

Assisted Crowd Management, from data to mobility insight

*“UNDERSTAND THE JOURNEY PATTERNS TO
ENHANCE THE PASSENGER EXPERIENCE”*

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Thales at a Glance



Global presence

56 countries



Employees

62,000



360 Employees

Competence centre
for Transport & Security

Project oriented company
delivering the full life-cycle
across the **Region**



TRUSTED PARTNER FOR A SAFER WORLD



Revenues in 2016

16 billion euros



A balanced revenue structure

50% Defence

50% Civil



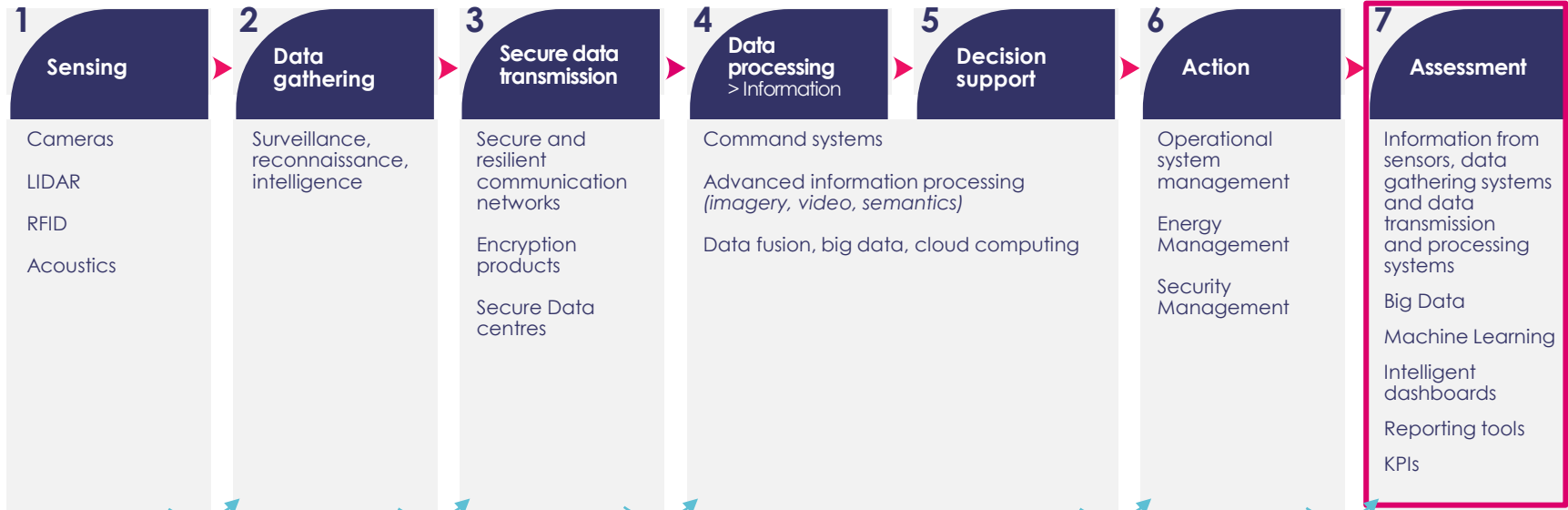
Self-funded R&D 2015

707 million euros

Whenever critical decisions have to be taken, Thales plays a role

THE CRITICAL DECISION CHAIN

SECURITY / INTEGRITY



Thales solutions help customers to make the right decisions at the right time and act accordingly

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Urban Mobility Challenges

- ▮ Ridership ↗
- ▮ Passenger expectations ↗
- ▮ Network complexity ↗
- ▮ Traffic flow ↗
- ▮ Operating cost ↗
- ▮ Multimodality requirement ↗
- ▮ Aging equipment
- ▮ Digitalization



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Big Data Benefits



A multi-purpose Big Data Platform applied to Transport

- Offer authorities capabilities to
 - Visualize mobility dynamics (tactic)
 - Improve the quality of service (strategy)
- Automation of station survey with full network and time coverage
- Statistical analytics for metrics computation
- Appealing Data Visualization

Since 2011: 8 patents, 15 international publications

Train Occupancy & Platform Crowding Analytics for MTR Network

MTR's challenge

- **Improve riders experience** in MTR rail network through **better insight from ticketing data**

Scope of project

- **3 KPIs:**
 - Platform crowding
 - Train occupancy
 - Missed trains
- **Drive insight discovery** with an intuitive data visualization user interface
- In-house powered Big Data Analytics as **a Service**

Key Numbers

- **3** years service contract from Oct 15 to Sept 18
- **10** millions transaction data daily
- **10** metro lines
- **92** stations
- **5 %** traffic increase per semester

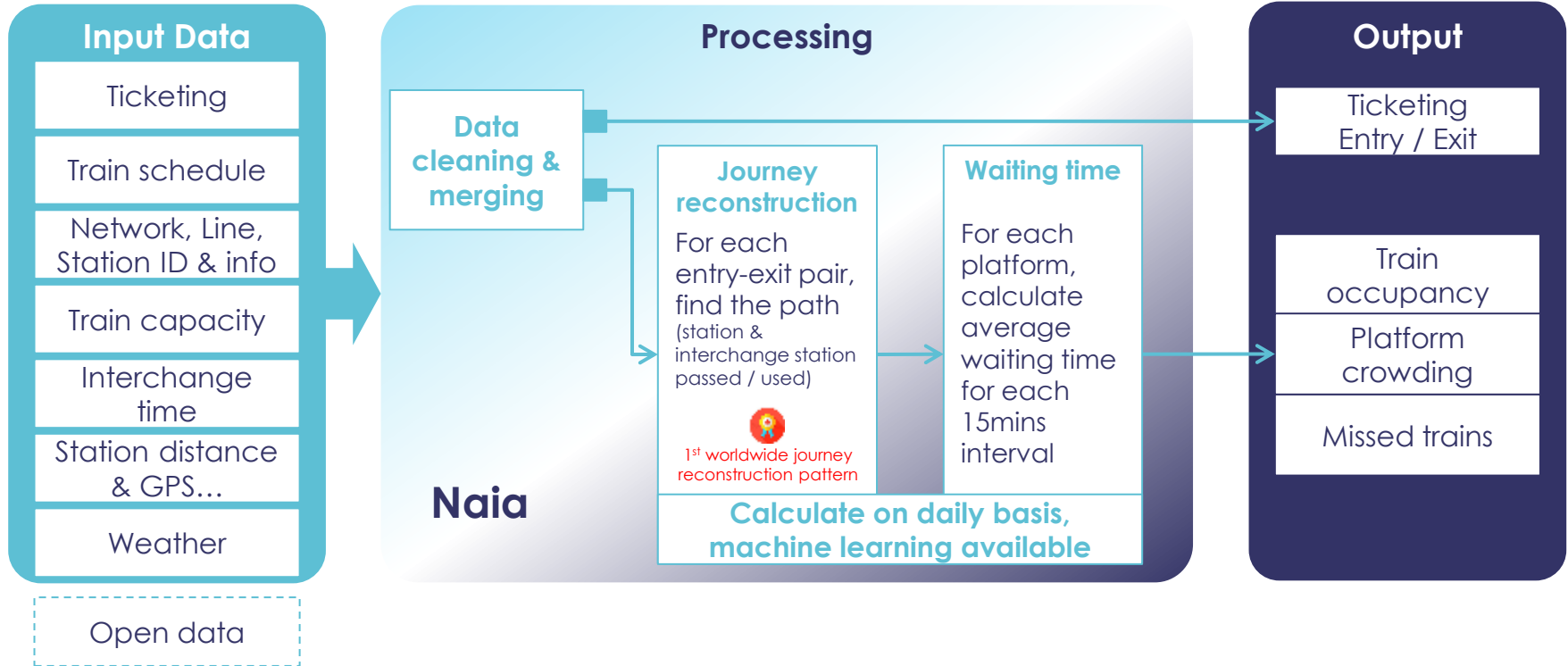
Naia : Return on Experience

- Ability to categorise passenger types into new grouping based upon travel frequency, routes, etc,
- Enable better infrastructure and services to travelling customers by understanding customer trends and behaviours
- Detect friction points in traffic flow
- Support decision making in order to anticipate & react according to the operating environment
 - Adapt Train timetable
 - Offer new services aligned with passengers' behaviour for revenue growth i.e. Fare policy validation : early bird
 - Dispatch operational staff just-in time and at the right place
 - Value for marketing and advertisement use
 - Design sustainable network development



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Naia : Data flow

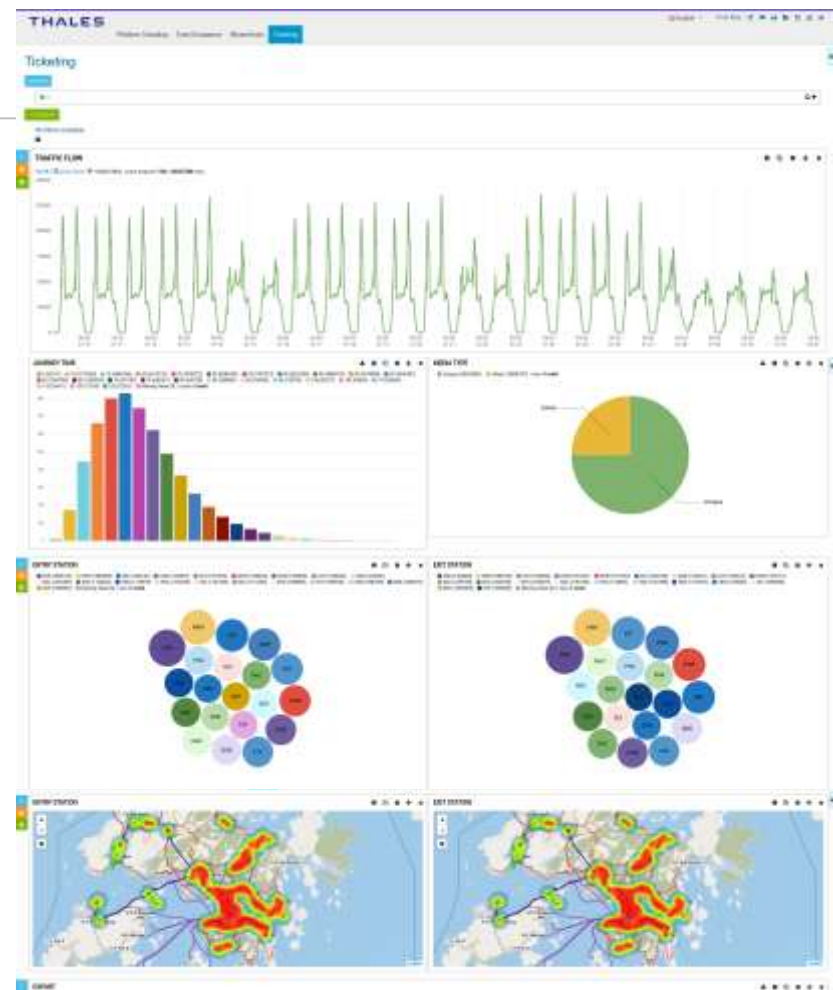


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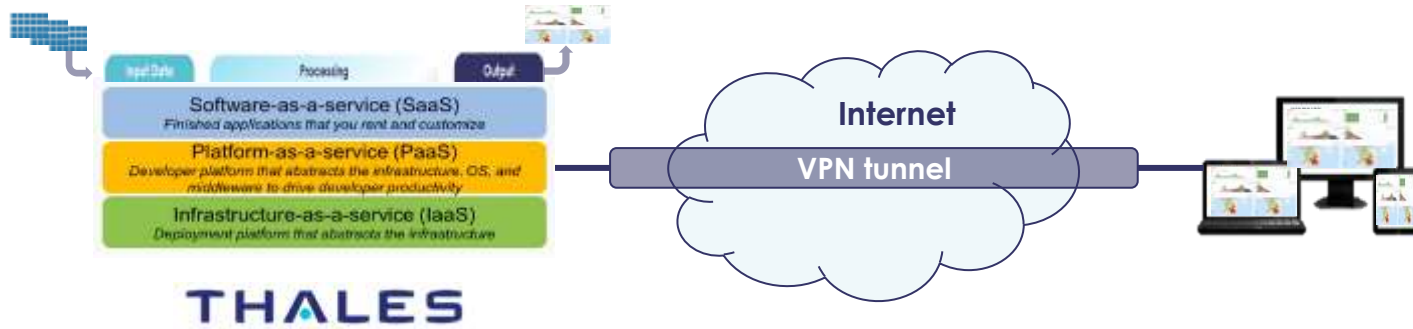
Naia : Functions

3 KPIs:

- Platform crowding
- Train occupancy
- Missed trains
- Total number of passengers
 - on each platform/ in train
 - per line
 - at each station
 - within 15 mins interval
- No. of Passengers from one station/ platform to the others
 - from origin to destination
 - from destination to origin
- Overall heat map with zoom-in
- Maximum, Minimum and Average
 - per platform / line/ direction
 - per station
 - per time of the day



Naia : SaaS, a new business model



What is SaaS ? SaaS Thales big data platform is a leased software maintained by Thales and not hosted on customer's premises. Thales big data software runs in the Thales data centre.

What are SaaS benefits to customer ?

- Reduced time to benefit
- Lower operation costs
- Scalability and integration
- Any device, any time, anywhere
- Seamless new releases (upgrades)
- Easy to perform proof of concepts

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“Train Occupancy and Platform Crowding Analytics for MTR brings us many useful train service information, which supports us in performance monitoring and service planning for our expanding network.”



Stephen Lau
Manager – Market Analysis & Planning
MTR Corporation Limited

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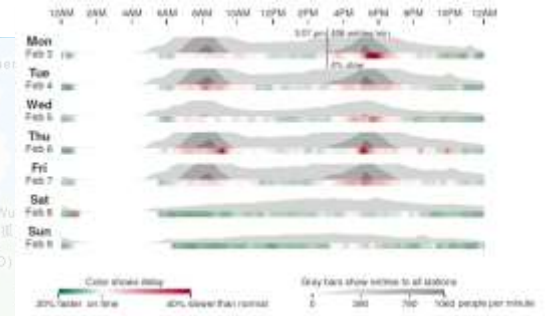
Naia : Roadmap

1. Shift paradigm of crowd management with near real-time flow reconstruction

- As input, a continuous stream of Data
- Analyze the ridership : early detection of Abnormal behavior
- Allow the operator to take decisions in real-time

2. Make Open Data valuable to Transportation Operators

- Spot Sources of influence on Ridership: reduce the network's vulnerability
- Better understand the Competitors behavior: adapt one's strategy
- Monitor the user's sentiment on social media: improve the user's experience



The Thales logo is displayed in a bold, dark blue, sans-serif font. The letter 'A' is stylized with a small teal dot above it. The background of the slide features a large, curved teal shape on the right side, and a dark blue area with a blurred digital rain effect of binary code (0s and 1s) on the far right.

Thank you

FOR YOUR KIND ATTENTION

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