



SESAR DEPLOYMENT MANAGER WORKSHOP AIRPORT SAFETY

Airbus initiatives on airport safety nets

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AIRBUS

AGENDA



Aircraft function	What?	Sesar industrial research
ROPS	Runway overrun prevention system	In deployment
Braking Computation Action « CORSAIR »	Aircraft as a friction sensor	PJ03B06
Surface Alert SURF-A	Runway incursion alerting system	PJ03B05
TAXI-ROUTING	Routing display on airport map	PJ03A01

ROPS

ROPS = Runway Overrun Prevention System



Runway/Taxiway Excursion Accidents

IATA Safety Data 2012 - 2016

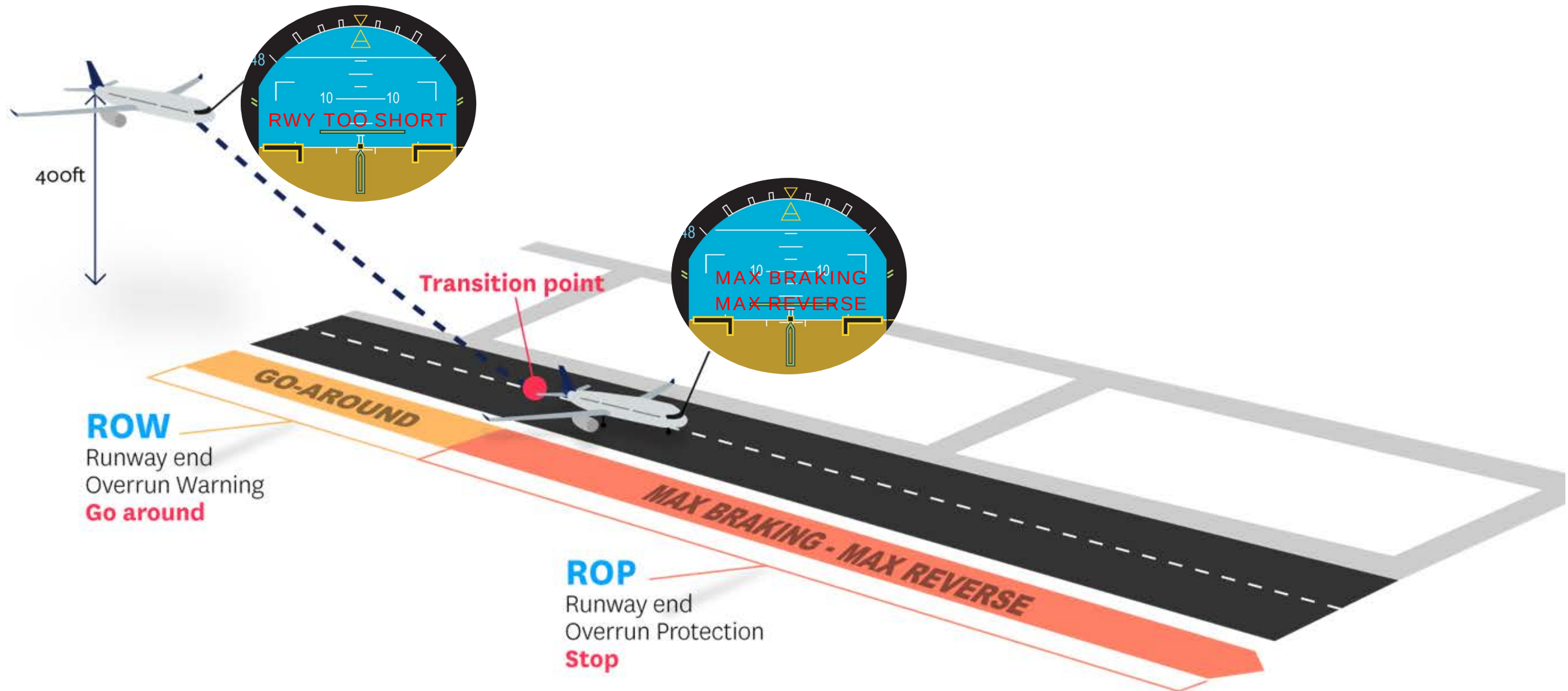
Out of a total of 375 accidents:

- **82 were RWY/TWY excursions (22%)**
- **Resulted in 14 fatalities**
- **Accounting for 40% of hull losses**

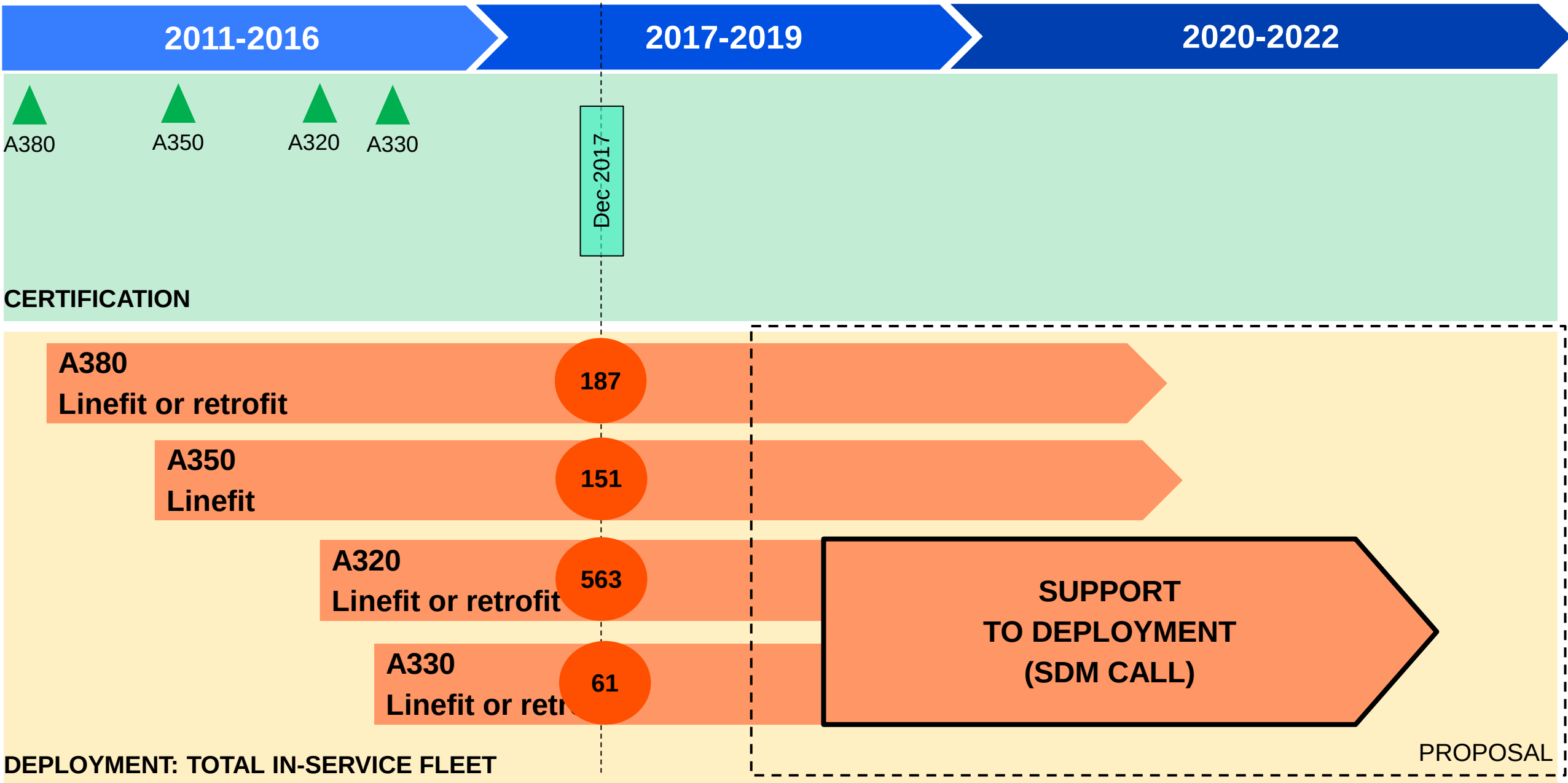


ROPS (2) - CONCEPT

ROPS = Air + Ground alerting = ROW + ROP



ROPS (3) - ROADMAP



Braking Computation Action

« CORSAIR »

CORSAIR (1) - CONTEXT

Beyond ROPS, push further the runway excursion risk alleviation.



CORSAIR (2) - CONCEPT

AIRBORNE FUNCTION

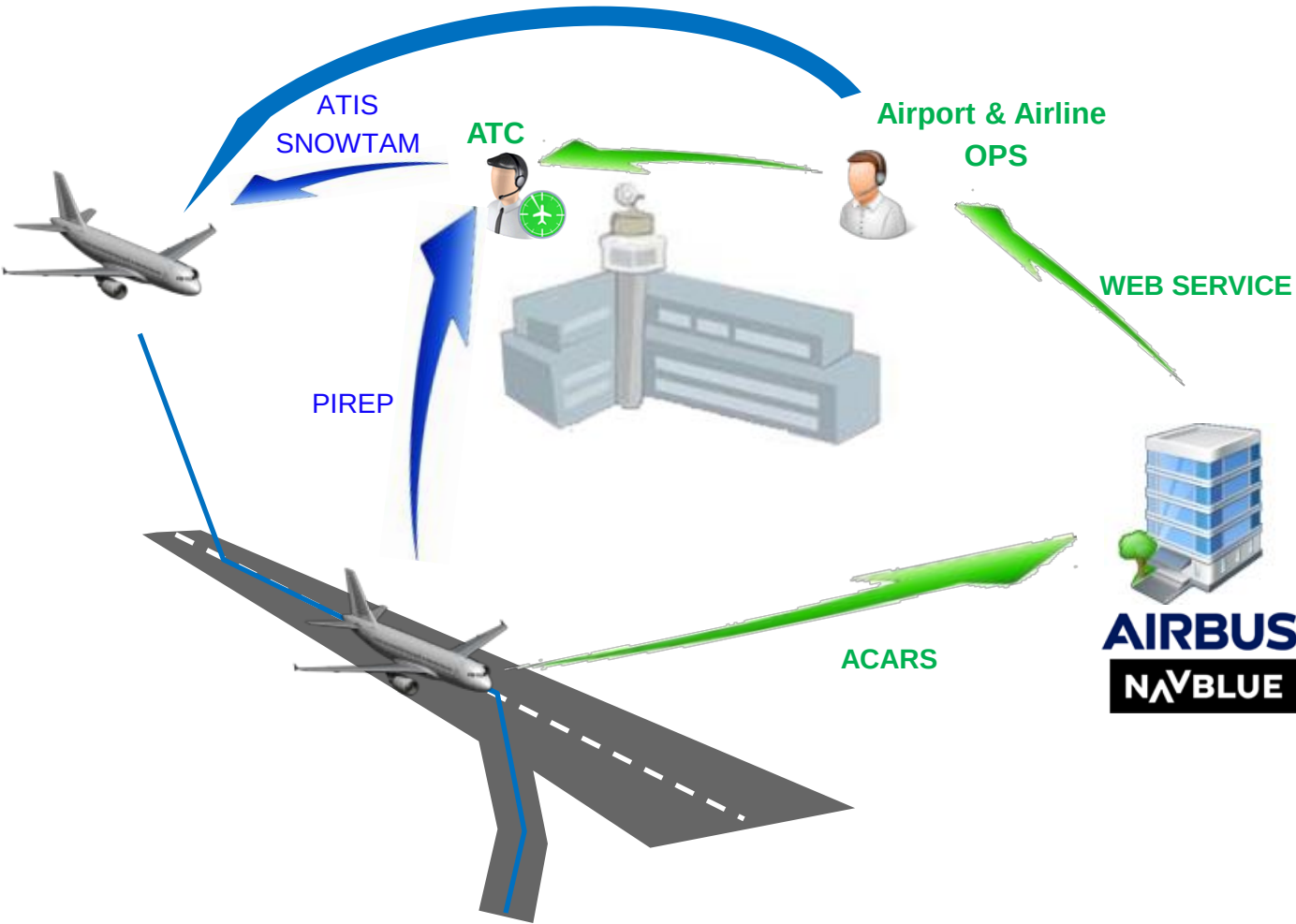


Compute RWY condition code after landing

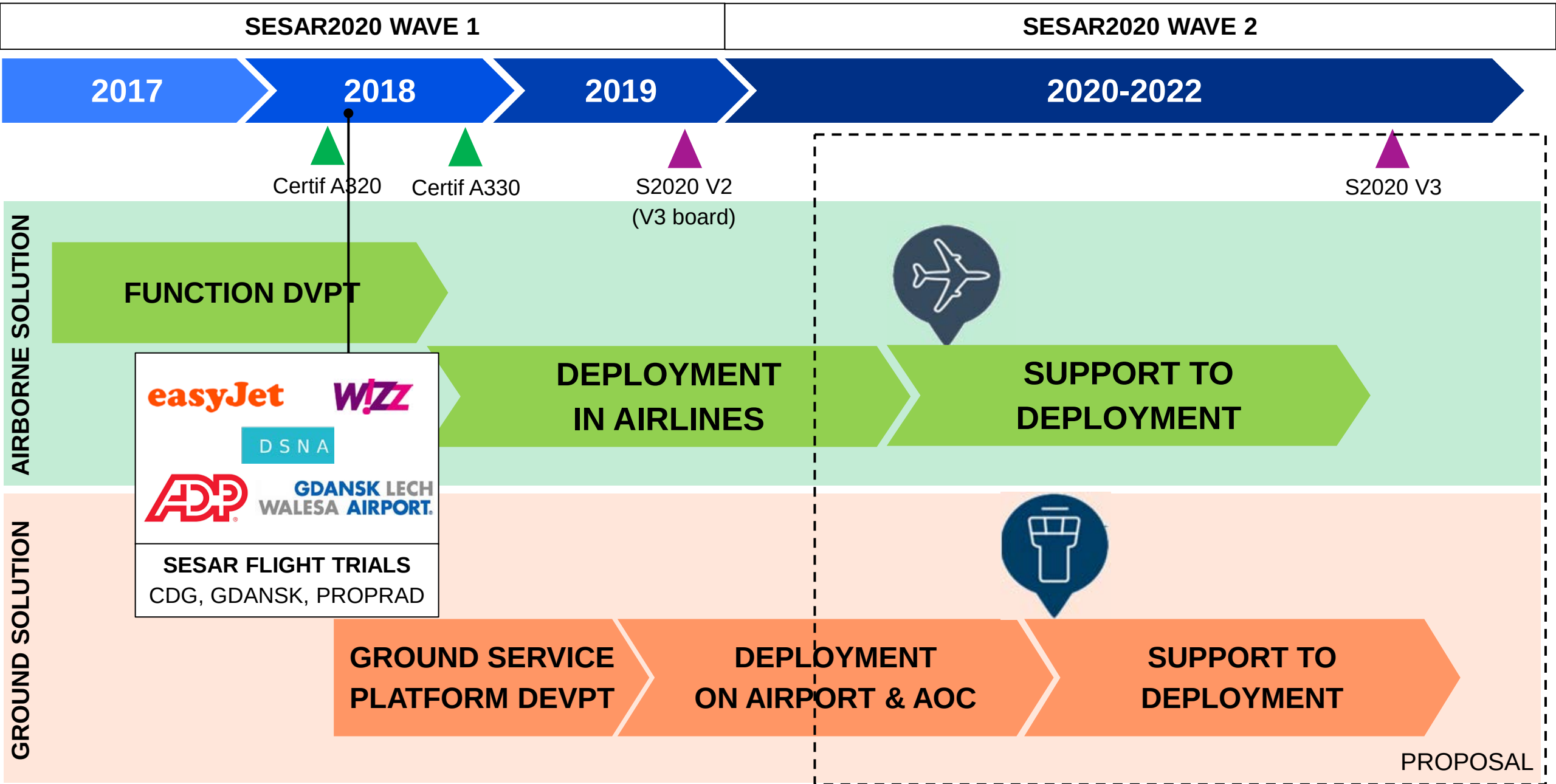
Code	Condition
6	DRY
5	GOOD
4	GOOD to MEDIUM
3	MEDIUM
2	MEDIUM to POOR
1	POOR
0	NIL



GROUND SERVICE



CORSAIR (3) - ROADMAP



SURFACE ALERT (SURF-A)

SURF-A (1) - CONTEXT

SURF-A = ONBOARD ALERTING SYSTEM TO PREVENT RUNWAY COLLISION

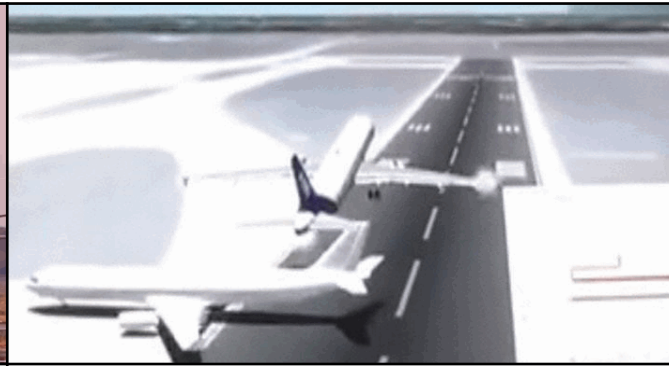
AIRBUS developps an onboard function to prevent:



Barcelona, 6 July 2014

B767 aborts landing

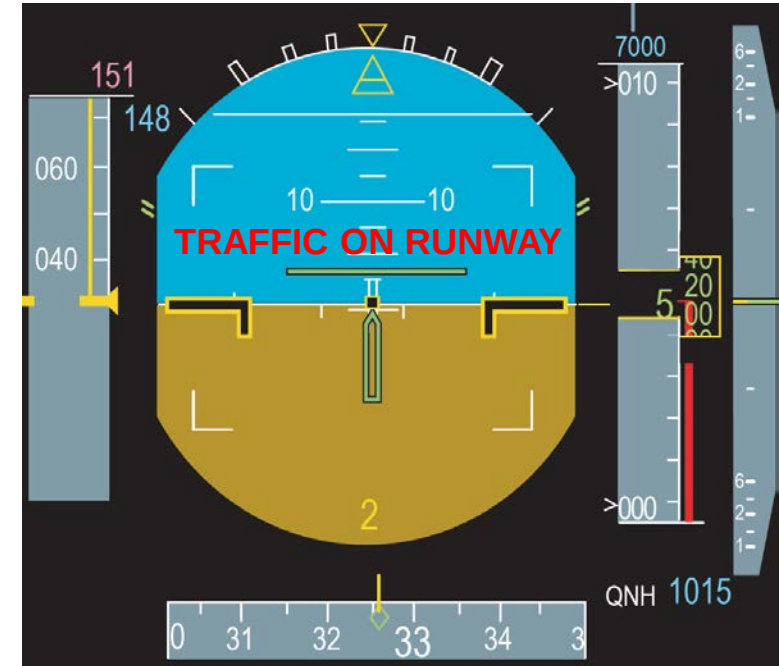
<https://www.youtube.com/watch?v=1N5THRSp4hM>



Shanghai, 11 Oct 2016.

A333 take-offs over A332.

<https://youtu.be/jyshWtu8zZM>

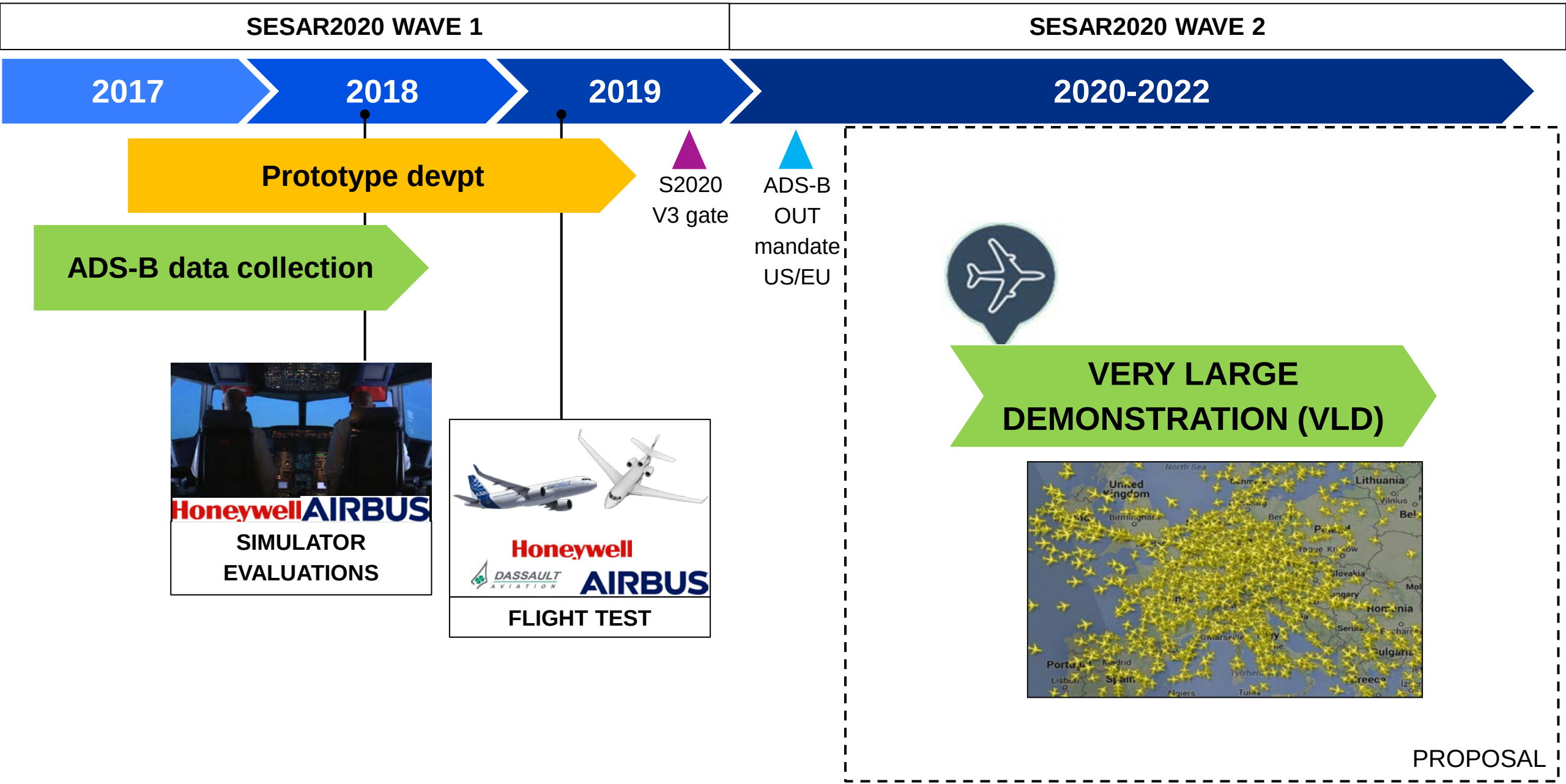


Worldwide, near-missed collisions due to runway incursion is about **once a week** !

SURF-A ALERTING SYSTEM:

- ✓ DETECTION ALGORITHM in TCAS UNIT
- ✓ ADS-B TECHNOLOGY
- ✓ STANDALONE AIRBORNE SOLUTION
=> AVAILABLE REGARDLESS OF AIRPORT EQUIPMENT (A-SMGCS...)

SURF-A (3) - ROADMAP



TAXI ROUTING

TAXI ROUTING (1) - CONTEXT

TAXI-ROUTING = DISPLAY A TAXI ROUTE ON AN AIRPORT MOVING MAP

- **SESAR 1** showed huge **added value** of display taxi route:

- ✓ Better situation awareness
- ✓ Taxi phases easier and safer (e.g. runway incursion)
- ✓ Especially on complex, unknown airport or low visibility
- ✓ Datalink clearances: Avoid confusion in listening/typing & reduce voice communication

- Not directly a safety net but participate to airport safety.

<http://www.air-journal.fr/2017-11-18-nice-cote-dazur-un-avion-confond-une-voie-de-roulage-avec-la-piste-de-decollage-5190679.html>

- **Challenges** have been identified:

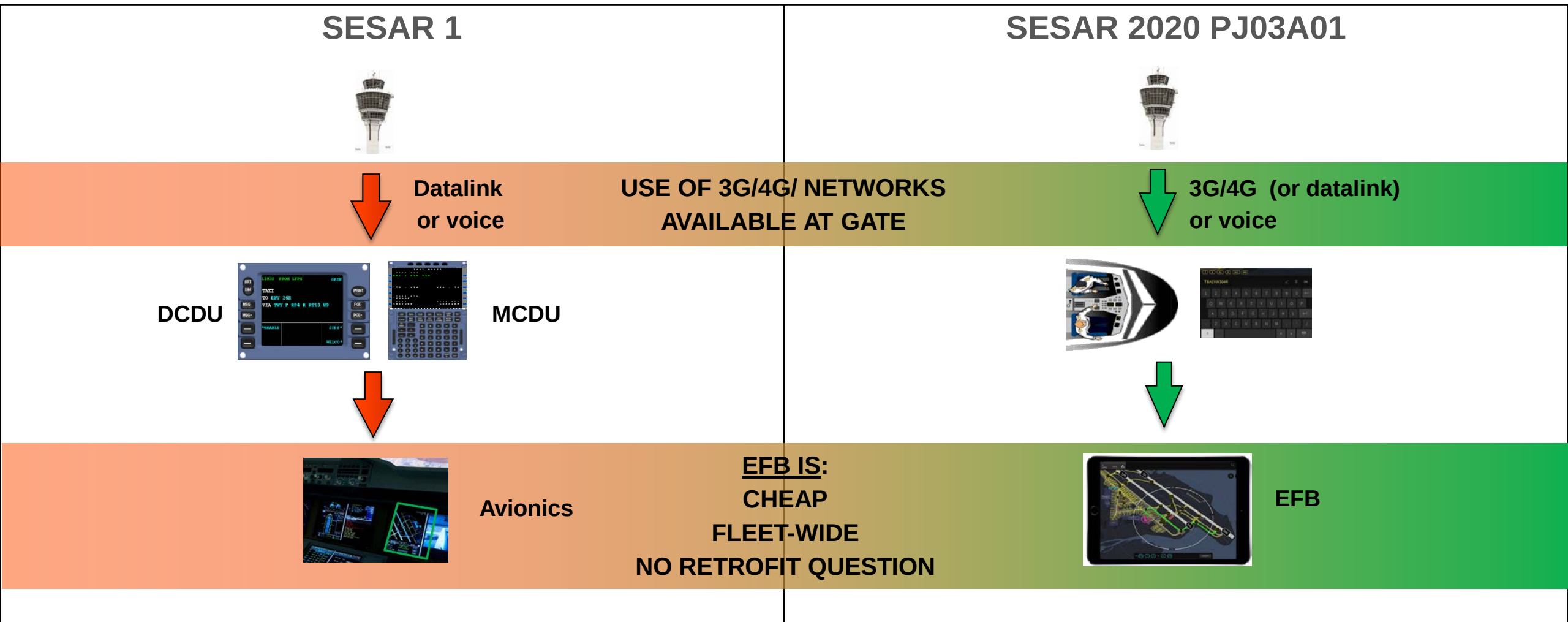
- ☐ **Technical:**

- ✓ Lag of message transmission for a departure clearance
- ✓ Pilot workload during turn-around-time

- ☐ **Deployment:**

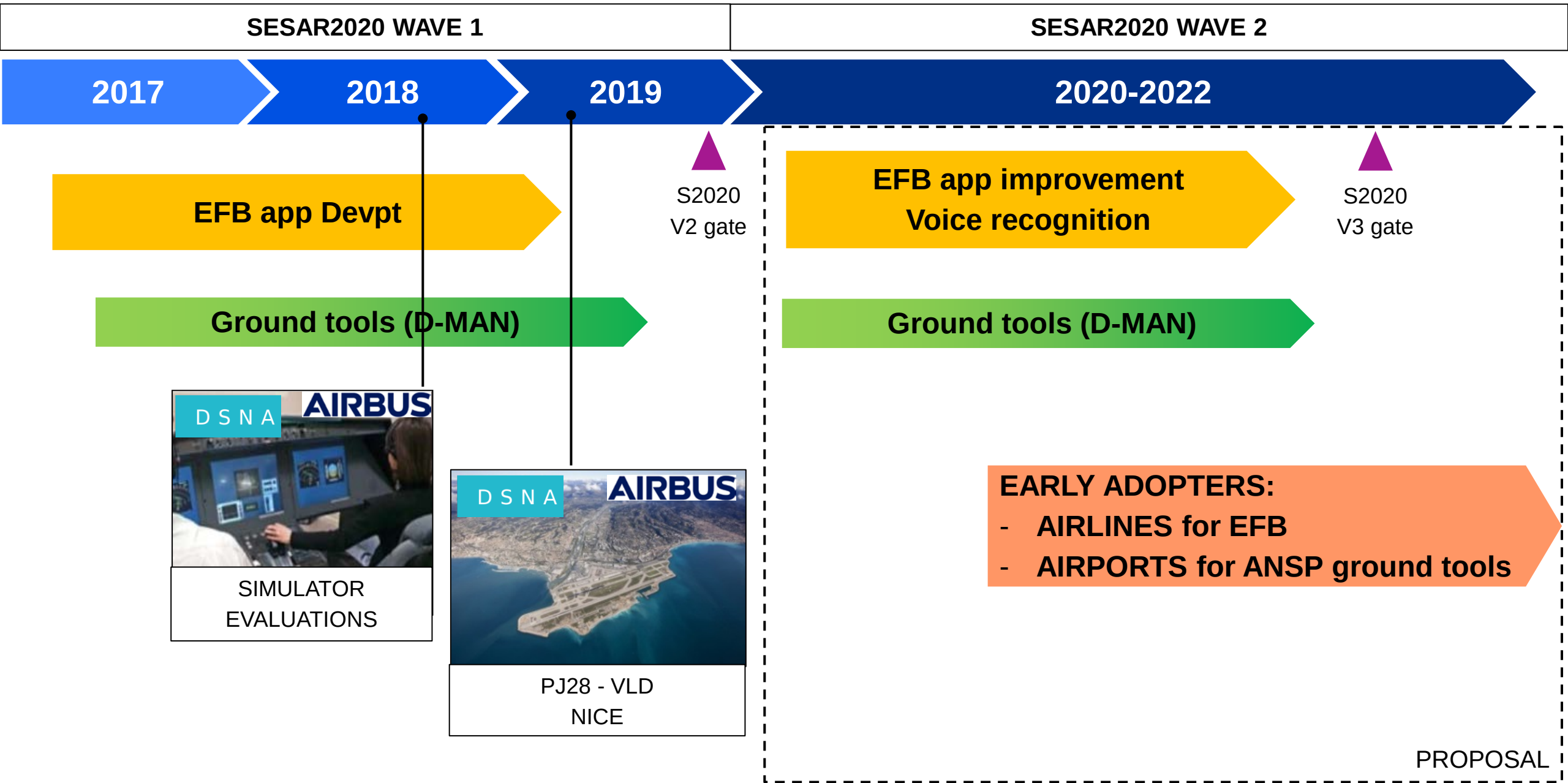
- ✓ Expensive deployment of datalink on airports
- ✓ Industrial deployment on aircraft not equipped with airport map in avionics

TAXI ROUTING (2) - CONCEPT



DCDU: Datalink Control and Display Unit
MCDU: MultipurposeControl Display Unit

TAXI ROUTING (3) - ROADMAP



Thank you for attention