dividend income	3,975,106	5,417,030
	Interest expense	17,023,248	29,609,913
	Provisions	(295,862)	748,952
	Foreign exchange differences (unrealized)	(2,906,467)	2,407,690
	Other adjustments for non-cash transactions and unrealized (gains) / losses	119,799,740	136,858,206
B	Total adjustments	**205,355,812**	**198,132,418**
C= A+B	**NET CASH FLOWS INCREASE BEFORE CHANGES IN WORKING CAPITAL**		
	(Increase)/ Decrease in short-term liabilities	3,874,914	(5,767,323)
	(Increase) in short-term receivables	(2,795,796)	(4,958,278)
	(Increase)/ Decrease in inventories	(168,355)	1,647,540
D	**Changes in working capital**	**910,763**	**(9,078,061)**
E	Interest paid	(4,264,785)	(5,522,545)

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

		2016	2015
		in HRK	in HRK
F	Profit tax paid	(31,487,781)	(23,638,430)
I=Σ(A:F)	**NET CASH FLOWS FROM OPERATING ACTIVITIES**	**170,514,009**	**159,893,382**
II	**CASH FLOWS FROM INVESTING ACTIVITIES**		
	Cash inflows from sale of non-current tangible and intangible assets	63,108	77,349
	Cash inflows from interest	2,639,572	3,899,567
	Other cash inflows from investment activities	357,293,048	367,891,503
G	**Total cash inflows from investing activities**	**359,995,728**	**371,868,419**
	Cash outflows for purchase of non-current tangible and intangible assets	(60,269,813)	(61,598,516)
	Cash outflows for given loans and savings deposits for the period	(450,000)	(450,000)
	Other outflows from investing activities	(373,853,828)	(391,969,328)
H	**Total cash outflows from investing activities**	**(434,573,641)**	**(454,017,844)**
II=G+H	**NET CASH FLOWS FROM INVESTING ACTIVITIES**	**(74,577,913)**	**(82,149,425)**
III	**CASH FLOWS FROM FINANCING ACTIVITIES**		
	Cash inflows from the loan principals, debentures, credits and other borrowings	5,923,208	6,462,647
	Other inflows from financial activities	20,405,124	4,454,753
J	**Total cash inflows from financing activities**	**26,328,332**	**10,917,400**
	Cash outflows from the loan principals and bonds	(52,758,226)	(52,227,888)
	Other outflows from financial activities	(197,746)	-
K	**Total cash outflows from financing activities**	**(52,955,972)**	**(52,227,888)**
III=J+K	**NET CASH FLOWS FROM FINANCING ACTIVITIES**	**(26,627,640)**	**(41,310,488)**
I+II+III	**TOTAL NET CASH FLOWS**	**69,308,456**	**36,433,469**
	CASH AND CASH EQUIVALENTS AT BEGINNING OF PERIOD	**147,093,936**	**110,660,467**
	CASH AND CASH EQUIVALENTS AT END OF PERIOD	**216,402,392**	**147,093,936**
	INCREASE IN CASH AND CASH EQUIVALENTS	**69,308,456**	**36,433,469**

11. Abbreviations

ACC	Area Control Centre
ACS	Area Control Service
ACE	Air Traffic Management Cost-Effectiveness
AIS	Aeronautical Information Services
ANSP	Air Navigation Services Provider
APP	Approach Control Procedure
APS	Approach Control Surveillance
ARES	ATM Emergency System
ARN	Aeronautical route network
ARO	ATS Reporting Office
ATC	Air Traffic Control
ATCO	Air Traffic Controller
ATM	Air Traffic Management
ATS	Air Traffic Services
CCL	Croatia Control –Ltd., Croatian Air Navigation Services Provider
CNS	Communication, Navigation and Surveillance
COOPANS	Cooperation between Air Navigation Service providers
CroATMP	Croatian Air Traffic Management Project
CroATMS	Croatian Air Traffic Management System
DCT	Direct Route
DFL	Division Flight Levels
EAD	European Aeronautical Information Database
EC	European Commission

ECAC	European Civil Aviation Conference
FAB	Functional Airspace Block
FAB CE	FAB Central Europe
FIR	Flight Information Region
HRK	Croatian Kuna
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
ISO	International Organisation for Standardisation
Ltd	Limited
MET	Meteorological services
MWO	Meteorological Watch Office
NDB	Non-Directional Beacon
NOTAM	Notice to Airmen
OJT	On the Job Trainee
PRU	Performance Review Unit
QMS	Quality Management System
SEAFRA	South-East Free Route Airspace
SECSI	South-East Common Sky Initiative
SMS	Safety Management System
STATFOR	EUROCONTROL Statistics & Forecasting Service
SWC	Significant Weather Chart
TMA	Terminal Manoeuvring Area
TWR	Tower Control Unit (Aerodrome Control Tower)
VHF	Very High Frequency
WAFC	World Area Forecast Centre

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