

A-CDM

Airport Collaborative Decision Making



What is A-CDM?



- ✈ „Single European Sky“- project
- ✈ Optimising Resources
- ✈ Inbound - Turnaround – Outbound seen as a big process
- ✈ „Estimated Off Block Time“ (EOBT) minus 3 hours before take off
- ✈ Austro Control and Vienna Airport

What to improve?

- ✈ prediction
- ✈ punctuality
- ✈ Resources

NMOC is connected indirectly (locally implemented) or directly (fully implemented)

NMOC Network Management Operation Center

How does A-CDM work?



- CDM is a procedural and cultural change
- CDM is highly transparent
- CDM means a lot of data is exchanged and used in realtime



CDM – Milestone Process



TOBT – Target Off Block Time



- ✈ The time when the aircraft operator expects to be ready for startup and pushback
- ✈ TOBT can be set 2 hours before the EOBT, until 30 minutes prior to EOBT
- ✈ Changes in the TOBT of more than five minutes have to be communicated by updating the TOBT



TSAT – Target Startup Approval Time



- ✈ TSAT is calculated by ATC based on the TOBT, the available capacity, the demand and possible NMOC regulations
- ✈ At TSAT, the aircraft can expect startup and pushback approval
- ✈ Calculation of TSAT starts as soon as a TOBT is available
- ✈ Startup will be approved at TSAT +/- 5 minutes



Time- Stamps



AUA745

From: LOWW	EOBT: 12:00	Rule: IFR
To: LDSP	EET: 00:55	RFL: 360
Type: A320	CTOT: 12:21	CFL: 5
RWY: 16	ETA: 13:07	COO FL:
Stand: F09/PUSH	SID: STEIN4B	Speed:
TOBT: 12:00	TSAT: 12:15	TSAT SUP: 12:15
	ETOT: 12:20	TTOT: 12:20
		TTXCLT: 12:13

Route: STEIN4B STEIN DCT KOPRY DCT NUPSO/N0400F250
DCT OKLAX OKLAX2D

Remark:

50 STEIN4B 7125 delivered: 11:47	Start-up approved: 12:09
Clearance delivered via DCL: 11:47	Taxi clearance issued: 12:14
Start-up denied: 12:00	Line-up approval: 12:19
Stand by 15 minutes: 12:00	Take-off clearance: 12:20

CLOSE

AUA745

STE4B

5

10

ABN

A320

F09

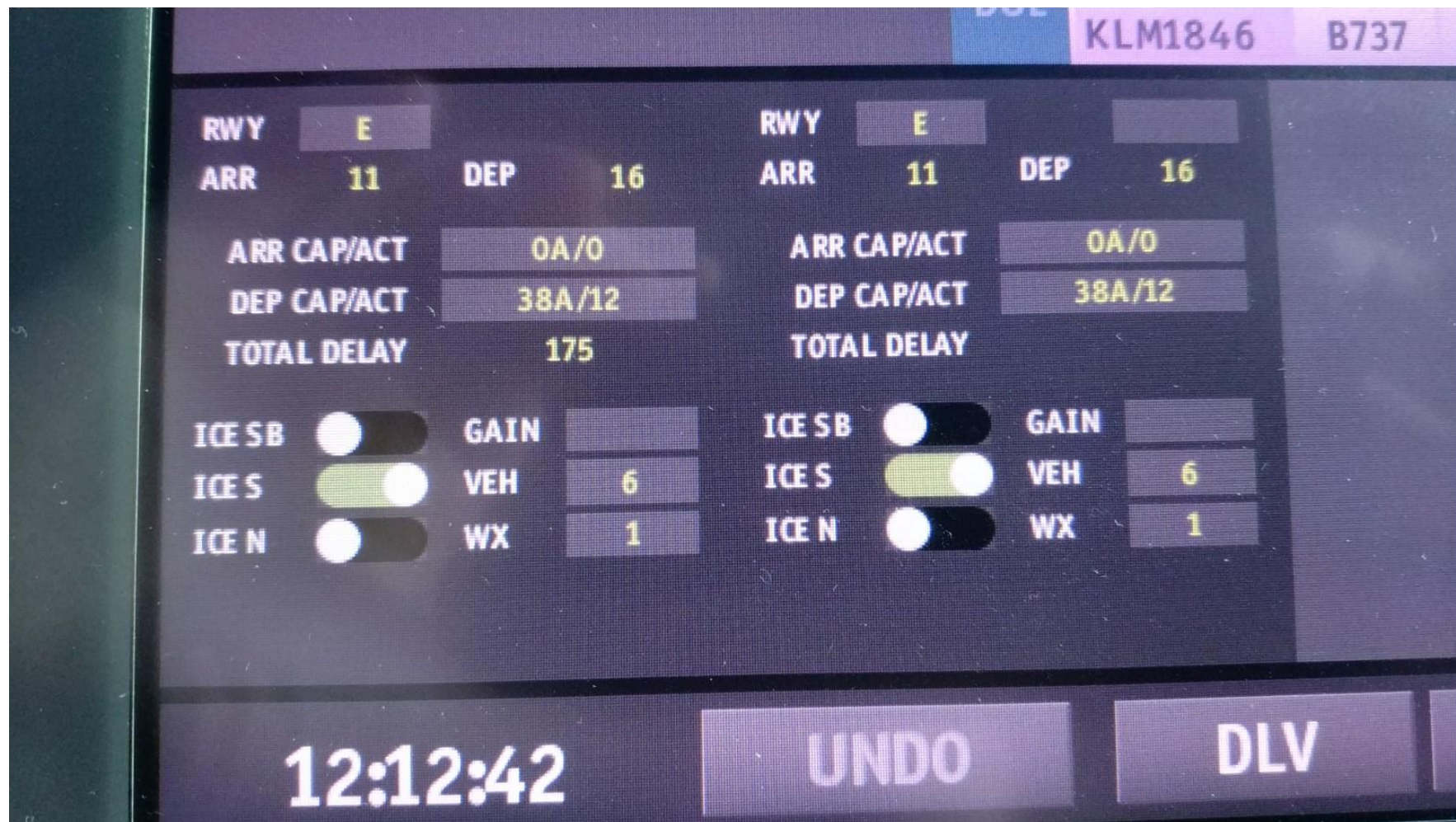
LDSP

5

B2

134,675

Runway/ Deicing Capacity



Departure MANager



TSAT 11/29				TXCL 11/29				TOCL 11/29			
04	AUA381	CRJ9	24	KOX1B	16	04	AUA381	CRJ9	27	KOX1B	16
02						04	AUA9097	E190	24	STE4B	16
00	AUA9097	E190	20	STE4B	16	02	AUA707H	DH8D	24	LAN5B	16
	AUA707H	DH8D	20	LAN5B	16		AUA569	A320	24	SOV2B	16
	AUA569	A320	20	SOV2B	16	00	AUA727G	A320	21	ARS1B	16
18	AUA727G	A320	18	ARS1B	16		AUA785J	DH8D	19	ADA1B	16
16						18	AUA33E	E190	19	KOX1B	16
	AUA785J	DH8D	15	ADA1B	16	04					
54	AUA33E	E190	15	KOX1B	16	54	AUA28XK	A319	15	STE4B	16
52						54	AUA731D	A321	14	STE4B	16
	AUA28XK	A319	11	STE4B	16	54	AUA531N	DH8D	14	RUP2B	16
50	AUA731D	A321	10	STE4B	16	52					
	AUA531N	DH8D	10	RUP2B	16	50	AUA847T	A320	9	STE4B	16
48							AUA655	E190	9	ADA1B	16
46						48	AUA509	E190	9	OSP5B	16
	AUA847T	A320	5	STE4B	16	46					
	AUA655	E190	5	ADA1B	16		AUA425L	A320	5	OSP5B	16
44	AUA509	E190	5	OSP5B	16	44	IBE31GE	A319	5	OSP5B	16
42						42					
10-40	AUA425L	A320	0	OSP5B	16	10-40					
DUE	VLG87YN	A321	0	OSP5B	16	10-40	EWG3LL	A319	0	RUP2B	16
	IBE31GE	A319	0	OSP5B	16						

RWY	ARR	11	DEP	16	RWY	ARR	11	DEP	16
ARR CAPACITY	64/0	ARR CAPACITY	64/0	ARR CAPACITY	64/0	ARR CAPACITY	64/0	ARR CAPACITY	64/0
DEP CAPACITY	38/0	DEP CAPACITY	38/0	DEP CAPACITY	38/0	DEP CAPACITY	38/0	DEP CAPACITY	38/0
TOTAL DELAY	232	TOTAL DELAY	232	TOTAL DELAY	232	TOTAL DELAY	232	TOTAL DELAY	232
ICE S0	GAIN	ICE S0	GAIN	ICE S0	GAIN	ICE S0	GAIN	ICE S0	GAIN
ICE S	VEN	ICE S	VEN	ICE S	VEN	ICE S	VEN	ICE S	VEN
ICE N	WK	ICE N	WK	ICE N	WK	ICE N	WK	ICE N	WK

10:40:34
UNDO
DLV
TW2
GDE
COO
TW1
GDW
SUP
DMAN
PLAN
1019

Benefitting Stakeholders



Airport



Passengers

ATC



Airlines



Environment



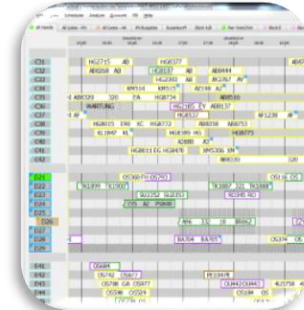
Ground Handling

Advantages of CDM



✈ For the airport

- Optimised parking stand allocation
- Better use of infrastructure (loading, boarding, cleaning, ...)



✈ For ATC

- Better predictability of traffic peaks
- No frequency overload
- Better coordination between different ground positions (delay allocation..)
- Optimised RWY configuration change
- No congestion on the taxiways



✈ Environmental benefits

- Reduction of CO²
- Noise abatement



✈ Für den Passagier & Kunden

- Better prediction of departure and arrival times
- Optimised connection flights



Advantages of CDM



✈ For the airline

- Exact status of handling process
- Exact sequence information
- Exact arrival time
- Efficient fleet management and internal prioritisation
- Cost reduction through reduced taxi times
- Higher predictability
- Reduced waiting times at the holding point
- Optimised turnaround

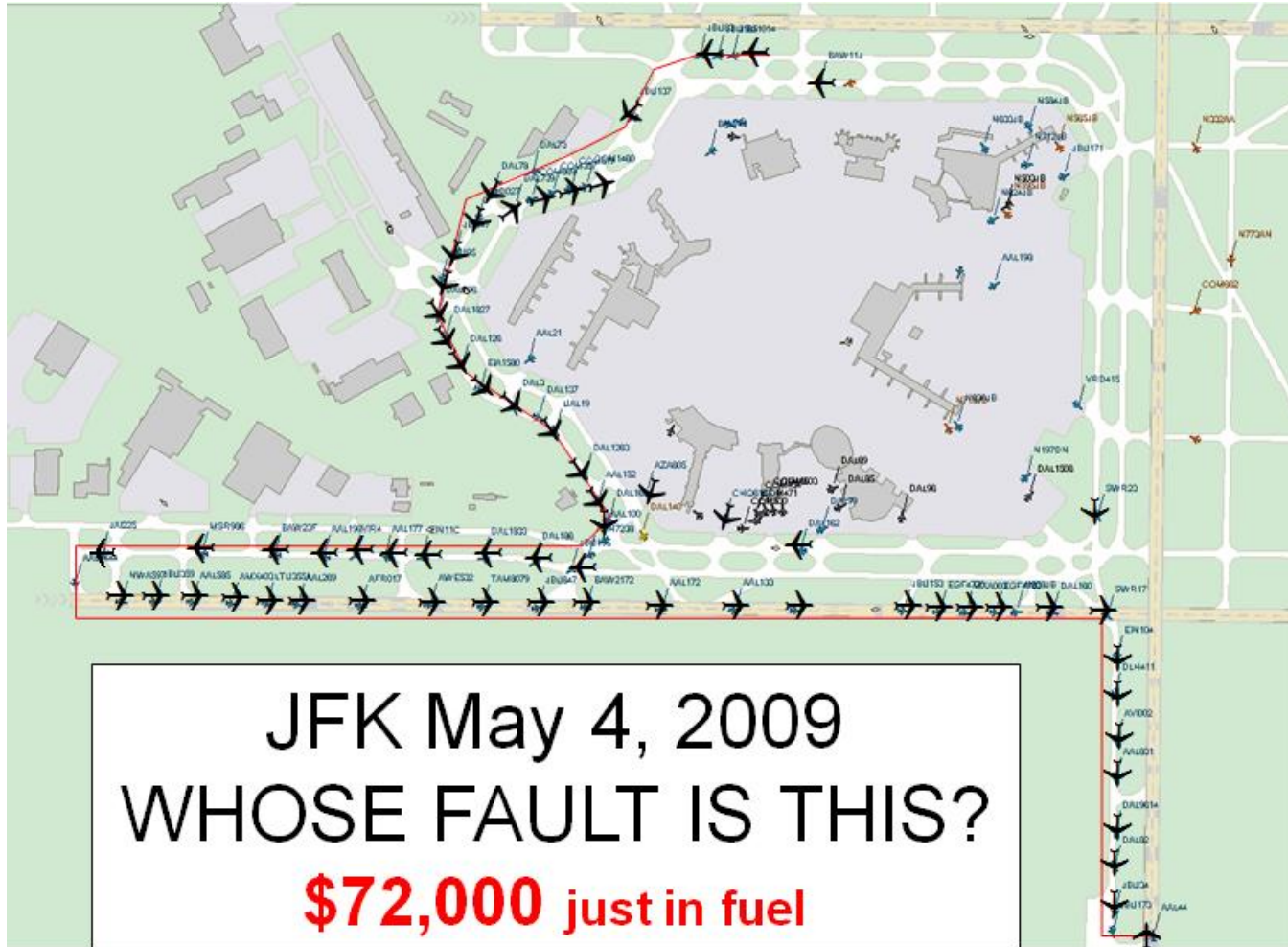


✈ For the Ground Handling

- Efficient use of resources due to accurate turnaround times
- Better prioritisation
- Early identification of discrepancies
- Environmental friendly



New York – taxitime without CDM



CDM Facts

**Cuts in jet fuel consumption
2.500.000**

**CO² reduction
6.300.000kg**



**System availability
99,9%**

**€ Cost cuts in jet fuel
€ 2.375.000**

**Reduced taxitime
1.190 hours
(~50 days)**

Aircraft
operators

Air traffic
control

Ground
handlers

(Analysedaten: 07/2014-12/2016)



✈ **Status FULLY IMPLEMENTED**

NMOC- fully connected. CTOTs based on TTOTs

Advantages

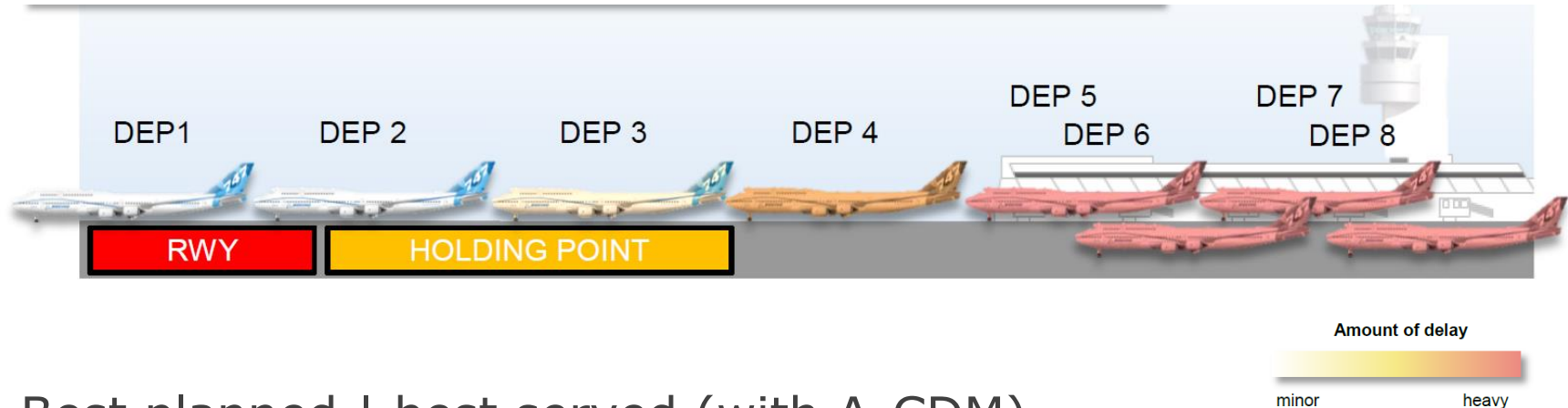
- Exchange of airport and en- route slots
- Optimised calculation of CTOTs



With or without A-CDM



- First come | first served (without A-CDM)



- Best planned | best served (with A-CDM)



Thank you!

