



# SAP Innovation Awards 2019 Entry Pitch Deck

Predictive Customer Services Using Engine Telematics

Deloitte Consulting GmbH

# Predictive Customer Services Using Engine Telematics

## Deloitte Consulting GmbH



### “Quote”

*“Digitalization is one of the biggest challenges for our clients right now. The Internet of Things is not only about things, but also about data analytics which impacts new business models. Engine telematics enables our clients to generate new business models and to improve relationship with their customers.”*

*Christopher  
Beierschoder, Manager  
Deloitte Consulting*

### Challenge

Competitive Pressure leads to redesign of the business models by considering innovative solutions / services. Identify use cases for applying sensor data to reduce costs, to improve uptime, to create new sources of revenue and to meet regulatory requirements.

### Solution

Sending IoT data from multiple IoT Devices (Engines equipped with telematics units) to the SAP IoT Services and Application Enablement to monitor and analyze data. Conduct condition based and predictive maintenance to improve service and maintenance business.

### Outcome

Development of a fully automated cockpit in SAP Leonardo to monitor all connected engines in real-time and to analyze/predictive engine health data. This enables the company to offer its customers new services at an early stage and also to reuse new insights to their product lifecycle.

Reduce Downtime of  
customers products

Improvement of Customer  
Satisfaction / Customer  
Service

Improvement of production  
lifecycles



## Business Challenge & Objectives

Business challenge 1: Clients are desiring innovative services to increase lifetime and decrease engine downtimes

Business challenge 2: Lack of engine data, engine health data to improve future design of engines

Design Thinking Workshop to identify uses cases and specific target groups.

Development a cloud based architecture to process real-time engine telematics data.

Implementation of an automated workflow based on predefined predictive analytics for individual alerts. Design of an integrated and user-friendly cockpit for service agents to handle engine events including provisioning situation-based action recommendations.



## Project / Use Case Details

Sharing information between connected engines and business systems can enable engine manufacturers to achieve new levels of efficiency. With the Internet of Things revolutionizing manufacturing and maintenance by leveraging intelligent, connected engines in any part of the world, there are more opportunities to fine tune engines with better insights.

Starting point of this process are engines equipped with telematics control units in order to send telematics data over the air to the SAP IoT Gateway, the entry point to the SAP Cloud Platform. Data is transmitted to the SAP IoT Service where devices and respective sensors are managed. Afterwards the data is ingested into the SAP Application Enablement to enable the development of customized IoT applications such as node.js services. At Deutz a customized node.js service monitors the telematics data and automatically creates events as soon as predefined thresholds are exceeded. This service triggers automated event actions for sending alerts and notifications to business owners.

Furthermore a bi-directional communication between cloud and device enables automated event actions to increase the sampling rate of particular parameters and request further event specific parameters to get better insights of an event.

A customized cockpit simplifies analyzing events and respective data. It also provides event based action recommendations to fix issues.



# Benefits and Outcomes

## Business / Social

Higher service quality through new data insights

Outcome-based business models by digitizing products and services

Generation of better customer services

Optimized customer communication

Less fuel consumption by optimized engine design based on analytical insights

## IT

Scalable cloud based IoT Platform

Empower IT within the company by using data-driven predictive analytics.

Automated alert workflow

Integrated Cockpit for service agents

## Human Empowerment

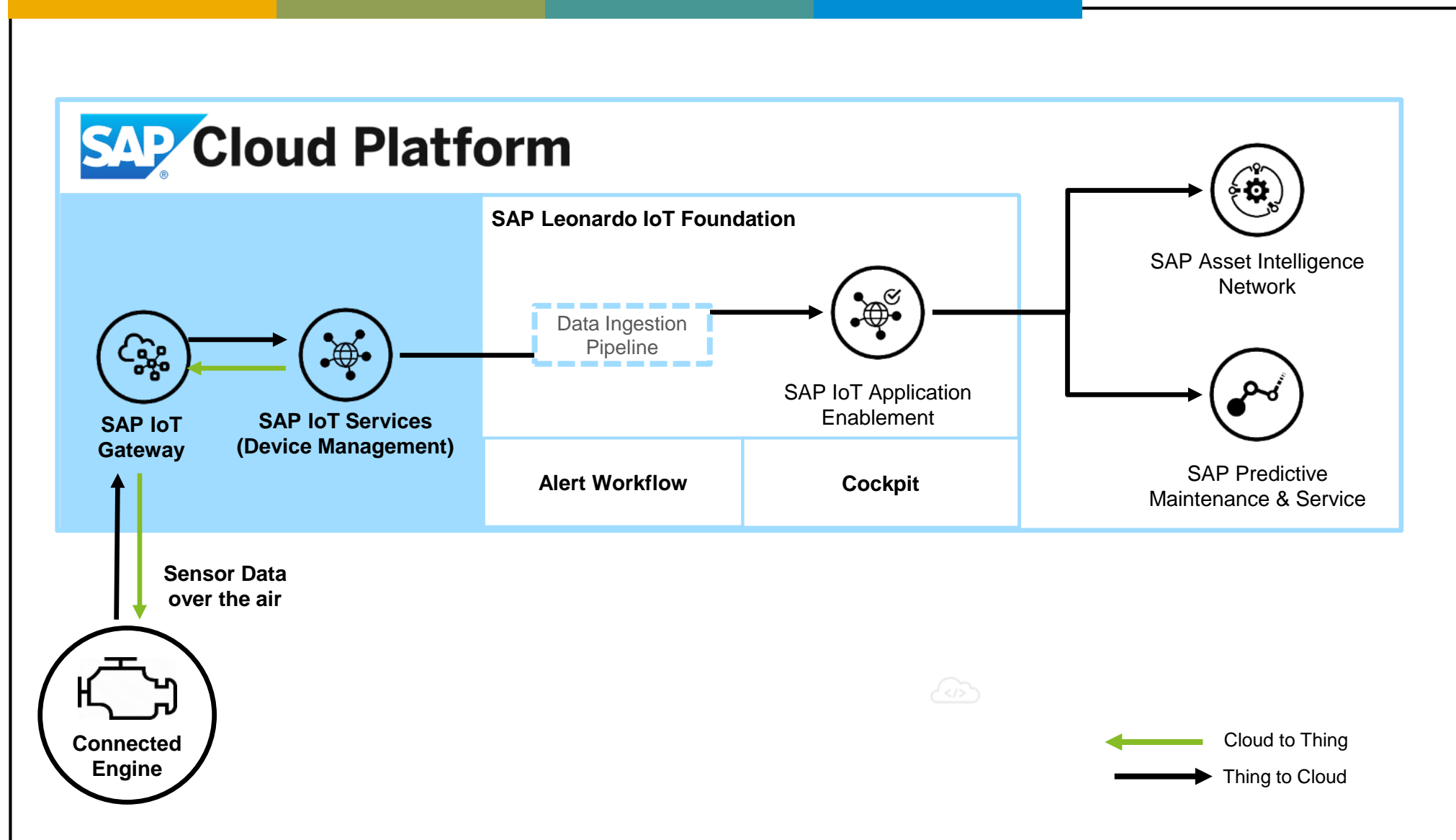
End Customer Satisfaction due to improved services. By Monitoring engine data the Service Provider is able to predict service need of customers which reduces the downtime of customers products

Optimization of resource management and material usage





# Architecture





## Deployment

Date of Deployment or POC: POC Start in September 2018

Number of live users:

### **SAP Technologies Used:**

SAP IoT Services

SAP Application Enablement

SAP Predictive Maintenance and  
Services

SAP Asset Intelligence Network

SAP WebIDE

SAP Cloud Platform – Cloud Foundry

Server Processor: SAP Cloud Platform

Linux Distribution: N/A



## Emerging Technologies and Use Cases

The following Emerging Technologies and use-cases are part of the project and describe the contribution

	Technology or Use Case	Yes/No	Contribution to Project
<b>1.</b>	Machine Learning / Artificial Intelligence	No	No
<b>2.</b>	IoT	Yes	Collect Sensor Data for Analytics
<b>3.</b>	3D printing	No	No
<b>4.</b>	Blockchain	No	No
<b>5.</b>	API Economy / Integrate the Intelligent Enterprise	No	No
<b>6.</b>	Cloud Native / Event Based Architectures	Yes	Trigger Actions based on Events
<b>7.</b>	Extending the digital core with SAP CP / ABAP in SAP CP	No	No
<b>8.</b>	SAP Leonardo Application ( extending SAP application, using Industry Innovation Kits or result of Design Thinking workshop)	No	No