



SAP  
Innovation  
Awards 2019



# SAP Innovation Awards 2019 Entry Pitch Deck

The SE(EK)ER

Borusan CAT

THE BEST RUN



# Meet the SE(EK)ER



[https://www.youtube.com/edit?ar=2&video\\_id=wwMlhsCd6zk](https://www.youtube.com/edit?ar=2&video_id=wwMlhsCd6zk)

# May the Machine Learning be with the Service Sales



## Borusan CAT

### “Quote”

«When we first introduced our artificial intelligence capabilities to our service sales, they thought that this is a revolution. However, we think that we only make all the buzz words of technology trends happen in here Borusan CAT, namely IoT, ML, Big Data and Analytics.»

Salih Sertbaş –  
Business Intelligence and  
Data Analytics Manager

### Challenge

Catching customers before they take maintenance service from competitors in the market  
Being prepared for exact maintenance needs for customers

### Solution

Borusan CAT (Reseller of Caterpillar in Turkey) implemented a System for predicting which machinery of which customer will likely to fail one month prior to machinery failure by leveraging Machine Learning Algorithms with SAP HANA SDI and R integration.

### Outcome

Digital Twin of a Service Master who knows which machinery to fail and which machinery parts should be ordered prior to failure in order to carry out the maintenance with less machinery down time

Prediction power is multiplied by 5 to 6 times with 85% accuracy compared to conventional methods

Additional 200K Euro solid opportunity is created each month

Average Downtime for machineries is anticipated to be dropped by 30% within a year.



## Partner Information

### SAP Turkey Digital Business Services Expertise on SAP Leonardo Technologies



Nowadays, in order to be a Best-Run company, you do not only need to adopt innovations, you need to bring about innovations. In this sense, as SAP Turkey Digital Business Services, when we team up with our customers, we help them to be a Best-Run Business from an innovative perspective, like we used to do it from an executionary perspective before. Best-Run Business Run SAP!





## Business Challenge & Objectives

Machinery Maintenance Service Market is a saturated market. Even though machinery owners are Borusan CAT customers, they can easily choose to take a maintenance service from another supplier. Moreover, parts for machineries are not always available in the inventory of the service provider which puts an additional lead time for maintenance service which is retrieval of the necessary parts in the inventory. We needed to find a way to overcome these difficulties.

Our aim was to predict which machinery to fail and why it will fail one month prior to the failure of the machinery. However, one shot prediction was not sufficient, because there are over 10000 Borusan CAT machineries up and running in the construction areas every day. Hence, we aimed for creating an artificial intelligence, a system for mirroring an experienced machinery service master's opinions on a machinery. Thus, we founded a system to collect data from the machineries, store data, run complex machinery learning algorithms on data, inform service sales regarding the machineries.



## Project / Use Case Details

Previously, only when a customer chooses our maintenance services after experiencing a machinery failure, we had chance to analyse the machinery and provide them a solution. Therefore, the only tool for us to make the customer choose our maintenance services was to make regular visits, and the only way to know which parts necessary for maintenance was to have our service masters to check the machinery.

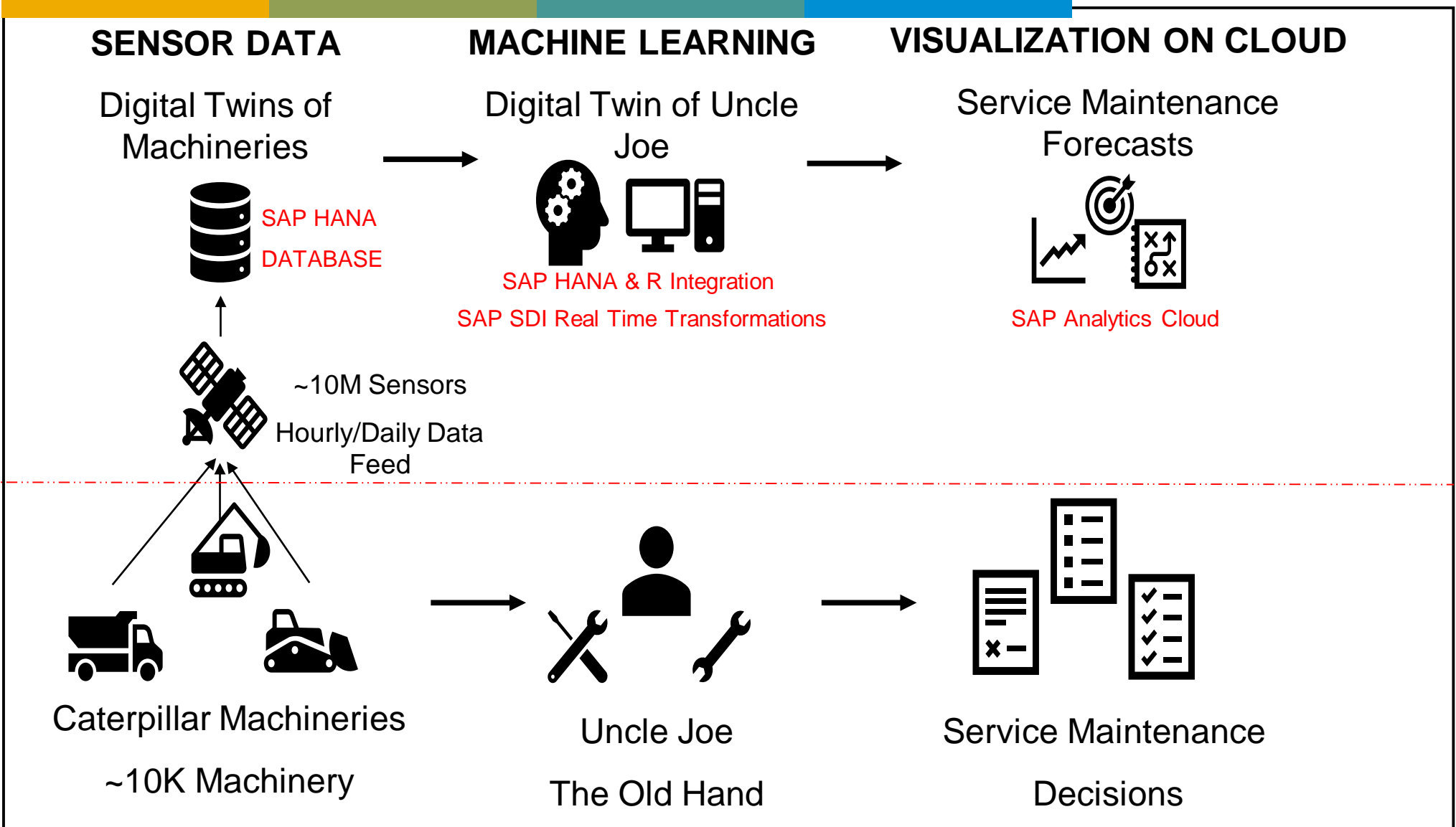
By using IoT technologies and bringing Machine Learning on top of SAP HANA SDI, we have created a world of digital twins where we have machineries and service masters represented digitally in our IT landscape. Thus, it is now possible to predict why and which machinery will fail one month prior to failure.

We are able to reach correct customers prior to machinery failure where we decrease the effects of a failure by preventing the machinery to reach a full failure. Additionally, we can convert them to utilize our maintenance services. Moreover, we are prepared for necessary machinery parts in our inventory where we have chance to order them before a machinery fails.



# Project / Use Case Details

Digitalization  
of Old  
Methods





# Benefits and Outcomes

## Business / Social

- Predictive Maintenance for Service Sales
- Predictive Inventory Management
- 1.7 M Euros increase in Services Sales within a year

## IT

- An Artificial Intelligence who learns on the basis of billions of records of data, called «The SE(EK)ER»

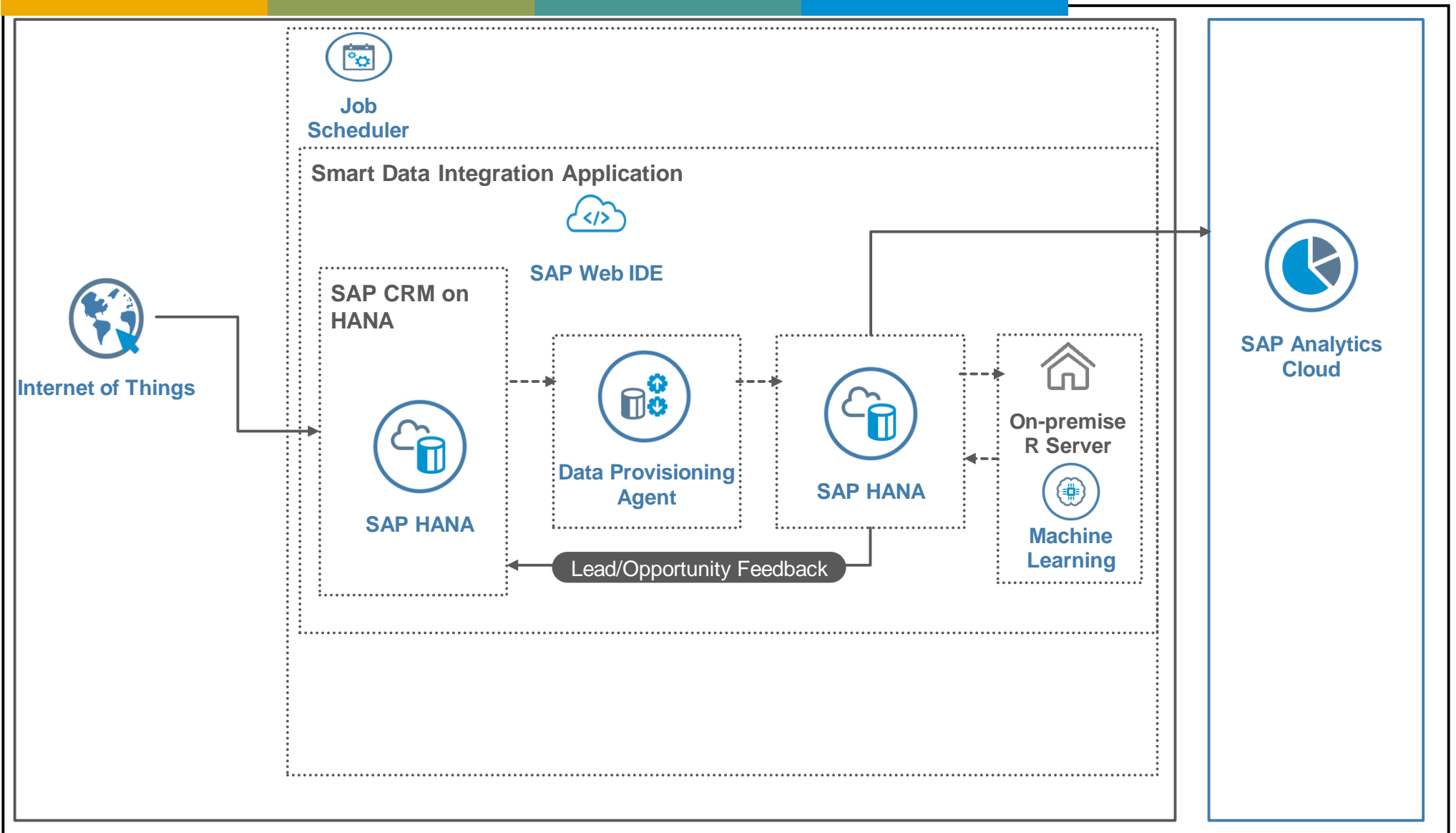
## Human Empowerment

- 85% Accuracy in their predictions
- 5 to 6x Prediction Power for Service Sales Employees





# Architecture





## Deployment

Date of Deployment or POC: 25.10.2018

Number of live users: 20

### SAP Technologies Used:

SAP HANA	Live
SAP Smart Data Integration	Live
SAP Analytics Cloud	Live
SAP CRM on HANA	Live

Server Processor: Unknown

Linux Distribution: SUSE



# 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	Yes	Core of the project is to have an Artificial Intelligence who can give articulated decisions based on the available big data
<b>2.</b>	IoT	Yes	In order to collect data and create digital twins of the machineries, IoT Architecture was implemented. Machieries equipped with sensors send data to SAP HANA which creates Big Data.
<b>3.</b>	SAP Leonardo Application ( extending SAP application, using Industry Innovation Kits or result of Design Thinking workshop)	Yes	SAP Web IDE Flowgraph which Utilizes Smart Data Integration flows, enables real transformation of the data and Machine Learning Algoritms to run on the data
<b>4.</b>	Cloud Native / Event Based Architectures	Yes	SAP Analytics Cloud is used for Reporting