Right Data to the Right People at the Right Time

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THE INDUSTRY 4.0 CHALLENGE

**Problem:**
Isolating the right data and getting it to the right people at the right time

**Problem:**
Bridging from an Embedded culture to a Mobile-Cloud / IoT mindset

**Result:**
Overpriced solutions that are difficult to use and don’t solve unanticipated problems as intended
THE INDUSTRY 4.0 LANDSCAPE

• Big names in the industry are caught in this conundrum

• Cultural Divide is real – Manufacturers! are expected to build out their own applications, but lack true mobile-cloud experience

• Manufacturers must meet in the middle - they can’t be expected to develop a software division over night. What’s needed are step-based solutions that deliver ROI immediately & generate acceptance at all levels of the organization.

• Zero Training - Solutions can’t require training. Industry 4.0 is too young and too risky for busy plants to dedicate resources to it. It has to simply work.

• Insights Today – data must be high quality and make sense AND lead to actions with clear ROI.
MAVEN & CONAIR PARTNERSHIP

• **Reason:** Best of breed skill-sets to solve problems using a real-time platform

• **Formula:** Agile development is the method to create what customers want

• **Iterate:** Rapid design cycles enable new features to roll-out quickly

• **Results:** Capture detailed data on a massive new level, but deliver insights simply & tied to key metrics
Making Factory 4.0 Work
Making IoT Work for People

Industry 4.0 is not just a product, it’s a process
• Your plant is not going to change over night. You have to continuously improve your own plant

Identify pain points in your process, measure and solve them.
• No one knows your process as well as you do. So you are the best person to improve it!
Making IoT Work for People

• **Flexible** – Customizable triggers enables us to get out alerts in real time. Customers know their own production better than anyone else. They must be empowered.

• **Top Down Control** – Managers define & control the information flow

• **Escalating Alarms** – as situations persist more people are brought into the situation

• **Real-time Ticketing** – Automatically generate new tickets where people can collaborate and discuss problems as they come up.
Making IoT Work in Industrial Settings

Industrial Grade Reliability

99% Uptime
Making Machines Visible

- Hopper 1 Drying Monitor 6 Temp (Top)
  Reading: 130.06 F

- Hopper 1 Drying Monitor 5 Temp
  Reading: 169.23 F

- Hopper 1 Drying Monitor 4 Temp
  Reading: 290.6 F

- Hopper 1 Drying Monitor 3 Temp
  Reading: 292.69 F

- Hopper 1 Drying Monitor 2 Temp
  Reading: 282.89 F

- Hopper 1 Drying Monitor 1 Temp (Bottom)
  Reading: 276.17 F

- Return Air Temp Dryer Inlet
  Reading: 89.99 F

- Process Air Temp Actual
  Reading: ~

- Regen Temp Wheel Inlet
  Reading: 374.78 F, Setting: 375 F

- Delivery Air Dewpoint
  Reading: -69.65 F, Setting: -40 F

- Filter Pressure
  Reading: ~
Real Life Benefits

“Before, we had to check every machine every day”
• Daily Check took 60 minutes per day per shift

“Now, I know what I’m walking into”
• Checks their Smart Machine Dashboard before drive to work & hits the ground running

“Useful for everyone on my team”
• When everyone has all the information, things run smoother
Real Life Case

Prevented waste: Customer saw dewpoint was too low

Through Maven alerts the process engineer was alerted and managed to tweak parameters to save a hopper full of pellets from over drying and causing waste.
Real Life Case

Automated daily reports and real-time alarms
### Toledo Mold and Die Plant Report

How your 9 machines performed throughout the day.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
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<tbody>
<tr>
<td>% Machine Uptime</td>
<td>52.9%</td>
</tr>
<tr>
<td># High Priority Alarms</td>
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</tr>
<tr>
<td># Low Priority Alarms</td>
<td>82</td>
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</table>
ACTIVE FACTORY 4.0 TODAY

• 100 PLASTICS MANUFACTURERS SIGNED UP IN FIRST 90 DAYS

• NEW INSTALLATIONS HAPPENING WEEKLY

• ONBOARDING DONE IN 1-2 DAYS WITH TEAMS OF 1-2 PEOPLE

• MONITORING A DOZEN TYPES OF EQUIPMENT ACROSS THE ENTIRE PLANT FLOOR

• ROLL-UP STYLE REPORTING PROVIDES ROI TO MANAGERS & EXECUTIVES BY DELIVERING A CLEARER UNDERSTANDING OF PROCESS, UTILIZATION, AND EQUIPMENT HEALTH
LOOKING FORWARD

• **CUSTOMIZED SENSORS** – MEASURE ANYTHING IN YOUR PLANT THAT YOU WANT TO WITH REMOTE SENSORS FROM BUTTON PRESSES TO HUMIDITY

• **PREDICTIVE ANALYTICS** – PRE-EMPTING PROBLEMS AND HAVING ADDITIONAL VALUE ADD THROUGH CONAIR

• **MACHINE RECIPES** - SAVE TIME AND ERRORS ON LINE CHANGES BY STORING AND APPLYING MACHINE RECIPE