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19 - 20 May 2021





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### Ms. Coleen Hawrysko

Operations Programme Manager, CANSO

### **UTM** panel session



#### Ms. Coleen Hawrysko

Operations Programme Manager, CANSO



Mr. Ben Brooks Public Policy, Wing



#### Mr. Günter Graf

Vice President New Business Development, Frequentis



#### Ms. Angela Kies

Head Unmanned Aircraft Systems, DFS Deutsche Flugsicherung GmbH and Chair, UTM Taskforce, CANSO



#### Mr. Larry Ley

Digital Aviation, Boeing and Co-Chair, UTM Taskforce, CANSO

# UTM panel session



### Mr. Günter Graf

Vice President New Business Development, Frequentis



#### Actively shaping major trends in the control centre market



<br/>
<br/>
by Presenter>

General | © Frequentis AG 2021





<br />
by Presenter>

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# Thank you



# UTM panel session



### Mr. Ben Brooks

Public Policy, Wing



#### Safe, open and secure skies Innovation in UTM

CANSO APAC 2021



Today, Wing operates on three continents delivering packages to homes in cities







101753000

#### Our top priority is safe, responsible and secure operations



Survey of residents in Wing's first US city after a year of operations (Virginia Tech, 2021)





Delivery is only one application of UAS technology

The airspace will need to support diverse users Supporting diverse operations will require a scalable and accessible approach to data sharing



# We can build on the safety culture of traditional ATM with new technology to integrate UAS in shared skies



#### **Authorities** set the rules for UTM service providers

Minimum requirements for reliability, security and privacy

#### ...validate UTM service providers



#### ...and identify sources of authoritative / reference data



#### **UTM service providers** share flight information



#### **Operators** are supported by automated services



#### Awareness



# Flight validation



### Airspace authorisati



# Strategic deconfliction



# Network identification



# Innovation in UTM will support safe, secure and scalable operations in shared skies

**Automated services** 

Promote safe, responsible and secure operations

**Interoperable providers** 

Enable diverse operators to share data with authorities and airspace users

**Regulatory oversight** 

Set common requirements for reliability, security and privacy



Visit **wing.com** 







# Thank you



# UTM panel session



## Ms. Angela Kies

Head Unmanned Aircraft Systems DFS Deutsche Flugsicherung GmbH & Co-Chair CANSO UTM Task Force

#### **AGENDA**

CANSO Global UTM Task Force Goals UTM Survey 2021 Survey Conclusions

#### **UTM Task Force Purpose and Goal**

- Mandate from CANSO Global
- Address all related issues arising from the UAS integration into the airspace
- Inform and advise CANSO members to further their understanding of this emerging capability
- Apply internationally harmonised solutions for ATM/ UTM synchronisation
- Ensure a safe and efficient integrated airspace.

#### **UTM TF Integrated Two Year Plan**



#### **Questionnaire Represents Initial Outreach to Members**

#### **CANSO Global UTM Task Force UTM Survey 2021 structure**

#### UTM Survey 2021

- Demographics
- UTM Definition
- ANSP Organization Activities & Needs
- Operational Concepts
- Commercial Issues
- Statistics
- Airspace Security



#### **UTM Questionnaire responses**

- 38 total responses
- 3 responses come from industry (Egis, FREQUENTIS AG, Indra Navia AS)
- 16 responses can not be assigned to sender
- 19 responses come from ANSPs
- 22% of CANSO members (19 of 85)
- Europe: 14 ANSPs
- North America: no responses
- South America: 1 ANSP
- Asia: 2 ANSPs
- Middle East: no responses
- Africa: 2 ANSPs

## Impression of the results Q3 My ANSP has started UTM planning and implementation.



#### **Findings:**

- About 82% (27 answers) of the participants confirm the UTM planning and implementation in their ANSPs.
- About 18% of the participants (6 answers) have currently not started any activities for UTM planning and implementation.
### Conclusions

- 22% of CANSO members took part in the survey, but only 2 from Asia Region.
- UTM development questionnaire viewed as valuable.
- Development of a UTM system as important and sensible.
- UTM system is not only to be used for unmanned aviation.
- Further CANSO support required to strengthen the common understanding.
- Need for more exchange at the working level and information exchange on the CANSO media.
- Awareness that UTM Services will generate additional revenue.
- UTM System development and operating costs borne primarily by the UTM Service Providers, ANSPs and Operators.

Seek greater engagement and input from Asia Region.



## Thank you





## Questions

and

## Answers

## ATFM/CDM panel session



### **Mr. Sugoon (Kin) Fucharoen** Senior Air Traffic Management Officer, AEROTHAI and Co-Chair, ATFM/A-CDM Workgroup, CANSO



### Mr. Stuart Ratcliffe

Business Development Director & Principal SME: ATFM/CDM and ATM, Metron Aviation and Co-Chair CANSO ATFM/CDM Workgroup, CANSO



Mr. Fredrik Lindblom Sales Director & ATM Specialist, SAAB and Co-Chair, ATFM/A-CDM Workgroup, CANSO



**Ms. Anaelle Le Mentec** Digital Aviation Strategy Manager, Thales



**Ms. Midori Tanino** Manager, Engineering Services, FAA and Co-Chair CADENCE Task Force, CANSO



**Mr. Joe Hof** Manager, ATM Operations, CGH Technologies and Co-Chair CADENCE Task Force, CANSO



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## **Roles of ATFM/A-CDM in COVID ATM Recovery:**



- ATM Recovery from COVID-19 What does it look like?
- ATFM is not just balancing demand and capacity
- Predicting capacity and demand
- Ensuring right resources available to manage demand placed on resources

## **ATFM/A-CDM Process**

- Normally Capacity declaration is first step in ATFM
- Then demand is established
- Now ANSPs are wanting to know what the demand is, so they can set the capacity
- Then allocate resources to manage the capacity and demand
- This is very difficult now!



## What information is required?



## How ATFM/A-CDM will use this information?

- · Capacity can be set
- Appropriate resources can be planned for:
  - ANSP
  - Airport Authorities
  - Ground Handlers
- How can this information be shared with all stakeholders



## **Collaborative Decision Making:**

- $\circ$  Teleconferences
- Common Situational Awareness platforms that provide information to help with all phases of flight
- Operational Information Systems - CADENCE
- Virtual information sharing/planning meetings
- System-to-System Information Sharing



## **System-to-System Information Sharing**

- for the benefit of all



## Conclusion

- We all need to work together to manage ATM recovery
- ATFM/A-CDM can be central repository for Information
- Information must be shared as early possible and updated continuously
- ATFM/A-CDM responsible for sharing information with all stakeholders
- CDM is enhanced with common situational awareness
- Close integration between ATFM and A-CDM is required
- All stakeholders need to support ATFM/A-CDM process





## Thank you





## Ms. Anaelle Le Mentec

Digital Aviation Strategy Manager, Thales



THALES AIRSPACE MOBILITY SOLUTIONS

## CANSO APAC Conference 2021 Gearing up for recovery through extended ATFM horizon

ATM Innovation and Emerging Technologies



## Despite a feeble traffic growth after the Global Financial Crisis slow-down in 2010, congestion was higher than ever



### WHY EXTENDING THE ATFM FORECAST HORIZON?

ESPECIALY DURING COVID CRISIS AND RECOVERY PERIOD



### WHY FORECASTING?

ESPECIALY DURING COVID CRISIS AND RECOVERY PERIOD

	SHORT-TERM	MEDIUM-TERM	LONG-TERM				
	1+ days	1+ weeks 3+ months	3+ years 10+ years				
GENERAL NEED	<ul> <li>Sectorization/ resources optimization</li> <li>Capacity management (regulation measures)</li> </ul>	<ul> <li>Staff rostering adjustments</li> <li>Staff rostering</li> <li>Strategic capacity management</li> </ul>	<ul> <li>Staff management</li> <li>Revenues forecast</li> <li>Maintenance / system ugrades planning</li> <li>Equipment planning</li> </ul>				
COVID IMPACT	<ul><li>Lower capacity issues</li><li>But chaotic peaks</li></ul>	<ul> <li>Training/ competences sustainability</li> <li>Chaotic peaks</li> </ul>	<ul><li>Traffic level uncertainty</li><li>Plummeting revenues</li></ul>				



### HOW TO EXTEND YOUR ATFM PLANNING HORIZON?

ESPECIALY DURING COVID CRISIS AND RECOVERY PERIOD

### ITERATE AND CLOSE THE LOOP WITH ROLLING PLANS





2021 traffic VS 2019:

- Airlines: 43% to 61%<sup>(1)</sup>
- Cargo: -12%<sup>(2)</sup>
- Business jets: almost back to 2019 levels<sup>(3)</sup>

## DOMESTIC VS

Highly depending on you're the opening of your country's boundaries



Highly depending on the opening of origin country's boundaries



Sources: (1) IATA, (2) Seabury Cargo Capacity Tracking database, Seabury Cargo analysis (April 2021), (3) FlightAware

**KNOW YOUR OWN** SITUATION VERY WELL

Building a future we can all trust

# **ASSESS YOUR RESILIENCE TO PEAKS AND TROUGHS**

### SIMULATE DIFFERENT SCENARIOS AND MEASURE COMPLEXITY

- Optimize scale-down to adapt to loss of revenues
- Test levels of traffic that can be sustained with adapted organization
- Test your scaling-up strategy against different recovery scenarios
- Monitor complexity for each scenarios

### **USE AIRLINE SCHEDULES (WITH CAUTION)**

- Take a margin (airlines tend to overschedule and adjust last-minute)
- Follow their evolution and set alerts
- Enhance them thanks to CDM with airlines and airports

### MANAGE FLOWS RATHER THAN INDIVIDUAL FLIGHTS FOR LONG-TERM FORECAST

- Sets of flights with similar flown trajectories more appropriate than flight-by-flight approach
- Created out of flight schedules





### USE LARGE WW ORGANISATION FORECAST AS TRENDS, NOT DATA

- Extend the forecast beyond the schedule's horizon
- Understand the hypothesis behind each model
- Stay tuned for forecast updates
- Refine them with local actors

Forecaster	Forecast Type	Period	Updated	Last Published	Metric	Scope	Availability
1640	Mid-term	5 years	Yearly	December 2020	• PKP • FTK	Global / Regional / States	Public <sup>[3]</sup>
	Long-term	20 years	Biennially or Triennially	April 2018	• RPK • Growth	Global / Regional / States	Public <sup>[4]</sup>
Forecaster	Long-term	20 years	Biennially	April 2020	• Passenger numbers	Global / Regional / States	Subscription
ACI	Long-term	>20 years	Yearly	2019	<ul><li>Passenger numbers</li><li>Aircraft movements</li></ul>	Global / Regional / States	Subscription
	Short-term	2 years	Monthly	Live	<ul><li>Flight Movements</li><li>Service Units</li><li>Growth</li></ul>	EU / FAB / States	Public <sup>[5]</sup>
EUROCONTROL	Mid-term	7 years	Twice Yearly	October 2019	<ul><li>Flights</li><li>Service Units</li></ul>	EU / FAB / States	Public <sup>[6]</sup>
	Long-term	20 years	3 to 5 years	September 2018	<ul><li>Flights</li><li>Service Units</li></ul>	EU / FAB / States	Public [7]
FAA	Long-term	20 years	Yearly	July 2020	• Flights • ASM/ RPM • Passenger Enplanements	Regional / States	Public <sup>[8]</sup>
	Terminal Area Forecast	5 years	Yearly	2019	<ul> <li>Passenger Enplanements</li> <li>Total Operations</li> </ul>	Regional / States	Public <sup>[9]</sup>

Source: Educated guess, interpreting traffic forecasting during the pandemic, CANSO



Building a future we can all trust

### ITERATE AND CLOSE THE LOOP WITH ROLLING PLANS

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ITERATE AND CLOSE THE LOOP WITH ROLLING PLANS





### ITERATE AND CLOSE THE LOOP WITH ROLLING PLANS





### HOW TO EXTEND YOUR PLANNING HORIZON?

ESPECIALY DURING COVID CRISIS AND RECOVERY PERIOD



## Thank you







## Ms. Midori Tanino

Manager, Engineering Services, FAA and Co-Chair CADENCE Task Force, CANSO

## Mr. Joe Hof

Manager, ATM Operations, CGH Technologies and Co-Chair CADENCE Task Force, CANSO

## **CANSO ATFM Data Exchange Network** for Cooperative Excellence - CADENCE



CANSO and CGH Technologies virtual signing – CADENCE (March 22, 2021)

The agreement secures the provision of a purpose-built collaborative software platform based on the successful regional initiative CADENA (CANSO ATFM Data Exchange Network for the Americas).

CADENCE will enhance ANSPs CDM capability by:

- share information on factors affecting airspace demand and capacity
- facilitate enhanced situational awareness
- engage all stakeholders in the development of collaborative approaches to optimise air traffic

## Background: CADENA – Builds ATFM/CDM in Latin Americas and Caribbean Region

- 2016 Jun Established
- 2016 Dec Started regional ATFM/CDM Operational Planning Web Conferences
- 2017 Aug Initial CADENA
   Operational Information System
   (OIS) launched



CADENCE platform is based on CADENA OIS v3.2 (launched on Oct 2020)

## Values of Information Exchange



- CADENA has proved the CADENA OIS web application is an effective means to exchange information
- The value of information exchange and collaboration is most needed during irregular situations
- Achieved reduction of MITs, CO<sup>2</sup>, and airline's operational cost

## **OIS Benefits – Example**

### Qualitative Benefits - understood intuitively Quantitative (monetary) Benefits

- UAL Hurricane Maria Recovery Operation Case Study \$1.0M \$5.4M
- JBU Return Home from Hurricane Maria Case Study \$182.0K
- AAL Jamaica Loss of Radar Surveillance Case Study \$225.0K
- CPA Jamaica Loss of Radar Surveillance Case Study \$175.5K
- UAL Colombia Loss of Satellite Comm Case Study \$192.0K



Numbers in this briefing should not be interpreted literally, however, the **savings achieved by stakeholders are real**.

## **CADENCE Implementation in APAC**

### CADENCE will:

- Complement ATFM/A-CDM
   efforts in APAC region
- Provide the base OIS capabilities to APAC region
- Support APAC region to form its OIS implementation group
- Promote and support the usage of the regional OIS by APAC ANSPs, airspace users, airports, and other aviation stakeholders



## CADENCE OIS Platform Offered by CANSO and CGH

	Information -	Regional TMM <sup>0</sup>	Active Reroutes <sup>0</sup>	Delays <sup>0</sup>	Advisories <sup>0</sup>				
Regional O FIR SHANG Anticipated TMM Planne	Master Slid ADP Link F Reroute Re Contingene Al Airport Cap De Sector Cap d Participant	de Deck Files epository cy Form pacity pacity t List			-1				
Urgent Advi Weather	LOA List				- 8				
Constraints Special Events Equipment Outages Other ADP ADP File									
FIR SINGAP	FIR SINGAPORE :-								
TMM Planne	Anticipated Demand Information TMM Planned								
Urgent Advi	sory				_				
Weather Violennia Asi	Weather Victoria Astronomics								
Constraints	Constraints								
Special Eve	Special Events								
Equipment O Other ADP ADP F	Dutages								
FIR HO-CHI	FIR HO-CHI-MINH :-								

 The CADENCE OIS offers participating ANSPs and airlines the capability to <u>quickly</u> <u>share a wide variety</u> of operational information. For example:

## **CADENCE Platform: Advisories**



- Urgent Advisories regarding CNS outages, earthquakes, volcanic eruptions, etc.
- This enables the rapid exchange of operational information among stakeholders, especially when unusual events occur

## CADENCE Platform: Regional ATFM Measures

	-											
	Ξ	FIR SI	NGAPOR	E							ANSP / A	Airline
I Daily Plan		ATEM Solutions/Traffic Management Measures										
mation <												
onal TMM		Initiated By	Provided By	Element	Туре	Description	Start time	End time	Reason	NOTAM		
		WSJC_	VVTS_	WSSS (AIRPORT)	MIT	20 MIT RALT	07/MAY/2021 23:00	07/MAY/2021 23:59	DEMAND	N/A	Detail	-
e Reroutes		WSJC_	VTBB_	WSSS (AIRPORT)	MIT	20 MIT RALT	07/MAY/2021 23:00	07/MAY/2021 23:59	DEMAND	N/A	Detail	-
parture Delays												

- ATFM Measures, such as miles-in-trail, that have been implemented in the region can be entered and displayed for all stakeholders to see
- This enables common situational awareness regarding miles-intrail among stakeholders
## **CADENCE Platform: Chat**

	≡	canso	🗩 Chat	? Help	O Settings	Elegent
Main		v. Clobal Broadcast O				- i
Host Calendar						_
Weekly Conf		CADENAND Jak Hof Greetings to the Asia Pacific Conference !				
Hurricane Conf						
Master Slide Deck						
Contingency Form						
LOA						
ADP Link Files						
Reroute Repository						
PASA Route Requests		new global broadcast message			S	brid
Contact List						

 A Chat feature exists that allows participating stakeholders to quickly ask, and answer, operational questions

## **CADENCE and Asia Pacific ATFM**

## Asia Pacific region has ATFM implementation/Steering groups:

- The Asia-Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC) facilitates cross-border demand/capacity balancing
- Northeast Asia Regional ATFM Harmonization Group (NARAHG) harmonizes ATFM/CDM in North East Asia
- ICAO APAC ATFM Steering Group (**ATFM/SG**) develops a common Regional ATFM framework

**CADENCE** complements above groups by offering the APAC regional OIS platform



## Thank you

