

DSNA
Customer Relations Office
Jan 17th 2018



TAKING ACTIONS FOR IMPROVING ATM PERFORMANCE & PREDICTABILITY

SEMINAR
28th November 2017
FINAL REPORT



Ministère de la Transition écologique et solidaire



www.ecologique-solidaire.gouv.fr

DSNA



This report is to be read with the presentations used during the seminar

Welcome introduction

Maurice Georges, Directeur des Services de la Navigation Aérienne, welcomes all the participants to the third edition of DSNA's operational CDM@DSNA seminar. Attendance of the French Defense (both French Air Force and the Navy) and the CFSP (Computerised Flight plan Service Provider) for the very first time is particularly underlined. They are key players of the network performance. Amongst all others, their participation demonstrates the benefits foreseen of a more global collaboration to deliver solutions improving Air Traffic Management in the long term.

Customer and partner's concertation is today well in place within DSNA and covers all levels of concerns:

- at the tactical level for which DSNA ops staff are to be open to airline industry's realities,
- at the pre-tactical level with the recent set up of a bi-annual operational meeting (i.e. Operational Working Session) to find concrete solutions to airlines' expectations, such as potential city-pair or RAD restrictions' improvements, airspace design strategy,
- at the strategic level for which airlines are today involved in the definition of DSNA's master plan.

In their registration process, attendees were invited to share subjects they wanted DSNA to address during the meeting.

Social situation within DSNA

The number of ATCOs has regularly decreased since 2010. We are today at a turning point in all of DSNA's 5 ACC. Recruitments will be starting again and shall allow a stabilization of the ATCO workforce within the next 5 years. Flex rostering has been implemented in Reims, Bordeaux and Brest ACC to adjust the service offer to the traffic demand. The situation in Marseille ACC is somehow specific considering the age pyramid. Staff is rapidly decreasing. Transitional solutions such as flex rostering will be enforced for summer 2018, but as no agreement with local unions has been found yet, airlines should anticipate social tensions and potential induced disruptions.

Peak-time capacity

Improvements will come as DSNA deploys its 3 pillar plan based on human resources solutions, ATM system modernization and a strong CDM process with its customers and partners.

Free Route Airspace

DSNA follows its plan which falls within the FABEC FRA project (common CONOPS, information sharing, common best practices). H24 FRA should be implemented in all of the Brest ACC upper airspace by the end of 2019. Bordeaux would follow the year after and PCP conformity (i.e. 2021) is the target for the rest of the airspace.

Civil/Military collaboration

We must acknowledge the work done so far in terms of FUA, and agree that there is still room for improvement. 3 new requirements have to be taken on board:

- the need for cross-border cooperation and larger training areas. The defense needs have changed with the introduction of the new generations of fighters,
- the introduction of Medium Altitude Long Endurance Remotely Piloted Aircraft Systems and how to accommodate these new aircraft into air traffic,
- the increase of large scale military exercises at network level on the aegis of NATO, and the difficulty to establish reliable and timely coordination processes. Discussions at network level will be needed to find mitigations in that regard.



The Network Manager's performance review

Joe Sultana Network Manager director

Summer 2017

On average the network saw a 5% traffic increase in summer 2017, with some ACC facing double-digit growths. The South-west axis continued its rise and operations picked up in Eastern Europe. Saturdays remain critical as they were subject to the highest increase in traffic.

Performance was very similar to S16, which is disappointing for NM even if one should take into consideration that the traffic increase was managed with roughly the same amount of delays. Brest ACC results are very promising as it delivered more than expected. The Marseille ACC situation is a major concern for the NM, as well as MUAC (Maastricht Upper Area Control) and KUAC (Karlsruhe Upper Area Control) performance.

Adverse weather

The weather delays continued to significantly increase in summer 2017 (+30% / 2016). ACC protected themselves from weather events, which is normal. But when done too late it proved ineffective. All network actors must now look into means and solutions to better prepare the network to adverse weather forecasts. The NM will make it one of its S18 priorities.

2018 expectation

The NM shall focus on underperforming ACCs particularly in a growing traffic context. The forecast for 2018 is at +4%. Investments are needed to implement the latest generations of ATM systems, inter and extra-FAB coordination will be encouraged and supported to ensure full coordination and compatibility of ATFCM measures, airspace design should not suffer from boundary constraints and should be carried out in the spirit of the Single European Sky. The NM will issue a study that aims at identifying where airspace redesign should be rapidly happening.

Reference Period 3

Focus must be on capacity and its most relevant targets (i.e. staffing, airspace design, collaboration at network level). Eurocontrol wishes to see its mandate as the European Network Manager renewed by the European Commission.

Air France's performance review


Raphael Eyrolle (OCC ATM manager) and Laurent Renou (ATM manager)

https://www.ecologique-solidaire.gouv.fr/sites/default/files/CDM_DSNA_Air_France.pdf

DSNA accounts for 55% of Air France ANSP delays in Europe. A slight decrease was observed in July 2017 but picked up again in August, with a huge concern on Marseille ACC situation for which Air France wishes to see improvements for summer 2018. Operations to/from Corsica were very significantly affected with costs due to delays estimated at 50M€ for summer 2017 only. Air France hopes for better collaboration with Marseille ACC FMP next summer.

Air France began using the Collaborative Advanced Planning (CAP) in 2017 and believes this solution to be very promising. It emphasizes the benefits that come from closer tactical collaboration at operations level. Air France underlines the great working spirit with Paris ACC that has led to a significant reduction of the delay in their most critical control sector (i.e. TE, North-Eastern arrivals to CDG and ORY).

The status of the ATFM delay situation in France raises a question though: have ERATO and the recently implemented flex rostering solutions delivered their full potential yet? Is there still room for improvement?



On the terminal areas' side, some major steps have been taken with the implementation of RECAT EU and RWSL in Paris CDG. The performance roadmap agreed upon between Groupe ADP, DSNA and the airlines (Air France being the number 1 airline on the airfield) has proven beneficial. The increase of capacity has been delivered (73 arr/h and -20% delays). However, better information and collaborative decision making should be sought with Paris Orly (Groupe ADP & DSNA). Airlines were very lately informed of the impact of the refurbishment of the control tower and airside works on the airfield that led to significant delays. All the benefits generated from the great collaborative work carried out during the runway works in summer 2017 were lost during the end of the summer season, because of a lack of coordination.

Finally, Air France wishes DSNA to bring more visibility on the benefits delivered by a more intensive use of CPDLC (Controller Pilot DataLink Communications). Aircraft are beginning to be all equipped and airlines should be encouraged to use the service.

DSNA summer 2017's performance review

DSNA - Aurore Bibard head of ATFCM division, René Feillet head of airspace and strategy division
https://www.ecologique-solidaire.gouv.fr/sites/default/files/CDM_DSNA_ATFCM.pdf

DSNA ATFM delays increased by 10% between April and October 2017 compared with the same 2016 period. Most of this delay was due to ATC capacity flaws. Adverse weather also played an important part in the disappointing summer 2017 results.

Breakdown can be done between elementary sectors (control sectors that cannot be further split) and collapsed sectors (group of sectors for which staff is not available to have them split into elementary sectors, either because of ineffective rosters or shortage). On the one hand, the collaborative ATFCM plan (MAC) put together for the summer 2017 proved very promising with an ATC capacity delay reduction of 17% on elementary sectors, on the other, the lack of local roster agreement in Brest (acted in Sept 2017) and Marseille ACC notably caused an ATC capacity delay increase of 23%.

DSNA is moving forward and preparing the MAC 2018 plan that shall address the top delay contributor control sectors, with a focus on peak-time capacity. However, DSNA wishes to underline the difficulty to obtain short term solutions for Marseille ACC as they will involve other European ANSP for which coordination takes time.

DSNA is also working on a post-ops interface that will share with the users the daily results of the implementation of the MAC measures.

Airspace design

Attendees were invited to particularly consider the following projects:

- On March 1st, 2018 a new upper airspace network will be implemented in Bordeaux ACC. This new improved network will combine Airforce needs for TSAs (Temporary Segregated Areas) more adapted to their operations with increasing demand for capacity by airlines. It will also prepare the future Barcelona-Bordeaux interface.
- DSNA's centralized approach strategy going forward with the Rodez approach being managed by Clermont as of March 29th 2018.
- The extension of the area of responsibilities of Brest APP that should make Brest ACC a fully upper airspace center in the years to come

How do airlines process their flight planning

EasyJet – Geoffrey Kingston Flight planning manager

<https://www.ecologique->

[solidaire.gouv.fr/sites/default/files/CDM_DSNA_easyjet_flight_planning.pdf](https://www.ecologique-solidaire.gouv.fr/sites/default/files/CDM_DSNA_easyjet_flight_planning.pdf)

70% of EasyJet traffic transits through the French airspace which makes DSNA and its ATM performance a real concern. EasyJet observes a drop in its On Time Performance (OTP). Its flight management office has been required to look into ways to improve it via the filter of more efficient flight planning and constraints avoidance. This is achieved through:

- intense collaboration with its flight plan provider (i.e. LIDO) in tracking the rejects and identifying their reasons. EasyJet has a zero failure objective for its flight planning, but at this stage 70% of the flight management team is on working the flight plans for the next day of operations which leaves only 30% to monitor the real time.
- Optimized routes in the FPL being updated 1 hour before the crew has to report. This update makes sure the flight plan is the most efficient one, either minimum cost or minimum fuel according to the situation.
- Slot monitoring done with the CHMI and using a flight prioritization tool (flight revenue, crew turnover, curfew management, etc.).
- Analysis of the delay per call sign. For delays with ATC capacity reasons avoid repetitive work for dispatchers consistently filing through a hotspot.

Explaining lack of predictability at the flight planning level

At D-1, airlines don't know where they will be planning, so neither will ANSP.

Until now, route selection is based purely on efficiency (minimum cost/fuel burn). No consideration of airspace capacity or bottle necks.

The more complexity in the network (RAD restrictions, military activity, etc.), the more errors in the issued flight plans, the more aberrant they can become.

easyJet suggests the following

Why don't ANSP tell airlines where to go, taken into consideration the status of their airspace?

Update the ANSP flight plan modelling tools to mirror that of CFSPs for more accurate flow predictions.

Continue to favor proactivity over reactivity.

easyJet and CAP

The CAP reality is challenging. The workload could become unsustainable if the CAP ramps up with no automation looked into. ANSP should also take on board the difference in airlines' business models. For easyJet, catching the crew in the crew room to hand out the latest amended CAP flight plan is a challenge.

The traffic predictability challenge

DSNA – Pascal Avon head of ATS Marseille ACC and Gilles Gourbeille FMP Manager Bordeaux ACC

<https://www.ecologique->


[solidaire.gouv.fr/sites/default/files/CDM_DSNA_predictability_presentation.pdf](https://www.ecologique-solidaire.gouv.fr/sites/default/files/CDM_DSNA_predictability_presentation.pdf)

Traffic predictability has to improve, not only for safety reasons (traffic peaks occurring even inside a regulated time period) but also because unpredictability impinges capacity. Indeed, unreliable traffic demand predictability forces FMP to ask for more protective regulations with higher margins in order to ensure safety. All network actors may legitimately feel frustrated if the capacity is not used at its maximum potential. Work is done on the three scales of ATM:

- in the strategic phase by adjusting airspace design to new traffic patterns or by taking advantage of airlines flight program to anticipate the demand and potentially adjust the rosters,


- in the pre-tactical phase by preparing the ops room configuration to optimally coincide with the demand and implement the best set of adjusted ATFCM measures,
- in real-time operations by ensuring flight adherence and fitting the demand to the available capacity. In the very near future all French ATCOs will have access to the filed flight plan directly on the control working position. This new tool will help providing the bigger picture and help flight plan adherence.

Attendance was shown examples of what one may consider as unexpected or aberrant flight planning. These flight plans even if relatively rare cause reactive and over-protective actions in the control room. In the cases of sharp turns and yoyo flights, the consequences on safety could be critical if they were not detected with anticipation.

	<p>To measure whether the demand is real or artificial, and make educated guesses, ANSP should investigate integrating the CFSP algorithms into their own flight management tools to better understand the refile actions (i.e. CFSP wind efficiency profiles, etc.)</p>
--	--


All DSNA ACCs acknowledge that full flight plan adherence is impossible, but the higher the predictability the higher flexibility can be delivered.


The traffic predictability debate panel





	<p>Traffic volatility may have different reasons starting by a CTOT window (-5/+10 min) that one could judge hardly compatible with optimum predictability. Daily tactical airspace user actions can also be triggers to unpredictability (i.e DCTs, military airspace booked and released in anticipation, aircrews wishing to fly the FMS computed cruising level instead of the flight plan and ATC accepting). As difficult as it may be to accept by first line actors, ANSP and crews' wish to optimize trajectories in real time is a volatility driver.</p> <p>The future will see improvements with the use of the target time process, FF-ICE and CAP .</p>
---	---

Could the NM be the facilitator of a group listing best practices for slot avoidance and defining flight planning criteria or filters to eradicate aberrant flight plans?

NM answer: work is underway with the CFSP group. A document will soon be released defining what is expected from flight plan providers in respect of network constraints. The idea is to promote a virtuous circle between ANSPs, CFSPs and the NM.

	<p>HOP! action on traffic predictability consists in involving the aircrews and making them understand the benefits of flight plan adherence. However, flight planning in HOP! still relies on RPL and aircrews are also invited to optimize their flight in real time. HOP! advocates for bringing the flight plans closer to what is daily flown.</p>
--	---

	<p>The CFSP flight plan is far more efficient than the FMS which is purely a snapshot. It illustrates the need for education within the first line actors' community. Shorter and higher is no longer systematically the best solution</p>
--	--

	<p>It is not in pilots' DNA not to optimize their flight taken into account their real time flying conditions. However, aircrews will always comply with ATC clearances. Therefore, flight plan adherence will mostly be achieved by ATCOs, providing that they have the global picture of the effects of their actions.</p>
	<p>The slogan to disseminate should be “the more predictability, the less regulations”. This implies pro-activity in ANSP to collaborate with airlines and raise awareness on ineffectively planned city-pairs (i.e. CAP process is a great illustration that ANSP-guided re filings to push back the need for a regulation is effective)</p>
	<p>It's the combination of RAD rules that makes the network difficult to plan through. Less complexity will lead to less flight plan errors. Besides, the entire CFSP community is awaiting accurate definitions of what a yoyo flight or a sharp turn are, in order to be able to code them. Good definitions create good coding. The NM has put together a yoyo task force to deal with this concern amongst the ANSPs.</p>
	<p>We are today reaching the limits of the system and all network actors should be aware of it. Collaboration Decision Making is the only way forward to deliver short term results. The work put into flight planning errors consumes resources in a context for which they are becoming scarce.</p>

What about A-CDM expansion to help predictability?

Indeed, A-CDM is a very efficient predictability enabler as it provides the network with pre-departure data that helps the accuracy of the traffic demand.

HOP! agrees for A-CDM being extended to medium size airport. However for smaller airfields a lighter form should be looked into. The advanced ATC tower concept seems to be the way forward.

Workshops report

https://www.ecologique-solidaire.gouv.fr/sites/default/files/CDM_DSNA_workshops_wrap_up.pdf

SESAR to provide flexibility for airlines operations

User Driven Prioritisation Process

The user driven prioritization process (UDPP) addressed in SESAR projects in particular PJ07 gives more flexibility to airspace users to reschedule their flights when facing capacity constraints and congestion. This is possible because UDPP allows airspace users to enhance the current swapping capabilities as well as to protect important flights to the detriment of less critical ones. More info: <http://www.eurocontrol.int/udpp>

DSNA has followed a use case approach in SESAR very large scale demonstrations. The process was experimented with the Paris-Orly curfew management in summer 2017.

By aggregating different sources of data via B2B and by obtaining flight sequences, DSNA could identify the aircrafts at risk. Through close collaboration with airlines OCC and concerned ACC, all possible actions were carried out to ensure the respect of the curfew limit. This use case notably allowed testing the effectiveness of the communication channels used.

This experimentation showed that:


- all constraints needed to be shared amongst the partners.
- airlines needed to clearly explain what makes a flight the best candidate for prioritization (revenue, crew turn over, curfew time to meet, etc.),



- ANSP could share their real time control room opening schemes for more visibility.

What is the best way to get the information (i.e. flight to prioritize) to ANSP?

SWIM will get the information through and SESAR will allow looking into automation. How to make the best use of this information and ensure customer driven digitalization?


	<p>Transavia raised the issue of moving traffic regulations as it triggers lack of predictability on their side. Concrete solutions need to be investigated to reduce the number of CTOT issued after the EOBT (Estimated Of Block Time)</p>
--	--

DSNA answer: Moving regulations are a result of network instability due to excess of traffic volatility making the demand impossible to read.

Collaborative Advanced Planning (PI24)

Extending CAP to many more traffic flows but to what extent?

- Cross border CAP awaited to address full traffic flows.
- Daily post ops analysis needed to show the benefits to users and ensure trust in the process.
- Automation to be looked into within the SESAR framework.
- Investigate CFSP integration?


	<p>Haven't we reached a level of complexity in already asking CFSPs to best integrate Free Route Airspace and combined (and sometimes antagonized) RAD constraints? Will CFSP manage to take CAP onboard? CFSP need insight as to where we are heading at.</p>
---	--

DSNA answer: CFSP are reminded that CAP contributes to the network stability by organizing refileing in collaboration with airlines when a hotspot is detected.

AOP/NOP integration

The integration of Airport (AOP) and Network (NOP) focuses on the timely exchange of relevant airport and network information, resulting in a common situational awareness and improving network and airport planning activities as well as overall operational performance. The collaborative airport and network processes should deliver arrival and departure predictability for both the airport and the network in nominal and adverse conditions.

Group ADP advocates that information sharing amongst all airport partners (airport operator, airlines, ANSP, ground handlers, met office) participates in more predictability, and thus more flexibility. Without this process, D-Flex in Paris-CDG could not have been deployed. Transparency is key in delivering predictability.

	<p>Standardization of departure clearance procedures within Europe is awaited by the pilot community. When the procedures are complicated and non-harmonized, it is difficult to obtain crew adherence</p>
--	--

NM answer: an A-CDM task force has been addressing this issue for some time now, with difficulty to reach a compromise between the various states



Improvements of the ASM


Airlines express their need to have access on a daily basis to more active areas and also to be able to use some routes that exist but are not available. The main issue is to find a process to give, share and use the information of an active area that is not used.

The French Defense comes back on the booking process; it needs a preparation of the airspace use plan for military and civilian aircraft. Military missions need flexibility as they are planned sometimes at last minute to take into account the weather, the crew and aircraft availability. The need for civilian aircraft to use the airspace is known but when to share the information of a not used active airspace? What is the right timing? It's a question that needs to be answered taking into account a good balance between flexibility for the mission and predictability for airlines to plan their flights.

To identify the right timing, the French Defense and DSNA propose to launch **a trial involving also airlines and CFSPs. It will help to identify the area, the "when", the process to share the information.**

Today, DSNA explains that, for manageable areas, the information is shared via AUP at Day - 1, it could probably be improved to D-2. Between D-7 and D-1 there is a negotiation between DSNA and French Defense, using CDM process, which is taking into account the capacity, the sectors load, the flow management within ACCs.

The issue remains for NAM (Non AMC Manageable) areas given in the AIP: how to use them for civilian aircraft when it is not used by the military?

	<p>AIP is mandatory so there is a need to find a way to publish "officially" that NAM contained in the AIP can be used when not active and "released" by the French Defense.</p>
--	--

Airlines would prefer to have only manageable areas.

The French Defense insists on their need to have areas that they can use for their missions whenever they need it, without prior notice or negotiation with the DSNA. When a NAM is not used they share the information via UUP.

The NM comes back on the important question of what is the time limit to disseminate the information so that the airlines can use the airspace.

DSNA points out that this concern will have to be answered through the trial by involving all the actors including the NM, CFSPs and airlines. One solution could be that the AIP clearly mention the AUP can modify the activation of a NAM. There are probably other tools to think about to share the information on time.

Preparation of military exercises

Recently some military exercises disrupted air traffic; a preparation in advance of such exercises, involving all actors, would help to minimize the impact.

Airlines understand the need of such exercises and as hopefully it's not a daily business, if the time period and the localization are known and prepared in advance, they can adapt.

The French Defense explains that the NATO has implemented a process to organize such exercises with early information of the ANSP and coordination with Eurocontrol and the NM.

DSNA delivers the information through the creation of restricted areas in the Supp AIP, which are published in advance.

LIDO confirms that such information published in the AIP is taken into account for flight planning. However the access to this information is different from one State to another, there is a need for harmonization of the publication of restrictions in the supplements. And even if they are published in the NOP portal, it's not sufficient as they don't consult it on a daily basis.



What about Free Route and FUA in the future?

Airlines are curious to know how the NAM will be dealt with. Will the military exercises be moved to other areas in order not to disturb the free route airspace?

The French Defense and DSNA admit that there are problems to solve, publications to clarify and some decisions will have to be taken at a higher level, Ministry one.

	LIDO claims an early involvement in the process, to share ideas, learn from what was done in other State
--	--

Conclusion

DSNA – Eric Bruneau, director of operations

DSNA's priority is to prepare the summer 2018. Adjusted and coordinated measures to deliver the best capacity need to be implemented. Apart from flex rostering, the human resources' level will take more time to deliver its full potential, as it can take up to 4 years between an ATCO recruitment and its full qualification. All new resources will be appointed to ACCs and Paris CDG. Technical upgrades will be delivered in the short term to improve radar coverage over the Mediterranean Sea. Discussions have begun between the core area service providers to deliver a set of coordinated and consistent ATFCM measures.

Progress has been made since the first CDM@DSNA seminar in 2015 but the stakes are high and challenges remain to find the appropriate balance between predictability and flexibility before the EOBT-3h threshold.

Nom du service
N°, rue XXXXXXXXX
CP Ville

Tél. : xx xx xx xx xx
Fax : xx xx xx xx xx

