Deutsche Bahn & Accenture Delivering IoT at Scale

Use Case Development in an Industrialized Nearshore Factory for an IoT Platform of the Future

Brian Berg

Maros Mraz

The global IoT market is one of the fastest growing digital opportunities

IOT MARKET: FACTS & FIGURES

20.4 BN
"connected things"
by 2020 (Gartner, 2017)

IoT spans industries representing
62%
of gross domestic product (GDP) among G20
nations (Oxford Economics, 2014)

93%
of companies believe, that digital
technologies will change their
business models disruptively
within the next
12 months

Tech-Giants such as
Google, Microsoft, Cisco,
industrial companies such as
GE, Siemens or other telcos,
such as Verizon, have already
invested
BNs

The IoT
market will grow
27%CAGR
in the next 5 years
(Markets & Markets, 2017)

82%
of companies say they
are unable to identify all of the devices
connected to their network
(ForeScout, 2017)

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Our customers in IoT market typically discuss common themes

SPLUNK / ACCENTURE IOT OFFERING GUIDING PRINCIPLES

Existing market **buying behavior** dominated by hyper focused use cases or **highly customized** platform solutions

> **Customized approach**
> because specific needs of customers

Majority of market segment to be addressed by flexible and **scalable technology**

> **Scalable solution & delivery**
> to keep time and cost under control

Small initial PoC sales followed by **longer customer journeys** that only in the end lead to larger roll-outs

> **Innovation Factory Approach**
> to support industrialization along the IoT Journey
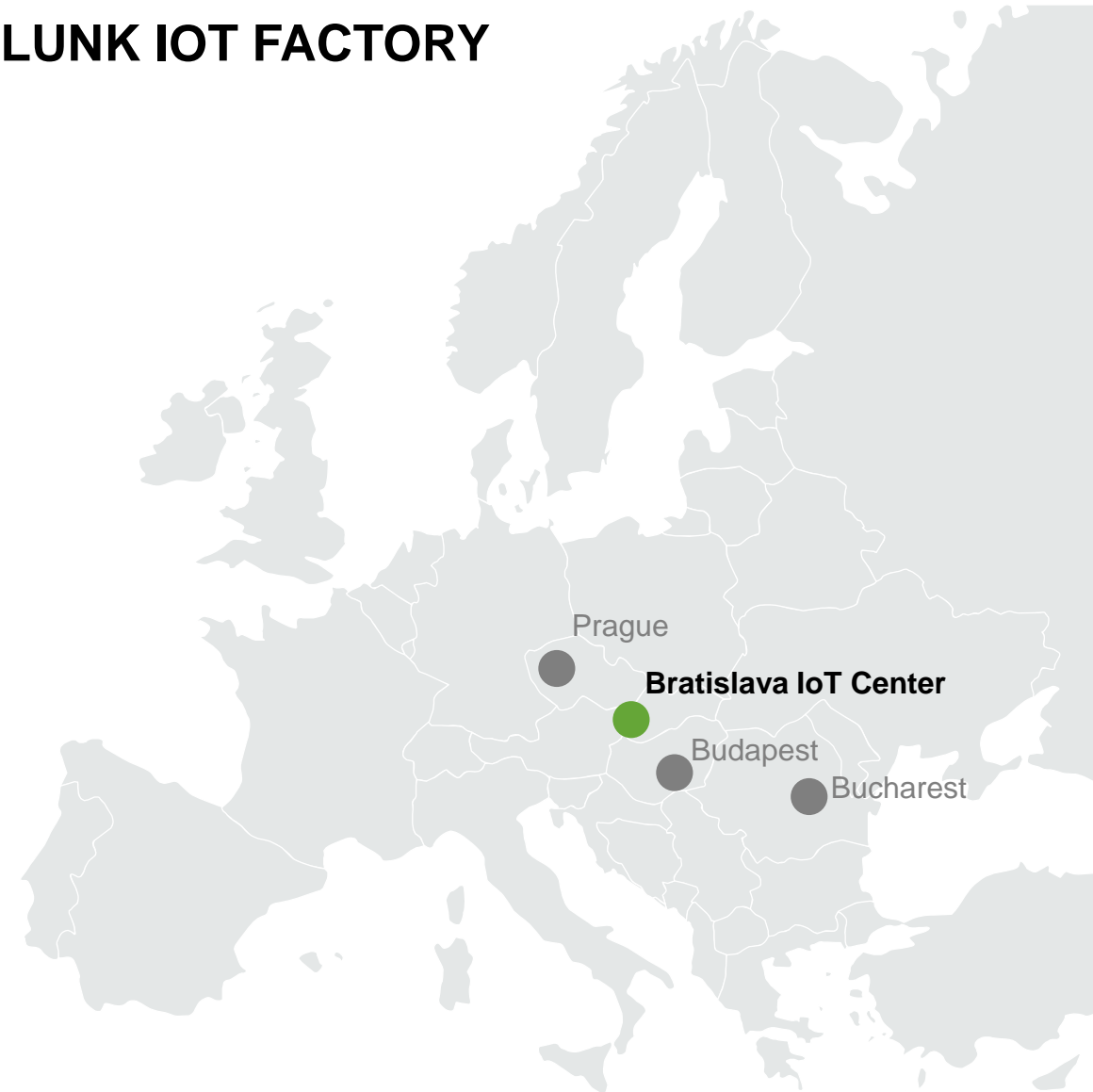
splunk> NEARSHORE IOT FACTORY **accenture>**

The newly developed "IoT Factory" delivers agile and at scale

EUROPEAN NEARSHORE SPLUNK IOT FACTORY

- Fully **dedicated team** for **Splunk IoT development** work with proven track record
- Highly talented and **certified people**
- **Extended resource pool** of over 1100 FTE with various areas of expertise
- **Industry specific knowledge** and experience
- Part of global (nearshore / offshore) **delivery network**

Industrialized agile at constant quality

Distributed thus secured expertise

Outcome based factory approach

Competitive onshore / nearshore setup

Prague

Bratislava IoT Center

Budapest

Bucharest

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We partner with Splunk and DB Cargo to capture the value of IoT

DB CARGO CASE STUDY AND CONTEXT

Situation:
- 93,000 freight cars and 2,750 locomotives
- Largest fleet on European continent
- 10GB of daily generated sensor data
- Initially limited use and transparency on IoT data

GPS   Push   Temp.   Humidity

Mileage   Weight   Dew Point

Objective:
- Supply innovative services to DB Cargo clients
- Optimize internal processes
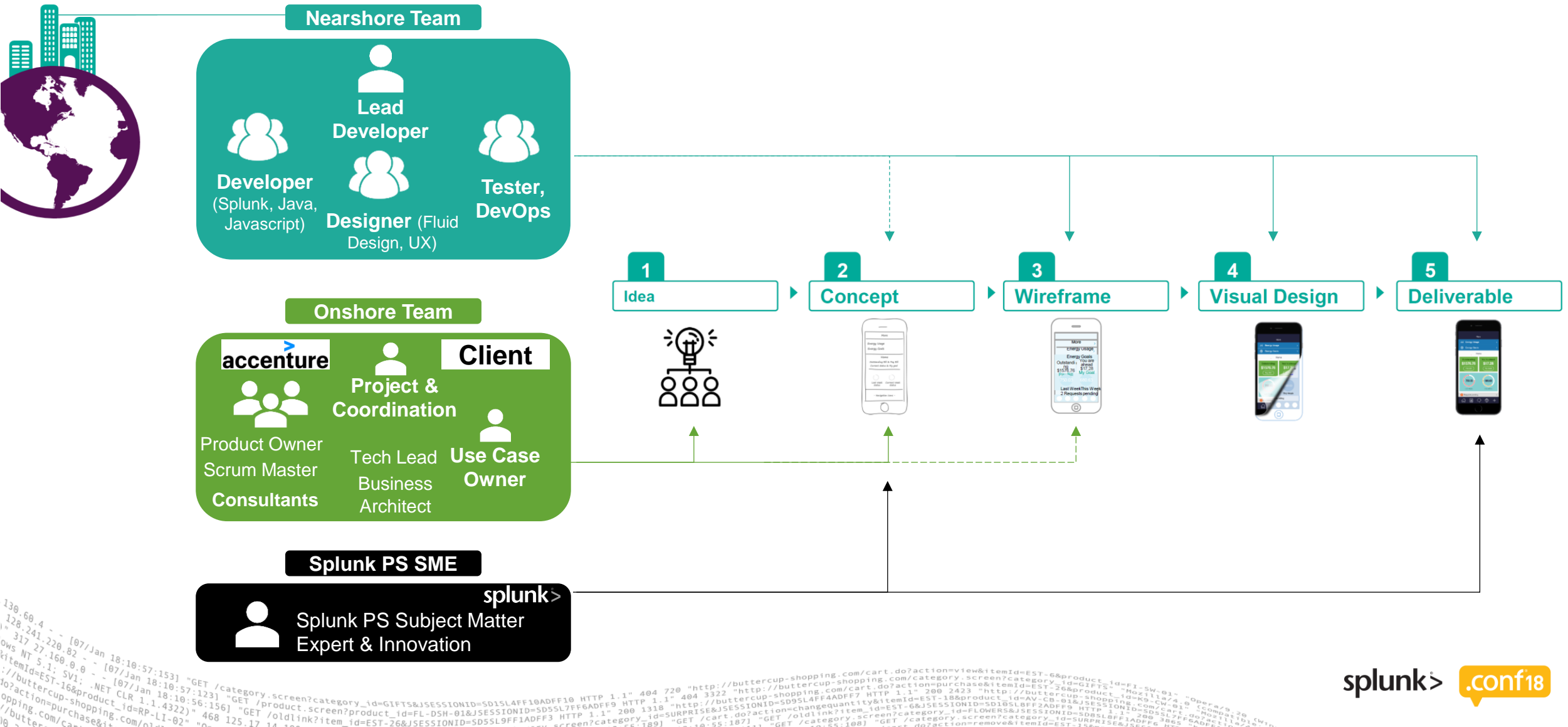- Get more specific fleet control and transparency

Accenture / Splunk Support:
- Onshore Consulting team defining use cases
- Splunk Professional Services as innovation infusion
- Accenture "IoT Factory" delivering and implementing

amspire
asset & maintenance digital lab

Context:
In the "amspire – Asset & Maintenance Digital Lab", interdisciplinary teams (60-70 experts) develop future solutions for the automation and digitization of vehicles and maintenance processes together with external partners.

A focus of the lab is the "Asset Intelligence Center", where an Internet of Things platform is being developed. With the "TechLOK" and "Wagon Intelligence" projects, we are enhancing the equipment used in our locomotives and freight wagons with intelligent sensors. Status data is constantly made available via the sensors and it is possible to perform detailed diagnoses on the condition of the vehicles or components. Using this data, our facilities will be maintained in a more flexible and condition-based manner in the future. The focus is on increasing availability and quality while reducing costs.
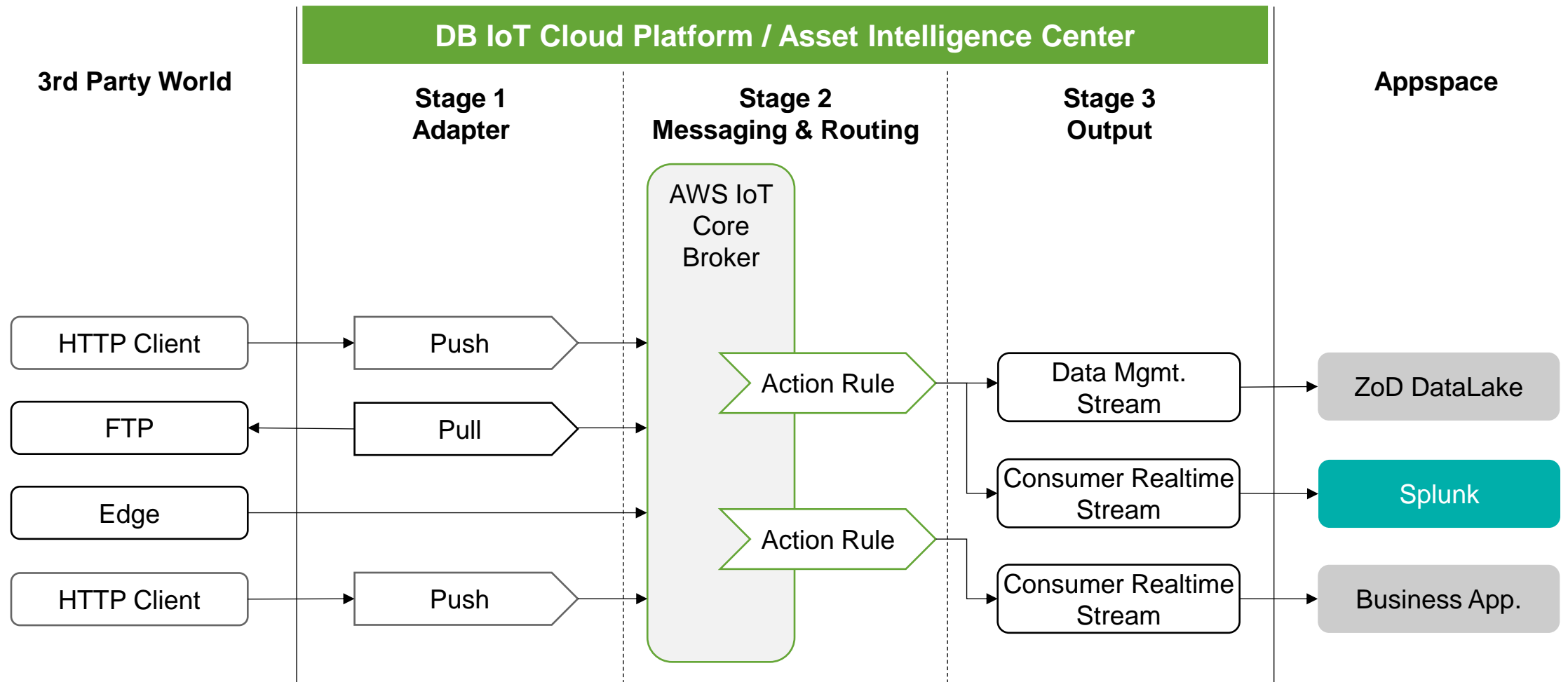
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The operating model supports highly custom and scalable delivery

AGILE DELIVERY APPROACH

Nearshore Team

Lead Developer

Developer (Splunk, Java, Javascript)

Designer (Fluid Design, UX)

Tester, DevOps

Onshore Team

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Client

Project & Coordination

Product Owner
Scrum Master
Consultants

Tech Lead
Business Architect

Use Case Owner

Splunk PS SME

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Splunk PS Subject Matter Expert & Innovation

1 Idea

2 Concept

3 Wireframe

4 Visual Design

5 Deliverable

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The DB-IoT Platforms real time stream is powered by Splunk

HIGH LEVEL ARCHITECTURE IOT PLATFORM

The IoT Factory delivered initial supporting use cases on the platform

USE CASE OVERVIEW

EXAMPLES

Wagon Data Quality – Monitor data quality of the IoT devices and their adherence to the contractually defined limits and accuracy
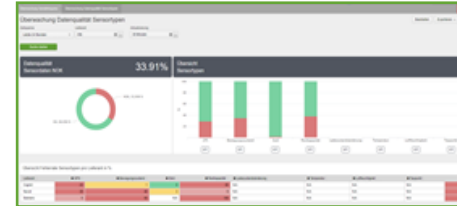
Identified and Fixed Data Inaccuracies

Wagon Shock Detector – Detect possible damaging shocks to a wagon at customer sites for improved claims management
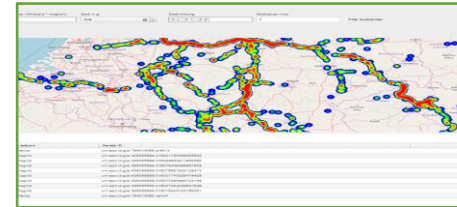
Improved Claims Management

Wagon Lifecycle – Overview of the equipment of wagons with telemetry devices and their health status

Asset management and optimization

Locomotive Data Quality – Monitor the IoT devices installed in locomotives for their data quality and accuracy

360° Quality Assurance

Locomotive Workshops – Monitor incoming trains for locomotive workshops to enhance repair schedule

Improved Workshop Utilization

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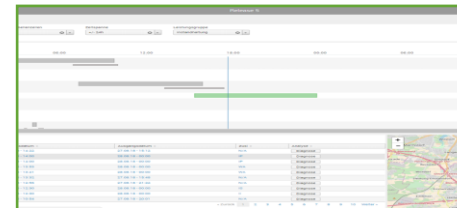
Wagon Shock Detector enables carrier & client to use new information

USE CASE DEEP DIVE: WAGON SHOCK DETECTOR

Description:
- Detect possible damaging shocks to a wagon along the whole journey

Potential benefits:
- Improved claims management at customer site
- Process Optimization (e.g. train speed adjustments or moving wagons between trains more carefully)
- Identify areas for maintenance (e.g. damaged railways or defective buffers)

Dashboard
- Displays strength of shocks, visualized via a scale ranging from blue to red, on a map to immediately identify the critical locations
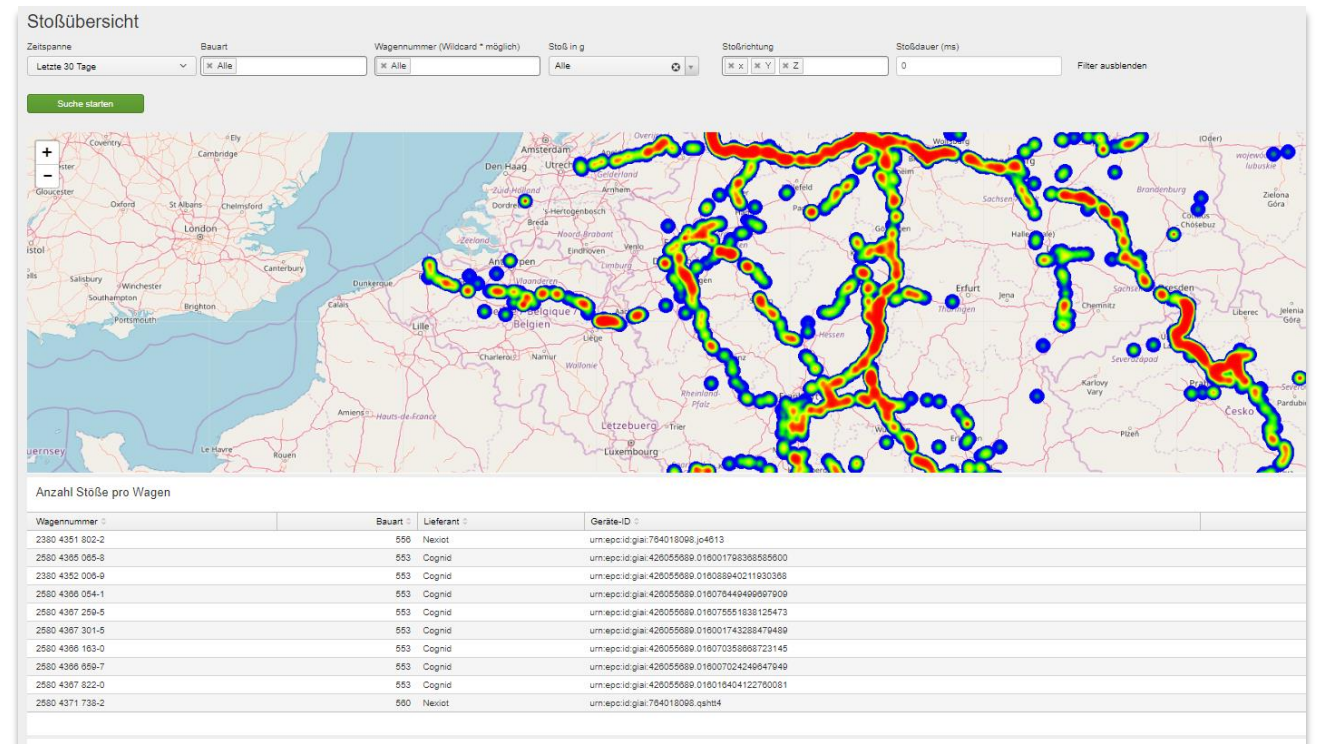
The Locomotive Workshops Case helps reducing process inefficiencies

USE CASE DEEP DIVE: LOCOMOTIVE WORKSHOPS

Description:
- Monitor incoming trains for locomotive workshops

Potential benefits:
- Enhancement of repair schedule (required service, timing etc.)
- Increase of transparency in terms of locomotive location and status
- Improved workshop utilization

Dashboard
- Displays exact timing the locomotives are arriving, the required type of service, the service status etc. while providing multiple options to filter the displayed items
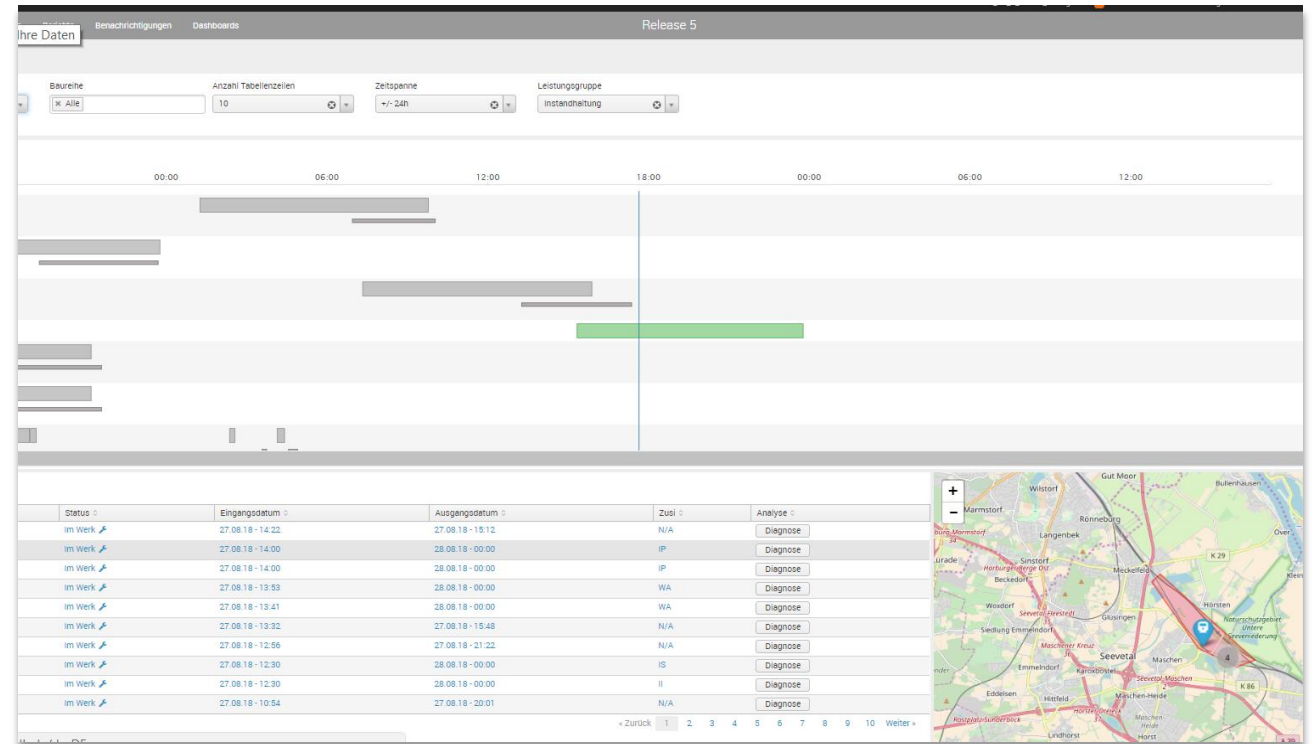
The newly developed capabilities are enabling the full value of IoT

VALUE DELIVERED & ACCENTURE FOCUS AREAS

Improved Process Efficiencies

Improved Trust and Better SLAs for Customer

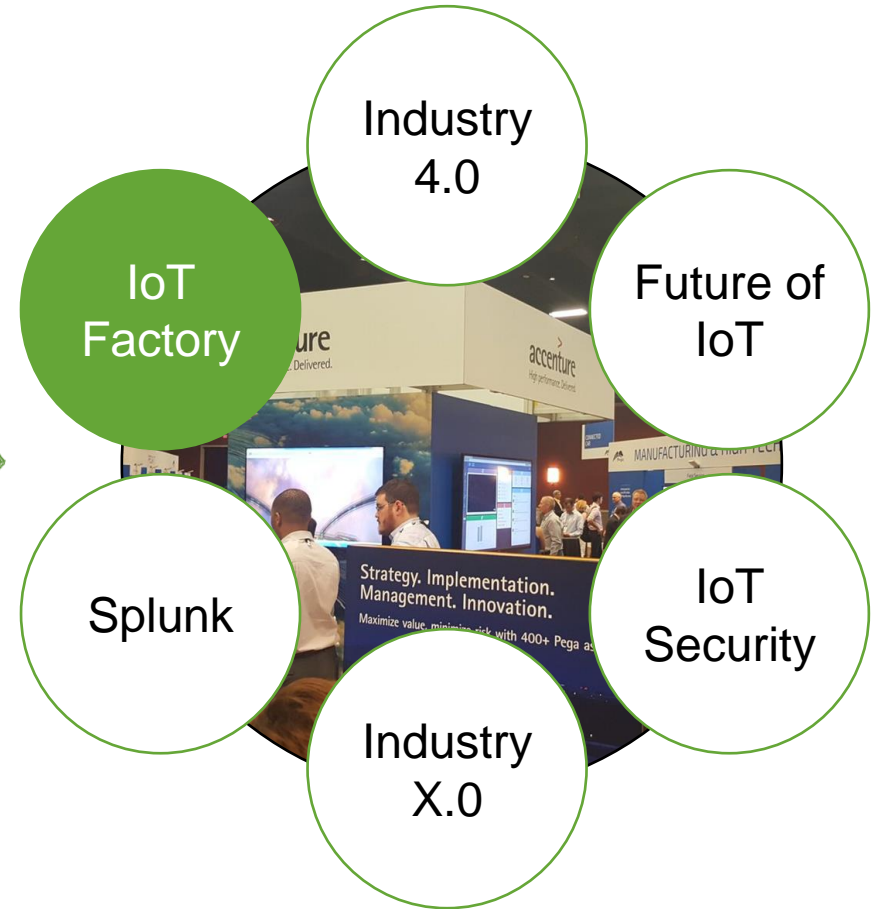**Improving** the Planning Process

Enabling Predictive Maintenance

Increasing Data Quality and Transparency

Enabling Product-to-Service Offerings

IoT Factory

Industry 4.0

Future of IoT

IoT Security

Industry X.0

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We are happy to further discuss your questions at our booth

MEET OUR EXPERTS

Brian Berg

Splunk Ecosystem Innovation Lab & IoT Expert
Principal Director Accenture Strategy
brian.berg@accenture.com

accenture

Maros Mraz

Engagement & Program Lead
Senior Manager Accenture Digital
maros.mraz@accenture.com

accenture

Fabian Stöffler

Asset & Maintenance Digitization Program Lead
Vice President Asset Digitization at DB Cargo AG
fabian.stoeffler@deutschebahn.com

DB

Interested in **am**spire
asset & maintenance digital lab

…please contact Fabian

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