Leveraging Connectivity and Analytics to maximize the Uptime of Heavy Equipment

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Softura
A major construction equipment manufacturer

Over 250K equipment

IoT journey to bring value to the enterprise, distributor and customer
  - Increased customer satisfaction and zero downtime
  - Operational Efficiency & Reduce Recalls
  - Increase brand value & competitive advantage
  - Increase the usage of genuine parts
  - Smart inventory management with early leads
Key Features

- Telemetry data based Diagnostics & Prognostics
  - Preventive Maintenance (Hours of operation based)
  - Predictive Maintenance (Machine health based)
- Asset tracking
- Product Usage Model
- Omni-Channel Bot (Portal Bots, Cortana, Alexa)
- CV based Parts Identification
Azure Cloud based Solution

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Fleet Performance for the month of February (2018)

- DOZER
- ARTICULATED TRUCK
- EXCAVATOR
- FORKLIFT
- LOADER
- RIGID TRUCK

Average Engine Hours (hrs)
150 200 250 300 350

Average Fuel Consumption (L)
0 500 1,000 1,500 2,000 2,500

Fuel Consumption
Top most fuel consuming machines.

Operation Mode
Classification of machines by operation mode.

Bot in Action

17 Machine(s) Observed

Bot:
Give me the breakdown of my machines by operation mode.
Hey Alexa - Ask Softura what was the **average fuel consumption** on my fleet last month?
Digitizing the End-End Lifecycle

**Shop Floor**
- Assembly Line Product Tracking
- Reduced Machine Downtime, Continuous Production
- Energy Management

**Engineering & Validation**
- Product Usage Model
- Smart Validation using Digital Twin

**Distribution**
- Asset Management
- Smart Scheduling
- Just-in-Time Inventory Management

**Field**
- Diagnostics and Prognostics
- Usage Reports
- Self-Service Channels
- Operator Safety

**Service**
- Early Service Lead
- Self-Service Bots
- Just-in-Time Inventory Management

Harnessing the data and getting actionable insights at every stage
Key Lessons Learnt & Best Practices

1. Leverage the power of **Cloud PaaS** services for Time-to-Market
   ▪ Scale, Features, Support for regions, Support

2. **Serverless architecture** and leveraging Azure functions reduced the cloud consumption costs

3. Avoid duplication of the **NLP utterances** training across different channels – Cortana, Bot, Alexa etc.

4. Data lake helped with **correlation of other datasets** – cautions, parts and recall to train the model using Azure ML Studio.