



Cockpit

Helping Technologies Fly

By **ELAL** 

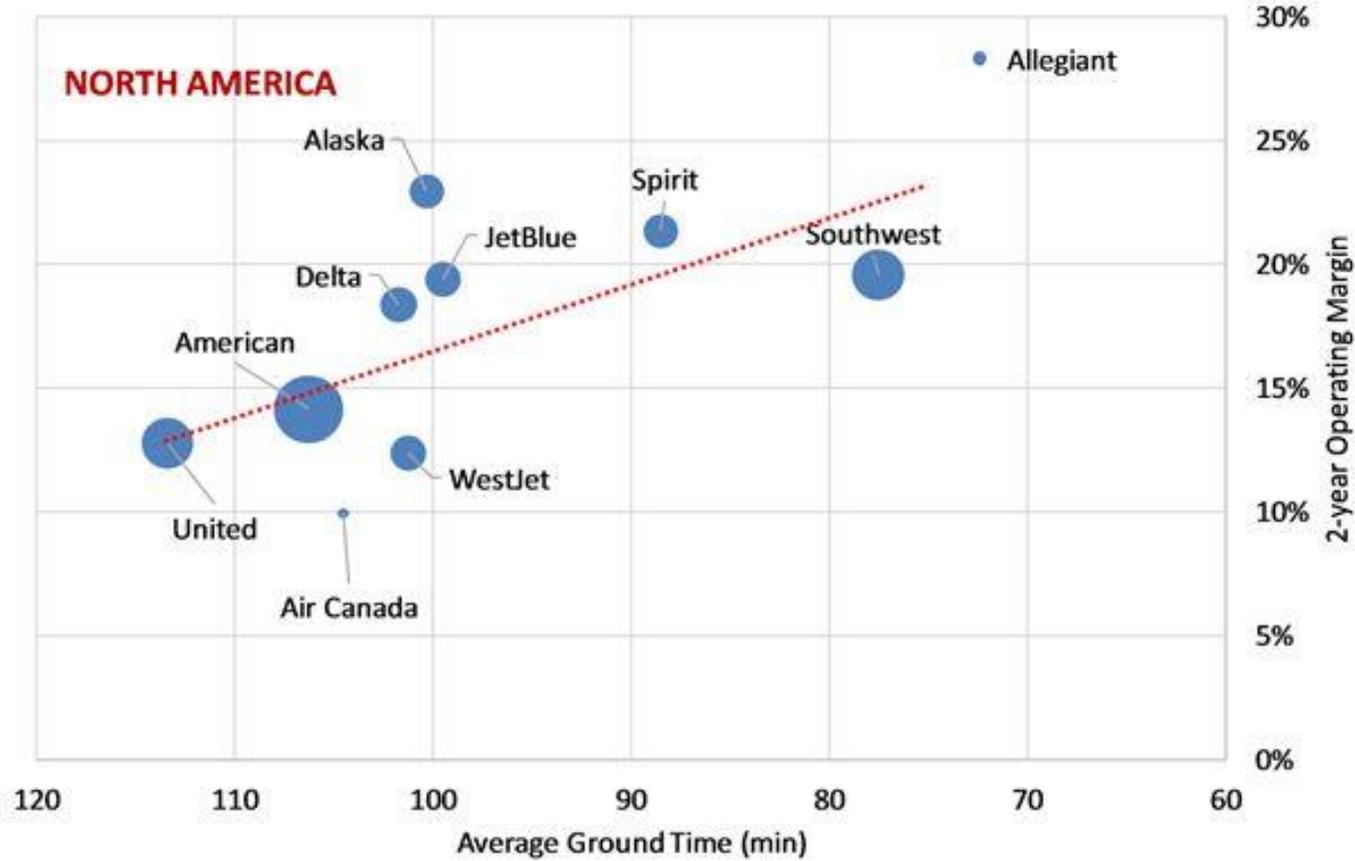
Henry Chen Weinstein
CEO @ Cockpit Innovation

Digitizing Turnaround Management

IntellAct



Longer turn times = Lower profitability



Marketwired : Ground-Breaking Data: Airline Profits Tied to Shorter Ground Times, May 09, 2017

Today's ramp: manual, paper-based data capturing



IntellAct

Solution: Real time classification of GSE and turnaround services

Current Ongoing Processes

Current Ongoing Processes	Duration
Refueling	00:17:30
Passenger Boarding	00:02:50

IntellAct TurnAround Analytics Monitoring

Analytics Dashboard 16-22 October 2017

Day | Week | Month | Year | Custom

Den Johnson - Analyst UTC: 21/12/2017 10:00

Airports Avg. TurnAround Time

Airport	Avg. TurnAround Time (Minutes)
DFW	48
CLT	46
ORD	38
PHL	38
MIA	35
JFK	31

Turnaround Delays vs. Time of Day

Scatter plot showing Delay in Minutes vs. Time of Day (00:06 to 20:00). The delay generally increases as the day progresses.

Turnaround Delays vs. Arrival Movements

Scatter plot showing Delay in Minutes vs. Movements (1000 Arrivals). The delay generally increases with the number of arrivals.

Airports Total minutes of Delay

Airport	Total minutes of Delay
DFW	242
CLT	148
ORD	110
PHL	98
MIA	75
JFK	43

Airports Average Delay

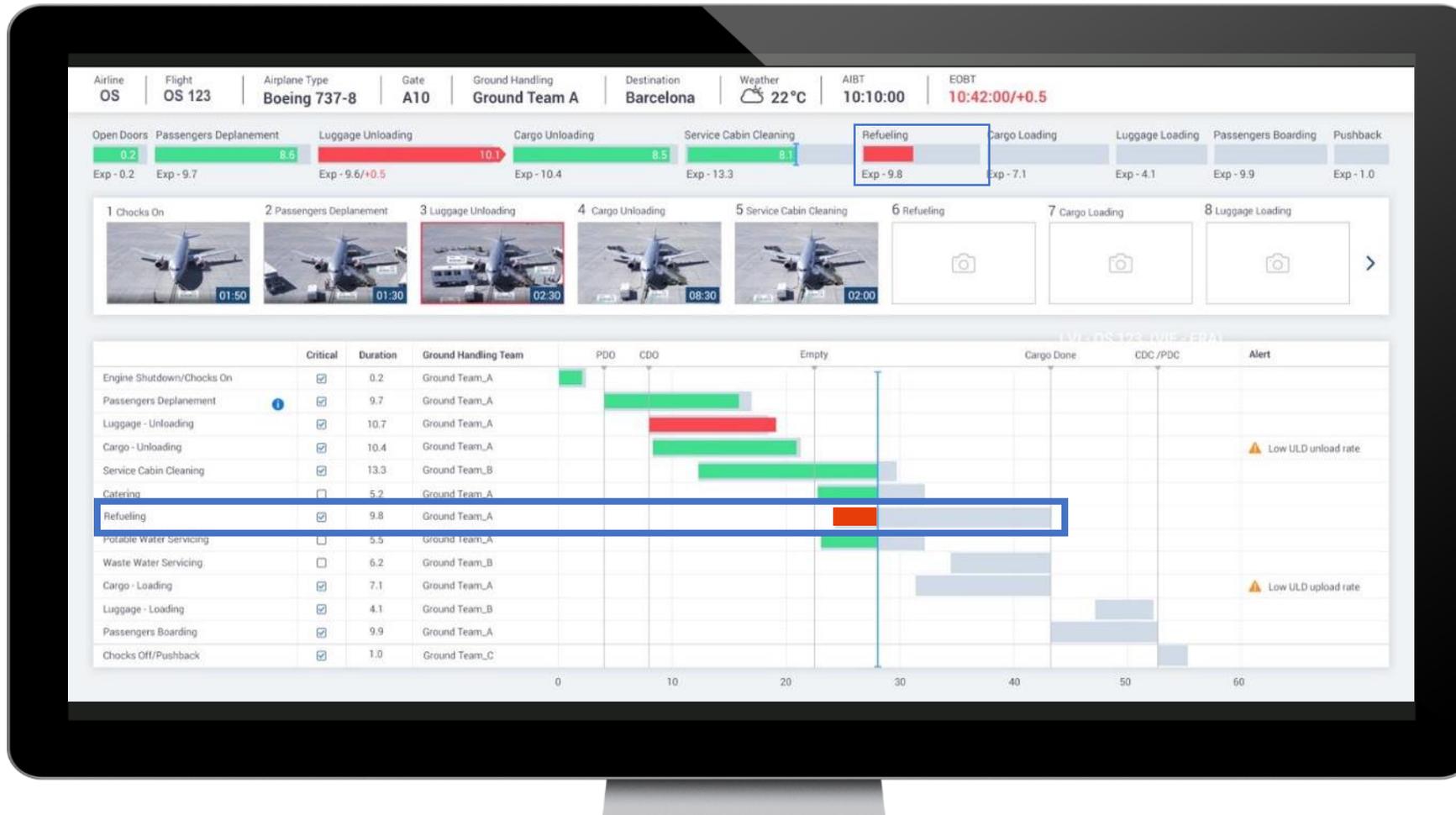
Airport	Average Delay (Minutes)
DFW	24
CLT	23
ORD	11
PHL	11
MIA	5
JFK	4

Turnaround Delays vs. Temperature

Scatter plot showing Delay in Minutes vs. Temperature in °C. The delay generally increases as temperature increases.

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Fuel Truck - no show



Fuel Truck – No show

IntelAct TurnAround | Analytics | Monitoring | Dan Johnson - Analyst | UTC: 21/12/2017 10:00

Turn Around Real Time

Airline: **KLM** | Flight: **KL1042** | Airplane Type: | Gate: | Ground Handling: | Destination: | Weather: | AIBT: | FOBT:

Open Doors: 0.2 | Passengers Deplanement: Exp - 0.2 | Exp - 9.7

1 Checks On

Engine Shutdown/Checks On
Passengers Deplanement
Luggage - Unloading
Cargo - Unloading
Service Cabin Cleaning
Catering
Refueling
Potable Water Servicing
Waste Water Servicing
Cargo - Loading
Luggage - Loading
Passengers Boarding
Checks Off/Pushback

System Alert 10:00:12
Poor video quality

Passengers Boarding: Exp - 9.9
Pushback: Exp - 1.0

Luggage Loading

Alert

- Low ULD unload rate
- Low ULD upload rate

00:37 / 01:37

Task	Status	ETA	Team
Passengers Boarding	<input checked="" type="checkbox"/>	9.9	Ground Team_A
Checks Off/Pushback	<input checked="" type="checkbox"/>	1.0	Ground Team_C

Fuel Truck – Late arrival

IntelAct TurnAround Analytics **Monitoring** Dan Johnson - Analyst
UTC: 21/12/2017 10:00

Turn Around Real Time

Airline: **KLM** Flight: **KL1042**

Open Doors: 0.2 Passengers Deplanement: 0.2
Exp - 0.2 Exp - 9.7

1 Checks On

Engine Shutdown/Chocks On
Passengers Deplanement
Luggage - Unloading
Cargo - Unloading
Service Cabin Cleaning
Catering
Refueling
Potable Water Servicing
Waste Water Servicing
Cargo - Loading
Luggage - Loading
Passengers Boarding
Chocks Off/Pushback

System Alert: Poor video quality (10:00:12)

Passengers Boarding: Exp - 9.9
Pushback: Exp - 1.0

Luggage Loading

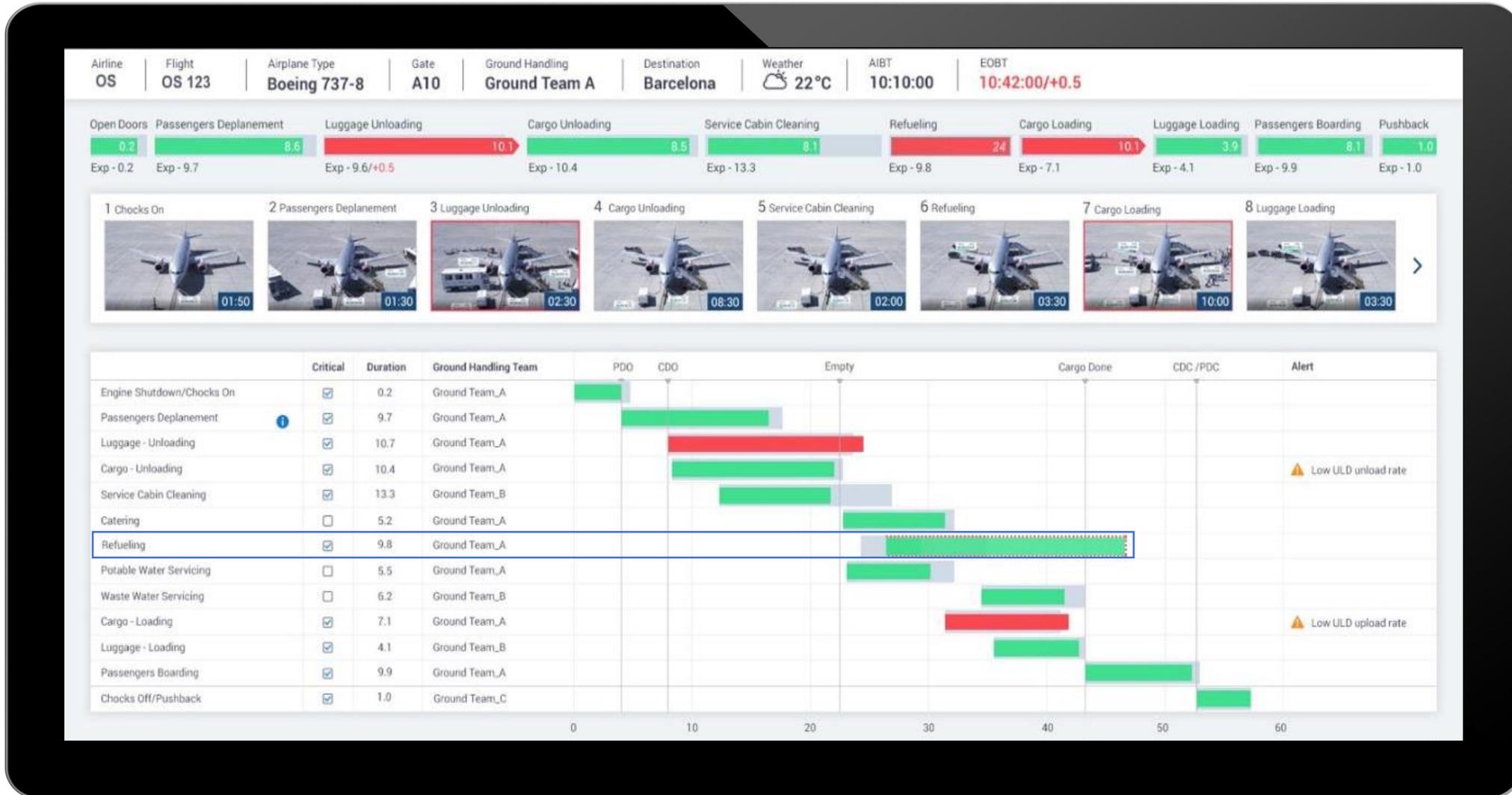
Alert: Low ULD unload rate, Low ULD upload rate

Activity Detection (Video Feed):
 Airplane: 99%
 Container: 89%
 Belt Loader: 90%
 Passenger Bridge: 73%
 Pushback Tractor: 79%
 Loader: 87%

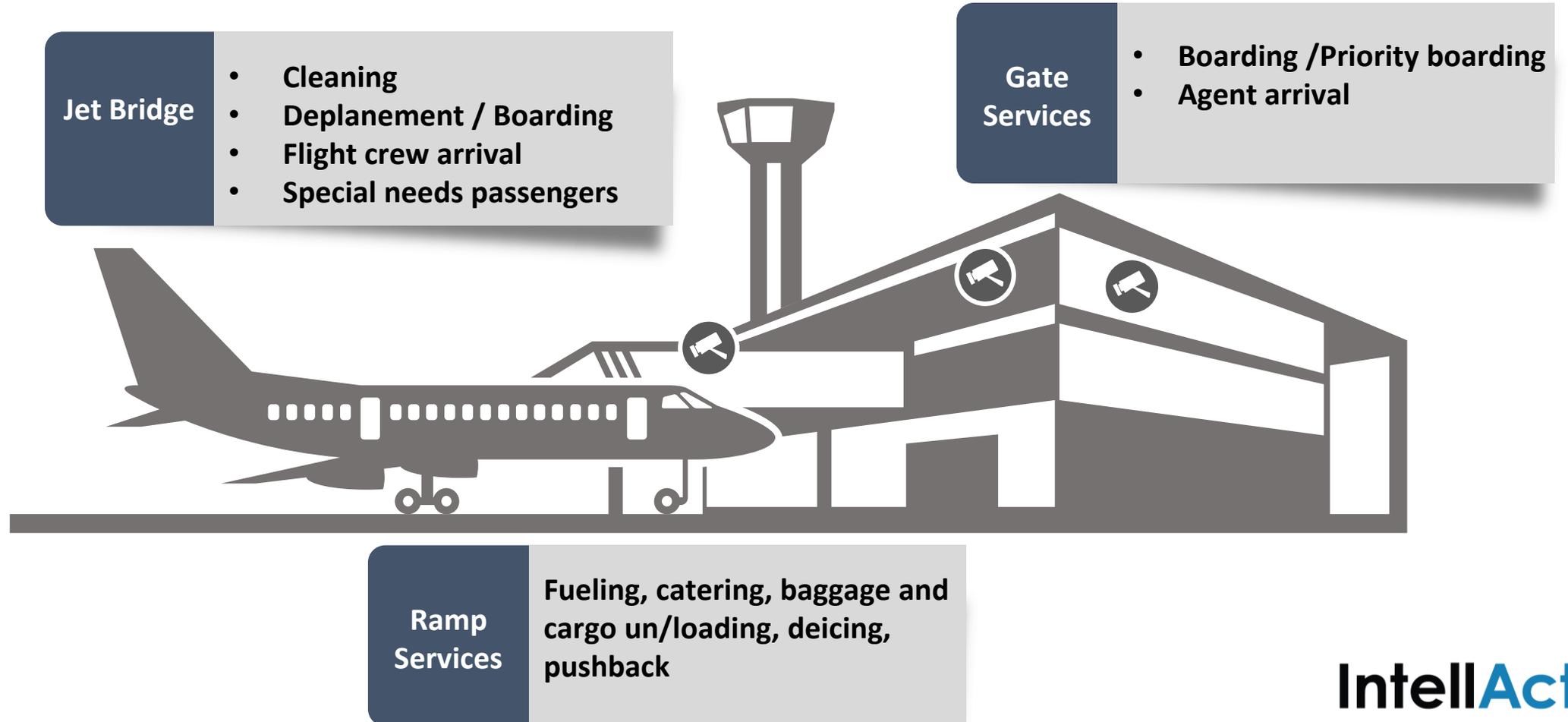
Timeline: 00:37 / 01:37

Task	Start	End	Team
Passengers Boarding	09:50	09:59	Ground Team_A
Chocks Off/Pushback	10:00	10:01	Ground Team_C

Fuel Truck – Late arrival

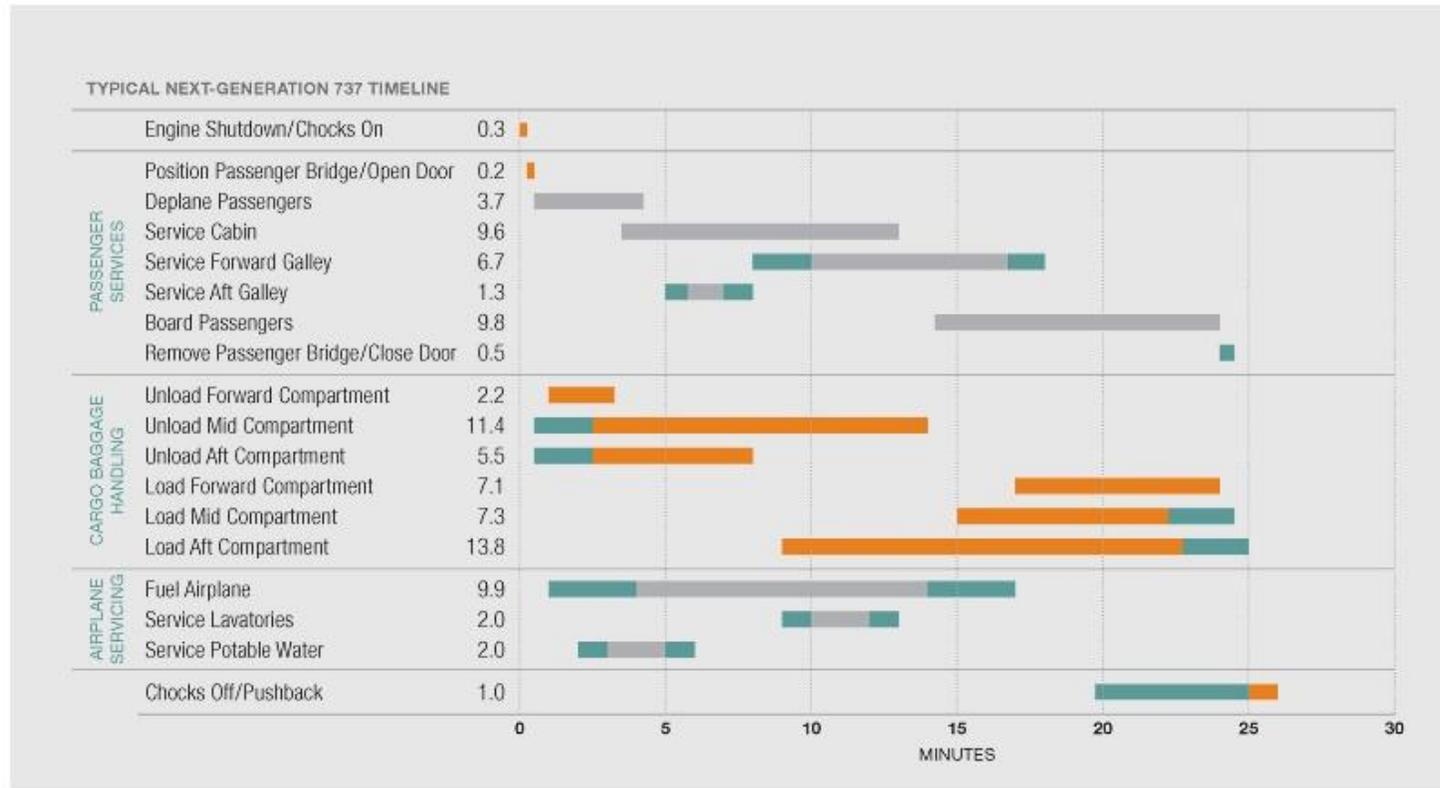


Leveraging CCTV to monitor turnaround services



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The potential: Boeing 737 turnaround timeline



■ = Position Equipment ■ = Critical Path

PARAMETERS

- 142 passengers off, 121 passengers on
- 2 doors used to deplane and enplane
- 1 galley service truck
- 1 lavatory service truck
- 1 potable water service truck

NOTE

- Belt loader used at cargo hold
- Aft galley, potable water, and lavatory service complete before passenger boarding

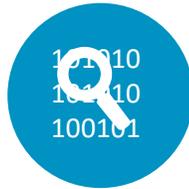
Key Benefits



Improve

Utilization Improvement

- + Reduce turn times
- + Reduce delays



Analyze

Root cause analysis

- + Identify performance bottlenecks
- + Identify equipment idle time



Monitor

Turnaround Management Black Box

- + Capture all turnaround services
- + Real time detection of SLA violations

Catering the needs of the airport ecosystem



Executive
Team

More movements

Higher revenues



Compliance
Officer

Safety violations detection

Instill a “safety culture”



Airport
Ops

Streamlined operation

Shorter taxi in/out times



Tower

Monitor plane readiness

Better slot allocation



RAMP
Manager

Minimize ETD to ATD gap

Better alignment of resources



Station
Manager

Monitoring of turn services

Enforcement of SLA

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Take a seat in the

Cockpit

Helping Technologies Fly

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Together.

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