BEONTRA
Scenario Planning

Operational Terminal Prediction: The BEONTRA CDM solution for Passenger Terminal Flows

Manuel Heidler
Director Product Management
BEONTRA AG

META-CDM, 14th May 2014 @ Toulouse

What is wrong with this picture?

Picture taken on a summer Saturday morning around 6am in 2011

What is wrong with this picture?

Picture taken on April 23rd 2014 around 830am

What is wrong with these pictures?

Pictures taken in 2013

Be on track?

Shop opening hours not reflecting passenger show-up

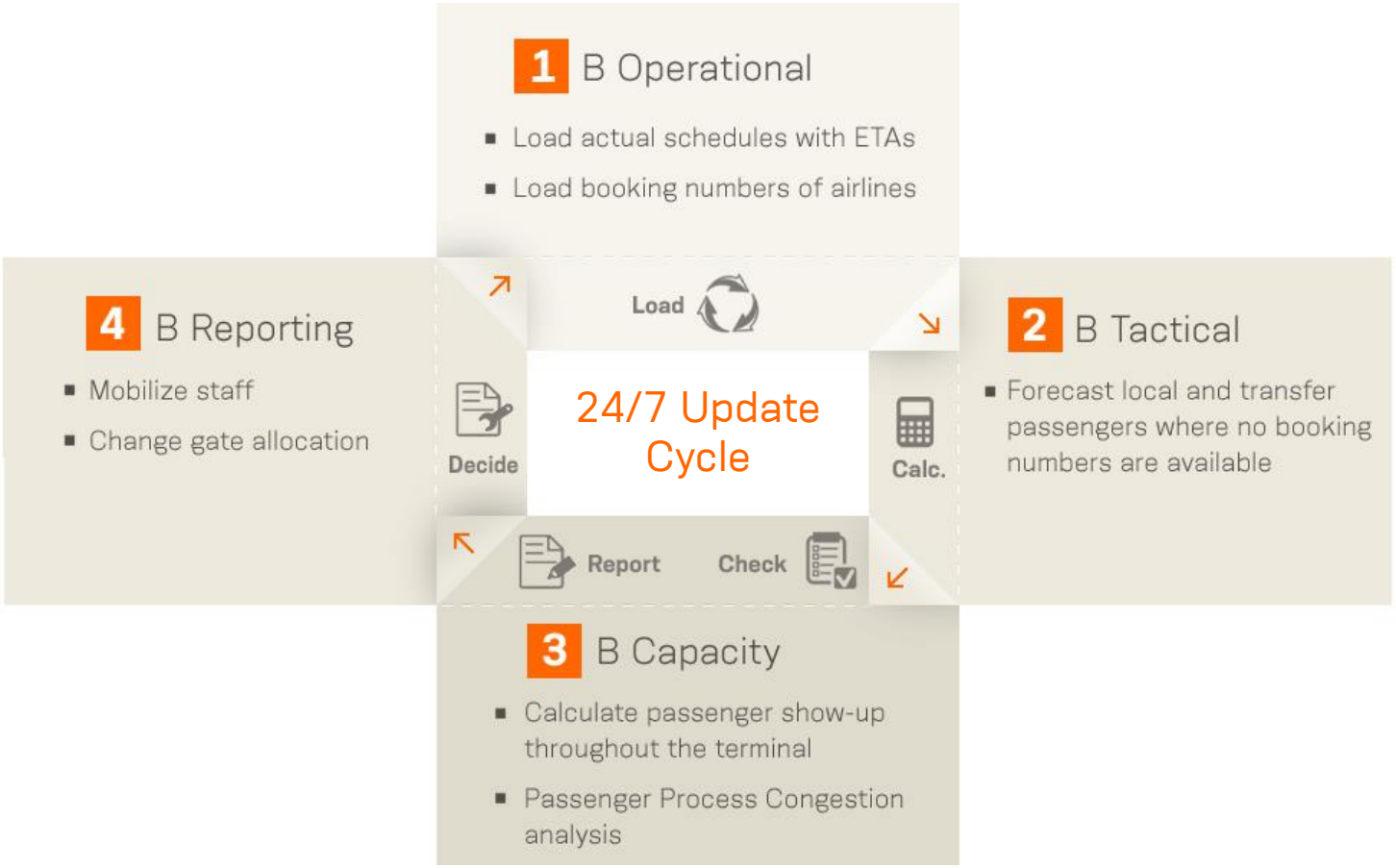
Immigration desks not staffed according to changed operational situation

Lack of input data & differentiation of passenger flows

➔ Inadequate planning input resulting in bad passenger experience

Be on track!

Operational Terminal Prediction:
The BEONTRA CDM solution for Passenger Terminal Flows



BEONTRA
Integrated Corporate Planning Suite for Airports

BEONTRA
SCENARIO PLANNING

Be on track.
Beyond traffic.

BEONTRA Scenario Planning
Integrated Corporate Planning Suite for Airports

ACT:

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ANALYZE:

PLAN:

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Operational Terminal Prediction
Use Case: Amsterdam Airport Schiphol

Manuel Heidler
Director Product Management
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CPPS

Collaborative Prognosis of Passenger flows on Schiphol Borders

for a better passenger forecast at Schiphol

Brussels, Beontra User Meeting April 18th-19th 2013,

BEONTRA

Belastingdienst Douane

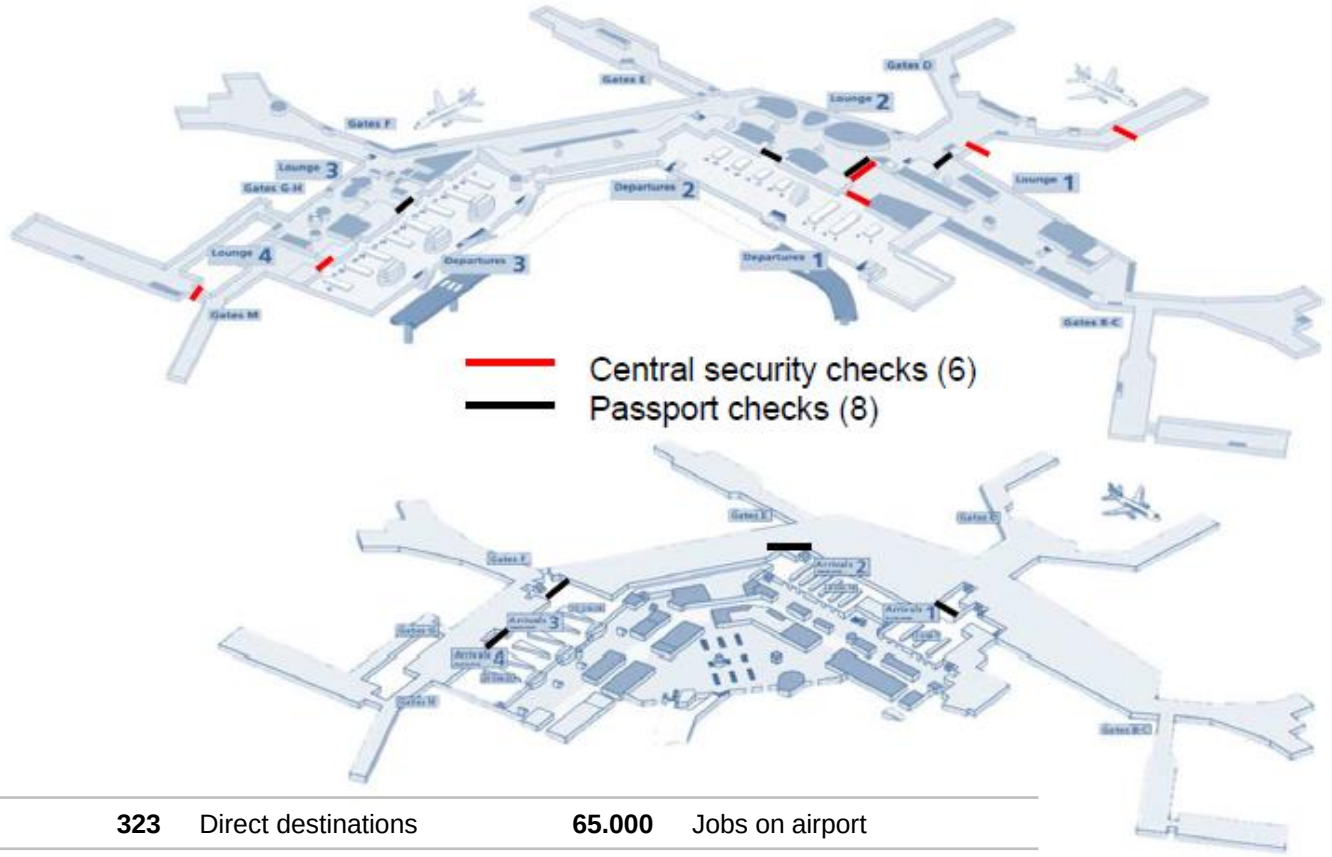
Koninklijke Marechaussee

SAOC SCHIPHOL AIRLINE OPERATORS COMMITTEE

KLM AIRFRANCE

Schiphol Amsterdam Airport

Operational Terminal Prediction - The Schiphol Experience
The challenge at Amsterdam Schiphol



323	Direct destinations	**65.000**	Jobs on airport
52,6 million	Travellers	**1**	Terminal
1,5 million	Tonnes of cargo	**8**	Passport checks
426.000	Air transport movements	**6**	Centralized security checks

Operational Terminal Prediction - The Schiphol Experience
A joined approach

Initial Situation

- Data input & output not sufficient
- (long) waiting times and queues for the passengers
- Inefficient resource planning

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A joined approach

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Project Goals

- Up-to-date information for all processes
- Act instead of re-act
- Increase passenger satisfaction
- Efficient use of resources and reduction of operational costs

Operational Terminal Prediction - The Schiphol Experience
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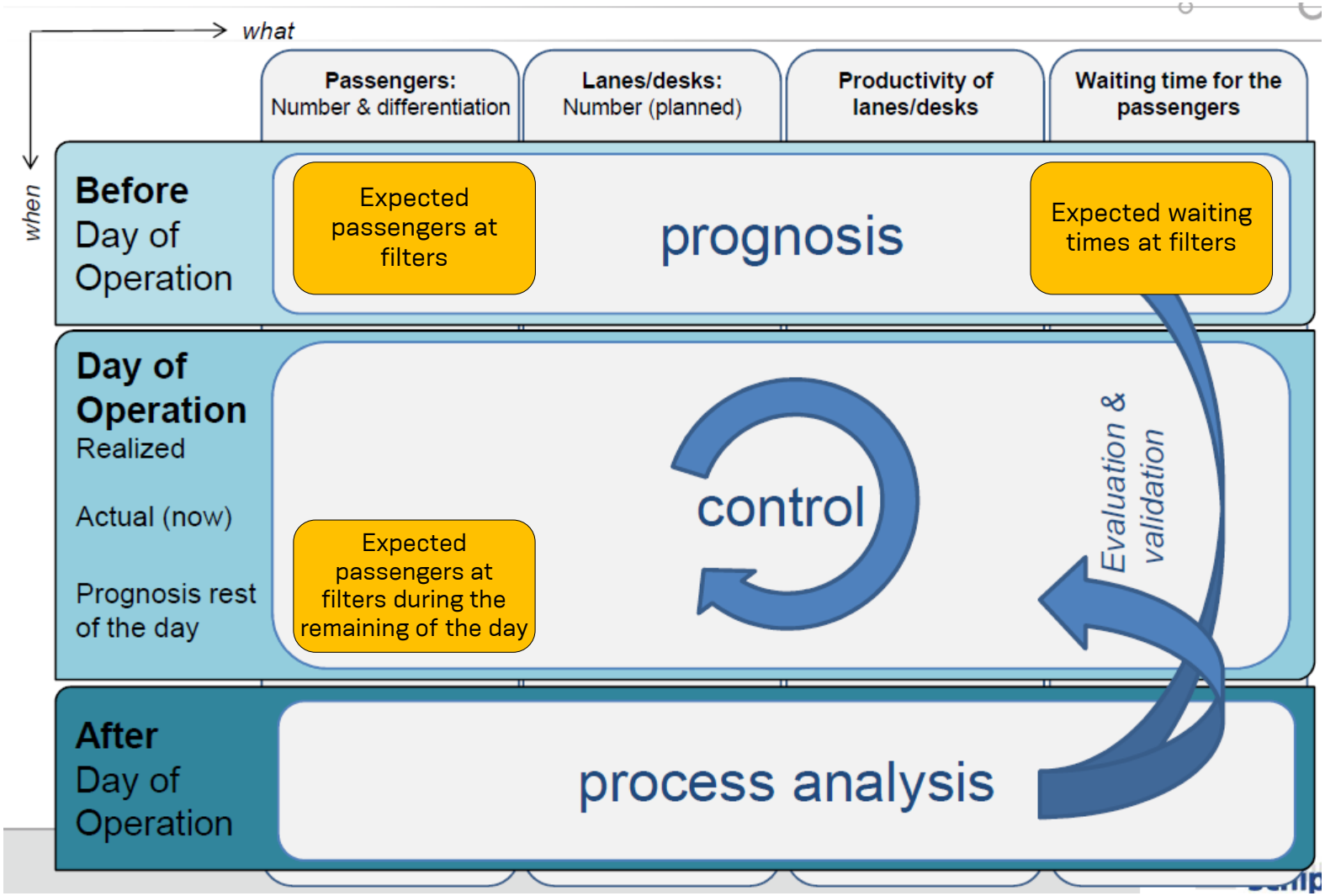
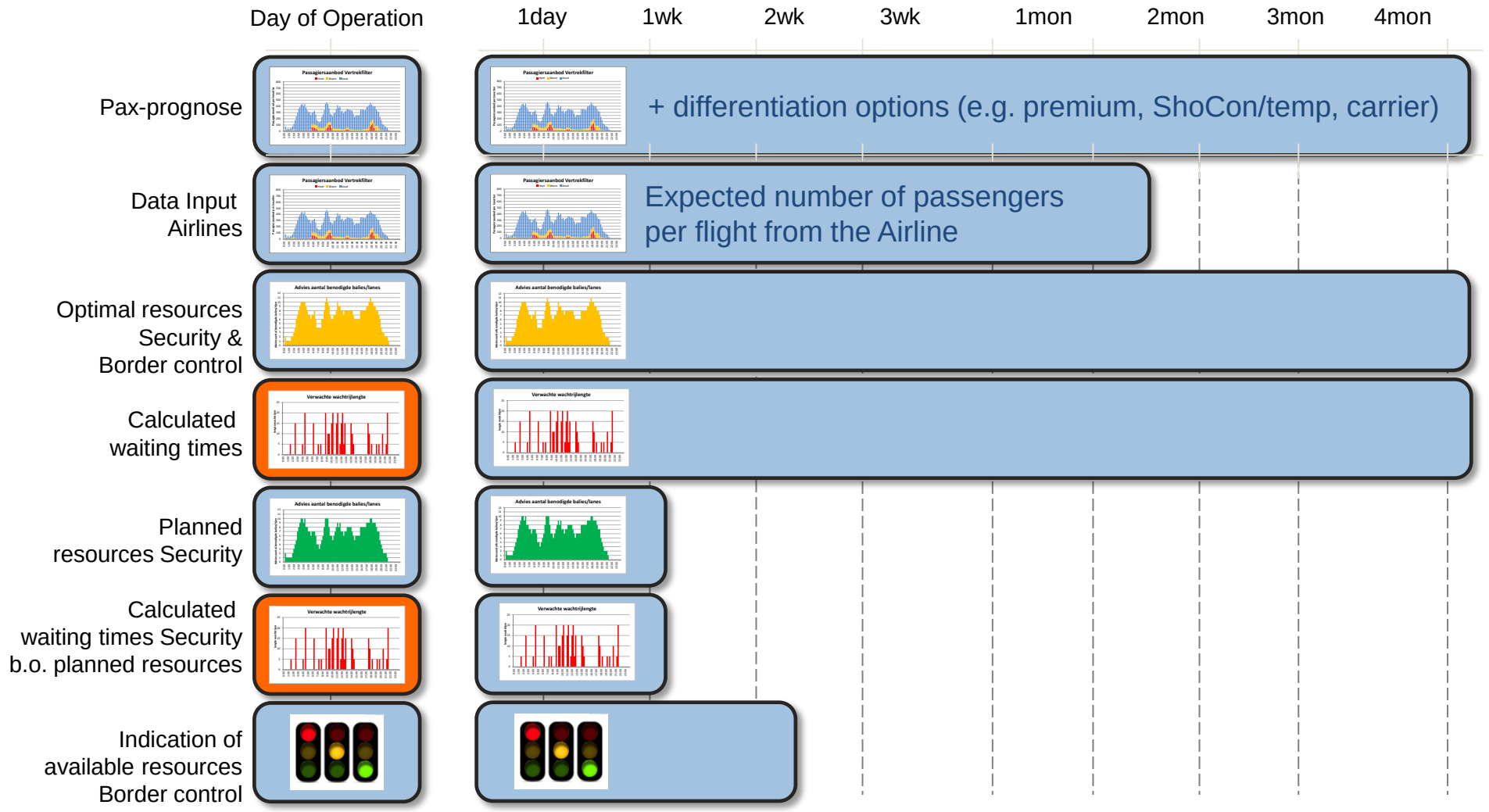
Joined Approach

- Actual forecast best known by airlines
- Share information with all stakeholders
- Develop a better passenger forecast together with all stakeholders

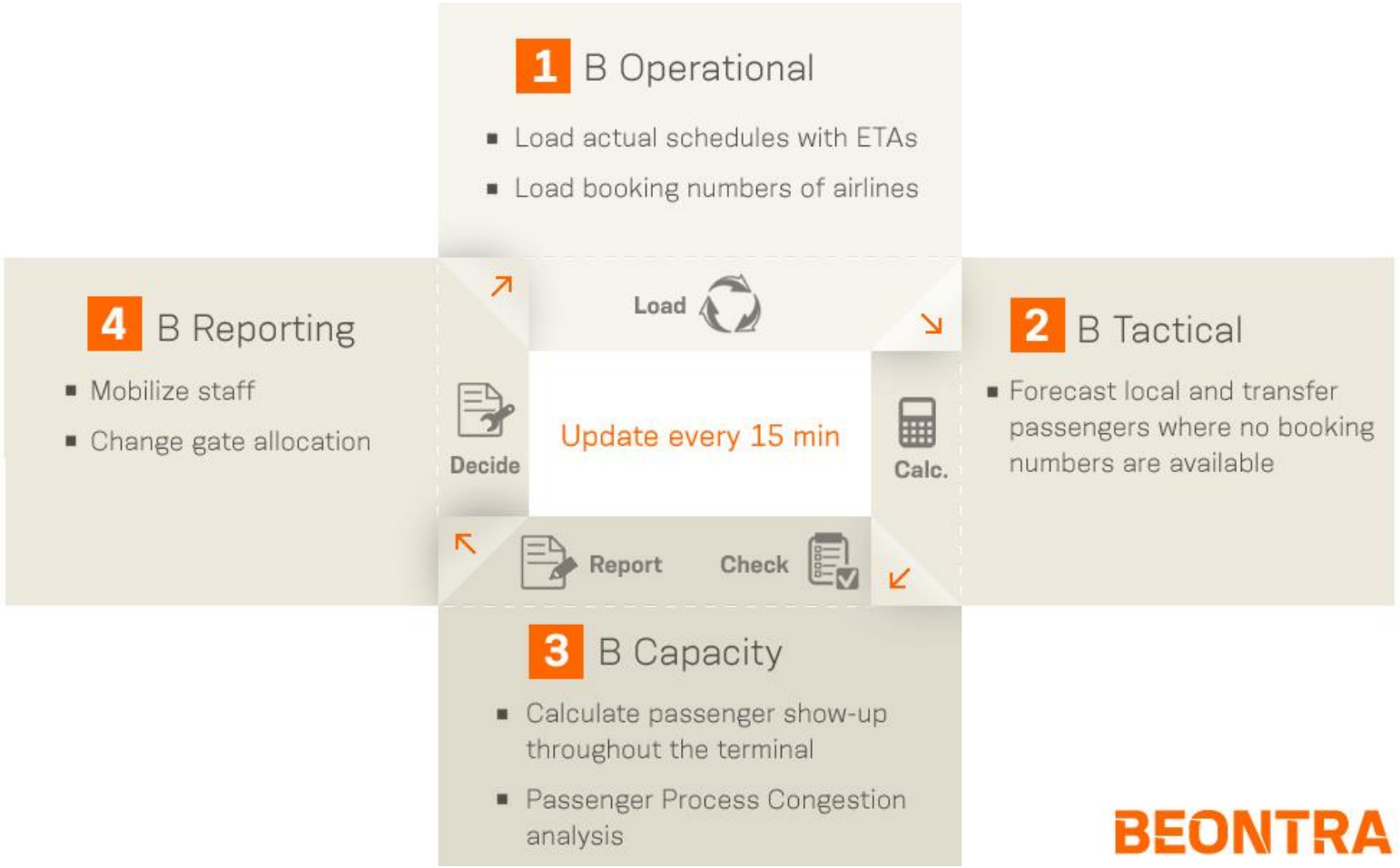
Operational Terminal Prediction - The Schiphol Experience
Steering of passenger process at Security & Boarder Control



Operational Terminal Prediction - The Schiphol Experience
Steering System Input & Output



Operational Terminal Prediction - The Schiphol Experience
Solution based on "off the shelf" BEONTRA Modules



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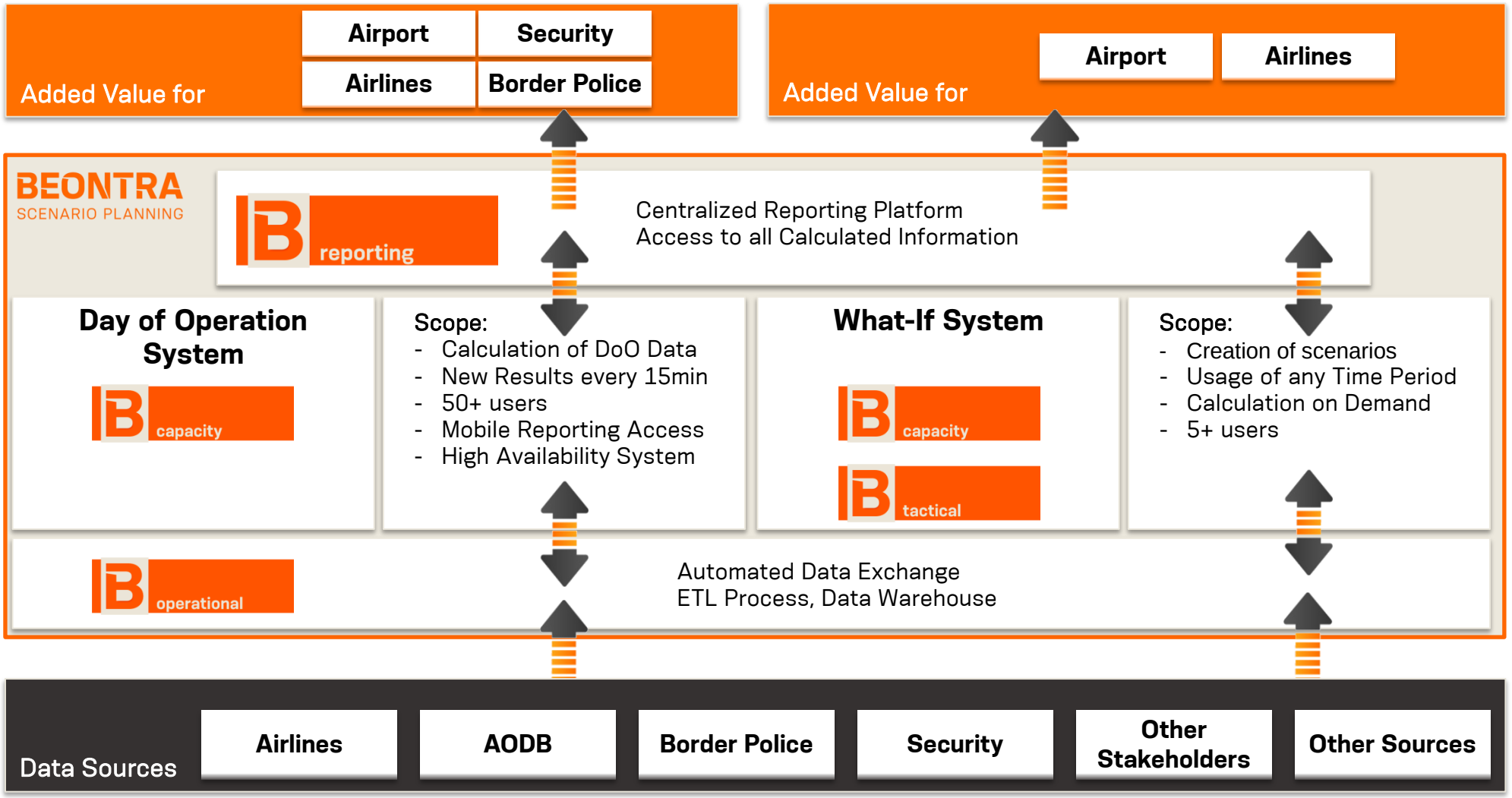
Launch Stakeholders:

Schiphol Amsterdam Airport · AIR FRANCE KLM · SKYTEAM · SAOC Schiphol Airline Operators Committee · Belastingdienst Douane · Koninklijke Marechaussee

BEONTRA CDM Solutions
Operational Terminal Prediction



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Operational Terminal Prediction
Setup of Prediction Model

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Director Product Management
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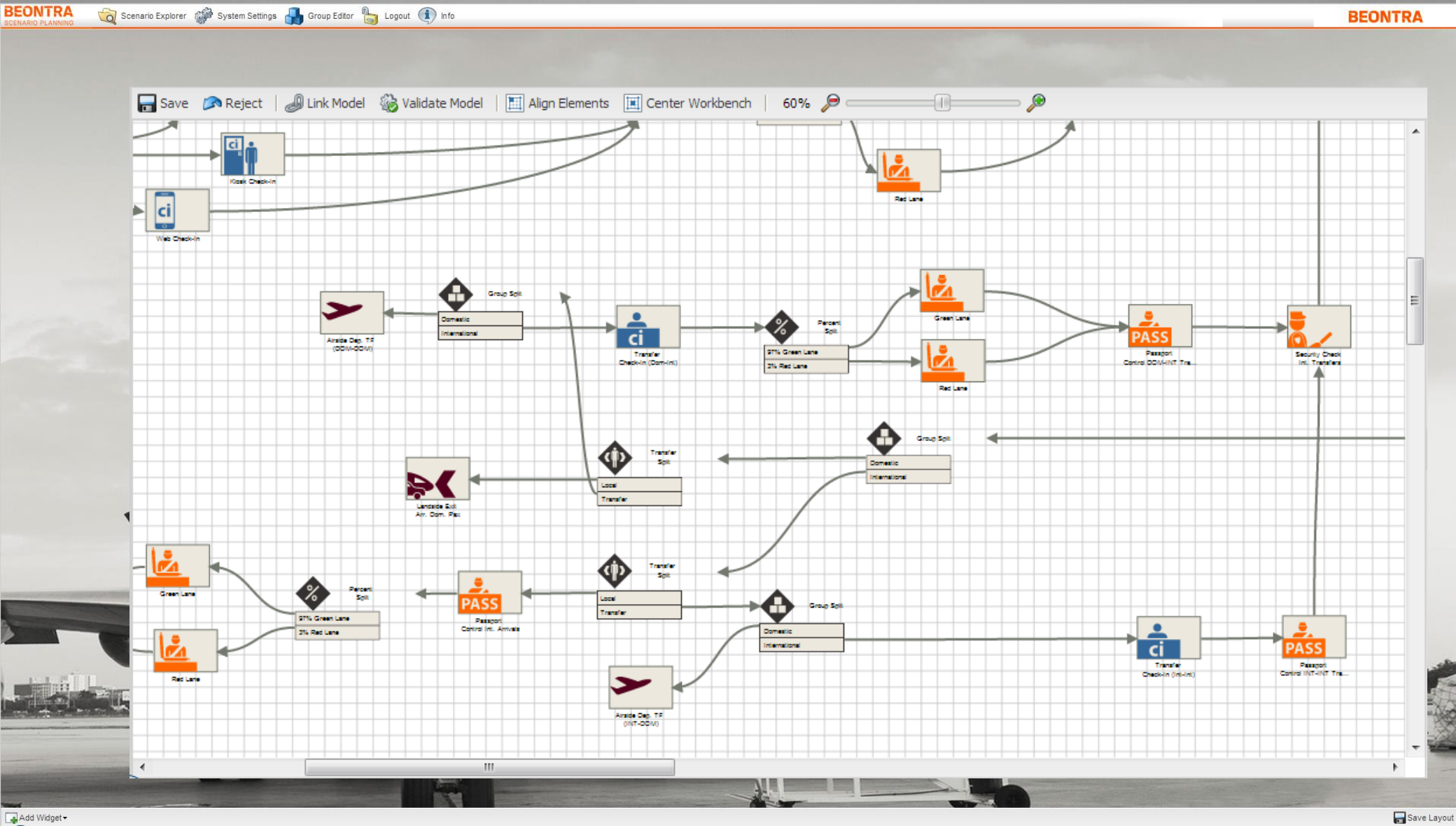
OTP Planning Mode – 1. Specify Airport Model



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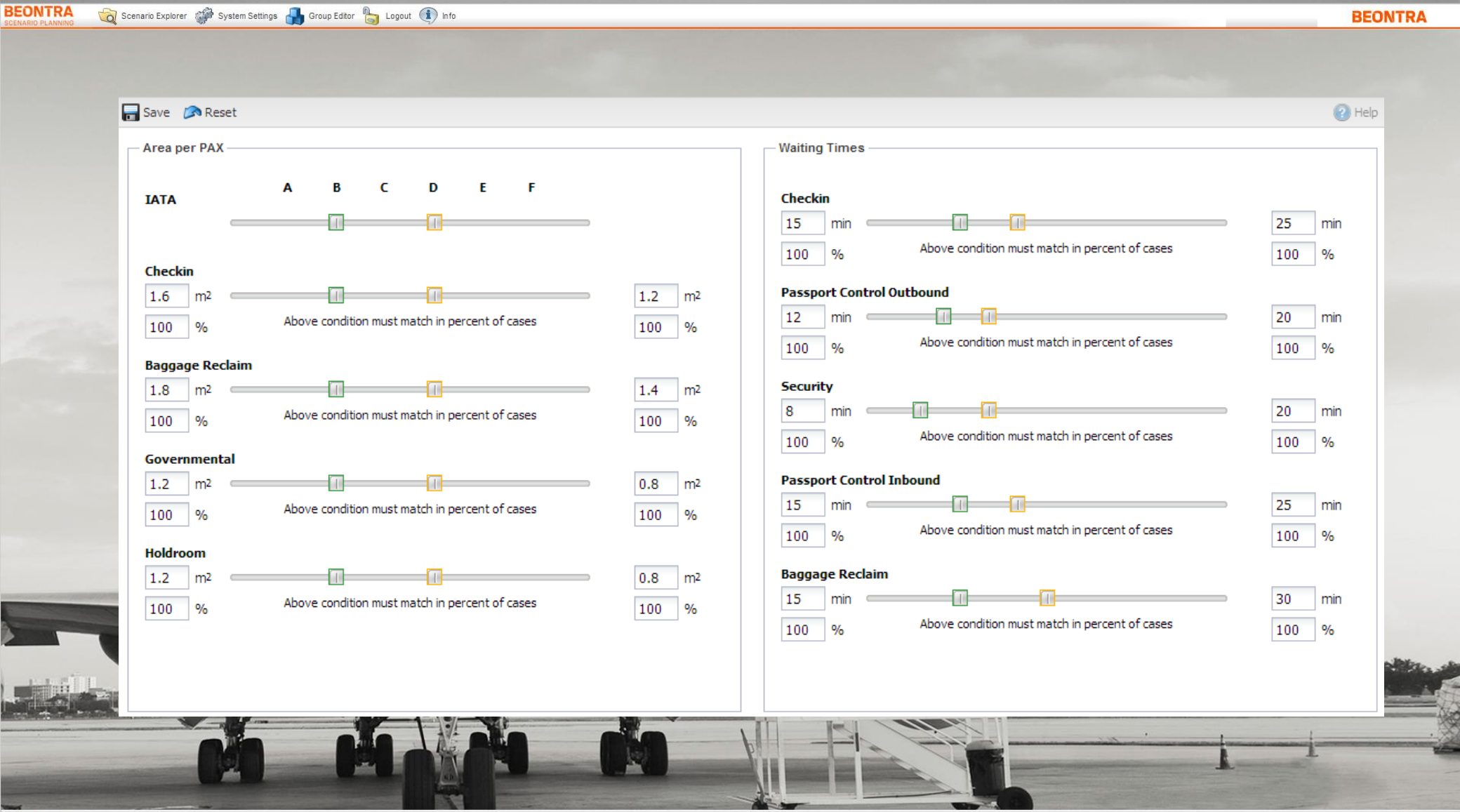
OTP Planning Mode – 2. Specify Service Levels



OTP Planning Mode – 3. Connect to Traffic Forecast

BEONTRA Scenario Planning | Scenario Explorer | System Settings | Group Editor | Logout | Info | BEONTRA

Scenario: AMS Flow Model June 2013 | Forecast & Timeframe

[1] Select a Snapshot

[2] Select a Day

Help

	Date	Sum Passengers	Sum Movements	Sum Bags	Peak Hour	Pax Peak Hour
1	14.07.2013	90.505	688	0	10	7.565
2	21.07.2013	90.304	686	0	10	7.565
3	28.07.2013	90.294	686	0	10	7.565
4	19.07.2013	90.196	717	0	10	7.711
5	07.07.2013	90.156	687	0	10	7.565
6	12.07.2013	89.934	717	0	10	7.711
7	26.07.2013	89.752	715	0	10	7.614
8	13.07.2013	89.418	690	0	10	7.941
9	05.07.2013	89.387	716	0	10	7.711
10	20.07.2013	89.236	690	0	10	7.941

Use Selection

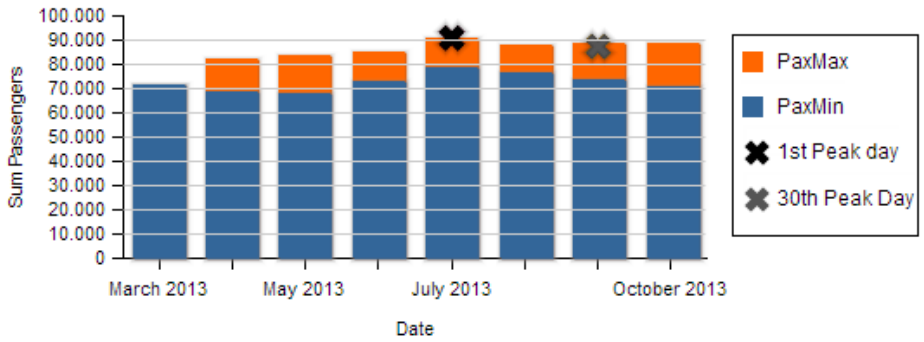
[3] Breakdown by Hour

Help

	Hour	Sum Passengers	Sum Movements	Sum Bags
1	0	0	0	0
2	1	0	0	0
3	2	0	0	0
4	3	0	0	0
5	4	4.955	31	0
6	5	4.845	41	0
7	6	5.559	44	0
8	7	4.979	37	0
9	8	4.717	31	0
10	9	6.695	48	0
11	10	7.565	59	0
12	11	5.266	35	0

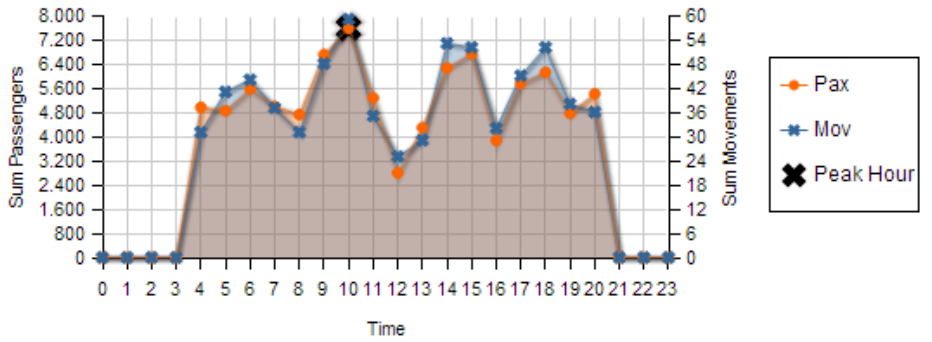
Aggregated Snapshot Chart

Bar Chart | Product: Passengers | Maximize | Help



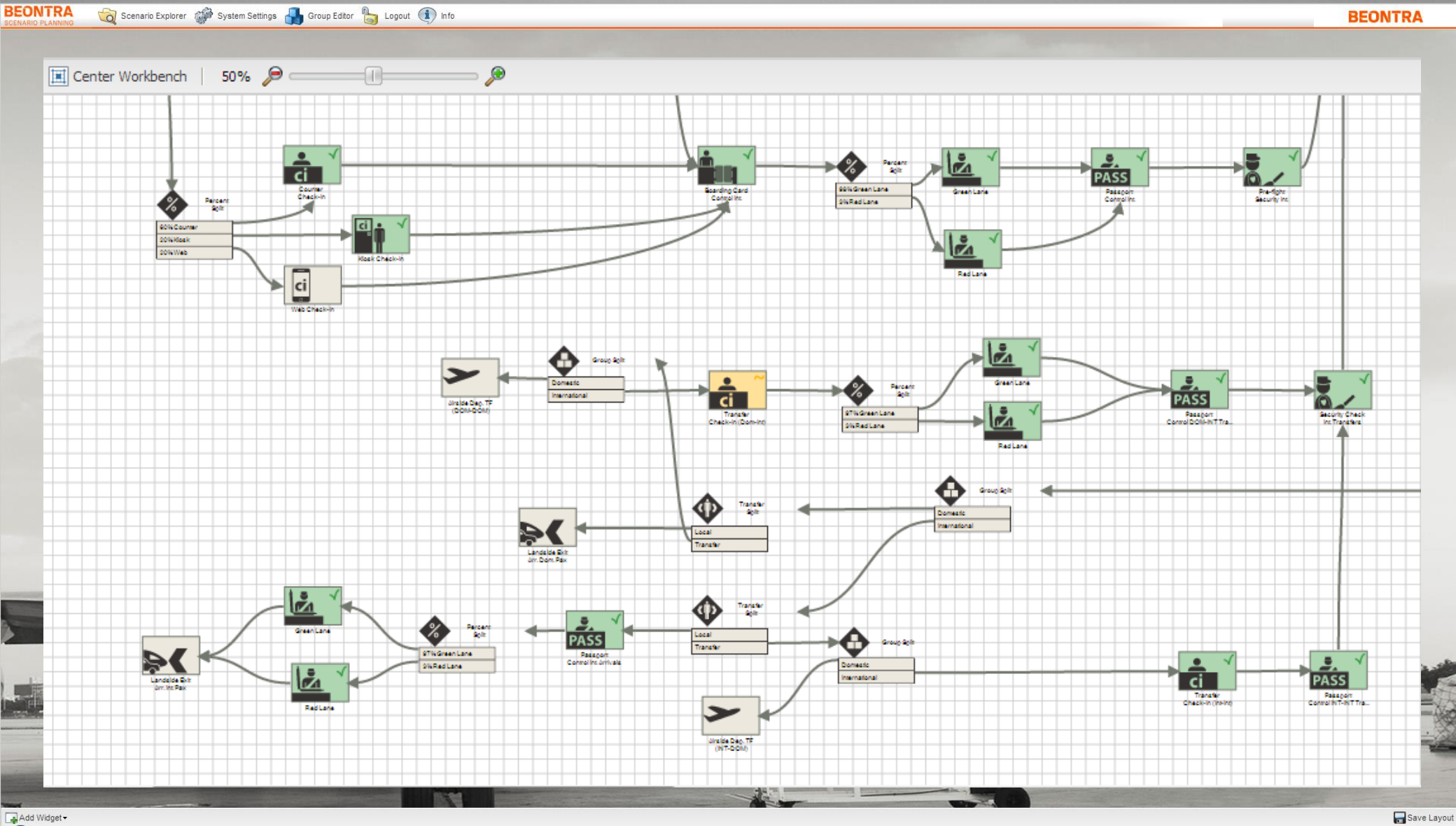
Aggregated Day Chart

Maximize | Help



Add Widget | Save Layout

OTP Planning Mode – 4. Get planning results



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Operational Terminal Prediction
Showcase

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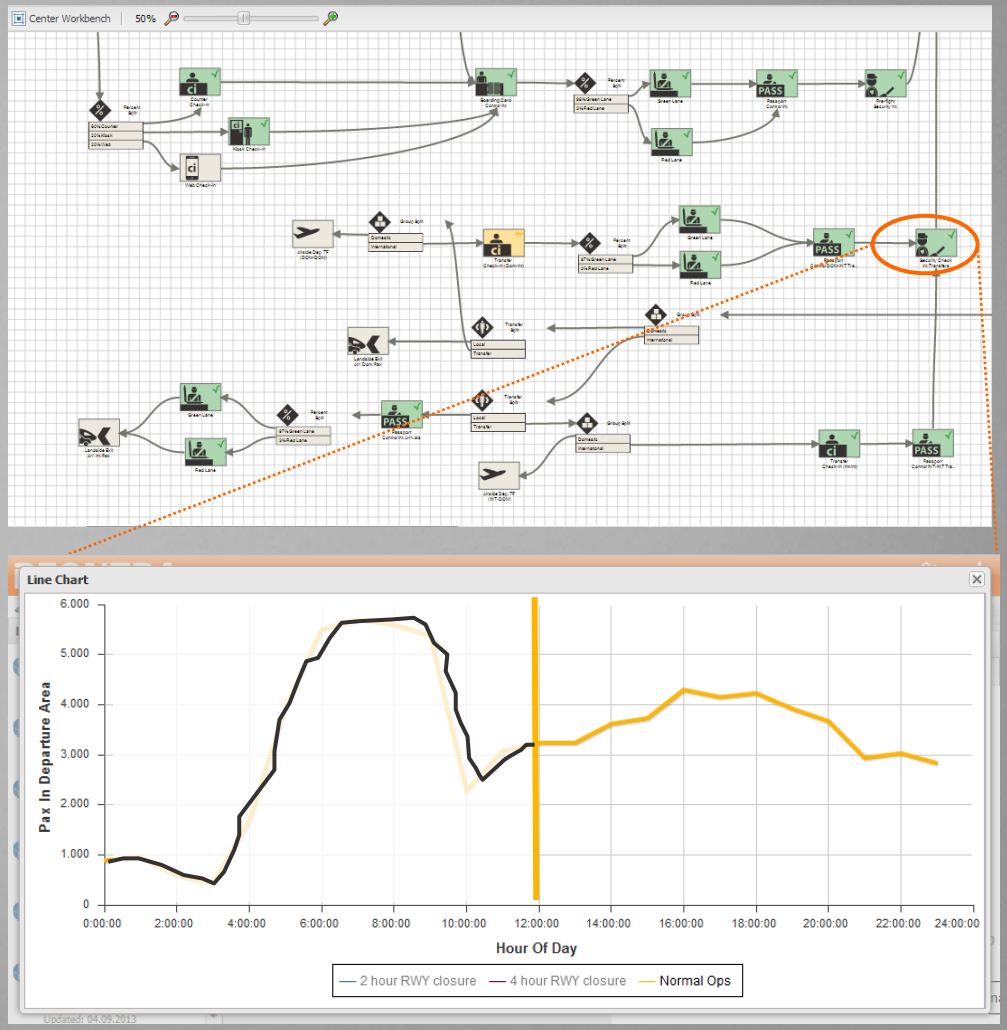
OTP Showcase „Day of Operations“ System

At 9:00: Prediction for 12:00 Normal Ops

Flight Arrivals

Time	Flight	Destination	Gate	Remarks
12:05	KL 1010	London	H2	
12:15	KL 1673	Barcelona	H12	
12:30	KL 1603	Rome	H5	
12:50	KL 1087	Manchester	H26	
13:15	KL 1843	Vienna	H11	
13:20	KL 1175	Trondheim	H84	
13:40	KL 1189	Bogota	H23	
13:55	KL 1267	Nice	H18	
14:05	KL 1977	Budapest	H23	
14:25	KL 1317	Bordeaux	H9	
14:35	KL 1325	Alesund	H41	
14:50	KL 1365	Warsaw	H8	
15:05	KL 0411	Amman	H6	
15:20	KL 0415	Kuwait	H22	
15:30	KL 0427	Dubai	H11	
15:40	KL 0685	Mexico	H55	
15:55	KL 1115	Aarlanda	H9	

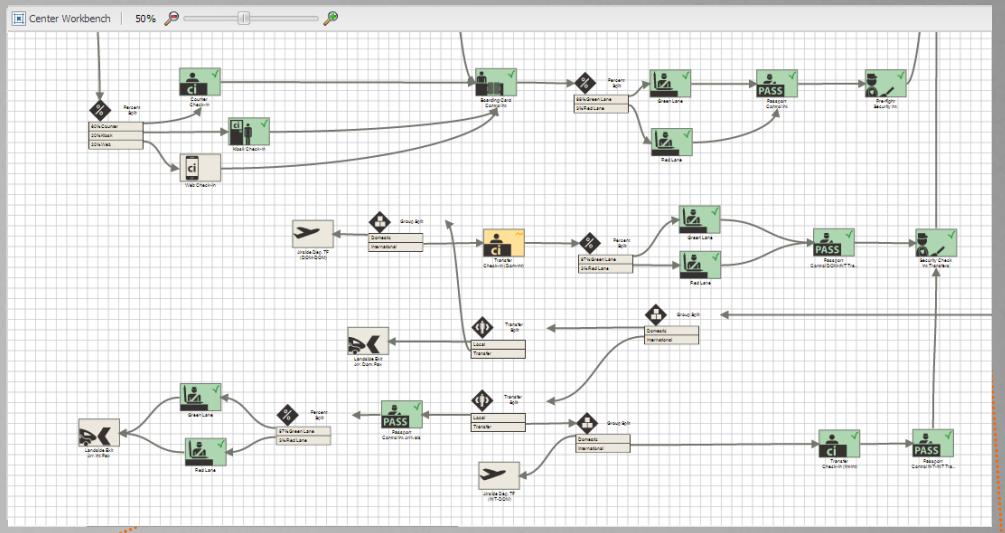


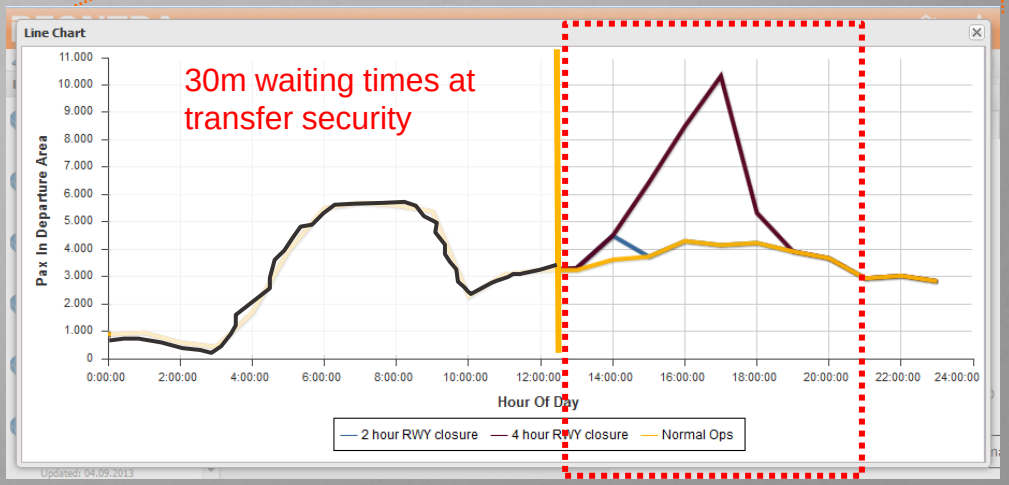
OTP Showcase „Day of Operations" System

At 10:30: INCIDENT BAD WEATHER – Prediction for 12:00

Flight Arrivals

	Time	Flight	Destination	Gate	Remarks
●	12:05	KL 1010	London	H2	Delay 12:25
●	12:15	KL 1673	Barcelona	H12	
●	12:30	KL 1603	Rome	H5	Delay 12:55
●	12:50	KL 1087	Manchester	H26	
●	13:15	KL 1843	Vienna	H11	Delay 13:35
●	13:20	KL 1175	Trondheim	H84	Delay 13:50
●	13:40	KL 1189	Bogota	H23	
●	13:55	KL 1267	Nice	H18	Delay 14:30
●	14:05	KL 1977	Budapest	H23	
●	14:25	KL 1317	Bordeaux	H9	Delay 14:40
●	14:35	KL 1325	Alesund	H41	Delay 15:00
●	14:50	KL 1365	Warsaw	H8	
●	15:05	KL 0411	Amman	H6	
●	15:20	KL 0415	Kuwait	H22	
●	15:30	KL 0427	Dubai	H11	
●	15:40	KL 0685	Mexico	H55	
●	15:55	KL 1115	Aarlanda	H9	

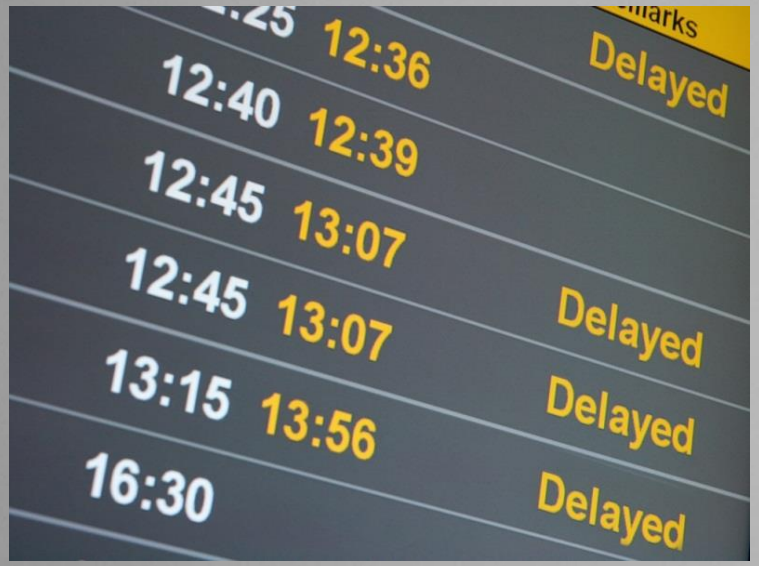




OTP Showcase „Day of Operations“ System

Plan – Do – Check – **ACT !!**

CDM predictive decision support



change gate announcement times

change stand and gate allocation

Mobilize/ demobilize crews to cope with situation

Decide based on real time forecasts
at your fingertips (mobile reporting)

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Operational Terminal Prediction
Conclusion & Outlook

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Operational Terminal Prediction - The Schiphol Experience
Conclusion

"Real Time View" of pax numbers at all filters with differentiation: e.g. Economy/Premium, Hot/Cold

Reduce total lead time for passengers at the filters

- Reduced lead time for passenger at Border Control and Security filters at Schiphol.

Increased passenger, personnel and airline satisfaction

- Increased satisfaction of passenger on passenger flows at Schiphol.
- Increased Commercial Dwell time of "happy passengers"

Reduction of total costs for the business

- Better input data for the planning of security staff
- A better performance on passenger flows at Schiphol with lower costs for the business (due to e.g. better staff planning, decreased "missed connections").

Flow Management

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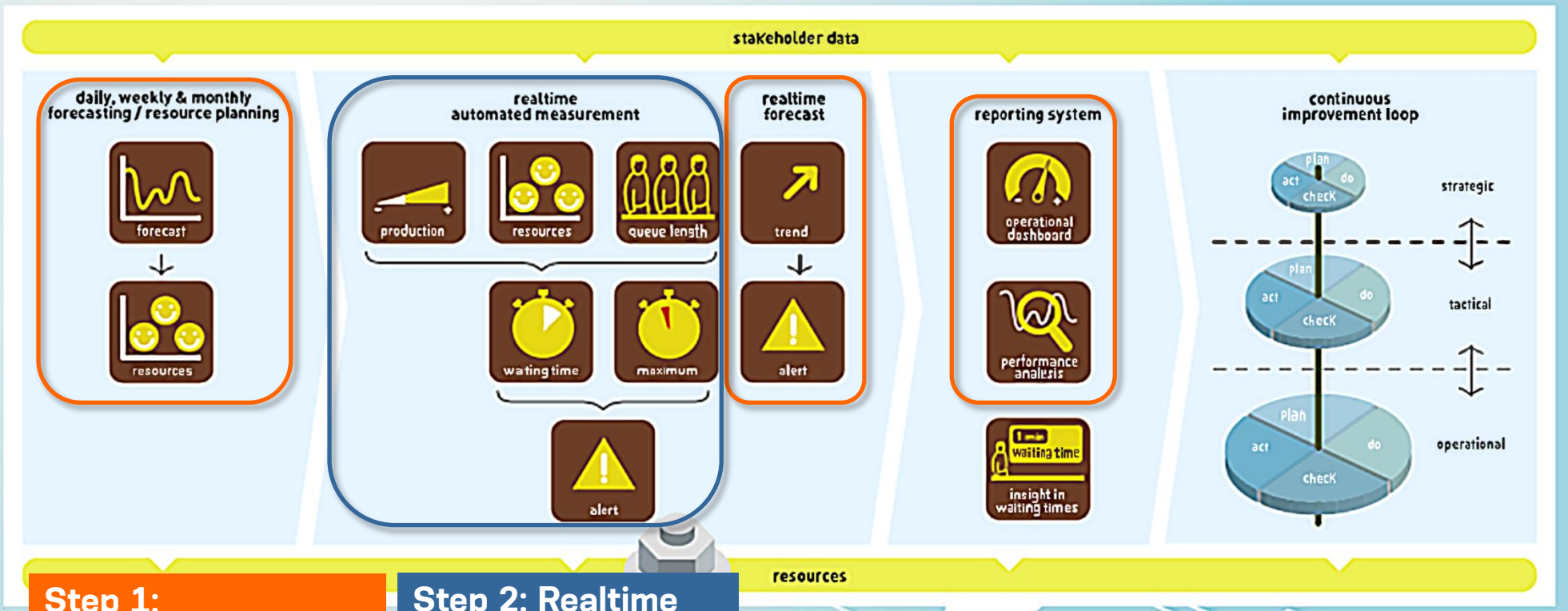
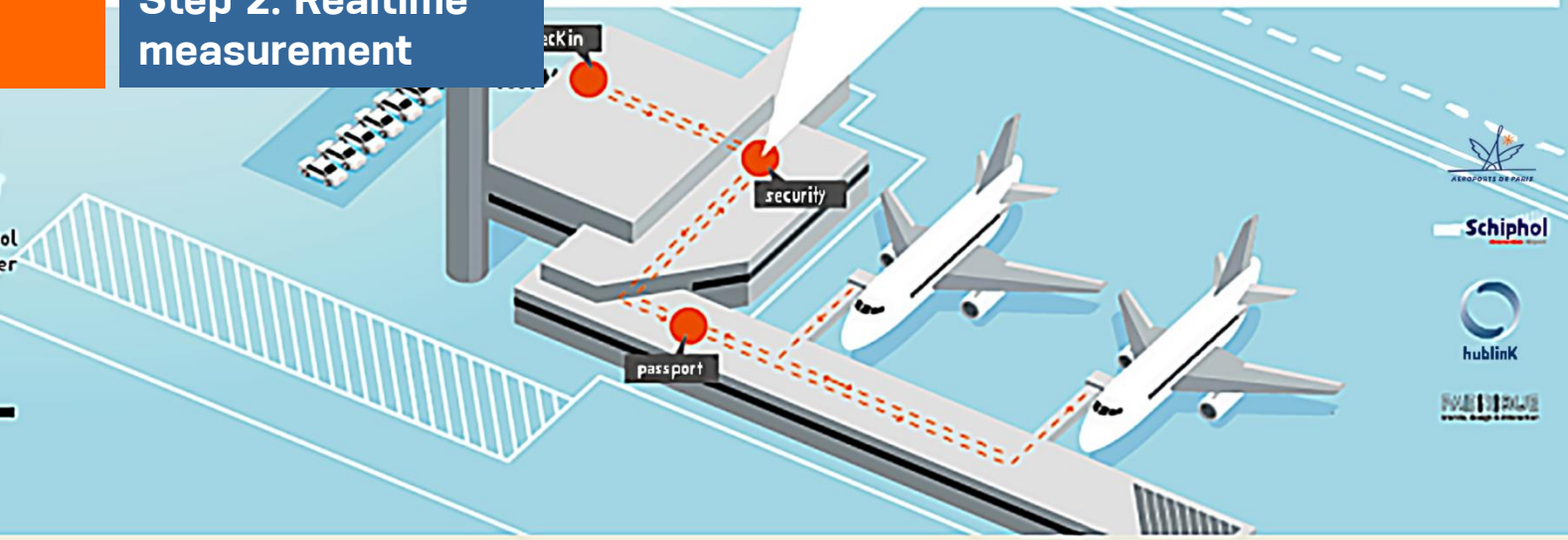


Step 1: Prediction

Step 2: Realtime measurement

Managing waiting time

Passenger research shows that waiting is one of the biggest dissatisfiers. The goal of flow management is to control waiting time at all filters for all passenger types. For this purpose a set of tools is defined to assist operators in fulfilling passenger wishes and increasing the reliability of the filter network.



Schiphol
hublink

Operational Terminal Prediction – Outlook iPad App

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