tellmeplus

Predictive Objects

VERSAILLES - PALAIS DES CONGRÈS 17 & 18 OCTOBRE 2018

AUTOMOTIVE CONNECTION 2018

EXPOSITION B2B & CONFERENCES
DÉDIÉES À L'INDUSTRIE AUTOMOBILE

B2B MEETINGS ♦ CONFÉRENCES ♦ SHOWROOM ♦ START-UP INNOVANTES

Automated Edge Symbolic AI Asset Intelligence

Jean-Michel Cambot
Tellmeplus
Founder & VP Chief Evangelist

Intelligent Machines

must be able to explain every decision they make

AUTOMATED EMBEDDED AI
ASSET INTELLIGENCE

AUTOMOTIVE CONNECTION 2018

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Predictive Objects

Industrial IoT Challenges

The Challenges of Industrial IoT

TIME TO BUSINESS

When you need 9 months to create a Predictive Model with your Data Science team, and fail, this is a catastrophe…
When you need 9 hours to fail, this is good news !

DEPLOYMENT

Gartner says today more than 80% of Predictive Models that are created never go live…
You've got just an algorithm!

SHOP FLOOR ADOPTION

Once an asset makes a prediction, how to engage the business experts with actionable recommendations?
Otherwise, this is just useless!

The Challenges of Industrial IoT

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TIME TO BUSINESS

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META ACTIVE MACHINE LEARNING

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You've got just an algorithm!

EMBEDDED PREDICTIVE OBJECTS

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Once an asset makes a prediction, how to engage the business experts with actionable recommendations?
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ASSET INTELLIGENCE

Predictive Objects

SaaS platform

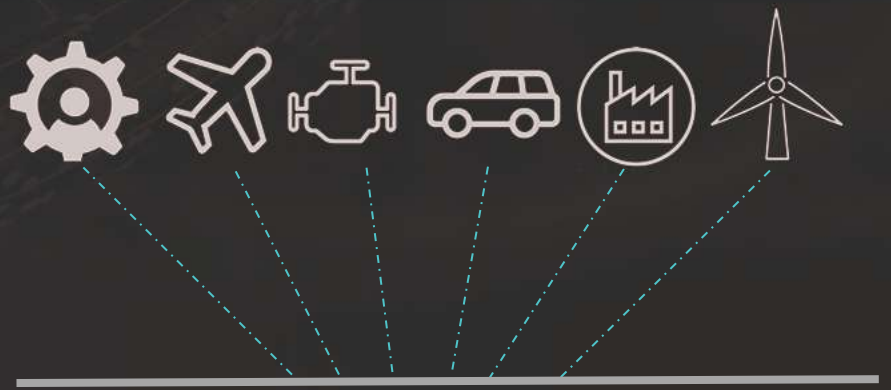
Automation

Edge Symbolic AI

Asset intelligence

The next step in the evolution of AI

Industry 4.0



cisco Kinetic

Microsoft Azure IOT

PREDIX

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ASSET INTELLIGENCE

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PUT THE INTELLIGENCE
WHERE DECISIONS NEED TO BE MADE

Embedded
PREDICTIVE OBJECTS
for IIoT

IoT Platforms

IoT Design

Space Defense & Military

Transportation

Smart Vehicles
Aeronautic
Drones

Energy

Wind turbines
Solar, Oil & Gas

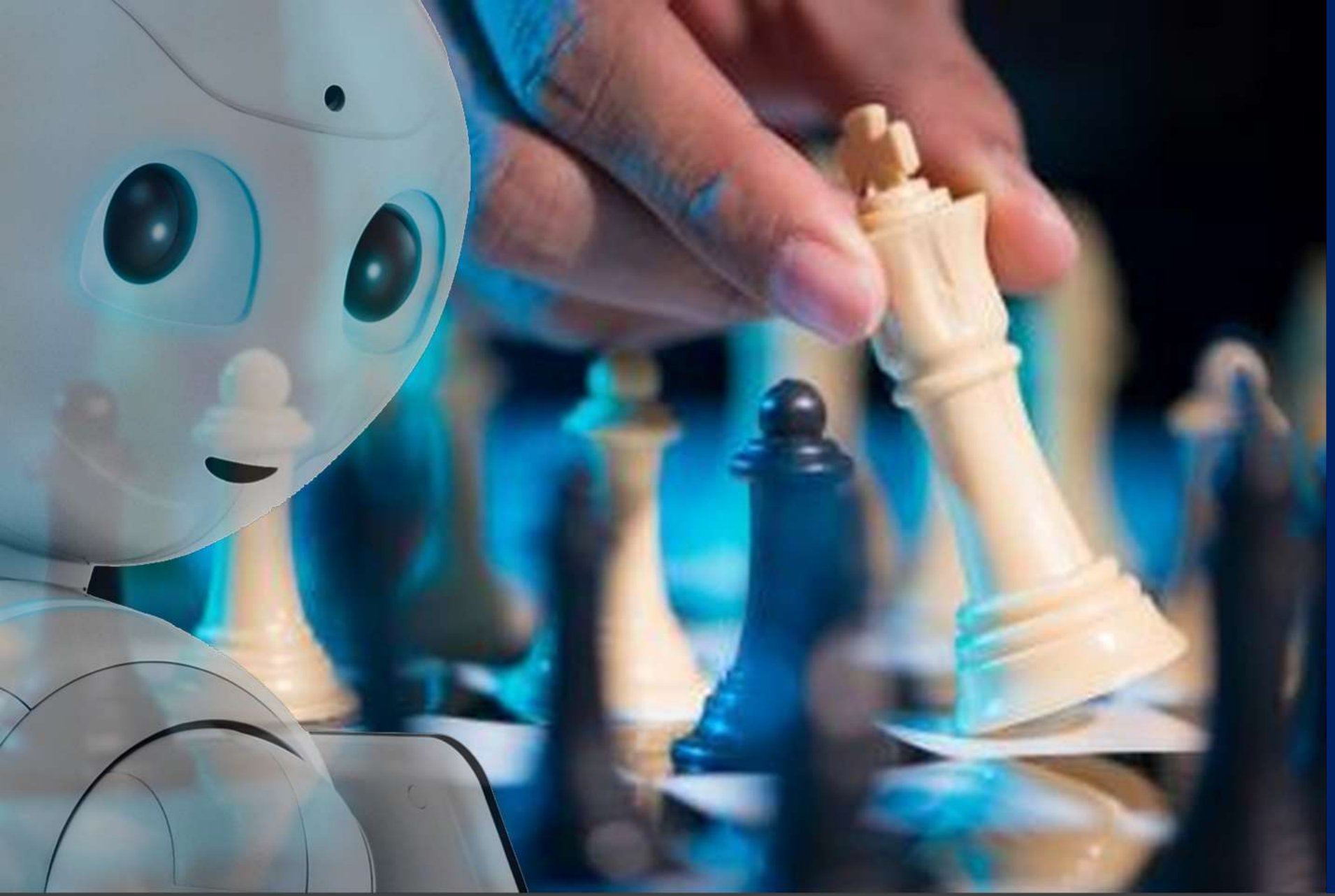
Manufacturing 4.0

Process Quality
Prescriptive maintenance

BUSINESS INTELLIGENCE
DECISION TOOLS

PREDICTIVE INTELLIGENCE
PREDICTIVE & PRESCRIPTIVE MAINTENANCE

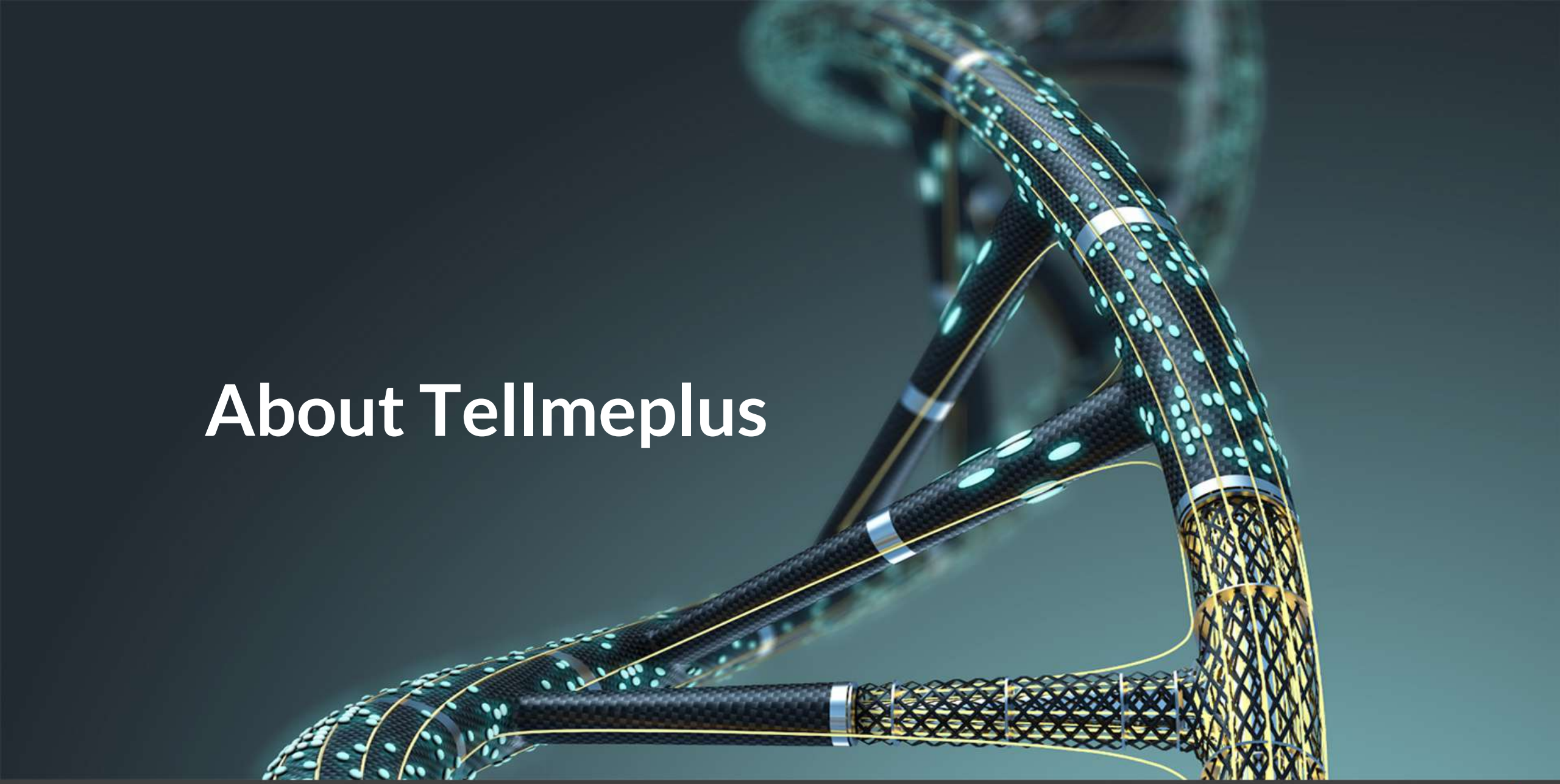
ASSET INTELLIGENCE
INTELLIGENCE OF USAGE



AUTOMATION

EDGE AI

ASSET INTELLIGENCE



About Tellmeplus

Jean-Michel Cambot
Founder & Chief Strategy
Business Objects
Inventor, Sold to SAP $6,8B

2011: creation
Founder
JM Cambot

2016:
4,2M€ raised
Benoit Gourdon
CEO

Benoit Gourdon
CEO
neolane
marketing that delivers
Co-Founder, Sold to
Adobe $600M

Software vendor

Predictive Analytics

4 Patents

Meta Active Machine Learning
Embedded Predictive Objects
PO in IIoT platforms
Micro Predictive Objects

R&D
mathematicians
from CNRS & INRIA

30

Paris & Montpellier
soon Boston, Munich

Technology & Academic Partners

Tellmeplus is part of the
Microsoft AI Factory

Tellmeplus is accelerated by
Microsoft ScaleUp Berlin

Tellmeplus is
Strategic Partner
Google Cloud IoT Core

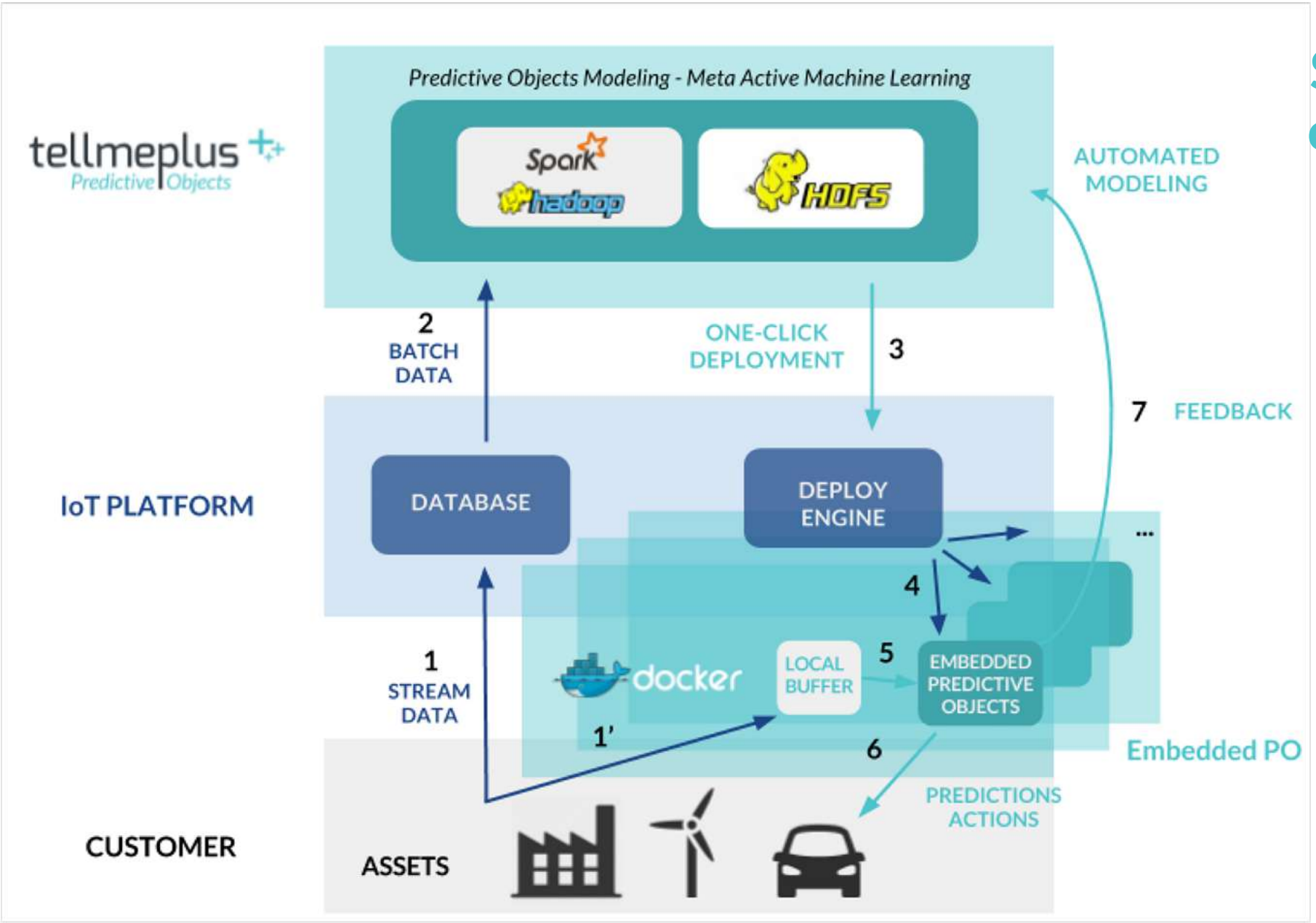
Tellmeplus is accelerated by
and Business Partner
Cisco

Tellmeplus is about to be
certified on
Siemens Mindsphere

Tellmeplus is Certified on
GE Predix
and part of
GE Digital Alliance

Edge Computing
Fog Computing

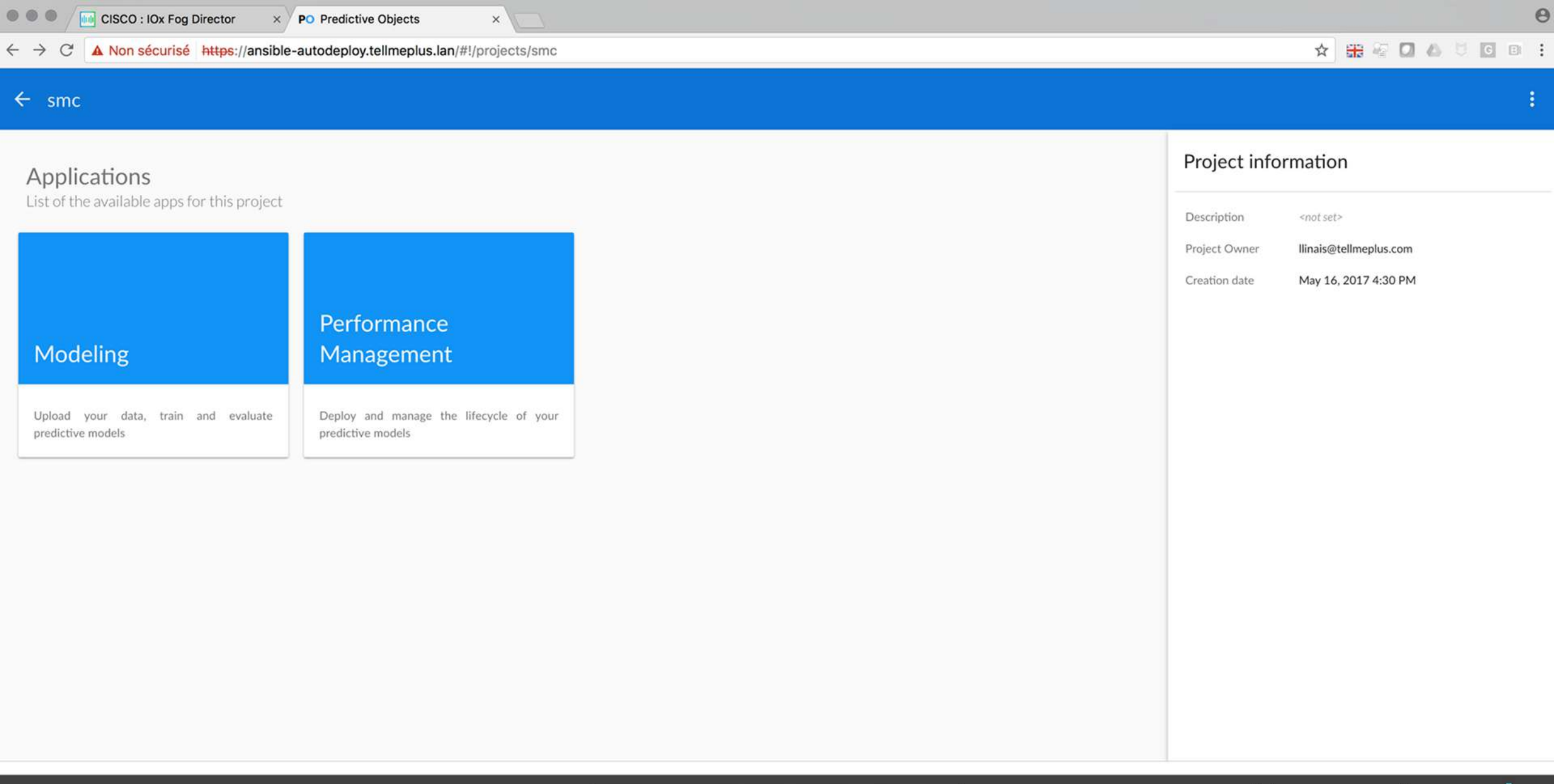
AI Technology



Seamless integration of Predictive Objects into IIoT Platforms

- AUTOMATIC CREATION
- 1 CLIC PUBLISHING
- EMBEDDED AI into ASSETS
- CONSTANT LEARNING
- UBIQUITOUS INTELLIGENCE

THE HUMAN BEEING WILL ADOPT TECHNOLOGIES THAT HE CAN UNDERSTAND



AUTOMATED EMBEDDED AI
ASSET INTELLIGENCE

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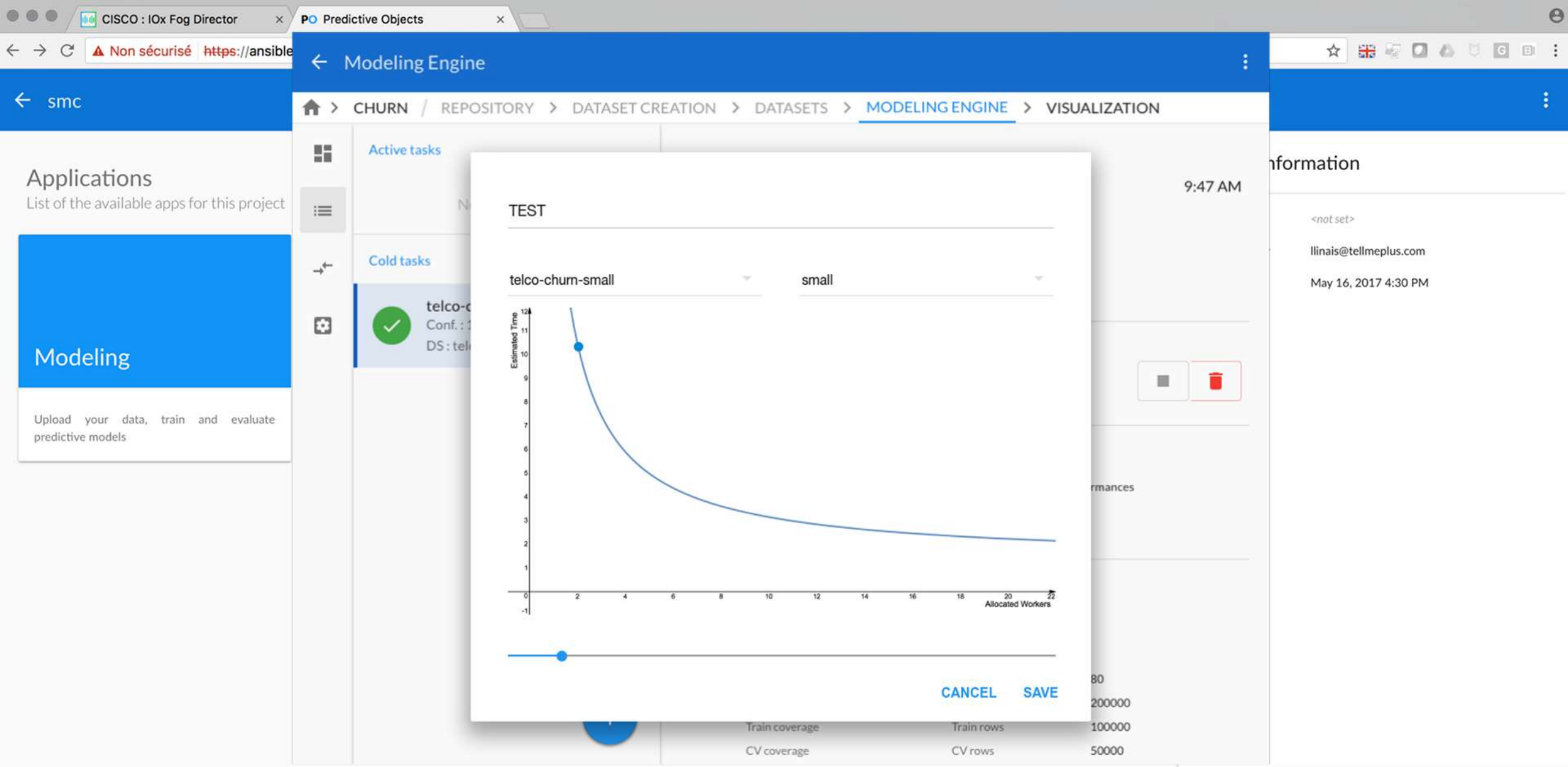

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ASSET INTELLIGENCE

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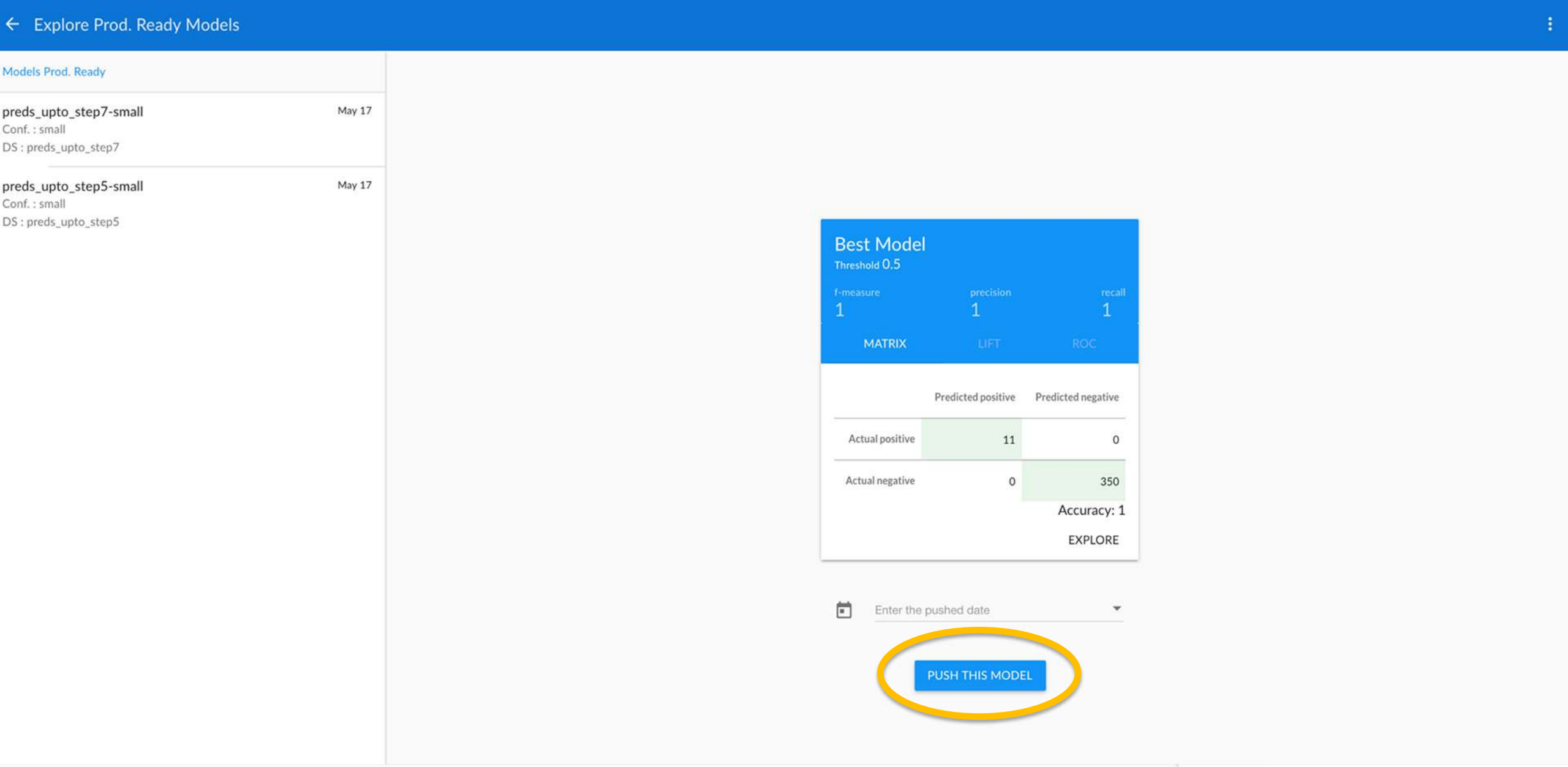

AUTOMATED EMBEDDED AI
ASSET INTELLIGENCE

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Predictive Objects

PREDICTIVE
TIME MACHINE

AUTOMOTIVE CONNECTION 2018

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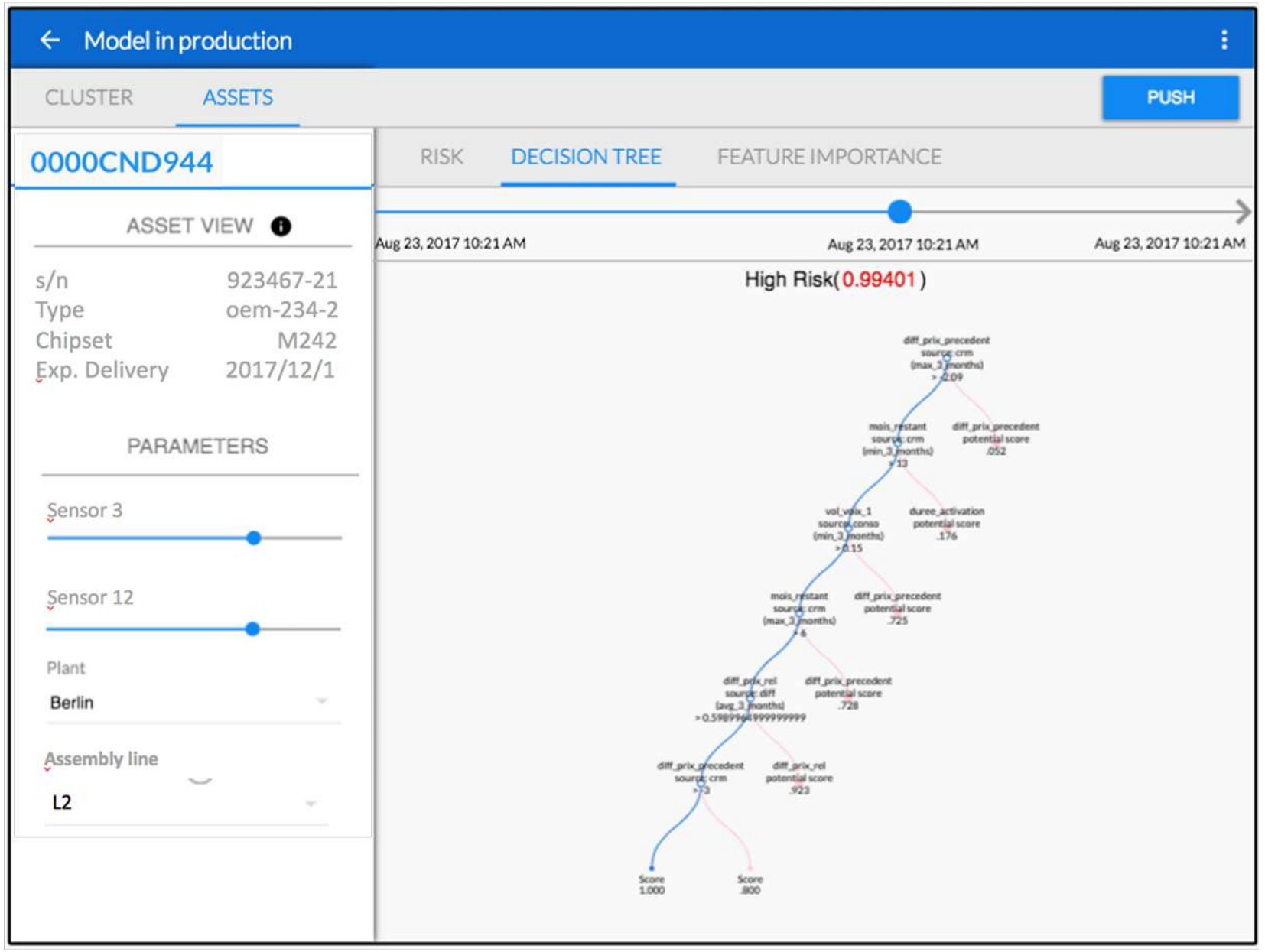
Predictive Objects



AUTOMATED EMBEDDED AI
ASSET INTELLIGENCE

AUTOMOTIVE CONNECTION 2018

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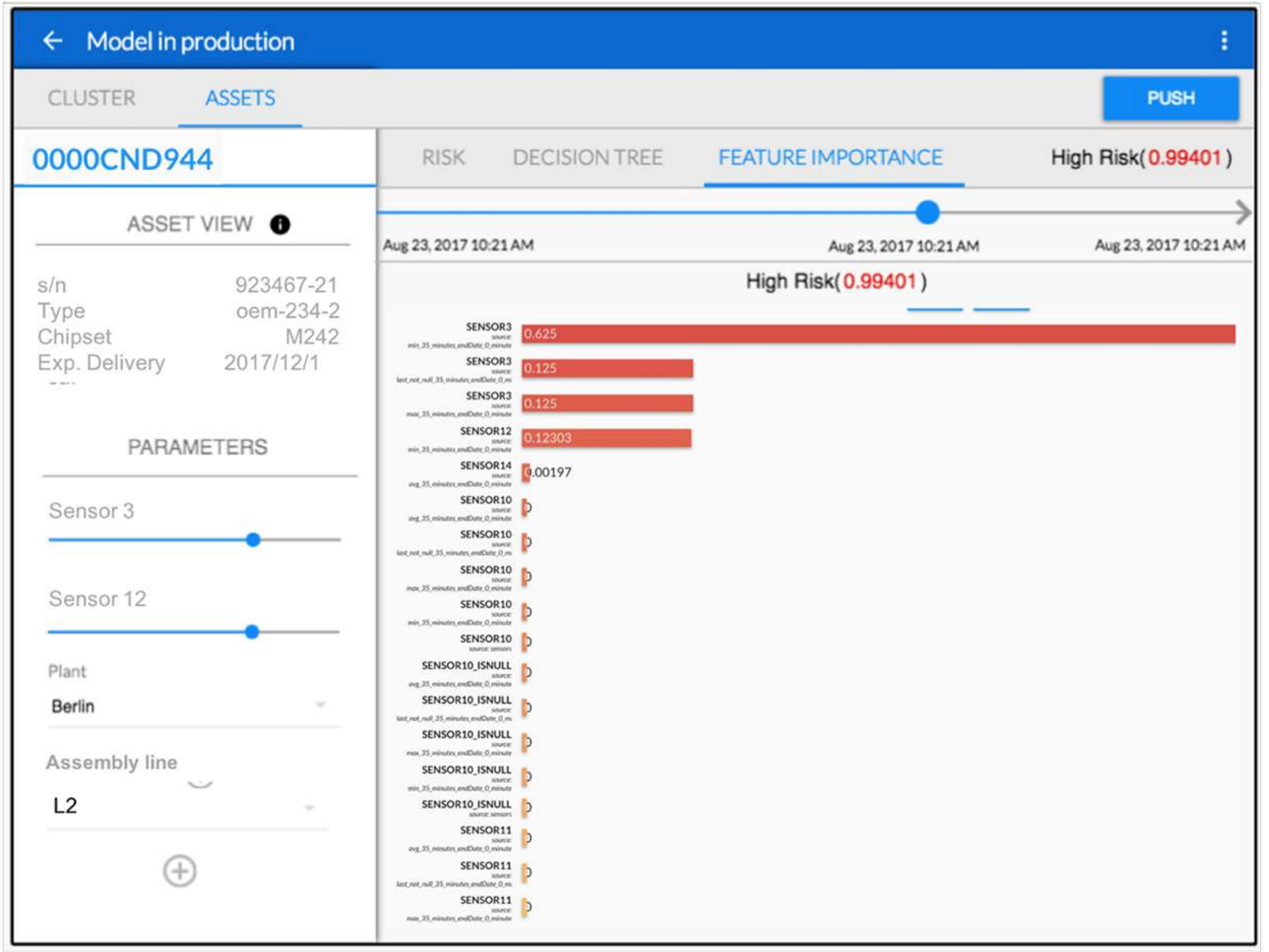
Model in production
CLUSTER
ASSETS
PUSH
0000CND944
RISK
DECISION TREE
FEATURE IMPORTANCE
High Risk(0.99401)
ASSET VIEW
s/n 923467-21
Type oem-234-2
Chipset M242
Exp. Delivery 2017/12/1
PARAMETERS
Sensor 3
Sensor 12
Plant
Berlin
Assembly line
L2
Aug 23, 2017 10:21 AM
Aug 23, 2017 10:21 AM
Aug 23, 2017 10:21 AM
High Risk(0.99401)
SENSOR3 0.625
SENSOR3 0.125
SENSOR3 0.125
SENSOR12 0.12303
SENSOR14 0.00197
SENSOR10
SENSOR10
SENSOR10
SENSOR10
SENSOR10
SENSOR10_ISNULL
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SENSOR10_ISNULL
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SENSOR10_ISNULL
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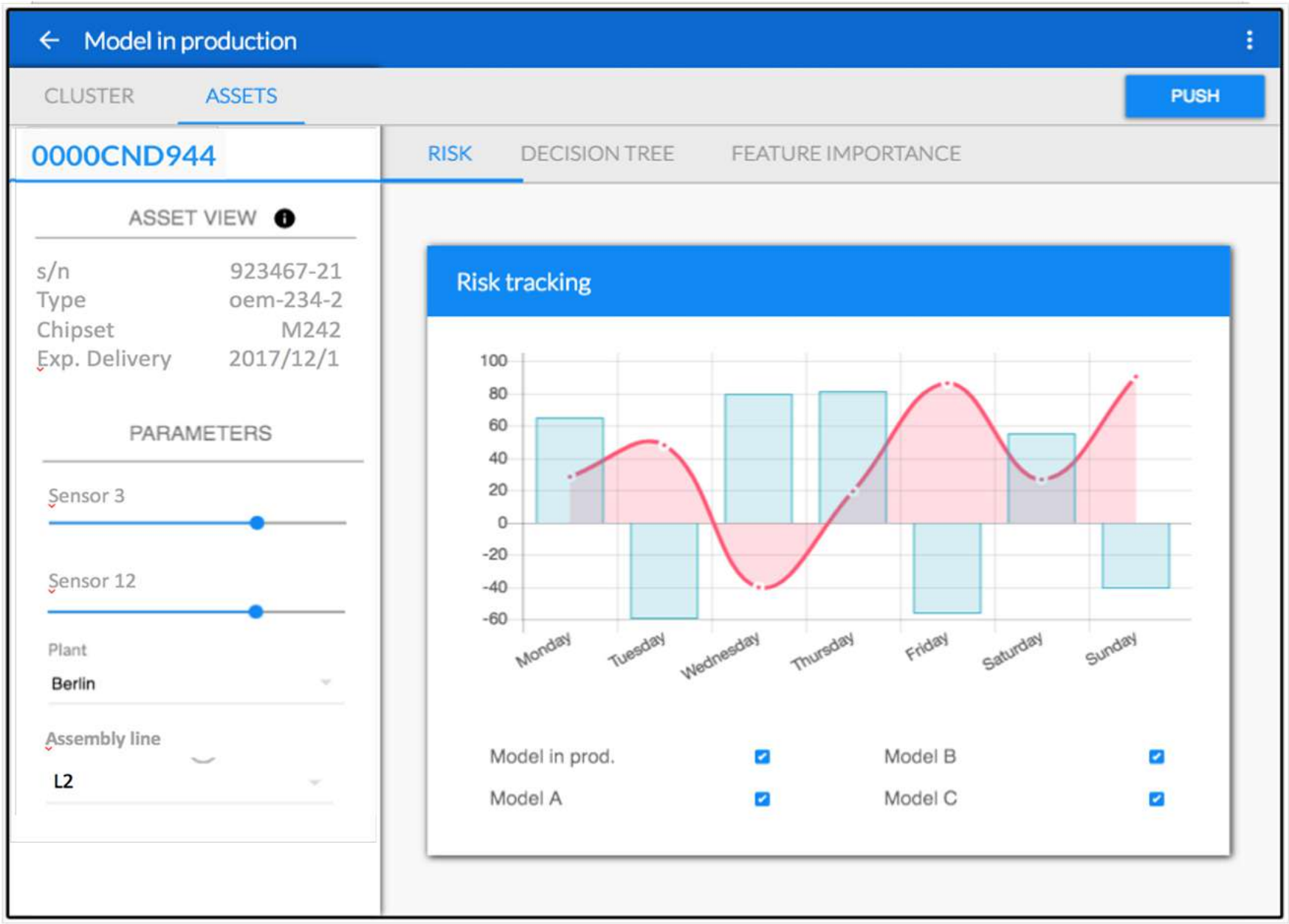
SENSOR11
SENSOR11


Model in production
CLUSTER
ASSETS
PUSH
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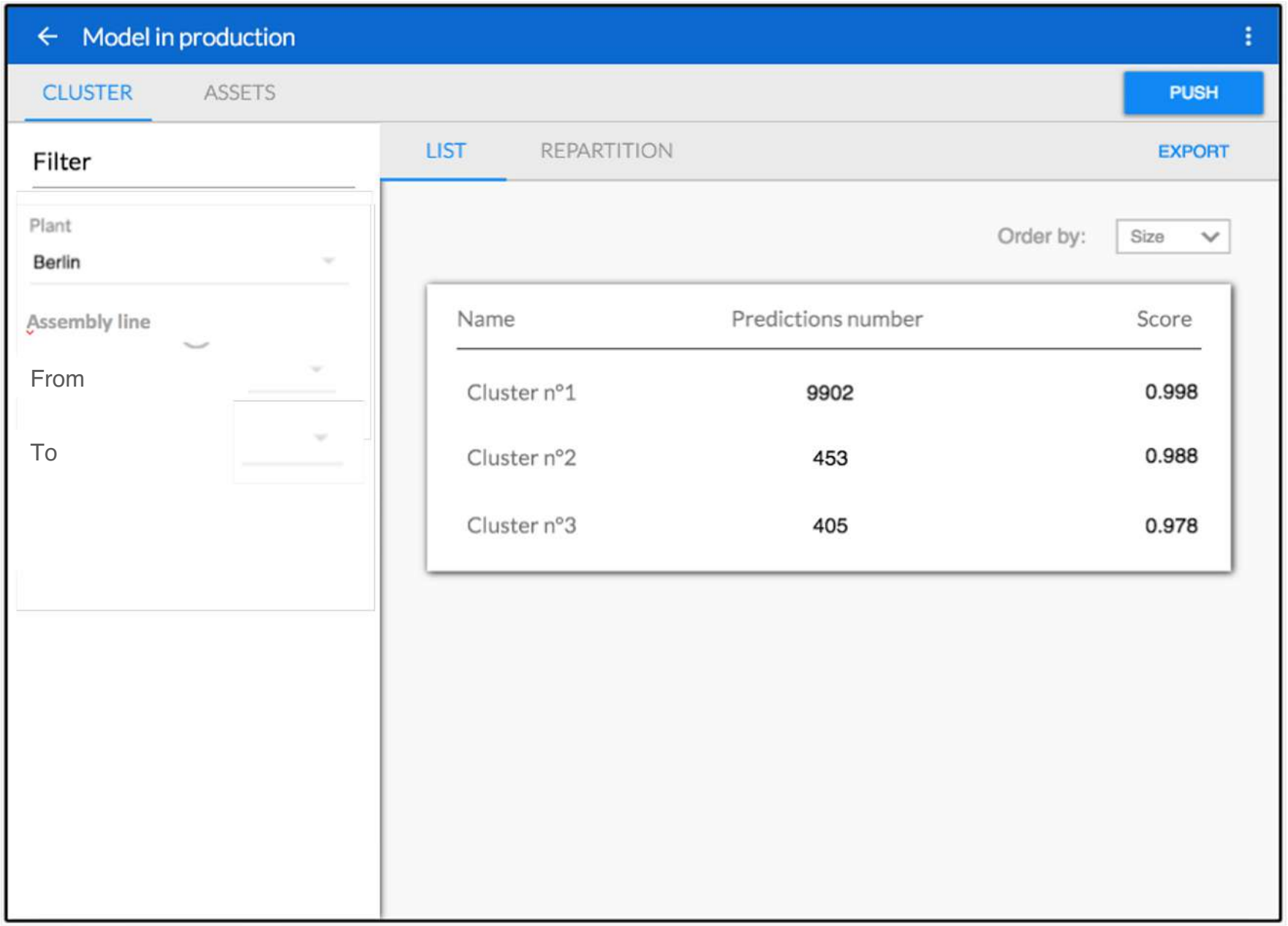
RISK
DECISION TREE
FEATURE IMPORTANCE
ASSET VIEW
s/n 923467-21
Type oem-234-2
Chipset M242
Exp. Delivery 2017/12/1
PARAMETERS
Sensor 3
Sensor 12
Plant
Berlin
Assembly line
L2
Risk tracking
100
80
60
40
20
0
-20
-40
-60
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Model in prod.
Model A
Model B
Model C


Model in production
CLUSTER
ASSETS
PUSH
Filter
Plant
Berlin
Assembly line
From
To
LIST
REPARTITION
EXPORT
Order by:
Size
Name
Predictions number
Score
Cluster n°1
9902
0.998
Cluster n°2
453
0.988
Cluster n°3
405
0.978

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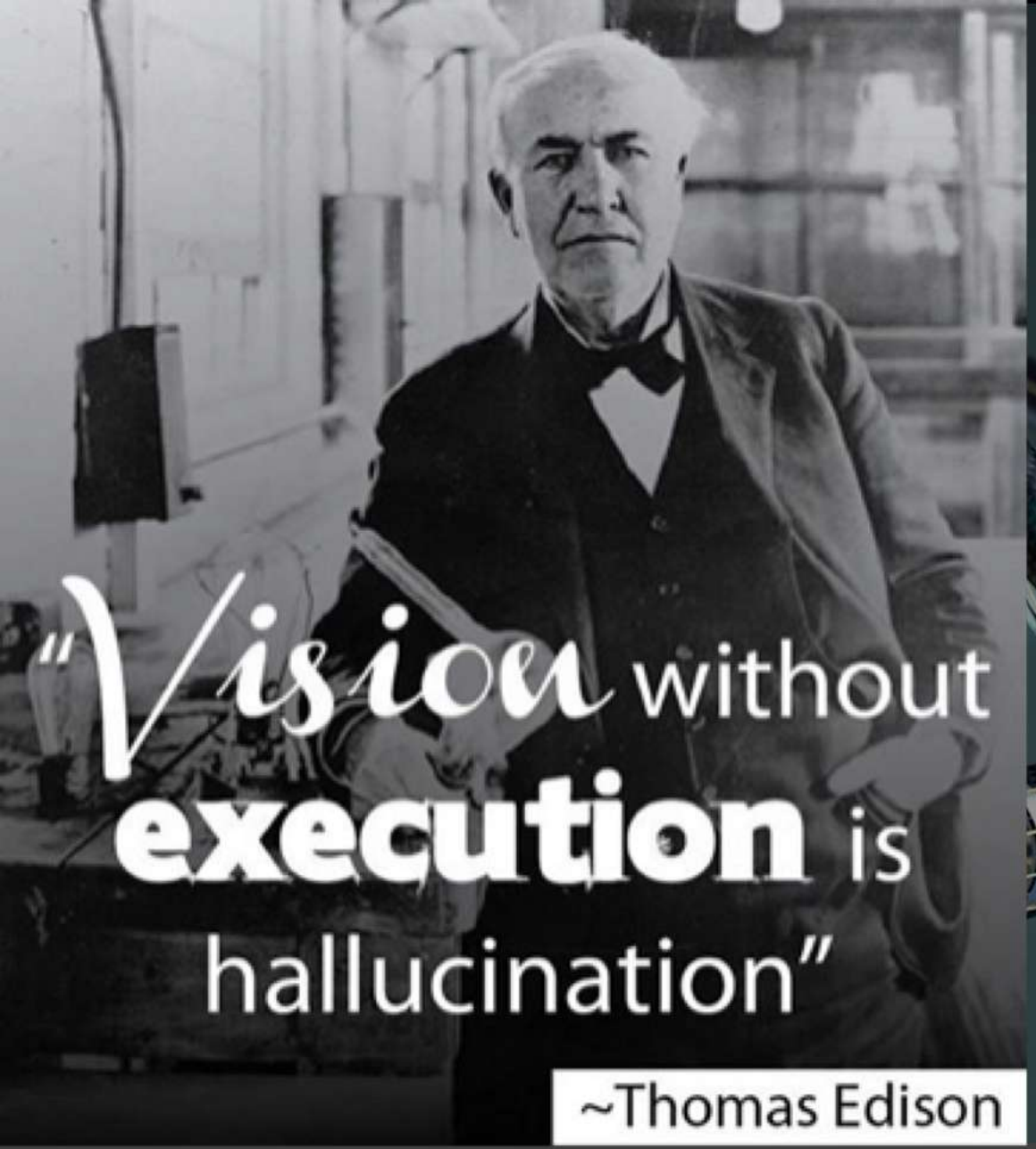
Predictive Objects

SUGGESTIVE
TIME MACHINE

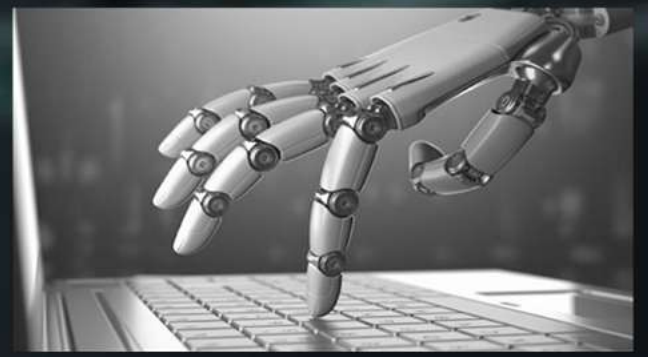
Use Cases



PROCESS MANAGEMENT

PRESCRIPTIVE MAINTENANCE

EMBEDDED INTELLIGENCE



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Examples of customers

AERONAUTICS

- Commercial Aircraft Predict “non conformity” on aircraft Assembly Lines

MANUFACTURING

- Problem Classification for mid power equipment

AUTOMOTIVE

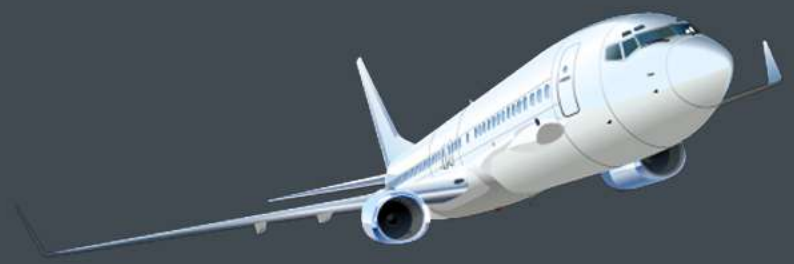
- Embedded Prescriptive Maintenance for intelligent vehicles

*

ARRIVAL Xee

Industrial Internet

AERONAUTICS



- **Commercial Aircraft Predict “non conformity” on aircraft Assembly Lines**

Examples of customers

Supply Chain

Business case

- Assembly line from pieces to a ready to fly aircraft
- Process divided into many work orders
- Data collection by customer
- Data cleaning & management

Goals

- Prediction of non conformity for work orders later in the process
- Explanation of predicted failure to fix the problem & remove part asap

Result

- **Predictive Objects was fed by clean data**
- **Modeling with P.O Platform & a Cloud**
- **Very high prediction precision**
- **High ROI**

Industrial Internet
MANUFACTURING

- **Problem classification for mid power equipment**

Examples of customers
Problem Classification

Business case

- Large industrial equipment (mid power) with black box
- Failure = real problem for final customer
- When this happens, manufacturer calls 1 expert (2 in the world…) to come onsite to retrieve data captured before failure
- Takes from 1 week to 1 month to the expert to explain the failure (>50 possible causes)

Goals

- Explain failure in a shorter time (blind test)
- Create a report to accelerate the expert's analysis

Result

- **Predictive Objects found the reasons for the failures in 1s**
- **Very high accuracy**

Industrial Internet
AUTOMOTIVE

- **Embedded Prescriptive Maintenance for intelligent vehicles**

Xee

Examples of customers
Prescriptive Maintenance

Business case
- Xee manufactures a device plugged to the CAN and ODB buses
- Live Capture of all electric signals from the car
- Use of exogenous data (weather, driver's behaviors…)

Objective
- Predict a battery failure live (while driving)
- Organize maintenance operations directly with the garage
- Then expand the business case to other possible failures

Result
- Live prediction of battery failure (results may be improved by using a larger dataset, more cars and more information)
- Automatic alert to be transmitted to the garage, then SMS sent to the driver: « Your battery is gonna fail in 8 days, please come and visit us on Tuesday so that we change it »…

Predictive Objects

Asset Intelligence at the Edge for IIoT

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