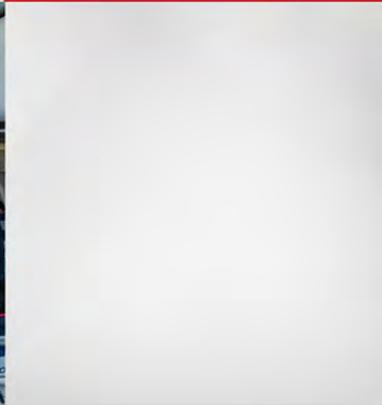
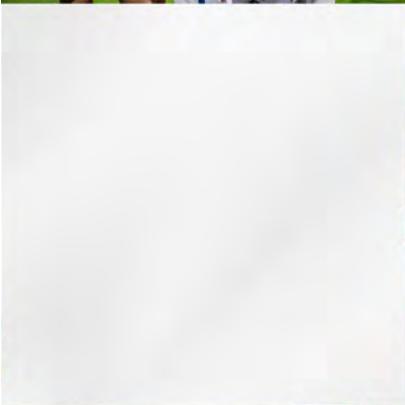
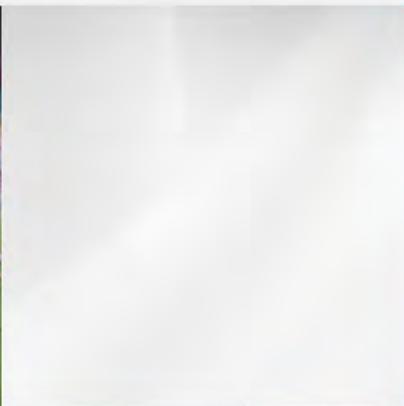


# ANNUAL REPORT 2018



CROATIA  
CONTROL



# Croatia Control Ltd

## Annual Report 2018



IFR GAT  
Operations  
640,000  
**+10.1%**

Peak Day  
Traffic  
**2,999**

Revenue  
€ 114.5 M  
**+8.5%**



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# Message from the Director General

The traffic year 2018 was a record year for Croatia Control (CCL) and aviation in Croatia as well. CCL's air traffic controllers handled almost 640,000 aircraft movements – an increase of more than 10 percent compared with 2017. The double-digit growth of traffic entailed a record of EUR 114.5 million revenue, which translates to an increase of 9 percent compared with 2017.

As the safety of air traffic, passengers and aircraft is our first priority, our safety management system was also continuously maturing and, in view of the traffic increase, it was a very encouraging trend.

Concerning the performance management, I am pleased to report that CCL reached all key performance indicators target values set for the year, the same as for the Functional Airspace Block Central Europe, except for en route air traffic flow management delay.

It was, nevertheless, a difficult year for the European network with Eurocontrol reporting that delays were twice as high as they had been in 2017. Historical highest IFR GAT operations put excessive pressure over our operational capacity, and severe weather conditions caused 40 percent of our delays, so we ended the year with a total delay of 0.65 minutes per flight.

The most significant achievement in 2018 was the multinational South East Common Sky Initiative Free Route Airspace (SECSI FRA), which was successfully im-

plemented on 1 February 2018 with the support of the Network Manager and in cooperation with our partners from Austria, Slovenia, Bosnia and Herzegovina, Serbia and Montenegro.

This initiative not only works towards achieving the goals of the European Commission regarding the Europe-wide implementation of FRA (in this case over the territories of six states), but also fulfils the airspace users' requests for having multiple route options available for the same city pair.

As one of the most complex aviation projects in Europe, and as a required cross-border cooperation between five air navigation service providers, SECSI FRA provides benefits to the airlines, passengers and the environment by reducing fuel consumption, travel time and CO2 emissions.

In 2018 CCL continued with the implementation of many technical projects, including: Multiservice ATM-Grade Network, A-SMGC System for Zagreb Airport, new MSSR Mode S radar site in Dubrovnik.

As a member of the COOPANS Alliance, CCL together with the ANSPs from Austria, Denmark, Ireland and Sweden continues to harmonise the ATM system and develop new concepts to ensure and improve safety and efficiency of air traffic flow. COOPANS achieved a significant milestone in 2018 when NAV Portugal became a new member of the Alliance.

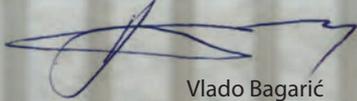


The COOPANS Alliance is also a member of the SESAR Joint Undertaking and the associated SESAR Deployment Manager. As regards to other international activities, CCL also continued to work with our FAB CE partners in delivering effective ATM solutions to our airline customers.

It was also a year of the Croatian football historical success when the Croatian national team competed in the World Cup Final and won the silver medal, while Croatian captain Luka Modrić won the Best FIFA Men's Player of 2018. Half a million fans welcomed Vatreni (the Blazers) on their return home from Russia, while Croatia Control greeted them first as the Croatia Airlines plane transporting the team entered Croatian airspace.

Finally, I would like to thank all Croatia Control employees for the important role they played in the accomplishments of the most prosperous year in CCL's history. This has shown that we as a team can ensure the continued success, despite all challenges.

Director General



Vlado Bagarić





# Company Profile

## History

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. Croatia was already a member of ICAO and 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.

## Mission

Our mission is to provide safe and quality air navigation services to the complete satisfaction of our users and owner.

The mission is accomplished through the cooperation with our partners in the European ATM network, by creating highly qualified employees and a motivating environment.

## Vision

We want to be among the leading air navigation service providers in Central Europe. We will accomplish our vision through a flexible organization, adapting to the needs of its users.

## Organizational Values

- safe and quality services guarantee
- personal responsibility
- competence
- excellence
- leadership
- rational decision making
- motivation
- team work
- open communication
- mutual respect
- trust
- empathy
- social responsibility

## Core Business

CCL's operation in 2018 was based on its Annual Plan, and its services to the customers were provided in a genuinely transparent and non-discriminatory manner.

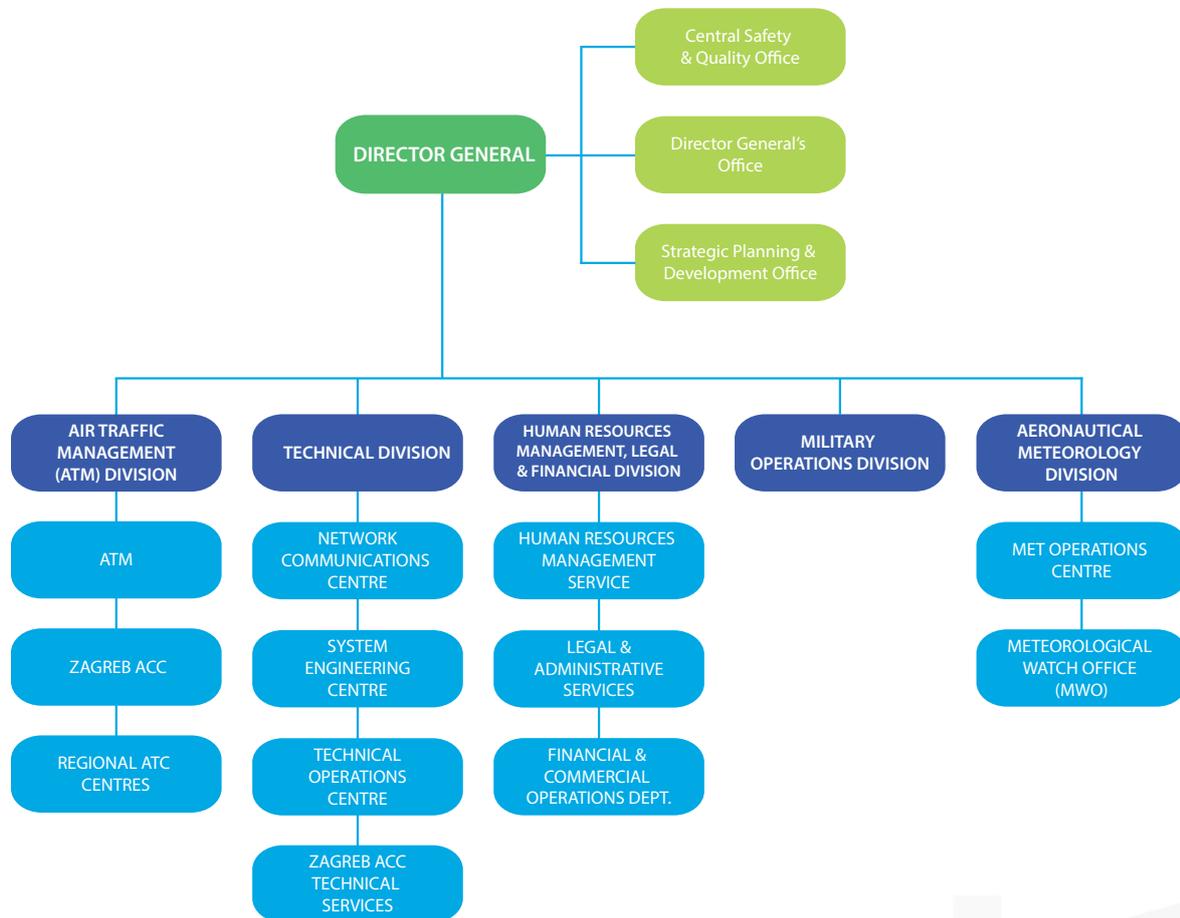


The core business of CCL comprises the provision of air navigation services (ANS), including:

- provision of air traffic services (ATS), particularly air traffic control (ATC), alerting service (ALRS), flight information and pre-flight information service (FIS), 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).

## Organizational Structure

Beside the CCL's Headquarters, there are also regional ATC centers in Pula, Rijeka, Lošinj, Split/Brač, Zadar, Dubrovnik and Osijek. These operational units are responsible for the provision of air traffic services, technical support, meteorological, ARO and administrative services required for smooth air traffic flow.



Main divisions and departments of CCL

## International Activities

### FAB CE

Functional Airspace Block Central Europe (FAB CE) is a joint initiative of seven states and their respective ANSPs, sitting in the heart of Europe. FAB CE airspace covers more than 529,000 km<sup>2</sup>, which is managed within 63 airspace sectors and from 8 area control centers.

There are a number of projects (particularly SSR Monitoring, Datalink Monitoring and ADS-B Coordinated Deployment) aimed at the long-term improvement of ANS performance throughout the FAB CE area, improving safety, reducing costs and delays and lowering the overall environmental burden caused by increased flight numbers in our region.



### Countries & ANSPs



Total number of Flights: **2,311,500** (2018)

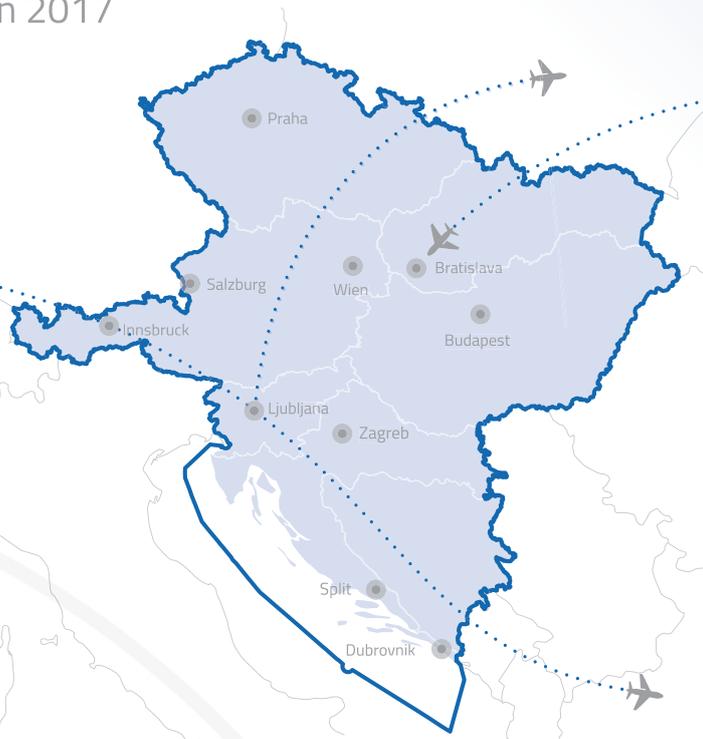
Growth: **7.4%** on 2017

**Arrivals**  
354,900  
Growth **7.7%** on 2017

**Departures**  
355,000  
Growth **7.7%** on 2017

**Overflights**  
1,525,700  
Growth **7.6%** on 2017

**Internal flights**  
75,900  
Growth **0.4%** on 2017

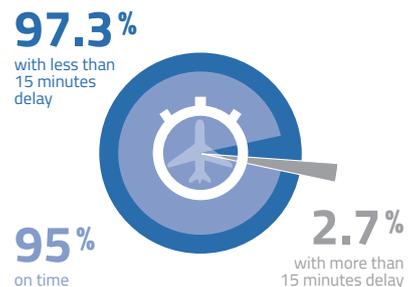


### Flights share by market segment

- Traditional Scheduled 54%
- Lowcost 30%
- Business Aviation 6%
- Charter 5%
- All-Cargo 3%
- Others 2%



### FAB CE Punctuality



# COOPANS

REAL COOPERATION, REAL RESULTS



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COOPANS is an international partnership between the ANSPs of Austria (Austro Control), Croatia (Croatia Control), Denmark (Naviair), Ireland (Irish Aviation Authority), Sweden (LFV) and Portugal (NAV Portugal) from 18th November 2018. Thales is a chosen supplier (industry partner) for COOPANS.

The COOPANS Alliance capitalises on joint, innovative and harmonised system development among COOPANS Alliance members through industry partnership, and it makes a positive impact on the European environment to operate a world class, safe and cost-effective ATM system, delivering an efficient service to customers.

COOPANS has adopted a common managerial approach where the five ANSPs act almost as one organization closely cooperating with the supplier Thales, focusing on common success. The harmonization of functionalities and joint investments enable the implementation of an advanced and unified ATM system.

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. Furthermore, in the future the COOPANS Alliance will cover research and innovation as well as system development and partnership on education of technical and operational personnel.

COOPANS is also a member of A6 Alliance, founded by the ANSP members of the SESAR JU, an inclusive coalition of ANSPs across Europe who are committed to helping modernise the European ATM system. The aim of the A6 Alliance is to identify and synchronise the key capabilities of its members, and deploy them to best effect to deliver customer and network benefits.



## SESAR

Based on the excellent success with the technical and operational cooperation, the COOPANS partners extended the scope of the alliance to partnership in SESAR. CCL, as a part of COOPANS, is a member of:

# SESAR

- SESAR Joint Undertaking (SJU), which was established under Council Regulation to coordinate and concentrate all ATM relevant research and innovation efforts in the EU and
- SESAR Deployment Alliance (SDA), which has been appointed by the European Commission as the SESAR Deployment Manager (SDM).

Being a member of these two organizations, CCL took an active part in development and deployment of the newest ATM functionalities in the European ATM system in the next long-term period and gained access to the available EU funds, which will strengthen its position in the European environment and yield positive financial results.

SESAR 2020 is a research and development part of SESAR. During 2018, the main CCL's tasks regarding this programme were to execute all activities foreseen in projects of Wave 1, and to prepare activities for Wave 2 of SESAR 2020. All activities are coordinated under COOPANS Alliance to derive maximum benefit for the common COOPANS ATM system.

In 2018, the main tasks of the SDM were supporting all stakeholders awarded for PCP-related projects in CEF Transport Call 2014, 2015 and 2016, finalizing the activities related to CEF Transport Call 2017, delivering the Deployment Programme 2018 and transformation of SDA to the single legal entity (SLE) which was successfully finished.

## Co-Financing from CEF Funds

Connecting Europe Facility (CEF) is the 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 modernization 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 2017 CEF Call for Proposals was published in October 2017, and the results of evaluation of the projects applied were published in October 2018. The evaluation was done by the European Commission and INEA. The following table presents the project as well as its budget and maximum CEF 2017 co-financing amount approved. The stated amounts relate only to CCL share, while it is planned that CCL implements the projects together with COOPANS members.

### AWARDED CCL project for CEF 2017

Project	Budget (€)	Funding (€)
Implementing harmonised SWIM (Y) solution in COOPANS ANSPs and general PCP compliance	10,437,921.00	5,218,960.50



Co-financed by the Connecting Europe Facility of the European Union



Croatia - Iceland

2018 FIFA World Cup Qualification - UEFA Group I

Croatia - Ukraine





Croatia - Finland

2018 FIFA World Cup Qualification - UEFA Group I

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Croatia - Kosovo



# Corporate Governance

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

## Assembly

The Assembly consists of:

- The Chairman - Minister of Maritime Affairs, Transport and Infrastructure (**Oleg Butković**)
- Member - Minister of Finance (**Zdravko Marić, Ph. D.**)
- Member - Minister of Defense (**Damir Krstičević**)

## 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 2018, the members of the Supervisory Board were:

- **Dinko Staničić**  
Chairman of the Supervisory Board
- **Marijana Müller** (until 28/2/2018)  
Vice Chairman
- **Ksenija Bertić**  
Member
- **Ivan Selak** (until 28/2/2018 and as of 22/11/2018)  
Member
- **Marko Neveščanin**  
Employee Representative

## Management

- **Vlado Bagarić**  
Director General

### Division Directors

There are five main divisions managed by the following directors:

- **Nenad Galić**  
Director, Air Traffic Management (ATM) Division
- **Dario Grgurić**  
Director, Technical Division
- **Nino Karamatić**  
Director, Human Resources, Legal and Financial Division
- **Hrvoje Filipović**  
Director, Military Affairs Division
- **Alen Sajko**  
Director, Aeronautical Meteorology Division

### Executive Directors

There are three Executive Directors within the ATM Division:

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







# Operations and Infrastructure

## Operational Units

CCL's main operational units are as follows:

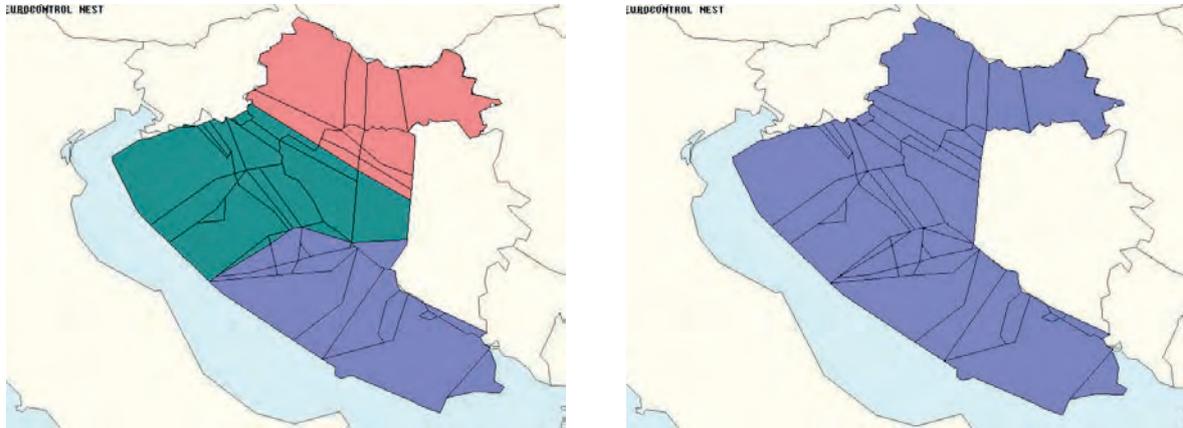
Zagreb Air Traffic Control Centre (ATCC):

- encompasses the airspace of FIR Zagreb (outside TMAs and CTRs if not otherwise agreed by the relevant Letter of Agreement) from GND to UNL
- airspace of FIR Sarajevo defined according to the Agreement on delegation of ATS services between the Republic of Croatia and Bosnia and Herzegovina (as well defined in Letter of Agreement with ATCC Sarajevo)
- also encompasses the airspace where the ATS provision has been delegated from other organizations to CCL excluding FIR Zagreb airspace where the ATS provision has been delegated to other organizations
- also includes Zagreb and Lučko Aerodrome Control which provide tower control services at Zagreb and Lučko aerodromes and Zagreb APP which provide approach control services in Zagreb TMA from Zagreb ACC premises

Regional ATC centers providing approach/tower control services – Pula/Rijeka, Lošinj, Zadar, Split/Brač, Dubrovnik and Osijek.



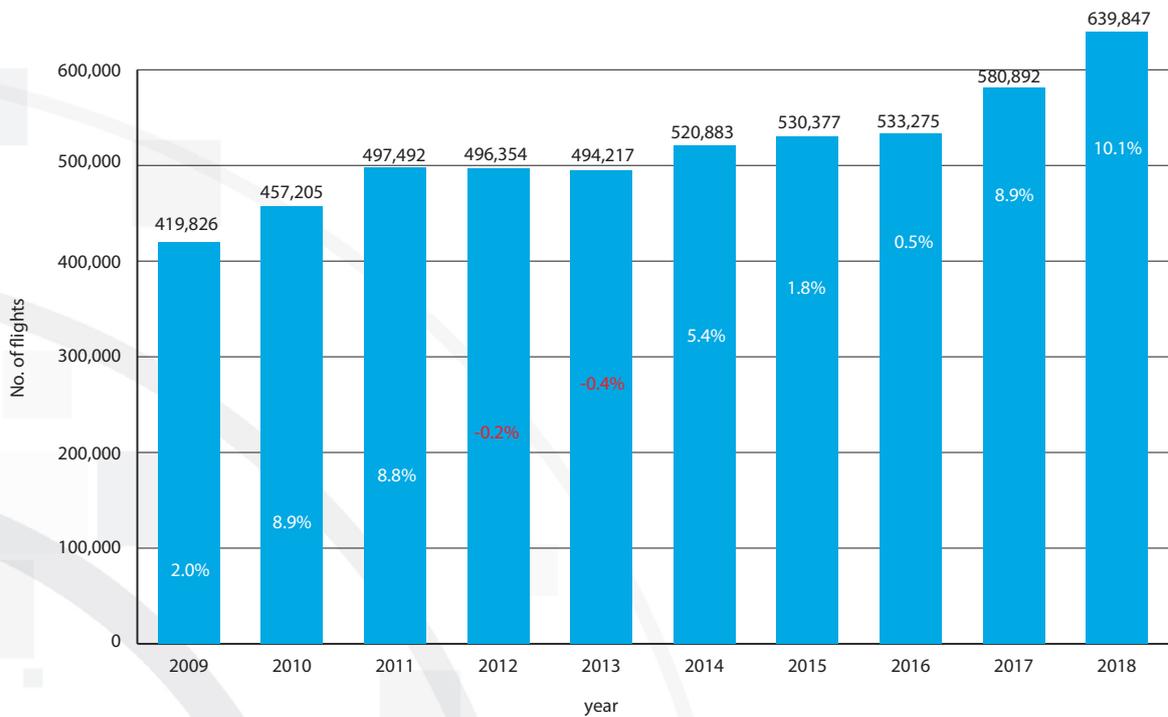
Through the provision of ATS for Bosnia and Herzegovina, CCL has been providing ANS in the borderless manner, which means that borders of sectors extend across national borders, thus contributing to improved efficiency and flow of international air traffic.



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

## Traffic Flows

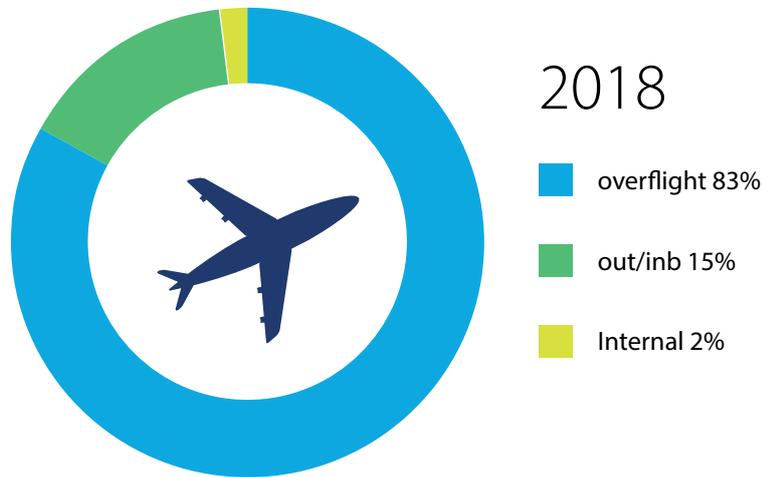
The last year was the second year in a row which saw the increase in traffic in all months and, as expected, the highest increase took place during the summer months. In 2018 there was a 10.1% increase in flight numbers (IFR GAT - FIR Zagreb) in comparison to the same period in the previous year, and there were 4.8% flights more than planned according to the baseline growth scenario, with the 83.3% share of overflights in the general operations structure.



LDZOTOT Recorded IFR-GAT movements per year

A distinctive feature 2018 traffic was a double-digit growth that has not happened since 2007. This was a consequence of intensified traffic on the South-East Axis, especially during the summer months.

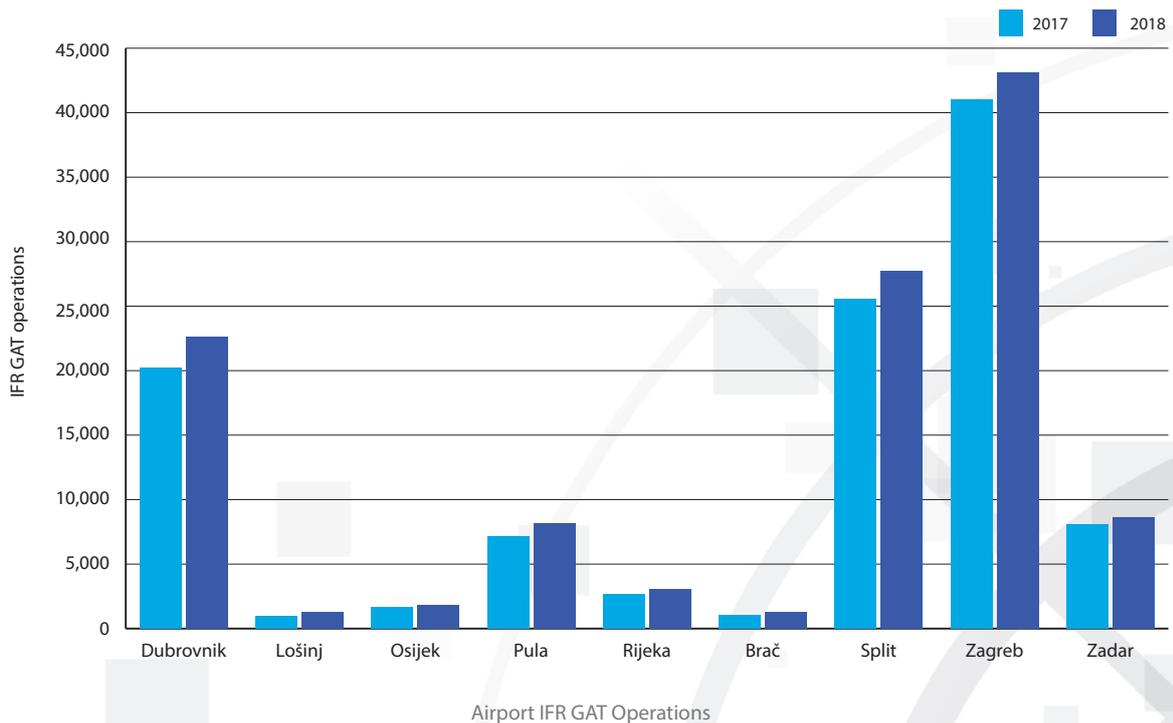
The average daily increase in the number of flights was 222 flights more in the summer and approx. 100 flights more in the winter. The number of overflights increased for 10%, while the domestic traffic increased for 3%.



Distribution of flights in Croatia

When speaking of the traffic on Croatian airports in 2018, the number of take-offs and landings increased for 8.4% in comparison to 2017.

Zagreb Airport has the largest share in the total number of take-offs and landings, however in the two peak summer months (July and August) Split Airport had more traffic than Zagreb Airport for the last several years.



Airport IFR GAT Operations

## Operational Improvements

### SECSI FRA

As a continuation of FRA development, a new project South East Common Sky Initiative Free Route Airspace (SECSI FRA) is being implemented as of February 1, 2018 with the support of the Network Manager.

It merged two FRA airspaces: SAX-FRA (Slovenian Austrian Cross-border Free Route Airspace) and SEAFRA (South-East Axis Free Route Airspace – a project of three ANSPs from Bosnia and Herzegovina, Croatia, Serbia and Montenegro) lowering FRA operations from FL 325 to FL 205 within Zagreb ATCC AoR.

This project enabled the airlines to choose the most efficient routes connecting Central and Southeast Europe, including the traffic flow towards Turkey and the Middle East.



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### A-SMGCS

At the end of 2018 CCL commissioned the Advanced – Surface Movement Guidance & Control System (A-SMGCS) at Zagreb Airport. The system is very significant in low visibility conditions during which aerodrome ATCOs rely on traffic situation as displayed via A-SMGCS – it raises situational awareness of the ATCOs to ensure the adequate safety level at Zagreb Airport in all weather conditions.



## Automated Transfer Procedures

Austro Control and CCL have implemented new and automated transfer procedures within the COOPANS system. With those procedures, the transfer status of aircraft is clearly visible to the ATCO and additional information (e.g. speed instructions, releases...) may be transferred automatically from one ATS unit to the other.

This approach raises ATCOs situational awareness during the handover between ATS units. The new procedures resulted in the reduction of verbal coordination and the support to the harmonization of cross-border procedures.

## Civil-Military Coordination



In Croatian airspace CCL is also responsible for the provision of services to the Ministry of Defense of the Republic of Croatia and its Air Force, pursuant to the Air Traffic Act and other applicable regulations.

For the purpose of maintaining 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.

Croatia has entirely implemented FUA regulations, and Collaborative Decision-Making process is operational on all three required levels (ASM levels 1, 2 and 3). Processes at levels 2 and 3 are implemented fully in CCL through Airspace Management Cell (AMC) and defined operational procedures.

### Web-based ASM - AMC Portal

A need for a new means of communication between the airspace users and ASM organization arose with the implementation of the FUA. The AMC Portal is a web-based ASM tool developed by CCL's ASM and IT experts.

It provides relevant information to all airspace users in real time and enables direct communication between all airspace users and the ASM organization. By providing targeted information, it gives users the opportunity of making reservations of airspace by directly submitting a request and communicating with the ASM organization.

Croatia is the first to implement the AMC Portal, a unique ASM solution operationally used in the Republic of Croatia as from June 2017. The tool is adapted for use on wide variety of computers and mobile devices, with a special emphasis on smartphones and tablets (Android & iOS). All airspace users can use the tool to review the current airspace status and the planned airspace activities/restrictions.

While it also provides easy access to the relevant textual NOTAM and AUP/UUP messages, it presents the practical implications for the airspace on different charts (satellite, VFR, IFR etc.) in 2D and 3D. This allows the users to prepare themselves quickly and effectively before conducting their own airspace activities.

AMC Portal as an ASM tool is constantly being upgraded in line with the lessons learned from operational use. Continuous increase in of the number of users' demands related to RPAS/UAS activities, especially from the non-traditional state users (like agriculture, firefighting, SAR, police etc.), different state agencies and ministries, created a demand for establishing new procedures and AMC Portal functionalities to enable fast and safe access for the state RPAS/UAS into the airspace.



These procedures were implemented by the end of 2018 and enabled a process that is more efficient. Finally, the upgrades enabled full integration of UTM into ATM. However, as a number of activities is continuously growing, the system and procedures also have to be adapted, which is the reason for continuous upgrade.

The AMC Portal as a powerful ASM tool enables the introduction of an advanced level of FUA. It goes a step further by including the RPAS/UAS airspace activities, thus increasing the awareness as well as the level of safety to other, traditional airspace users.

## Environment

The launched SECSI FRA initiative renders the advanced possibilities to the airlines to use shorter routes in the area covering the airspace above six states - Austria, Slovenia, Croatia, Bosnia and Herzegovina, Serbia and Montenegro. It has been estimated that the implementation of FRA concept in a wider area might have a more significant impact on the total flight efficiency, thus having a positive effect on the environment.

The key advantage of FRA when compared to route network is the number of options when planning the flights through a particular airspace. A significant number of entry/exit points along the SECSI FRA border gives the airspace users the flexibility in planning that cannot be achieved in a route network, which is a benefit directed at airspace users as well as the environment.

The reduction in noxious gases can be expected as an outcome of PBN procedures implementation in TMA Pula, Zadar, Split and Dubrovnik. The preparations for the introduction of PBN procedures were carried out in 2018. The aforementioned activity is also aimed at (indirect) aircraft noise reduction. The service users (airline companies) exert the primary effect on the occurrence, extent and level of noise and aircraft engines greenhouse gas emissions in these procedures. The full implementation of the mentioned procedures is expected by the end of 2019.



## Technical Infrastructure

### Overview

More than a hundred technical facilities equipped with ATM/CNS technical systems are deployed throughout the country to enable the provision of the safe and effective operational services as well as to fulfil growing business demands.

Highly qualified engineers and technicians have continuously been engaged in the supervision, control, maintenance and upgrading of the following systems: ATM data processing systems, voice and data communication systems, aeronautical radio-navigation systems, surveillance systems, power supply systems, transport telecommunication and network systems, meteorological systems and business IT systems.

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



### 2018 Investment Plan

The domain projects included in the investment plan for 2018 were categorised 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
- Telecommunication Infrastructure upgrade.

## ATM Systems Upgrade

The COOPANS ATM system in CCL was further upgraded with two new builds, which strengthened its world-class status.

COOPANS Builds 3.3 and 3.4.1 are co-funded by the European Union CEF programme. Build 3.3 enabled COOPANS partners harmonised and seamless migration to the new hardware generation, while Build 3.4.1 introduced a handful of functional and operational improvements, especially for FRA, Safety Nets and approach tools.

Furthermore, the system in Zagreb was upgraded with new and bigger displays to increase controller awareness.

Skypad, a system designed and developed by CCL, was introduced as a completely autonomous last resort tool to clear the sky in case of a major breakdown, which will further increase the safety margin.



## DATA-COM Domain Projects

The goal of the project Multiservice ATM-Grade Network (MAGNet) is to develop ATM IP network as a robust and well-regulated infrastructure with increased level of reliability as a common prerequisite for all CCL's strategic objectives.

The project aims to build a new national IP network system with integrated network management subsystem, able to deliver a specific set of network services required for operational use in ATM at central site and remote locations. The integration of all Airports and Surveillance sites into a single IP-based network reduces the maintenance costs by eliminating the need for legacy lines to each site and enables flexibility in ASM (Collaborative Decision-Making (CDM), dynamic ASM, strategic conflict management and FUA).



MAGNet will replace the end-of-life CCLs currently operational data network and legacy telecommunication lines, soon to be decommissioned by PTT. In order to address all challenges emerging from transition to fully IP-based data and VoIP ground communications, new ATM grade network will be developed based on the following expectations:

- application aware network with traffic management based on the service quality
- safety methodology applied to network design
- resiliency to multiple simultaneous failures and unpredictable anomalies.

In 2018 CCL conducted a public procurement competitive dialogue until it was possible to identify the solutions that are most capable of meeting needs and requirements, with a sufficient number of solutions to ensure competition. Functional Hazard Assessment was initiated to establish basic safety objectives within network specified operational environment, to identify the functions required to achieve these objectives and to specify system requirements. After the formal public opening of final tenders, tender review and evaluation was done in order to select the most advantageous tender. Implementation activities will continue in 2019 and beyond.

As a continuation from previous years, new network Information Security block was successfully commissioned after a formal approval of "Manual for Network Information Security", thus enabling first communication flows between operational ATM systems and Internet.

Fibre optics project was started in order to build reliable communication infrastructure immune to electromagnetic interference from power lines and atmospheric discharges for remote sites located in runway zones of Zadar and Du-

brovnik airports, technologically modern and with enough capacity for the existing and future operational needs. Zadar part of the project implementation started in fall of 2018, the dynamics will follow the construction works at Zadar airport so basic structure is planned to be finished by the summer of 2019 and the future expansion properly coordinated and aligned with the timeline of new sites that will be built in the area.

A similar project started at Dubrovnik airport and will be implemented in 2019 in cooperation with Dubrovnik Airport, aimed at extensive construction works at the airport's operational surfaces.

The goal of AdNET system upgrade is to support growing importance of business related systems and its requirements for Administrative IP network. The objectives include the extension of WiFi services for CroVIBE system on CCL remote locations, increased demand for network throughput coming from the implementation of new replication services for business critical applications and replacement of outdated (end of support) network equipment.

### VOICE-COM Domain Projects

The Project of the Replacement and Upgrade of VHF/UHF Radio Systems continued in 2018. Its goal is to replace and modernise the existing older generation radio system so that 8.33 kHz voice channel spacing requirements below FL195 could be implemented and migration to VoIP supported. The installation of the first three radio sites was completed, the sites are tested and ready for transition into operational environment. Since the plan is to upgrade the VHF/UHF radio network with an additional VHF site at Northern Adriatic area, necessary permits for the construction of infrastructure on the site were obtained.

The group of projects for upgrading all VCS/BVCS to support the migration to VoIP continued. As regards VoIP-related projects of upgrading the main and backup Voice Communication Systems, system software was upgraded to VoIP capable Release 7.1 and new monitoring and control subsystems were successfully replaced, tested and commissioned in 5 systems: VCS SIM/TDS, main VCS Split, Pula, Dubrovnik and Zagreb ACC/APP. Remaining system upgrades will continue in 2019.

In the project for the upgrade of VCS/BVCS to VoIP and integration of all ATS units in IP based AGVN, factory acceptance tests were successfully performed on all systems. Installation is completed at VCS-equipped locations and 3 remote locations which are to be equipped with remote SIP terminals. VoIP hardware was installed in the group of VCS systems with new TMCS and software release. Realisation of this project planned for the end of 2020 is one of the enablers for the implementation of VoIP in ATM set as an aim in ESSIP/LSSIP (Eurocontrol/Local Single Sky Implementation Plan).

Project for the replacement and modernisation of VRRS in Zagreb ACC, Pula, Zadar, Split and Dubrovnik for the migration to VoIP was launched.

As the integrated VCS intercom solution has to be applied to the new consoles, installation and operation of intercom modules will be synchronised with the replacement of the TWR consoles.

### SUR Domain Projects



The A-SMGCS system for Zagreb Airport has been commissioned and it is used operationally since November/2018. The project is co-funded by the European Union CEF program.

The project of new MSSR Mode S radar site in Dubrovnik is ongoing.

In 2018, the procurement procedure for radars station, antenna radome and equipped shelter was initiated.

It is expected that in 2019 the final site design will have been finished, construction permits obtained and that the site preparation activities started.

## NAVAIDS Projects

As regards the project of NAV system modernization for the current reference period RP2, the first phase of replacing ILS IDU as well as the delivery of the VOR/DME equipment were completed in 2018. NDB KAV antenna system was replaced. The preparation activities for the next scheduled system and infrastructure replacements planned for the period 2019 – 2020 (ILS IDU – phase 2, VOR/DME DBK and VOR/DME RJK replacement and installation and commissioning of VOR/DME Lošinj) started.

## AWOS/MET Domain Projects

AWOS/MET domain projects continued with planned activities aimed to replace the old and implement the eight new AWOS systems (with ATIS and/or VOLMET, where appropriate) for airports Zagreb, Zadar, Dubrovnik, Rijeka, Osijek, Lošinj, Brač and Lučko. Project activities continued in 2018 and shall intensify in 2019.

The existing AWOS systems were upgraded (pressure sensor redundancy, additional user workstation). The upgrade enabling remote airport MET data display to ATCOs was delayed due to system manufacturer's delivery delay. Replacement of wind masts was rescheduled to 2019 due to delays in infrastructure preparation.

As regards VAMS50 project, the upgrade of the system at Lošinj Airport was implemented and transitioned into the operational service with new functionalities. Ad hoc upgrade of the system in Osijek (second wind measurement site due to installation of ILS for RWY11) started in 2018, and its completion is foreseen for 2019.

ATIS function in Dubrovnik was commissioned as scheduled, and it is expected to reduce the ATCO workload.

## Reconstruction of Buildings and Infrastructure

The reconstruction of the new power supply system in the ACC building is completed, while the major reconstruction of the air conditioning system in HQ and ACC is almost completed. The replacement of diesel generators at 27 locations was contracted, and the implementation is under way.

## CCL Virtual Info Board for Employees (CroVIBE)



CroVIBE system was successfully upgraded in 2018 with functionalities of Roster for classrooms and simulator and data (shifts) export to EERS. The implementation of functionality Competency Module (UCS/UTP - digital lists of training and assessments including all history with statistic) and Roster upgrade with rules of shifts and warnings started in 2018 and will be available for operational use in 2019.

## CCL Centralised Technical Monitoring and Control System

CCL is increasingly introducing automation in order to increase the efficiency of monitoring functions. The benefit of this process is that less staff presence on remote sites is required, which enables a more rational and cost-efficient use of technical staff involved in technical monitoring, control and maintenance of the systems concerned. Thereby quality and safety of ATM service provision is enabled and a possibility of information exchange about the condition of CNS systems at national and international levels is introduced.

In 2018 technical specifications were developed and a public procurement procedure was initiated for the implementation of two pilot projects which will be implemented in 2019:

- TMCS\_NAV\_PL (Technical Monitoring and Control Systems for aeronautical navigation facilities in Pula region) and
- CroTMCS\_TEL (Technical Monitoring and Control Systems for telecommunication equipment on national level).

Full list of projects scheduled for implementation in 2018 is given in the table below.

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

Projects scheduled for implementation in 2019:

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



Mario Mandžukić hands the flag to Domagoj Vida's son after winning the match

### 2018 FIFA World Cup Semi-finals Croatia - England

Head Coach Zlatko Dalić instructs the players







# Safety, Quality, Environment and Security

Air traffic safety is the highest priority to CCL. In order to further improve the quality of service provided to our users, a Central Safety and Quality Office was established at the corporate level. It reports directly to the Director General.

The Central Safety and Quality Office is responsible for the organization-wide management system including:

- Safety management,
- Quality management,
- Environment management,
- Security management,
- Risk management,
- Performance management,
- Change and project management,
- Occupational health and safety management,
- Internal control and auditing.

## Safety Management

High level of safety of ANS provided by CCL has priority over commercial, operational, social and any other aspects of business.

CCL's Safety Management System (SMS) is aimed at a systematic and proactive achievement of an acceptable level of safety, thus making a valuable contribution towards the safety of European air traffic in general.

### Safety Management System

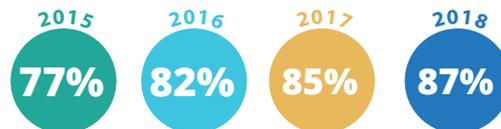
SMS, including a safety management function, has been in place since 2007. The Safety Committee, the highest corporate body responsible for safety issues, meets on a monthly basis. Its members are Director General, Directors of Division, Executive Directors and the Safety Manager.

The main component of SMS is the Safety Management Manual which defines SMS organization and processes as well as basic SMS procedures, in order to comply with the SMS requirements laid down in national regulations, SES requirements and European safety standards.

## Safety Performance

Measuring and monitoring safety performance constantly helps us improve our safety level and service. CCL key safety performance areas are in line with the Commission Implementing Regulation (EU) No. 390/2013 laying down a performance scheme for ANS and network functions for the Reference Period II (2015 – 2019) the purpose of which is:

1. Level of efficiency of safety management (EoS); In 2018 CCL managed to increase level of efficiency of safety management by 2 percent (overall score is 87%).



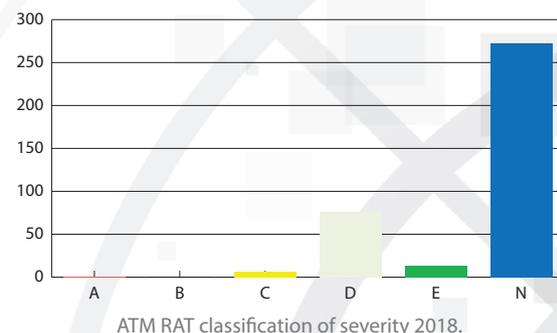
2. Classification of severity of occurrences using Toolkit for ATM Occurrence Investigation (TOKAI) including RAT (Risk Analysis Tool);

In 2018 CCL achieved 100% of RAT usage for all required areas: Separation minima infringements (SMI), Runway incursions (RI) and Specific occurrences in ATM (SATM).

In 2018 there were 792 reported safety occurrences, 386 of which were ATM occurrences and 406 Specific occurrences in ATM.

Severity of ATM occurrences were classified as follows:

- 1 serious incident (A),
- 6 significant incidents (C),
- 76 occurrences that could not be determined (D),
- 13 occurrences that had no safety effect (E),
- 272 occurrences with no CCL ATM involvement (N).

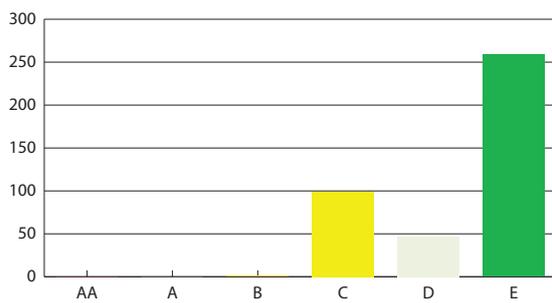


There were 8 cases of SMI, 4 of which included direct involvement and 2 indirect involvement of CCL.

In 4 cases of RI, CCL was indirectly involved in 1 case, while in the remaining 3 cases there was no ATM involvement.

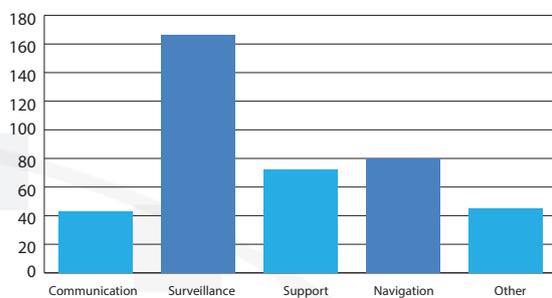
Severity of SATM occurrences was classified as follows

- 1 partial inability to provide safe ATM service (B),
- 99 ability to provide safe but degraded ATM service (C),
- 47 occurrences that could not be determined (D),
- 259 occurrences with no effect on ATM service (E).



SATM RAT classification of severity 2018.

Out of 406 SATM occurrences, there were 43 failures of communication function, 166 failures of surveillance function, 72 failures of support function, 80 failures of navigation function and 45 other SATM occurrences.



SATM occurrences 2018.

The positive aspect is that in terms of severity only one occurrence was assessed as of highest severity, while others were classified in the two lowest categories of safety impact.

3. Reporting on the level of the presence and corresponding level of the absence of Just Culture.

Just Culture has been implemented within CCL since 2014. The JC Policy and special JC procedures are set up in CCL. The JC concept 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 they took and which are commensurate with their experience and training, while gross negligence, willful violations and

destructive acts are not tolerated, as per definition laid down in the Regulation (EU) 390/2013).

### International Safety Activities

As a part of its commitment to safety, CCL participates in a number of safety projects at the European level. Focusing its outcomes on the needs of SES and SESAR, Eurocontrol's European Safety Programme (ESP-Plus) aims at facilitation of SMS regulation support in the deployments required by the European ATM Master Plan.

In 2018, 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 and CANSO.

### Quality Management

The adoption of a Quality Management System (QMS) helps CCL to improve its overall performances and it provides a solid base for sustainable development. In addition, it enhances the continuous provision of services aimed at meeting customer, organizational and regulatory requirements through continuous improvement, in addressing associated risks, opportunities and ability to show conformity to specified requirements.

CCL introduced QMS and has been re-certifying it in compliance with ISO 9001 in 2011. ISO 9001:2015 was implemented in 2018, while QMS was re-certified in line with 9001:2015. In addition, the enterprise risk management system has been established in 2018 as a significant improvement.

The scope of activities covered by ISO 9001 Certification includes the provision of ATS, CNS, AIS and MET.

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

The management ensures, by means of Quality Policy, that customer requirements are identified and taken into account. Director General is responsible for the CCL's Quality Policy, which is supported by the QMS that is subject to internal and external audits as a part of ISO Certification.

The quality of CCL's services is granted by an integrated QMS which is periodically reviewed and assessed for its long-term suitability, adequacy and effectiveness.

In 2018 CCL continued with QMS upgrade. The Occupational Health and Safety Management System was established in CCL in compliance with BS OHSAS 18001, as well as the Environment Management in compliance with ISO 14001. The upgrade of Occupational Health and Safety Management System to ISO 45001:2018 as well as its re-certification are planned for 2019.

## Environment Management System



After adjusting the system to the new norm, in March 2018 CCL successfully re-certified the Environmental Management System in accordance with ISO 14001:2015 norm for all 4 services rendered.

When defining the significant aspects of environment as well as particular environmental protection goals, the following requirements were taken into account:

- rational use of natural resources (electric energy, water, fuel),
- use of renewable sources of energy,
- prevention of pollution,
- training of employees on how to react in case of an accident,
- selection of suppliers fulfilling the environment protection requirements.

The significant activities of the Environment Management System in CCL were performed on the basis of the following important aspects of the environment:

### Reducing the Level of EM Radiation

CCL has a total number of 95 sources at which EM field is measured. A 3-years period measurement at 21 sources was done in 2018, and the certificates for these sources were issued by the Ministry of Health.

In 2018 the measurements were done at 2 new sources in the area of Zagreb Airport: SMR radar system Saab Senses SR-3 and emissions of MLAT system Saab MDS. The results of measurements of EM fields at CCL sources performed so far show that all sources are in line with the set values.

### Requirements for Noise Abatement

The drafting of Continuous Climb/Descent Operations procedures within the PBN project implementation is under way for Zagreb, Osijek, Split, Zadar, Pula, Rijeka, Brač, Dubrovnik and Lošinj, which are a part of SID/STAR RNAV procedures. The assessment of the impact of new instrumental flight procedures on FUA was done in 2018.

Required Navigation Performance for RNP APCH for Zagreb, Osijek, Split, Zadar and Pula was implemented in 2018. The implementation in Dubrovnik, Rijeka, Lošinj and Brač continues as planned in the time schedule (2019).

### Improvement of Power Supply Management

The reconstruction of the old CCL building in Velika Gorica was finished in 2018. It included the replacement of lighting system (LED), replacement of cold and hot water pumps in the engine rooms, which resulted in reduction of electric energy consumption.

CCL started with the project of design and reconstruction of a part of air conditioning system after a long uninterrupted exploitation period of the air conditioning in the new building and the increased number of devices dissipating energy into the space.

Most of the works were done in 2018. - replacement of electric water heater by a heat pump and replacement of chillers with more efficient cooling systems using, among other things, underground water or air. Heat pumps shall be used when the heating based on hot water pumps is not operational (during the transition period).

As of December 2017 CCL has been buying electric energy from HEP ZelEn, which is green energy coming only from renewable sources. Greenhouse gas emissions for the buyers of ZelEn is 0 kg/CO<sub>2</sub>.

### Waste Disposal Site Upgrade

In 2018 a press container for municipal waste disposal was procured with the purpose of managing a temporary waste disposal site in Velika Gorica. Waste separation containers were procured for the headquarters as well as for CCL regional ATC centres. In waste management, CCL adheres to the basic principles and implements waste hierarchy. Besides the municipal waste, CCL collects, separates and ecologically disposes of hazardous and non-hazardous waste.

## Security Management

CCL contributes to maintaining the high level of security of air transport according to the pertinent regulation and the risk assessments for its assets.

In 2018 CCL continued to improve its security management system in all important segments which may be divided in the following major areas:

- protection of its staff and other persons of concern
- protection of facilities and infrastructure
- security of information and procedures
- auditing, inspection and testing of applied security measures and procedures
- security awareness campaign
- security vetting

In line with revised national criteria, CCL submitted to the relevant authorities its draft list of items of the national critical infrastructure managed by CCL, while it also prepared the list of other assets of high importance. The security plans for these assets were updated and implemented, while the risk register was revised.

CCL raised the level of passive protection for some of its critical assets at the Head Office and in the regional branches. Due to changes in security environment at one of the Croatian airports and the ensuing risk assessment, additional security measures were implemented in the respective CCL regional branch.

Within the scope of various infrastructural projects a number of security-related measures were either started or planned on various CCL sites which are due to be put into effect in the period 2019/2020.

Electronic access control system in CCL headquarters and in some regional branches was upgraded, while this same system was extended to Zagreb TWR.

The cooperation with relevant authorities regarding regular patrols at our remote sites throughout the country was carried out as agreed.

Security awareness campaign for CCL employees and other personnel (contracting parties) was carried out according to the Security Education Plan.

In line with the national legislation and in cooperation with the relevant state authorities, background checks for security personnel and for designated categories of CCL employees were carried out.







# Additional Services

## Aeronautical Meteorology (MET)



CCL provides aeronautical meteorology services, with emphasis on the continuous improvement of services, staff education and regional cooperation.

In February 2018 a partial competence assessment of MET forecasters focused on fog forecasting was done. The main goal was to receive feedback on how our seminars affect operational activities, and to see whether we need to modify future seminars. A seminar for MET forecasters from the region was held in October, and a seminar for MET observers in November 2018.

Two years after the International Workshop on Competency Assessment of Aeronautical Meteorological Personnel a follow-up meeting was held on 22-23 March at CCL Head Office. The participants were MET experts from Croatia as well as the experts from Albania, Austria, Bosnia and Herzegovina, Bulgaria, Hungary, Kosovo, Montenegro, North Macedonia, Romania, Serbia, Slovakia and Slovenia. The aim of the meeting was to facilitate the implementation of the process of assessing the expertise of MET staff service providers and CCL has once again proved that it is among the leading organizations in the region concerning MET staff competency.

CCL hosted a Workshop on statistical methods on forecasting low visibility. It was attended by 12 experts from Austria, Hungary, Slovenia and Croatia.

MET Division personnel actively participated in the European Conference for Applied Meteorology and Climatology (ECAMC), the World MET Expo, the International Workshop on Meteorology and ATM, the ESSL Seminar for Forecasting Severe Convection, the ESSL Testbed

workshop, 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 holds observer status in MET Alliance, and it actively participated in its activities (SIGMET coordination, AUTO METAR, the expert team on aeronautical meteorological regulations, verification and TAF guidance). Additionally, CCL was formally accepted in the following MET Alliance projects: TAF verification, TREND verification and MOS and TAF guidance.

MET experts participated in CCL's activities within SESAR 2020 programme, under which the first lidar wind measurement in Croatia was done in the vicinity of Dubrovnik airport in the winter 2017/2018. The results are the basis for better understanding the bora winds which can have an adverse impact on traffic and airport operations at Dubrovnik airport.

In May 2018 MWO Zagreb started with daily briefings for the ACC. On tactical level the duty forecaster performs weather briefings for ACC supervisor twice a day for that day. On pre-tactical level the duty forecaster holds the briefing for FMP on the weather for the following day.

The CCL MET Division had several meetings with the partners in "Bura Dubrovnik" Project, on which major characteristics and technical requirements for a decision-support system for bora events at Dubrovnik airport were defined. Besides those partners who had already participated in the Project, the Faculty of Electrical Engineering and Computing and Faculty of Mechanical

Engineering and Naval Architecture of the University of Zagreb were included as new partners.

The eGAFOR Project was implemented in line with the schedule. The main activity in 2018 was Work Package 2, Definition of the scope of eGAFOR (basic terms, defini-

tion of MET elements, forecasting criteria, content and presentation). Additionally, in 2018 the [www.egafor.eu](http://www.egafor.eu) website was launched. After the project is completed, the forecasters shall use it for input of the eGAFOR forecast, while the users (general aviation pilots) shall use it for eGAFOR forecast review.

## Aeronautical Information Services (AIS)



CCL provides AIS – 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 the 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. AIS department is rapidly preparing for the newly required provision of data sets, as per ICAO Annex 15, 16th edition and ICAO Doc 10066. All current products are available in English or as bilingual publications, except for AICs series B that are in Croatian.

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 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. AIS department is also progressing in preparation for the transition of static data from AIXM 4.5 to AIXM 5.1 model, as well as to provide such data to the EAD SDD.

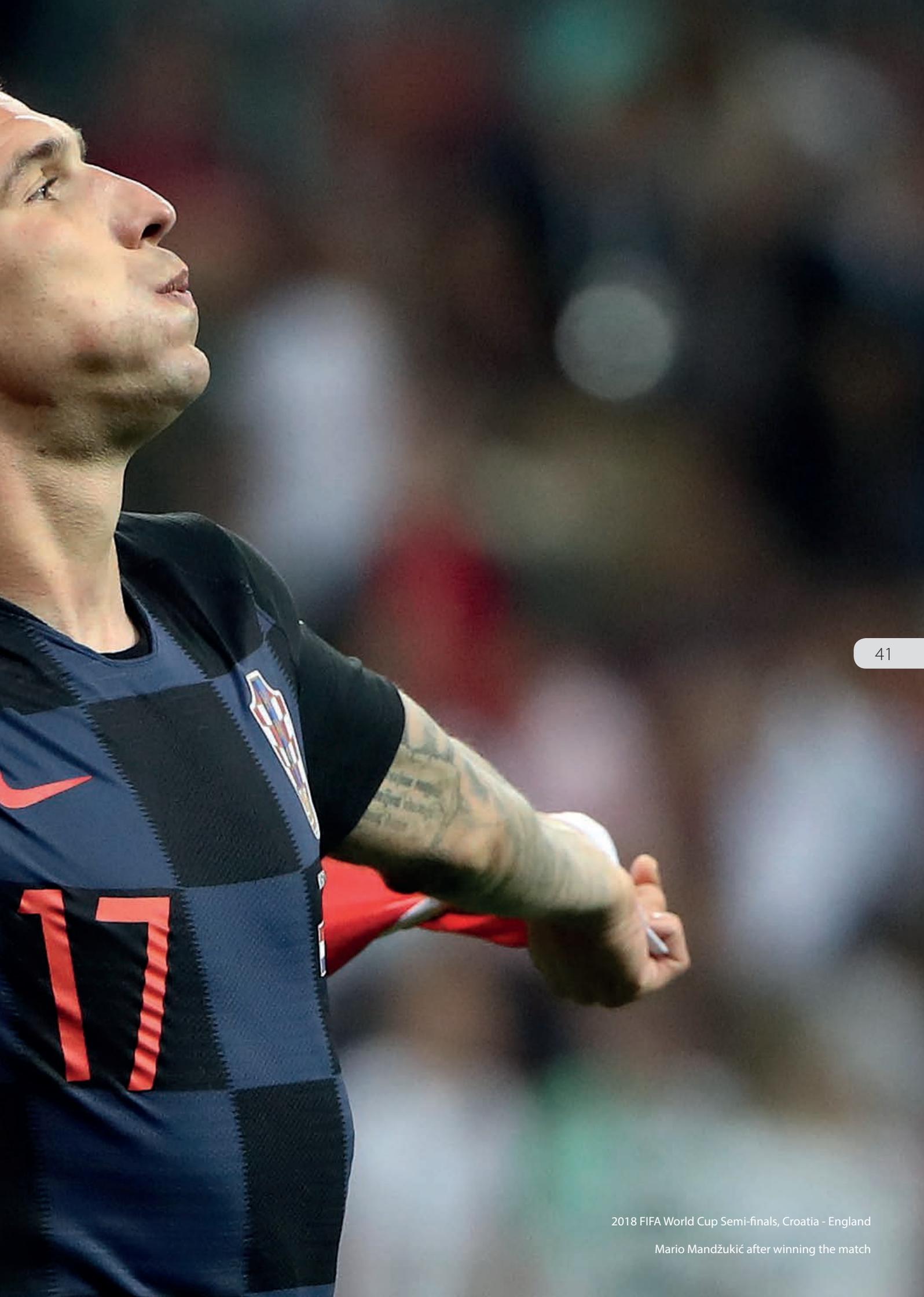
Charts are prepared by the Aeronautical navigation, procedure design and cartography department. Pre-flight briefing is provided by the ATS reporting offices (ARO) located at the aerodromes. The AROs use a local system NOTAM database for pre-flight briefing and combining it with other relevant documentation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

A new local database was obtained and it is being adapted to allow the provision of digital aeronautical data and information as well as advanced pre-flight briefing in the course of 2019.

AIS has evolved in the sense of processes and integrated management systems' enhancements through the Cro-QADI project of this report: The originating data quality improvements as well as data sets exchange through the Project of modernization of the AIM Data Base are planned.

Aeronautical information is currently provided for reference purposes through the CCL/AIS web pages, while the preparation of new manners of providing the products on web pages is under way, in line with the new AIM database deployment and via the EAD web pages.





# Performance

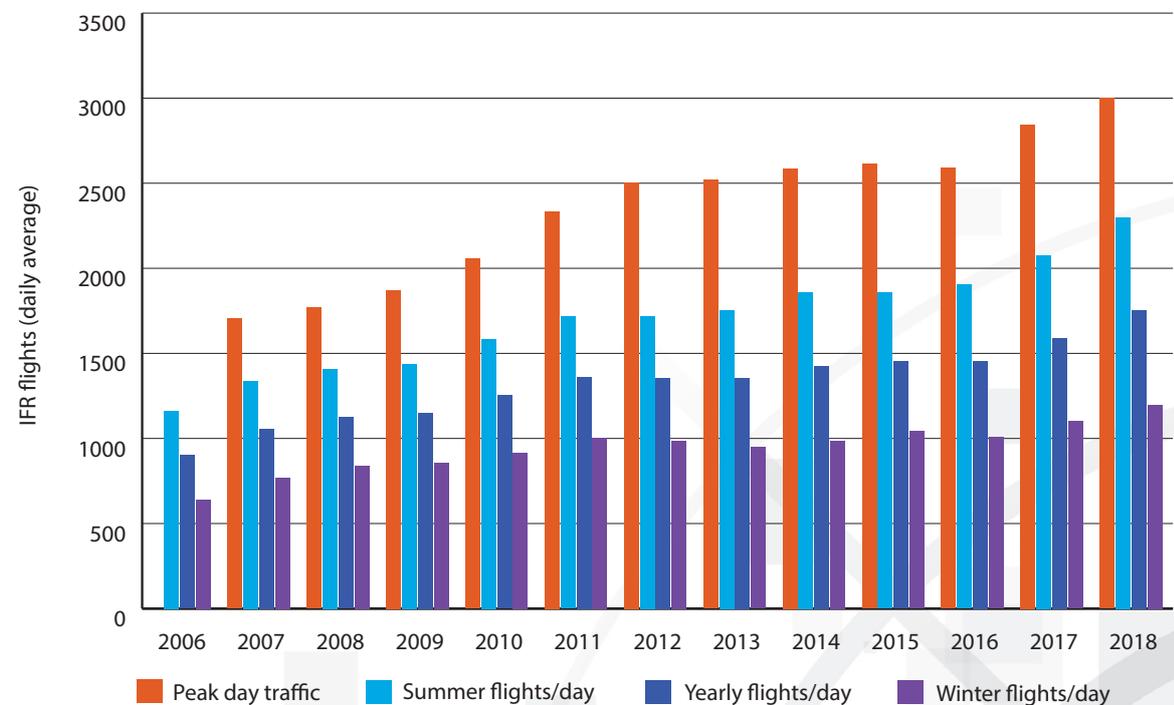
## Traffic

There were almost 640.000 IFR GAT operations in 2018 within CCL area of responsibility, which is the increase of more than 10% compared to 2017.



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

Traffic in Croatia increased by 10.7% during the summer season (May to October) and 9.1% during the winter season, when compared to the same period in 2017.

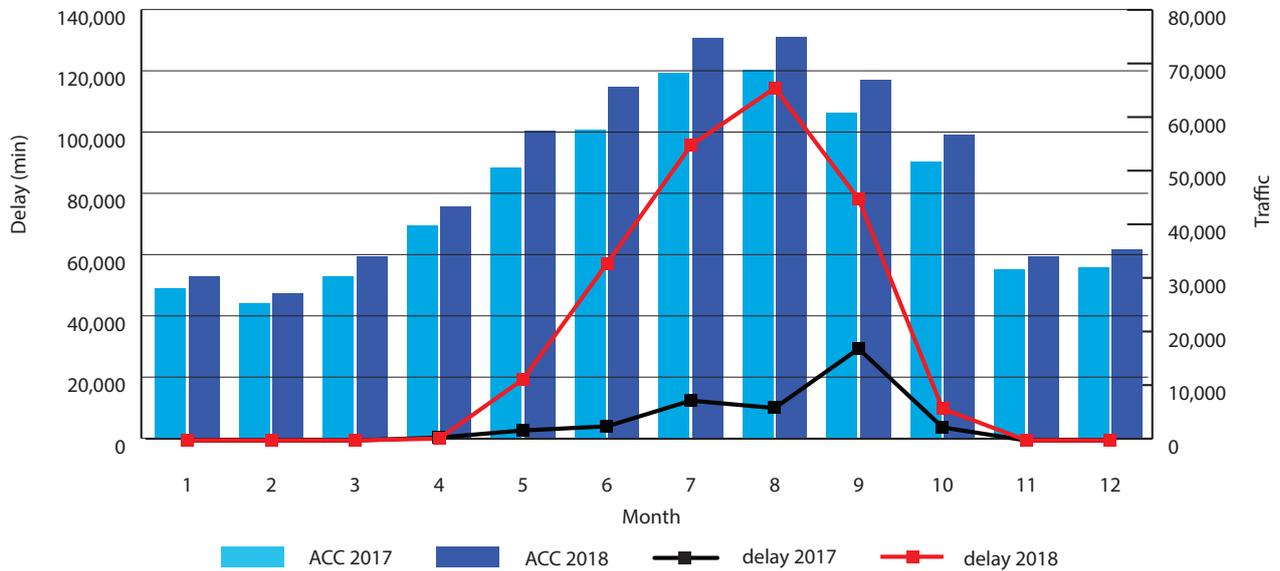


LDZOTOT Peak day traffic, Summer, Yearly and Winter daily averages

When analysed by countries, the largest increase in the number of flights in 2018 was between Germany and Greece in both directions, followed by traffic between Germany and Turkey. A significant increase in traffic was realized between the UK and Greece in both directions, as well as between Germany and Egypt. The largest traffic decrease was from Romania to Italy and from Italy to Turkey.

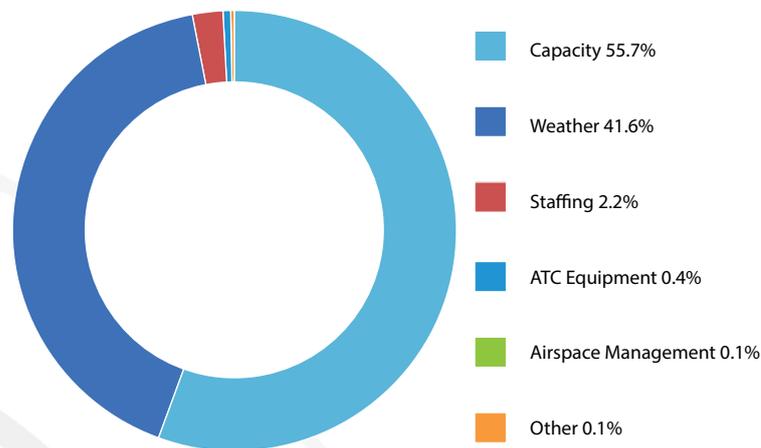
## Delay

2018 ended with total delay of about 388,534 minutes or 0.65 min/flight, which was significantly more than the target value described through Performance Plan that was 0.21 min/flight.



ACC Zagreb - traffic and delay 2018 vs 2017

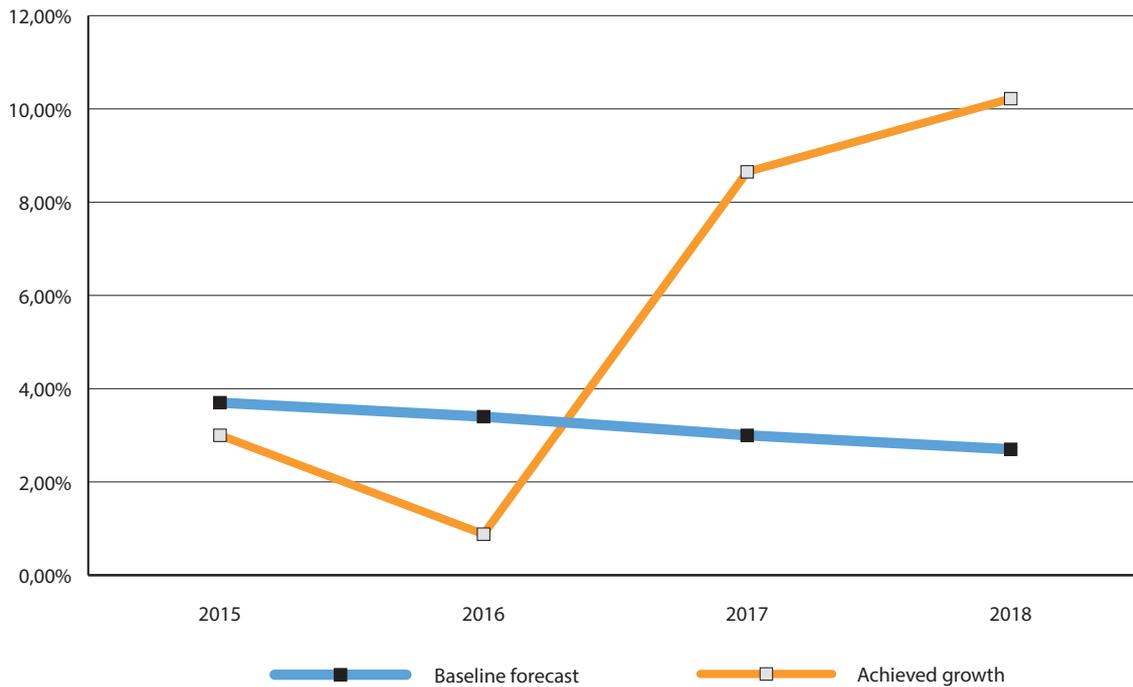
The prevailing reason for the introduction of regulations in the high season (May - October) is a combination of restrictions due to the availability of human resources as well as airspace design of Zagreb ACC AoR. The restrictions in the capacity of elementary sectors are particularly visible in WEST sector group, which was under the pressure of a very high traffic demand along the South-East Axis during the season.



ACC Zagreb - Regulation 2018

Besides the challenges of a high traffic demand, the adverse impacts on ACC were also caused by severe weather which generated approx. 40% of realised delay. When broken down by months, most of delays (all-causes) occurred in August (approx. 115 000 minutes).

Since the capacity plans are based on foretasted traffic, in 2018 there was a significant gap between the planned and realised traffic, which had the impact on delay results. Having in mind development trends, CCL is putting a great deal of effort to provide for necessary capacity as well as delays decrease in the future.

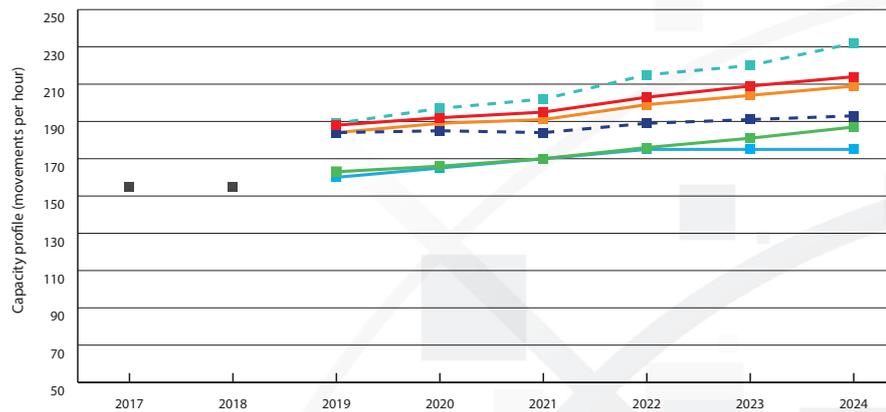


The foretasted traffic development trends from 2014 and realised traffic

## Capacity Challenges

Capacity improvements relate to the activities that have been consistently implemented for years in various areas - technical, technological, HRM as well as airspace design and procedures.

Capacity growth and development is monitored by the Network Manager, the role of which is to timely identify the bottleneck areas in order to cooperate with the ANSPs to ameliorate the situation in the peak season. Measuring the ACC baseline capacity is also one of the NM's tasks within the framework of network monitoring aimed at monitoring the development, stagnation or regression of capacities of a particular ACC.



	2017	2018	2019	2020	2021	2022	2023	2024
2019 Reference Capacity Profile			188	192	195	203	209	214
2020-2024 Indicative Reference Capacity Profile			188	192	195	203	209	214
Capacity Profile - Current Routes			163	166	170	176	181	187
Capacity Profile - High			189	197	202	215	220	232
Capacity Profile - Low			184	185	184	189	191	193
Capacity Baseline	155	155						
2018-2022 Plan			160	165	170	175	175	175
Capacity Profile - Shortest Routes (Open)			184	189	191	199	204	209

LDZOCTA - Reference capacity profile and alternative scenarios

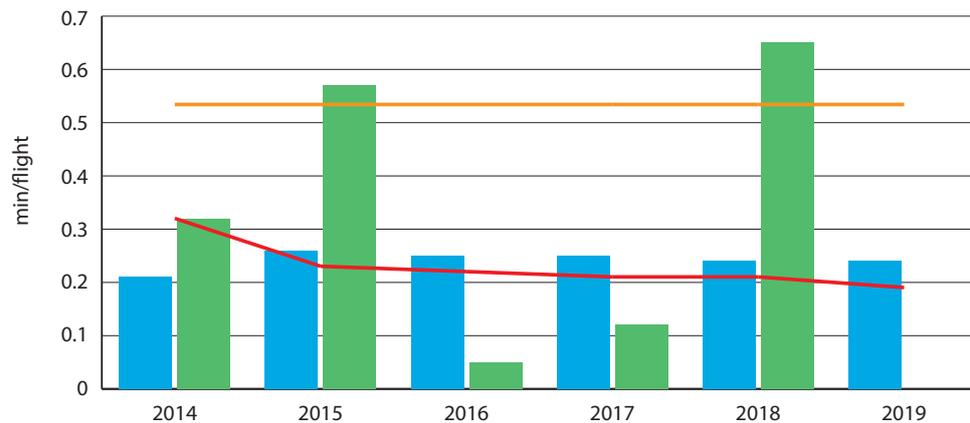
The measured baseline capacity of ACC Zagreb in 2018 was 155 operations/hour, same as in previous year.

In order to steer the ANSPs towards the structured approach in capacity development, the European Commission published the Commission Implementing Regulation no. 290/2013 laying down a performance scheme for air navigation services and network functions, which defines capacity as one of the four key performance areas for which target values are set with the aim of improving the overall efficiency of air navigation services.

The targets set for the reference 5-year period are mandatory, and they should correlate to those ANSPs' stra-

tegic activities which will ensure the realisation of the set targets. In the key performance area of capacity, the monitored values are en-route delays and arrival delays.

The delay reference value allocated to Zagreb ACC in 2018 was 0.24 min/flight, while the planned value of 0.21 min/flight was set to contribute directly to the reduction of delays on FAB CE level. The challenges faced in the process of achieving the targets were recognised in the process of making the tactical preparations for the season, and the prevailing threat to the 2018 targets is the restricted availability of personnel in peak periods of the day or of the week in summer months.



	Zagreb ACC ref. value	0.21	0.26	0.25	0.25	0.24	0.24
	delay	0.32	0.57	0.05	0.12	0.65	
	EU Network - target	0.50	0.50	0.50	0.50	0.50	0.50
	CCL plan ACC Zagreb	0.32	0.23	0.22	0.21	0.21	0.19

Zagreb ACC - ATFM delay  
CCL plan and EU reference value for RP2

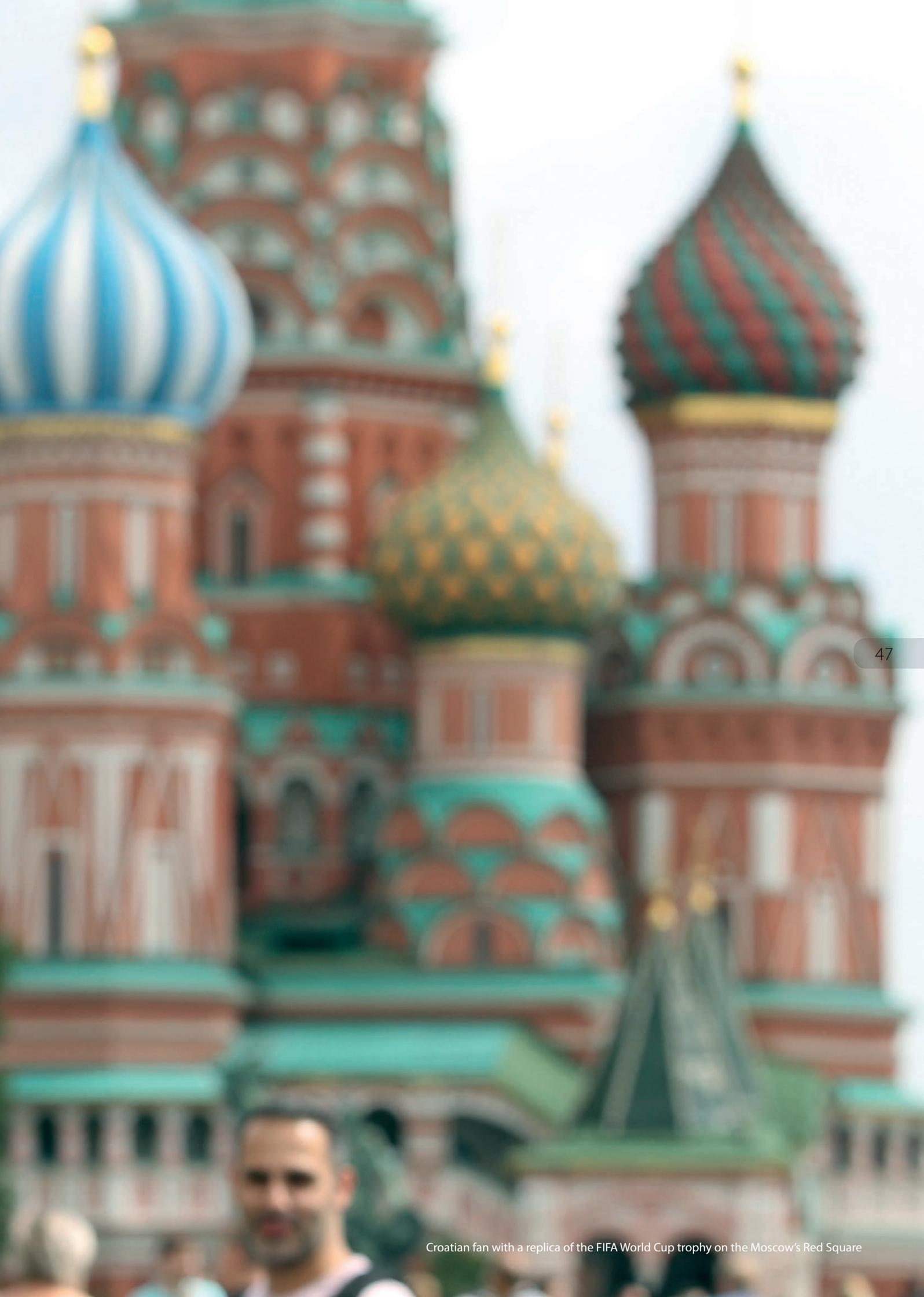


This risk was mitigated by optimised planning of human resources, so that in the peak season the area controllers were not charged with some other duties, and their daily roster was adjusted to the daily growth of traffic. Additional mitigation measure was the training of new ATCOs who will be able to work independently in the season. These efforts yielded results, however not sufficiently to respond to the challenges of huge traffic demand which was a burden for ACC sectors for a period of time longer than expected.

The additional risk was severe weather which presents a serious hazard to aviation. The frequency of severe weather events in the summer months caused approx. 40% of delays. Regulations caused by weather are necessary in order to maintain safety in the affected sectors.

By the end of the year the recorded delay was 0.65 min/flight, which was above the plan and expectations when compared to the previously published traffic forecasts which had suggested less intense traffic.

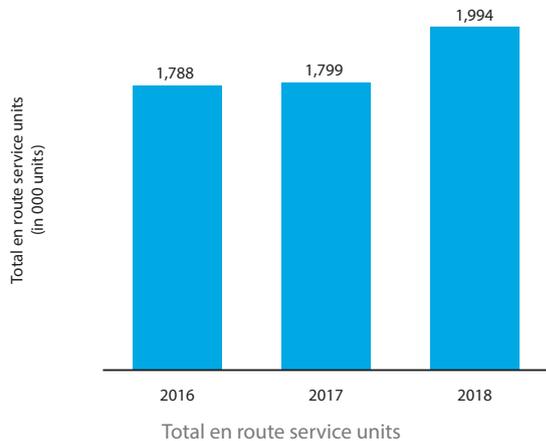




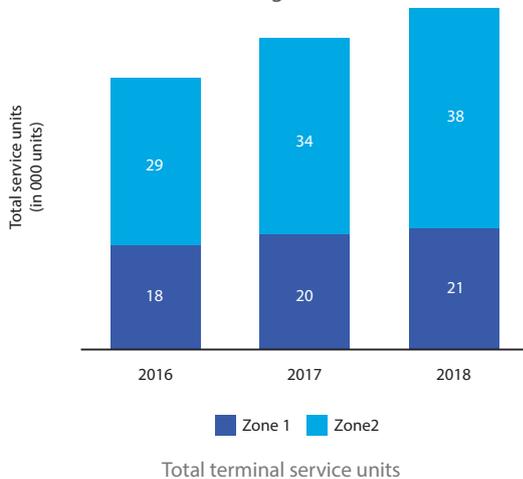
Croatian fan with a replica of the FIFA World Cup trophy on the Moscow's Red Square

## Service Units and Unit Rate

Positive trends from 2017 continued in 2018 and CCL realised historically highest total of 1,994 thousand in total en route service units provided to the airspace users within the Croatia en route charging zone, representing an 10.8% increase, compared to 2017 (i.e. +7.0% compared to 2018 PP)



In regard to traffic performance recorded in Croatian terminal charging zones, CCL continued its historical upward development in service unit provision. In 2018 it managed to further increase the total number of terminal service units by 9.9% overall (combined for terminal Zone1 and Zone2), reaching some 59 thousand overall.



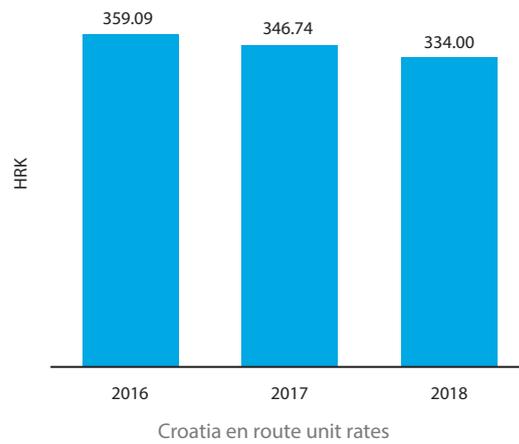
Furthermore, total budgeted en route costs for 2018 associated with the approved FAB-CE/Croatia RP2 Performance plan (PP) were initially proposed, critically reviewed (both in the process of developing RP2 PP as well as during the consecutive CER sessions) and accepted by the regular EC/EUROCONTROL governing bodies at the level that resulted in budgeted 2018 en route unit rate (of HRK 334.13; excl. administrative fee) being nominally decreased by further -3.7% compared to 2017.

Reason for that was mostly defined by assumed relatively more dynamic 2018 traffic development compared to planned total costs, which for 2018 were expected to be

slightly below the 2017 planned cost base (i.e. -0.8% for CCL representing the most significant cost base entity).

As was the case in 2017, budgeted 2018 cost development were to allow for the challenging RP2 targets in operational capacity which during 2018 were under the significant seasonal pressure and proved to be a substantial challenge given the continual double digit RP2 traffic increase compared to RP2 plan approved.

Such planned 2018 cost base had also to allow for CCL's commitment to the highest level of safety standards and complex and continual engagement in BH ATM transition process – phase II. The following depicts further the budgeted unit rates for Croatia.



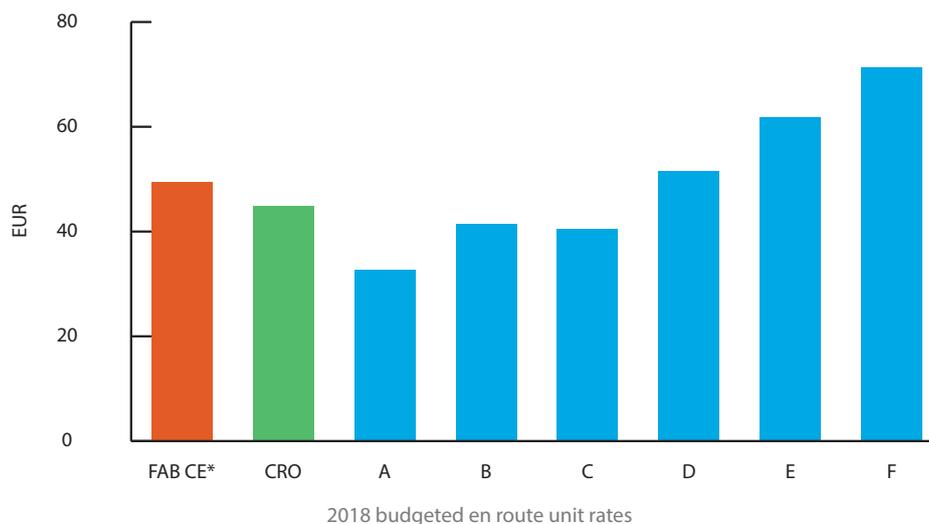
As was the case in previous periods, in 2018 CCL managed to deliver, both regionally and on the FAB CE level, a highly competitive and cost efficient performance. The proof of that was reflected in 5.6% better cost efficiency performance (ER DUC KPI) than what had been initially defined in Croatia RP2 PP for 2018, even though 2018 was characterised by RP2 highest investment activity and historical top traffic records.

2018 activities were further associated with the highly complex, multilateral and cross-border projects, such as was an extension of SEAFRA to SECSI FRA (which were delivered in addition to RP2 PP targets) and BH ATM transition.

As was the case in the previous years, the fundamental prerequisite for such performance again was the condition of safety tools and processes being in place and running effectively.

As a result of such commitment and as was the case during the previous consecutive periods, Croatia (most significantly supported by CCL performance) managed to provide en route ANS at a competitive unit rate during 2018.

According to finally approved en route unit rates for 2018 (CER 111), en route unit rate comparison among the Republic of Croatia and relevant neighbouring countries, most of which being FAB CE partners as well, is presented on the graph below.



Note: FAB CE indicative 2018 UR, for the purpose of this comparison, excludes values for Croatia

Furthermore, Croatia operates two terminal charging zones with two individual terminal unit rates. Budgeted 2018 terminal unit rates were HRK 1,720.83 (2017: HRK 1,787.63) for terminal Zone 1 (i.e. ATC centre LDZA including LDZL) and HRK 1,929.20 (the same as for 2017) for terminal Zone 2 (other ATC centres in Croatia).

## Costs and Income

Actual total costs incurred during 2018 were 17.0% above the 2017 level. This resulted in 2018 actual total costs in the amount of EUR 106 million.

During 2018, CCL recognised significant value of regulatory net over/recoveries as provisions in an amount of EUR 10.3 million (some 67% of the total 2018A/2017A costs increase). The balance is the amount which the company expects to reimburse to the airspace users through the future years' unit rates adjustments for the en route and terminal Zone 1 charging zones.

Despite an historical highest IFR GAT operations controlled, which put excessive pressure over the operational capacity which had to be further reorganised and optimised for 2018 season, actual total cost incurred during 2018, exclusive of above-mentioned regulatory SES provisions, were only 6.3% above the 2017 level. This resulted in 2018 actual total costs, net of regulatory provisions, in the amount of EUR 95.7 million.

The aforementioned cost development (+6.3%) proves to be disciplined given the:

- Traditionally, highly seasonable air traffic demand pattern, which substantially characterises Croatian air traffic (i.e. traffic in August was almost 3 times higher than traffic in February), puts a significant adverse pressure on the capacity associated costs and capacity management,
- Significantly increased operational activities recorded in IFR GAT movements +10.2%, further supported by significant operations development in Croatian terminals +8.4% combined for both Z1 and Z2),
- Continuity of substantial investment activities delivered during 2018 (which recorded 146% of the RP2 target for 2018) was most significantly based upon the initiatives aimed at closing the plan-to-actual investment gap while at the same time continuously developing efficient and effective Croatian ATM system.
- Dynamic ATCO training activities put in support of a strategic goal of developing a necessary operational capacity which during 2018 proved short after RP2 traffic records continuously presented double digit growth throughout the RP2,
- Anticipated business risks and potential contingencies for which the adequate provisions against had to be created in 2018.

Nonetheless, CCL fully managed to comply with RP2 cost efficiency targets set for 2018 in line with Croatia/FAB CE RP2 PP. Moreover, recorded 2018 performance in cost efficiency KPI proved:

- 5.6% target outperformance in en route cost efficiency , and
- 4.5% target outperformance in terminal cost efficiency for a terminal Zone 1 (terminal Zone 2 is not part of the RP2 Performance scheme).

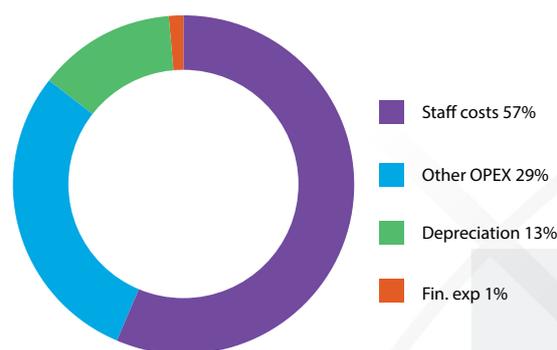
As is the case with the ANS industry in general, the most significant part of CCL's total cost relates to staff costs (some 56.5% share in total costs for 2018, i.e. some 63% after deduction of regulatory provisions), which were 5.2% lower than CCL's annual plan for 2018. Such staff costs still assured a reasonable operational capacity, given the cumulative RP2 traffic development and still enabled the execution of RP2 highest investment cycle (recorded for 2018).

In 2018 recorded other OPEX spending was significantly more dynamic than in the previous year, with the share of approx. 29.2% in CCL total costs for the following reasons:

- significant SES regulatory provisions recognised in CCL's financial statement in the amount of EUR 10.3 million (some 77% of the total OPEX 2018/2017 increase),
- a part of cost provisions in regard to anticipated business risks and future commitments (expected to be materialised during RP2 and afterwards) had already been substantially provided for in previous periods, with only incremental effects being recorded in 2018 (approx. 4% of the total OPEX 2018/2017 increase),
- prudent asset write-off and provision for bad debt assumptions that have net adversely affected 2018 accounts compared to asset impairment and write of assumptions affecting the 2017 records (mostly in regards to the trade receivables NBV; approximately 5% of the total OPEX 2018/2017 increase),
- stable level of general utilities supported by general inflation pressure lower than expected.

Financial effects stemming from the activation of long term, strategic and for CCL the most critical investment project – CroATMS COOPANS, significantly contributed to 2018 depreciation costs being some -4.5% under the 2017 actuals and reaching some 13% in CCL's total costs. Even though 2018 recorded an investment cycle peek, significant full year depreciation effects are still expected to be incurred during 2019.

Financial expenses accounting for approximately 1% of CCL's total costs, increased during 2018 for the reasons existing on the side of trends recorded in FX differences.



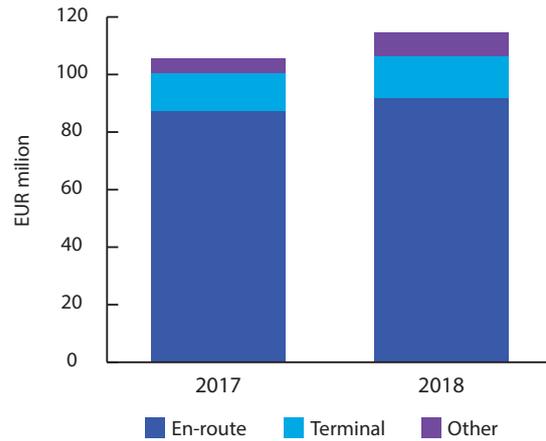
2018 Costs structure

Taking into consideration that:

- a few consecutive summer seasons have been continuously breaking records in terms of arrivals and overflights,
- in 2018 CCL managed to achieve competitive ANS rates supported by reasonable operational capacity levels (given the RP2 the RP2 traffic growth over the planned level),
- double-digit growth of traffic as a consequence of intensified traffic on the South-East traffic axis, especially towards/from tourist destinations such as Greece, Turkey and Egypt

a record EUR 106.2 million in core business revenues (+5.8% compared to 2017) does not come as a surprise. Combined with an increase in other non-core and non-sales revenues (mainly provision reversals, deferred income etc.), CCL earned EUR 114.5 million (approx. 8.5% higher total revenues compared to previous year).

In the total revenue composition, en route charges were traditionally the most significant revenue source, accounting for approximately 80% of total revenues, followed by, terminal charges accounting for approximately 13%, while other non-charges and non-business revenues together with unrealised positive foreign exchange differences accounted for some 7%.

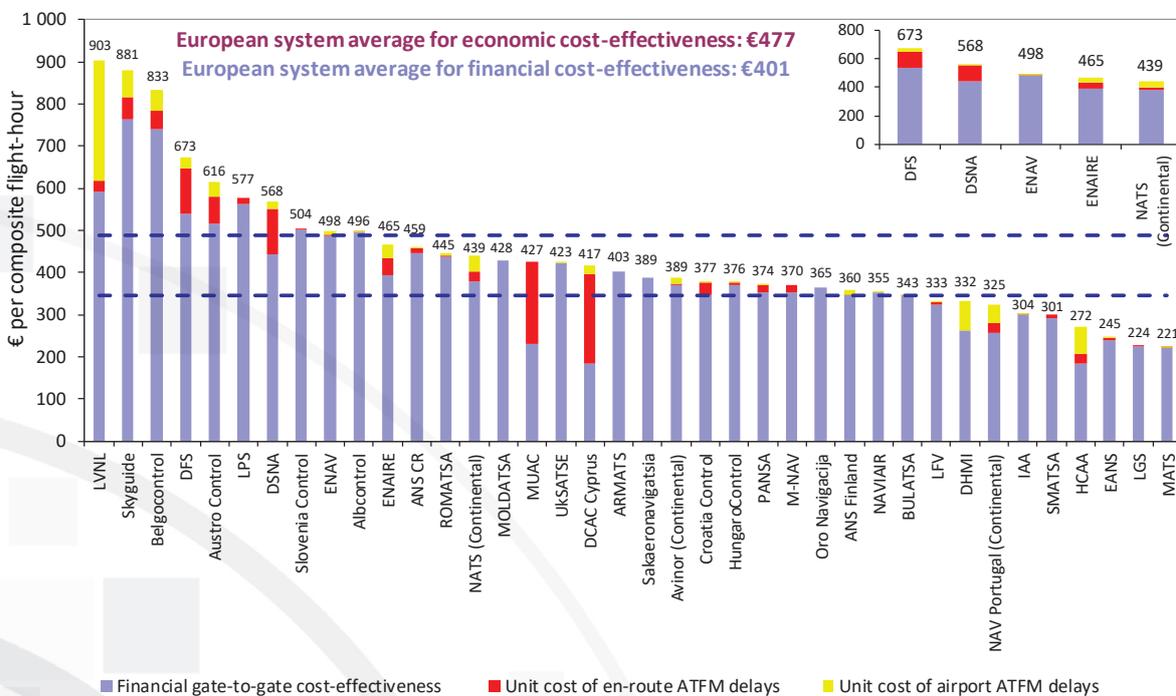


Total revenues development (@2018 average FX rate)

### Cost Effectiveness

European ATM performance is regularly monitored by the Performance Review Unit (PRU). PRU's economic cost-effectiveness indicator gives an indication of how well an ANSP is providing an ANS in terms of cost-effectiveness. According to the final ATM Cost-Effectiveness (ACE) 2017 Benchmarking Report dated May 2019, average Pan-European system-wide gate-to-gate economic cost-effectiveness was EUR 477 per composite flight hour.

In the same period, CCL performed 21% better than the European system average in terms of economic cost effectiveness. Such performance pushed CCL close to the very bottom quartile, meaning that CCL performance in terms of economic cost effectiveness is close to a group of 25% best performers in the Eurocontrol system.



Economic gate-to-gate cost-effectiveness indicator, 2017 (final figures)

## Cost efficiency KPI

In regard to RP2 KPIs set and declared in Croatia/FAB CE PP for cost efficiency KPA, it should be noted that CCL managed to reach 5.6% and 4.5% better performance in terms of en route and terminal Zone 1 cost efficiency KPI respectively (DUC in 2009 prices, real terms) compared to performance target set for 2018.

Such performance was based on -1.6% and +4.1% in nominal costs movement for en route and terminal Zone 1 further effected by +7% and +12% in 2018 en route and terminal Z1 traffic trend respectively, materializing in fully fulfilled CEFF performance targets for 2018 but with net negative risk sharing effects for CCL which are expected to be transferred to users in N+2 i.e. net positive cost sharing effects (ER-positive and Z1-negative), net negative traffic risk sharing effects (both in ER and Z1) and net negative cumulative CPI effects given the Actual/Plan difference in RP2 inflation.

In terms of financial and business indicators, in 2018 CCL recorded the following performance compared to 2017:

<b>Financial stability, indebtedness and liquidity indicators</b>	<b>2018</b>	<b>2017</b>
1. Coverage of fixed assets and inventories by equity capital and long-term sources	1.71	1.80
2. Share of equity capital in the sources of funding, in %	50.81	51.57
3. Debt factor, number of years	1.9	1.6
4. Total asset turnover coefficient	0.68	0.68
5. Overall liquidity coefficient	4.94	5.36
6. Time of collection of short-term receivables, in days	57	55
7. Inventories, in days kept	1	1

<b>Business performance indicators</b>	<b>2018</b>	<b>2017</b>
1. Total income-expenditure ratio	1.08	1.16
2. Profit/loss share in total income, in %	6.21	11.67
3. Profit/loss share in assets, in %	4.22	7.98
4. Profit/loss share per employee, in HRK	70,364	123,403

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

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

In 2018 CCL participated in the performance monitoring process on the EU level by developing FAB CE Monitoring Report 2018 together with FAB CE partners. All the CCL's performance related results achieved in 2018 are included in respective FAB CE Monitoring Report. In 2018 CCL reached all KPI target values set for the year, same as FAB CE (except for en-route ATFM delay per flight).

In 2018 CCL was actively engaged in development of RP3 Performance Plan for Croatia.







Croatian fans at Manezhnaya Square, Moscow

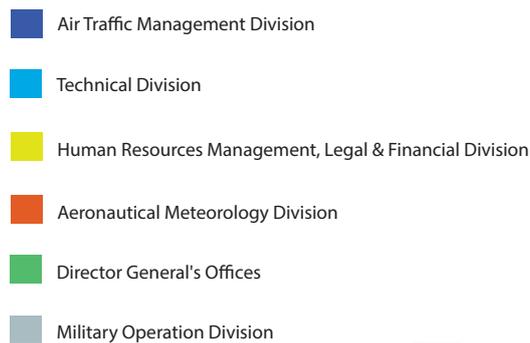
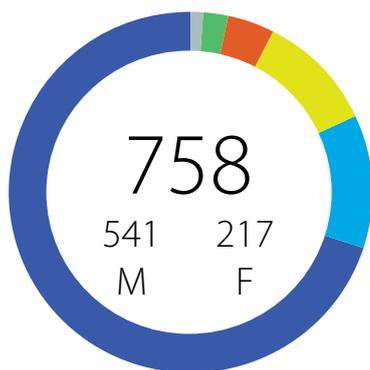
# Human Resources

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

It pays special attention to human resources management, with a training system geared to ensure training, acquiring and continuous maintaining of competencies and experience, to meet international and national standards.



## Employees



The total number of newly employed was 38, while 20 employees left CCL.

ATCOs and on-the-job trainees make a large share of the workforce. Their numbers at different operational units are shown below (status on 31 Dec 2018):

Location	ATCOs	ATCO Students
Zagreb ATCC - ACS	103	24
Zagreb ATCC - APS	20	0
Zagreb ATCC - ADI/ADV	19	4
Osijek ATCC	4	0
Pula ATCC	22	0
Split/Brač ATCC	29	2
Zadar ATCC	20	2
Dubrovnik ATCC	26	1
Rijeka ATCC	8	0
Lošinj ATCC	2	1
ATCOs on other duties in ATM Division	20	0
<b>TOTAL</b>	<b>273</b>	<b>34</b>

## 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 Labor Agreement, the Staff Rules, as well as the Organizational 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 and the assessment centre another multimodal measurements were introduced in the recruitment process of ATCO candidates. The selection of technical staff, supporting aeronautical staff and administrative staff is conducted in CCL according to the internal testing procedures.



## Training

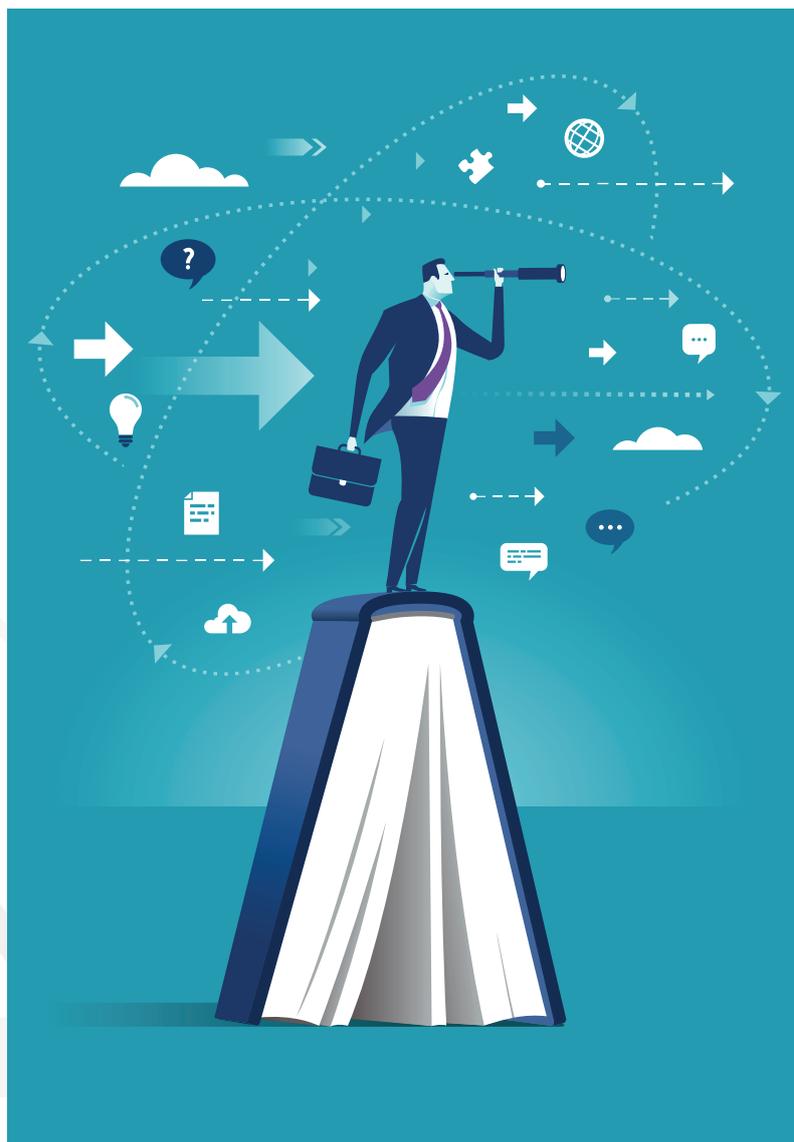
In order to ensure enough staff for safe and continuous provision of air traffic services, CCL pays special attention to the training of air traffic controllers, which has been performed in compliance with relevant EU regulations and respective training plans.

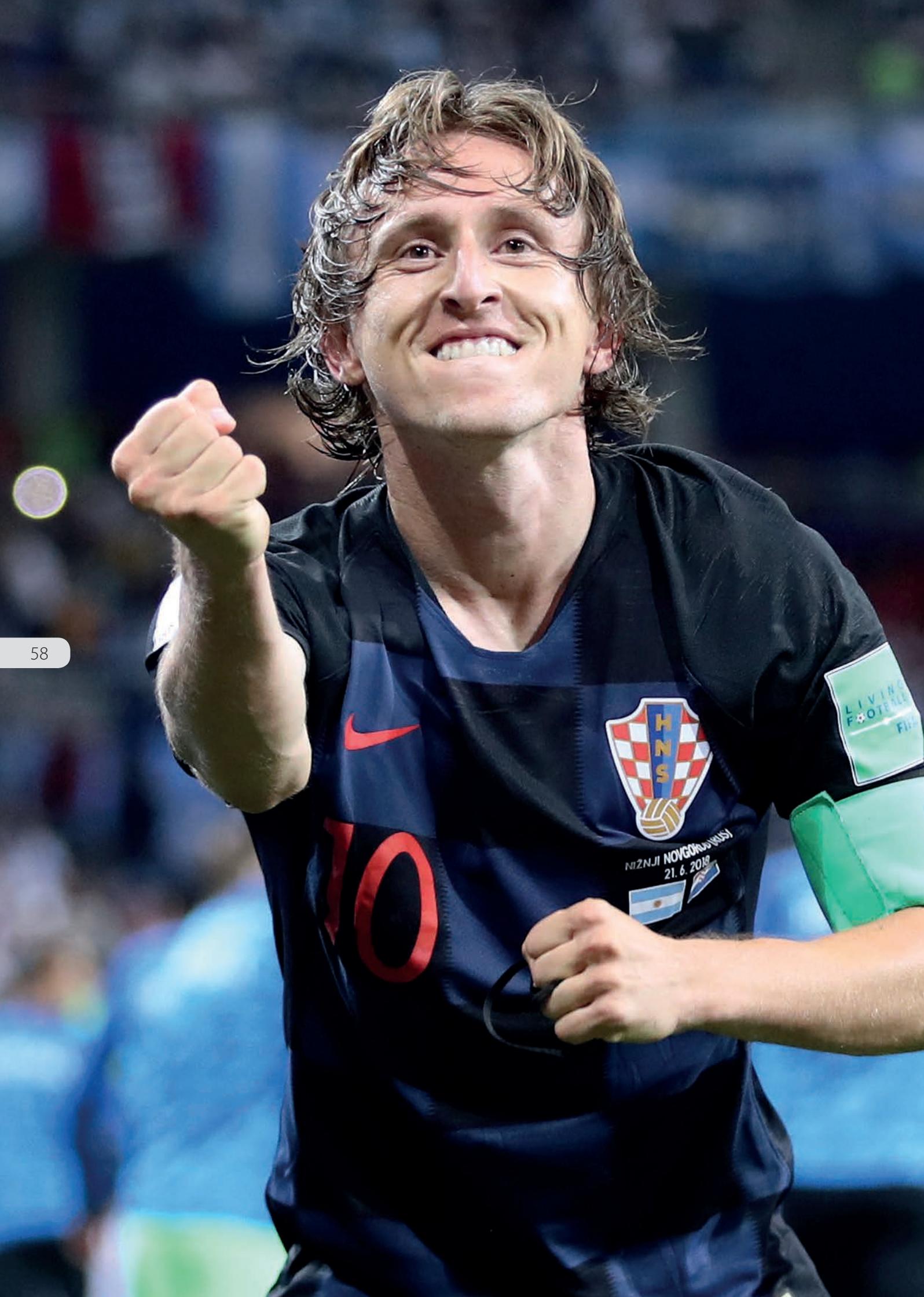
In 2018, 19 trainees completed the ACS Initial Training and obtained student licences, 6 students obtained the licence with the ADV/ADI rating, while 7 ATCOs with an ADI/TWR rating obtained an additional APS rating. CCL also trained 5 new OJTI instructors and 6 assessors.

Ten ATCO trainees completed the Basic Training and a part of the ADV/ADI Rating Training, which is to be completed in February 2019,

Regular refresher, development, and emergency courses were provided either by CCL or in cooperation with DFS and the EUROCONTROL Institute of Air Navigation Services (IANS).

Refresher courses for MET, ATSEP and other staff, as well as domain and qualification training, training for lead and internal auditors, public procurement, labour law, accounting, finances, and GDPR were also held in 2018.





# Outlook and Priorities for 2019

In 2019, CCL is still faced with challenging and critical activities. Besides the short-term goals and priorities, CCL continues to undertake some activities of critical importance given the strategic orientation. Goals and priorities for 2019 comprise the following:

## Safety

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

## Capacity

- average annual ATFM en-route delay at 0.19 minutes/flight. Taking into account high traffic increases in 2017 and 2018 as well as expected significantly increased traffic demand in 2019, this target will be difficult to achieve.
- annual increase of baseline capacity by 1%

## Environment

- reducing inefficiency of the actual route to 1.81% compared to 'great circle distance'. CCL has implemented the FRA with neighbouring ANSPs and no further improvement in this KPI is expected in 2019. Moreover, CCL has achieved astonishing performance (significantly below the FAB CE targets) in this KPI and significantly participate in the achievement of this KPI at the FAB CE level.

## Cost Efficiency

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

## FUA

- improving the functionality and efficiency of AMC
- implementation of new tools and more efficient procedures at ASM level 3 in order to enhance level of overall safety, especially in the field of Unmanned Traffic Management (UTM)

- expanding the net of modular flexible structures in the airspace of Republic of Croatia
- continuously developing the operational ANS concept for RPAS/UAS activities in FIR Zagreb taking into account further technical development of RPAS/UAS domain and users demands
- safe integration of state RPAS/UAS users into national airspace reducing their impact on commercial air traffic

## Technical Systems

- continuously upgrading the ATM system based on harmonised COOPANS platform

## Quality Management Systems

- re-certification to new Common requirement regulation (EU 2017/373)
- upgrading of cyber security tools

## MET

- further development of MET services for ATM

## Human Resources Management

- continuous (initial and unit) ATCO training

## Finance

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

## Other

- implementing a new document management system (DMS)
- preparing the activities on extension of the training certificate to initial training
- developing and setting up a local education centre

# Financial Statements and Auditor's Report

## Responsibility for the Annual Financial Statements

The Management Board of the Company **CROATIA CONTROL LTD**, Velika Gorica, Rudolfa Fizira 2 ("the Company") is responsible for ensuring that the annual financial statements of the Company for the year 2018 are prepared in accordance with the Accounting Act (Official Gazette No. 78/15, 128/16.116/18)) and the International Financial Reporting Standards as adopted by the European Union and published in the Official Journal of the European Union, to give a true and fair view of the financial position, the results of business operations, the changes in equity and the cash flows of the Company for that period.

On the basis of the review, the Management Board of the Company has a reasonable expectation that the Company has adequate resources to continue in operational existence for the foreseeable future. Accordingly, the Management Board has prepared financial statements under the assumption that the Company is a going concern

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

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

The Management Board is responsible for keeping proper accounting records, which shall reflect with reasonable accuracy at any time the financial position, results of operations of the Company, changes in capital and cash flow of the Company, as well as their compliance with the Accounting Act and the International Financial Reporting Standards as adopted by the European Union and published in the Official Journal of the European Union. The Management Board is also responsible for safeguarding the assets of the Company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Signed on behalf of the Management Board



Vlado Bagarić, Director General

CROATIA CONTROL LTD.

Rudolfa Fizira 2,  
10 410 Velika Gorica

April 30, 2019







2018 FIFA World Cup Final, France - Croatia  
Group photo before the historical match against France

# Independent Auditor's Report

To the owner of the company CROATIA CONTROL Ltd.

## Report on the audit of annual financial statements

### Opinion

We have audited the accompanying annual financial statements of the company CROATIA CONTROL Ltd. Velika Gorica, Rudolfa Fizira 2 ("the Company") for the year ended 31 December 2018, which comprise the Statement of Financial Position / Balance Sheet as at 31 December 2018, Statement of Comprehensive Income, Statement of Changes in Equity and the Cash Flow Statement for the year ended, and Notes to the financial statements, including a summary of significant accounting policies and other explanations.

In our opinion, the enclosed financial statements give a true and fair view, of the financial position of the Company as at 31 December 2018, its financial performance and the cash flows for the year then ended, in accordance to the Accounting Act and the International Financial Reporting Standards (IFRSs) as adopted by the European Union and published in the Official Journal of the European Union.

### Basis for Opinion

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

### Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the annual financial statements of the current period, and they include identified most significant risks of material misstatement due to error or fraud with the highest impact on our audit strategy, resources available and the time spent by the engaged audit team. These matters were addressed in the context of our audit of the annual financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

#### Description

Non-current intangible and tangible assets as at 31 December 2018 amount to HRK 485,278 thousand, which represents 38.9% of the total assets. Total value of current assets was HRK 729,428 thousand (58.4% of the assets), and its largest share in the amount of HRK 577,261 thousand relates to the item Cash, which normally does not represent a complex position in the Balance Sheet. Given the material significance of non-current intangible and tangible assets, its role as the key material resource in the functioning of the Company, as well as the complexity of recording of these assets (procurement, calculation of depreciation, measurement, costs capitalization etc.), it is our opinion that these positions in the Statement of Financial Position /Balance Sheet represent the Key Audit Matters.

During 2018, the procurement of non-current assets totaled HRK 205,215 thousand and related mostly to the projects of upgrading of various IT systems, infrastructure upgrade projects and procurement of IT equipment and radio navigation equipment.

Pursuant to IAS 16, a part of the gross salary in the amount of HRK 4,060 thousand in 2018 was capitalized to the projects of the ATM system upgrade, DATA-COM projects, VOICE-COM domain projects, SUR system upgrade project.

### How these issues were addressed in the audit

Our audit procedures included, among others, as follows:

- Assessment of the harmonization of recognition of the intangible and tangible assets with the relevant International Financial Reporting Standards
- Testing of the internal controls related to the process of procurement of tangible and intangible assets on the basis of the sample of 43 procurement transactions.
- We assessed the prudence of useful life of assets used by the Company when calculating the depreciation as well as the depreciation start date for activated assets and depreciation end date for assets no longer in use:
- New procurements of tangible and intangible assets in 2018 were tested on the basis of a representative sample of 158,216 thousands HRK or 77.1 % of the amount of procurement transactions
- On the basis of 20 representative transactions, we tested the disposals and write-off of tangible and intangible assets
- We examined the capitalization of own costs
- We determined that the process of arranging and registering the real estate ownership rights has not been completely settled. The settlement of these property legal issues is currently under way.

Through our audit procedures, we ascertained that the non - current tangible and intangible assets in materially significant items have been recorded and published in line with the IFRS.

### Other information in the Annual Report

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

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

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

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

### Financial Statements

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

In preparing the annual financial statements, 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 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 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 Management Board.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated 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 Other Legal and Regulatory Requirements

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

1. On 12 June 2018 we were appointed by the Assembly of the Company on the basis of the proposal of the Supervisory board of the Company to carry out an audit of annual financial statements for 2018.
2. At the date of this report, we have been continuously engaged in carrying out the Company's statutory audits, from the audit of the Company's annual financial statements for 2017, up to the audit of the Company's financial statements for 2018, which is a total of 2 year.
3. Besides issues that our independent auditor's report identified as key audit matters within the subsection Report on the audit of annual financial statements, we have nothing to report regarding Article 10 item (c) of Regulation (EU) No. 537/2014.
4. By performing the audit of the Company's financial statements for 2018 as stipulated by law, we are able to detect irregularities, including fraud in accordance with Section 225 of the IESBA Code, Responding to Non-Compliance with Laws and Regulations, which requires us, in carrying out our audit engagement, to establish whether the Company complied with laws and regulations that are generally recognized to have a direct impact on the determination of significant amounts and their disclosures in annual financial statements, as well as other laws and regulations that do not have a direct effect on the determination of significant amounts and their disclosures in annual financial statements, but where observing them may be crucial for operational aspects of the Company's business, its ability to continue as a going concern or its avoidance of significant penalties.

Except where we encounter or become aware of disrespect of any of the aforementioned laws or regulations which is considered insignificant according to our judgment of its content and its influence, financial or otherwise, regard-

ing the Company, its stakeholders and the wider public, we are obliged to inform the Company thereof and seek to investigate such case, as well as take appropriate measures to resolve irregularities and prevent the occurrence of such irregularities in the future. Should the Company fail to correct irregularities regarding the position on the date of audited balance sheet arising on the basis of incorrect disclosures in audited annual financial statements that are cumulatively equal to or greater than the amount of significance for financial statements as a whole, we are required to modify our opinion in an independent auditor's report.

In the audit of the Company's annual financial statements for the year 2018, we determined the significance for financial statements as a whole in the amount of HRK 19,850,000, representing approximately 1.59% % of total assets. For the purpose of the calculation of materiality the assets were taken as a criterion because the Company is responsible for rendering air navigation services to civilian and military users of the airspace of the Republic of Croatia as well as of the airspace the management of which had been delegated to the Company pursuant to international conventions and agreements. In line with the aforementioned, the primary goal of the Company is not to make profit or to increase the value for its owners, as it is the case with other economic operators operating on the market, therefore it is not the revenues that are the key category when reviewing the financial statements of the Company, but the assets which enable the Company to perform its function.

5. Our audit opinion is consistent with the additional audit report prepared for the Company's Audit Committee in accordance with provisions of Article 11 of Regulation (EU) No. 537/2014.
6. During the period between the initial date of the Company's audited annual financial statements for the year 2018 and the date of this report, we have not provided the Company with any prohibited non-audit services. In the business year before that period, we did not provide services regarding the design and implementation of internal control and risk management procedures related to the preparation and/or control of financial information or the design and implementation of technological systems for financial information. Moreover, we have maintained our independence in the performance of the audit in relation to the Company.

### Report in view of requirements of the Accounting Act

1. In our opinion, based on activities we have carried out during the audit, the data contained in the accompanying management report of the Company for 2018 have been aligned with the accompanying annual financial statements of the Company for 2018.
2. In our opinion, based on activities we have carried out during the audit, the accompanying management report of the Company for 2018 was prepared in accordance with the Accounting Act.
3. Based on our knowledge and understanding of the Company's business and its environment gained within the scope of our audit, we have not established any significant misstatements in the accompanying management report of the Company

Zagreb, April 30, 2019

Audit d.o.o.

Radnička cesta 54

10000 Zagreb



Darko Karić, Director



Dubravka Tršinar, certified auditor

# 2018 FIFA World Cup Final



Raphael Varane and (4) Mario Mandžukić (17)

France - Croatia



Olivier Giroud (9) and Ivan Rakitić (7)



Luka Modrić - Best FIFA Men's Player Award





Final Award ceremony



Celebration with silver medals

**INCOME STATEMENT AND STATEMENT OF OTHER COMPREHENSIVE INCOME**  
**for the year ended 31 December 2018**

	2018	2017
	in HRK	in HRK
Sales revenue	808,141,822	747,711,629
Other operating revenues	36,557,707	30,209,898
<b>Operating revenues</b>	<b>844,699,529</b>	<b>777,921,527</b>
Raw material and material costs	(10,550,462)	(9,171,478)
Other external costs	(54,766,956)	(51,336,546)
Material costs	(65,317,418)	(60,508,024)
Net salaries and wages	(223,668,565)	(215,994,115)
Costs for taxes and contributions from salaries	(142,622,168)	(137,116,008)
Contributions on gross salaries	(77,711,681)	(75,219,565)
Staff costs	(444,002,414)	(428,329,688)
Depreciation	(102,446,717)	(107,274,303)
Other costs	(58,414,232)	(50,659,809)
Impairment of short-term assets	(471,352)	(2,144,386)
Impairment	(471,352)	(2,144,386)
Provisions	(97,272,991)	(15,962,142)
Other operating expenses	(7,992,536)	(823,719)
<b>Operating expenses</b>	<b>(775,917,660)</b>	<b>(665,702,071)</b>
<b>Financial income</b>	<b>4,437,573</b>	<b>4,578,352</b>
<b>Financial expenses</b>	<b>(10,479,147)</b>	<b>(6,302,701)</b>
<b>TOTAL INCOME</b>	<b>849,137,102</b>	<b>782,499,879</b>
<b>TOTAL EXPENSES</b>	<b>(786,396,807)</b>	<b>(672,004,772)</b>
<b>PROFIT BEFORE TAXATION</b>	<b>62,740,295</b>	<b>110,495,107</b>
Profit tax	(10,038,018)	(19,176,861)
<b>PROFIT FOR THE PERIOD</b>	<b>52,702,277</b>	<b>91,318,246</b>
<b>NET OTHER COMPREHENSIVE INCOME FOR THE PERIOD</b>		
<b>COMPREHENSIVE INCOME FOR THE PERIOD</b>	<b>52,702,277</b>	<b>91,318,246</b>



Croatian fans in Russia

**STATEMENT OF FINANCIAL POSITION / BALANCE SHEET**  
**at 31 December 2018**

	At 31 Dec 2018	At 31 Dec 2017
	in HRK	in HRK
<b>ASSETS</b>		
Concessions, patents, licenses, software and other rights	148,039,219	170,832,782
Advances for intangible assets	12,738,033	4,472,592
Intangible assets in progress	22,816,250	22,196,072
<b>Intangible assets</b>	<b>183,593,502</b>	<b>197,501,446</b>
Land	48,662,749	48,649,949
Buildings	67,710,997	68,096,529
Plant and equipment	108,202,131	95,757,501
Vehicles, tools and office equipment	14,768,839	14,878,315
Advances for tangible assets	6,709,437	3,443,899
Tangible assets in progress	55,630,581	37,392,703
<b>Tangible assets</b>	<b>301,684,734</b>	<b>268,218,896</b>
<b>Financial assets</b>	<b>118,681</b>	<b>120,219</b>
<b>Deferred tax assets</b>	<b>29,234,204</b>	<b>16,807,040</b>
<b>NON-CURRENT ASSETS</b>	<b>514,631,121</b>	<b>482,647,601</b>
Raw material and inventories	2,182,581	2,463,493
Advances for inventories	3,316	-
<b>Inventories</b>	<b>2,185,897</b>	<b>2,463,493</b>
Accounts receivable	141,240,110	120,743,201
Receivables from employees and shareholders	458,437	474,273
Receivables from government and other institutions	7,281,625	3,527,314
Other receivables	60,319	89,575
<b>Receivables</b>	<b>149,040,491</b>	<b>124,834,363</b>
Loans, deposits and similar	941,042	226,266,607
<b>Financial assets</b>	<b>941,042</b>	<b>226,266,607</b>
<b>Cash at bank and in hand</b>	<b>577,261,536</b>	<b>303,002,157</b>
<b>CURRENT ASSETS</b>	<b>729,428,966</b>	<b>656,566,620</b>
<b>Prepaid expenses and accrued income</b>	<b>4,821,174</b>	<b>5,581,663</b>
<b>TOTAL ASSETS</b>	<b>1,248,881,261</b>	<b>1,144,795,884</b>
<b>OFF-BALANCE SHEET ITEMS</b>	<b>405,964,923</b>	<b>392,751,722</b>

**STATEMENT OF FINANCIAL POSITION / BALANCE SHEET**  
**at 31 December 2018 - continued**

	At 31 Dec 2018	At 31 Dec 2017
	in HRK	in HRK
<b>CAPITAL AND LIABILITIES</b>		
<b>Subscribed capital</b>	<b>450,000,000</b>	<b>450,000,000</b>
<b>Other reserves</b>	<b>193,218,366</b>	<b>101,900,120</b>
<b>Retained earnings</b>	<b>38,481,567</b>	<b>38,481,567</b>
<b>Profit for the current year</b>	<b>52,702,277</b>	<b>91,318,246</b>
<b>CAPITAL AND RESERVES</b>	<b>734,402,210</b>	<b>681,699,933</b>
Provisions for pensions, severance pays and similar liabilities	85,236,279	92,781,066
Other provisions	77,038,169	323,750
<b>Provisions</b>	<b>162,274,448</b>	<b>93,104,816</b>
Liabilities to banks and other financial institutions	151,248,524	190,832,994
<b>Long-term liabilities</b>	<b>151,248,524</b>	<b>190,832,994</b>
Loan liabilities and deposits	309,652	359,801
Liabilities to banks and other financial institutions	42,625,167	43,129,621
Accounts payable	47,181,555	26,634,081
Liabilities to employees	21,747,188	20,339,000
Liabilities for taxes, contributions and similar fees	27,091,482	24,095,487
Other short-term liabilities	8,594,626	7,861,581
<b>Short-term liabilities</b>	<b>147,549,670</b>	<b>122,419,571</b>
<b>Accrued expenses and deferred income</b>	<b>53,406,409</b>	<b>56,738,570</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>1,248,881,261</b>	<b>1,144,795,884</b>
<b>OFF-BALANCE SHEET ITEMS</b>	<b>405,964,923</b>	<b>392,751,722</b>



Croatia Control welcomes Vatreni home

**STATEMENT OF CHANGES IN EQUITY**  
**for the year ended 31 December 2018**

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

	Share (subscribed) capital	Other reserves	Retained earnings	Profit for the current year	Total
	in HRK	in HRK	in HRK	in HRK	in HRK
<b>At 31 December 2017</b>	<b>450,000,000</b>	<b>101,900,119</b>	<b>38,481,567</b>	<b>91,318,246</b>	<b>681,699,932</b>
Distribution of profit	-	91,318,246	-	(91,318,246)	-
Profit for the current year	-	-	-	52,702,277	<b>52,702,277</b>
<b>At 31 December 2018</b>	<b>450,000,000</b>	<b>193,218,365</b>	<b>38,481,567</b>	<b>52,702,277</b>	<b>734,402,209</b>



Air Traffic Control Tower Zagreb welcomes Vatreni

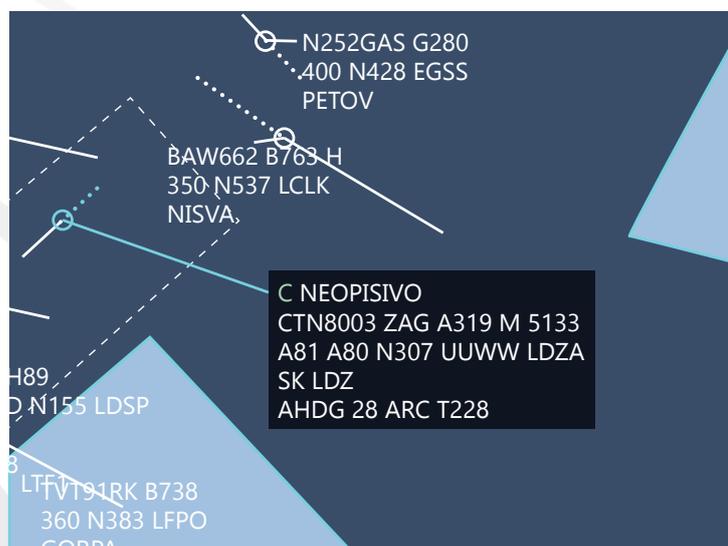
**STATEMENT OF CASH FLOWS for the year ended 31 December 2018**

	<b>2018</b>	<b>2017</b>
	<b>in HRK</b>	<b>in HRK</b>
<b>I</b>	<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>	
<b>A</b>	62,740,295	110,495,107
	Adjustments:	
	102,446,717	107,274,303
	312,969	(60,919)
	(793,391)	(1,437,721)
	1,882,414	2,626,582
	69,169,632	(3,175,049)
	774,337	535,487
	(9,993,629)	(7,382,507)
<b>B</b>	163,799,049	98,380,176
<b>C= A+B</b>	<b>226,539,344</b>	<b>208,875,283</b>
	45,660,341	1,398,864
	(27,581,542)	(10,689,470)
	508,688	(308,420)
<b>D</b>	<b>18,587,487</b>	<b>(9,599,026)</b>
<b>E</b>	(1,906,613)	(2,734,883)
<b>F</b>	(16,969,781)	(10,757,593)
<b>I=Σ(A:F)</b>	<b>226,250,437</b>	<b>185,783,781</b>
<b>II</b>	<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>	
	162,852	32,480
	793,391	1,438,490
	223,063,673	323,486,334
<b>G</b>	<b>224,019,916</b>	<b>324,957,304</b>
	(137,822,399)	(79,704,268)
	(878,494)	(515,075)
	(4,178,214)	(325,249,283)
<b>H</b>	<b>(142,879,107)</b>	<b>(405,468,626)</b>
<b>II=G+H</b>	<b>81,140,809</b>	<b>(80,511,322)</b>
<b>III</b>	<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>	
	5,258,772	880,952
	4,209,615	34,900,651
<b>J</b>	<b>9,468,387</b>	<b>35,781,603</b>
	(42,273,163)	(52,845,807)
	(327,091)	(1,608,490)
<b>K</b>	<b>(42,600,254)</b>	<b>(54,454,297)</b>
<b>III=J+K</b>	<b>(33,131,867)</b>	<b>(18,672,694)</b>
<b>I+II+III</b>	<b>274,259,379</b>	<b>86,599,765</b>
	<b>303,002,157</b>	<b>216,402,392</b>
	<b>577,261,536</b>	<b>303,002,157</b>
	<b>274,259,379</b>	<b>86,599,765</b>



Boris Mrkonja, Approach Surveillance Controller and Deputy Head of Zagreb ACC greets Vatreani on behalf of Croatia Control. He also guided the bronze-medal-winning Croatia national football team of 1998 on their way home from France to Croatia

“ Our dear Vatreani, the participants of the Croatian football storm Russia 2018, Croatia Control proudly greets and welcomes you to Croatian airspace. Thank you for the demonstrated togetherness and team spirit, with a single word to be added: NEOPISIVO (incredible). ”



Aircraft with Vatreani labelled NEOPISIVO on the radar screen



Specially decorated Croatia Airlines Airbus taking Vatreni home

Silver medalists in Croatia Airlines aircraft





Dejan Lovren in the cockpit of the Croatia Airlines Airbus

Fans welcome Vatreni at Zagreb Airport



# Abbreviations

<b>ACC</b>	Area Control Centre
<b>ACS</b>	Area Control Service
<b>ACE</b>	Air Traffic Management Cost-Effectiveness
<b>AGDL</b>	ATC Air-Ground Data Link
<b>AGVN</b>	ATS Ground Voice Network
<b>AIS</b>	Aeronautical Information Services
<b>AMC</b>	Airspace Management Cell
<b>AMHS</b>	Aeronautical Message Handling System
<b>ANSP</b>	Air Navigation Services Provider
<b>AoR</b>	Area of Responsibility
<b>APP</b>	Approach Control Procedure
<b>APS</b>	Approach Control Surveillance
<b>ARES</b>	ATM Emergency System
<b>ARN</b>	Aeronautical route network
<b>ARO</b>	ATS Reporting Office
<b>ASM</b>	Airspace Management
<b>A-SMGCS</b>	Advanced-Surface Movement Guidance & Control System
<b>ATC</b>	Air Traffic Control
<b>ATCC</b>	Air Traffic Control Centre
<b>ATCO</b>	Air Traffic Controller
<b>ATIS</b>	Automatic Terminal Information Service
<b>ATM</b>	Air Traffic Management
<b>ATS</b>	Air Traffic Services

<b>AUP/UUP</b>	Airspace Use Plan/Updated Airspace Use Plan
<b>AWOS</b>	Automated Weather Observing System
<b>BVCS</b>	Back-up Voice Telecommunications System
<b>CCL</b>	Croatia Control Ltd.
<b>CCO/CDO</b>	Continuous Climb Operations/Continuous Descent Operations
<b>CNS</b>	Communication, Navigation and Surveillance
<b>COOPANS</b>	Cooperation between Air Navigation Service providers
<b>CPDLC</b>	Controller-Pilot Data Link Communications
<b>CroATMP</b>	Croatian Air Traffic Management Project
<b>CroATMS</b>	Croatian Air Traffic Management System
<b>CroVIBE</b>	Croatia Control virtual Info Board for Employees
<b>CTR</b>	Controlled Traffic Region
<b>DCT</b>	Direct Route
<b>DECT</b>	Digital Enhanced Cordless Telephone
<b>DFL</b>	Division Flight Levels
<b>DME</b>	Distance Measuring Equipment
<b>EAD</b>	European Aeronautical Information Database
<b>EC</b>	European Commission
<b>ECAC</b>	European Civil Aviation Conference
<b>FAB</b>	Functional Airspace Block
<b>FAB CE</b>	FAB Central Europe
<b>FIC</b>	Flight Information Service
<b>FIR</b>	Flight Information Region
<b>FRA</b>	Free Route Airspace
<b>FUA</b>	Flexible Use of Airspace



<b>HRK</b>	Croatian Kuna
<b>ICAO</b>	International Civil Aviation Organization
<b>IFR</b>	Instrument Flight Rules
<b>ILS</b>	Instrument Landing System
<b>ISO</b>	International Organisation for Standardisation
<b>LoA</b>	Letters of Agreement
<b>Ltd.</b>	Limited
<b>MET</b>	Meteorological services
<b>MSSR</b>	Monopulse Secondary Surveillance Radar

<b>RNP</b>	Required Navigation Performance
<b>RP2</b>	Second Reference Period, 2015-2019
<b>RPAS</b>	Remotely Piloted Aircraft Systems
<b>SAXFRA</b>	Slovenian Austrian Cross Border Free Route Airspace
<b>SEAFRA</b>	South-East Free Route Airspace
<b>SECSI</b>	South-East Common Sky Initiative
<b>SERA</b>	Standardised European Rules of the Air
<b>SID</b>	Standard Instrument Departure Route
<b>SMS</b>	Safety Management System
<b>STAR</b>	Standard Arrival Route
<b>STATFOR</b>	EUROCONTROL Statistics & Forecasting Service



<b>MWO</b>	Meteorological Watch Office
<b>NAVAIDS</b>	Navigational Aids
<b>NDB</b>	Non-Directional Beacon
<b>NM</b>	Network Manager
<b>NOTAM</b>	Notice to Airmen
<b>NSP</b>	Network Service Provider
<b>OLDI</b>	On-Line Data Interchange
<b>OJT</b>	On the Job Trainee
<b>PBN</b>	Performance Based Navigation
<b>PBX</b>	Private Branch Exchange
<b>PRU</b>	Performance Review Unit
<b>PTT</b>	Push-to-Talk
<b>QMS</b>	Quality Management System
<b>RNAV</b>	Area Navigation

<b>SWC</b>	Significant Weather Chart
<b>TMA</b>	Terminal Manoeuvring Area
<b>TWR</b>	Tower Control Unit (Aerodrome Control Tower)
<b>UAS</b>	Unmanned Aerial Systems
<b>UHF</b>	Ultra High Frequency
<b>VCS</b>	Voice Communication System
<b>VFR</b>	Visual Flight Rules
<b>VHF</b>	Very High Frequency
<b>VOR</b>	VHF Omnidirectional Radio Range
<b>WAFC</b>	World Area Forecast Centre





2018 FIFA World Cup silver medalists and their fans celebrate on Ban Josip Jelačić Square in Zagreb





# Impressum

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