

Splunk On The Shopfloor: Improving Plant Operations With Splunk

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During the course of this presentation, we may make forward looking statements regarding future events or the expected performance of the company. We caution you that such statements reflect our current expectations and estimates based on factors currently known to us and that actual events or results could differ materially. For important factors that may cause actual results to differ from those contained in our forward-looking statements, please review our filings with the SEC. The forward-looking statements made in the this presentation are being made as of the time and date of its live presentation. If reviewed after its live presentation, this presentation may not contain current or accurate information. We do not assume any obligation to update any forward looking statements we may make. In addition, any information about our roadmap outlines our general product direction and is subject to change at any time without notice. It is for informational purposes only and shall not, be incorporated into any contract or other commitment. Splunk undertakes no obligation either to develop the features or functionality described or to include any such feature or functionality in a future release.

Disclaimer

Due to the unique and proprietary nature of aspects of Shaw's Operations, any data or screenshots displayed in this presentation have been anonymized and altered for the purpose of presentation. Data displayed should not be taken as representative of current operational conditions in Shaw facilities.



We Are More Than a Flooring Company

We are more than 20,000 individuals bound together by a common vision and united in our ability to make a positive impact on the world.



Our Vision:

Creating a better future: for our customers, for our people, for our company and for our communities.

Our Mission:

Great people. Great products. Great service. Always.

Our Values:

Honesty. Integrity. Passion.

Shaw Industries By The Numbers

116

manufacturing
& distribution
facilities in

30 states



4500

customer
deliveries
each day

**one
hundred
million**

lbs. of carpet
recycled yearly



30,000

SKUs

Shaw Industries By The Numbers

almost
five billion
in annual sales



one million
annual
training
hours

\$4 million

annual
corporate &
associate
donations



nearly
1200
sales reps
globally



Carpet | Hardwood | Laminate | Resilient | Tile & Stone



Shaw

Managing Process

Engage & Empower

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Managing Manufacturing Processes



Managing Manufacturing Processes

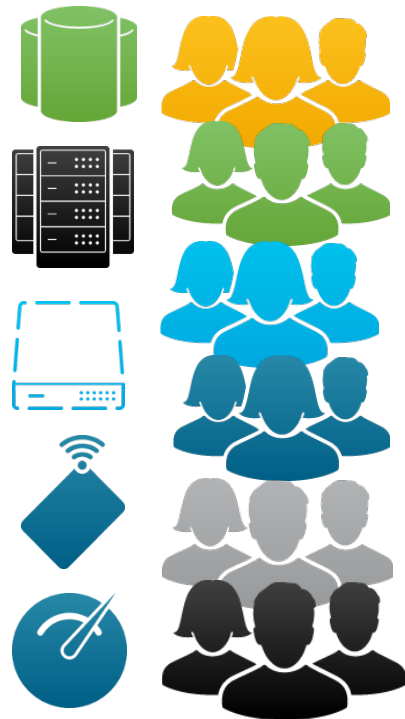


400 + Systems

200 "Core"

~60% in-house

~40% purchased



Managing Manufacturing Processes



“Give me data,
or give me death!”

- *Definitely not Patrick Henry,
Possibly Frustrated Operations Personnel*

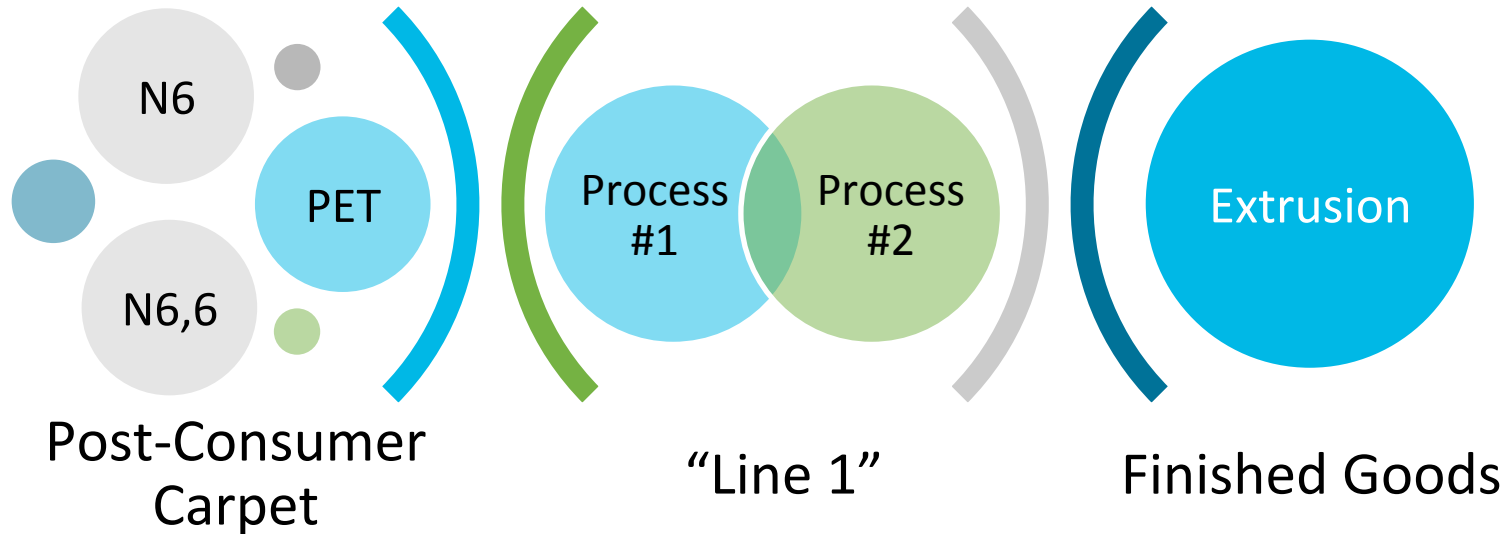
Managing Process

Engage & Empower

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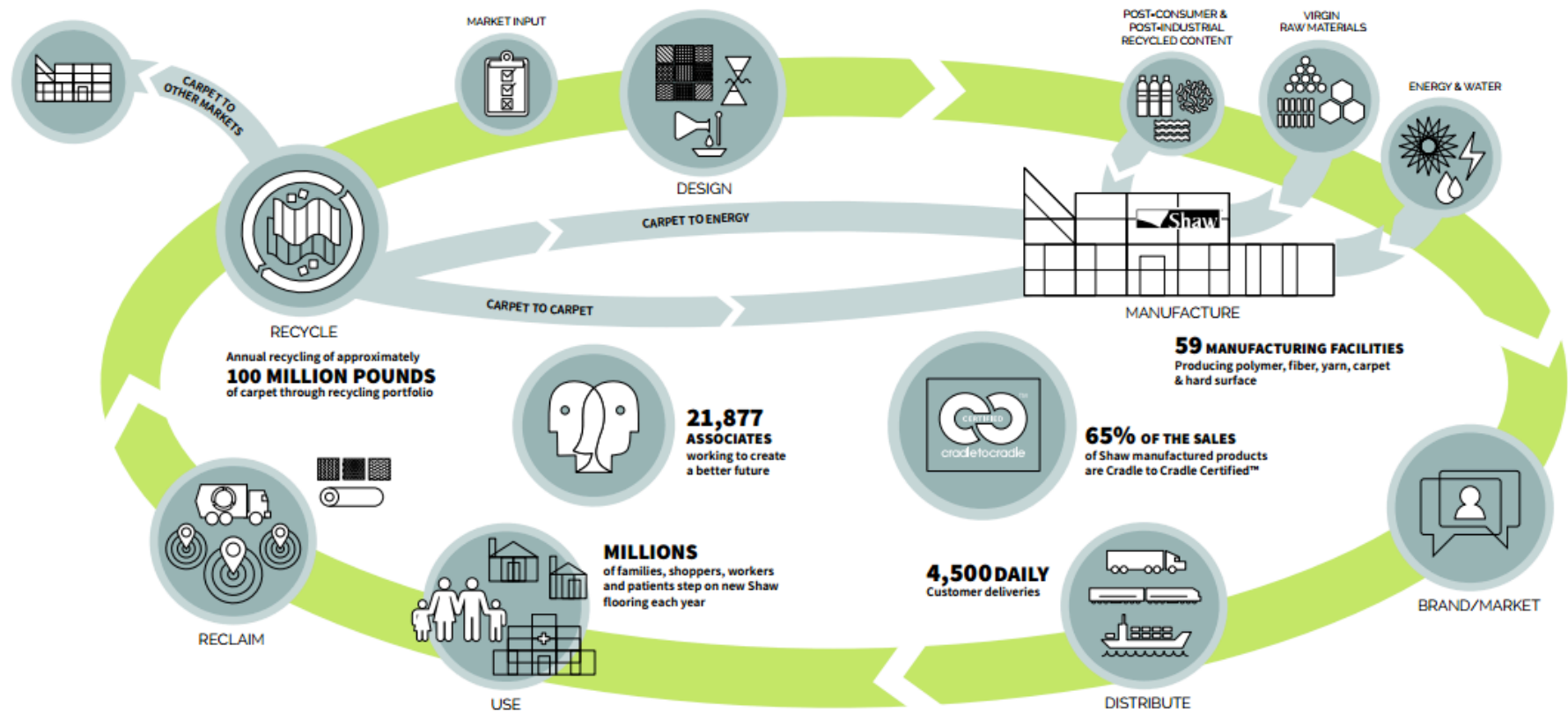
Evergreen Ringgold In 35 Seconds



Evergreen Ringgold In 35 Seconds

- Unique in the world
- Post consumer carpet recycled into cleaned fiber, plastic pellets and co-product
- 24 / 7 facility employs approx. 70 people





Operator Shop Floor Experience



A photograph of a control room with a curved console, numerous monitors, and control panels. The image is dimly lit and has a blue tint. The text is overlaid on the left side of the image.

Operator Shop Floor Experience

Complex
Real-time
Interpret
Analyze

A photograph of a control room with a curved desk, multiple monitors, and a complex panel of buttons and switches. The image is dimly lit and has a blue tint.

Operator Shop Floor Experience

Complex
Real-time
Interpret
Analyze

Visual Cues
Trends by Time
Metrics
Context
Performance
User Input

Operator Shop Floor Experience

Complex

Real-time

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Visual Cues

Trends by Time

Metrics

Context

Performance

User Input

Splunk Implementation Journey



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Machine
Uptime

splunk[®]>



Machine
Data

Machine
Uptime

splunk>enterprise



Machine
Data



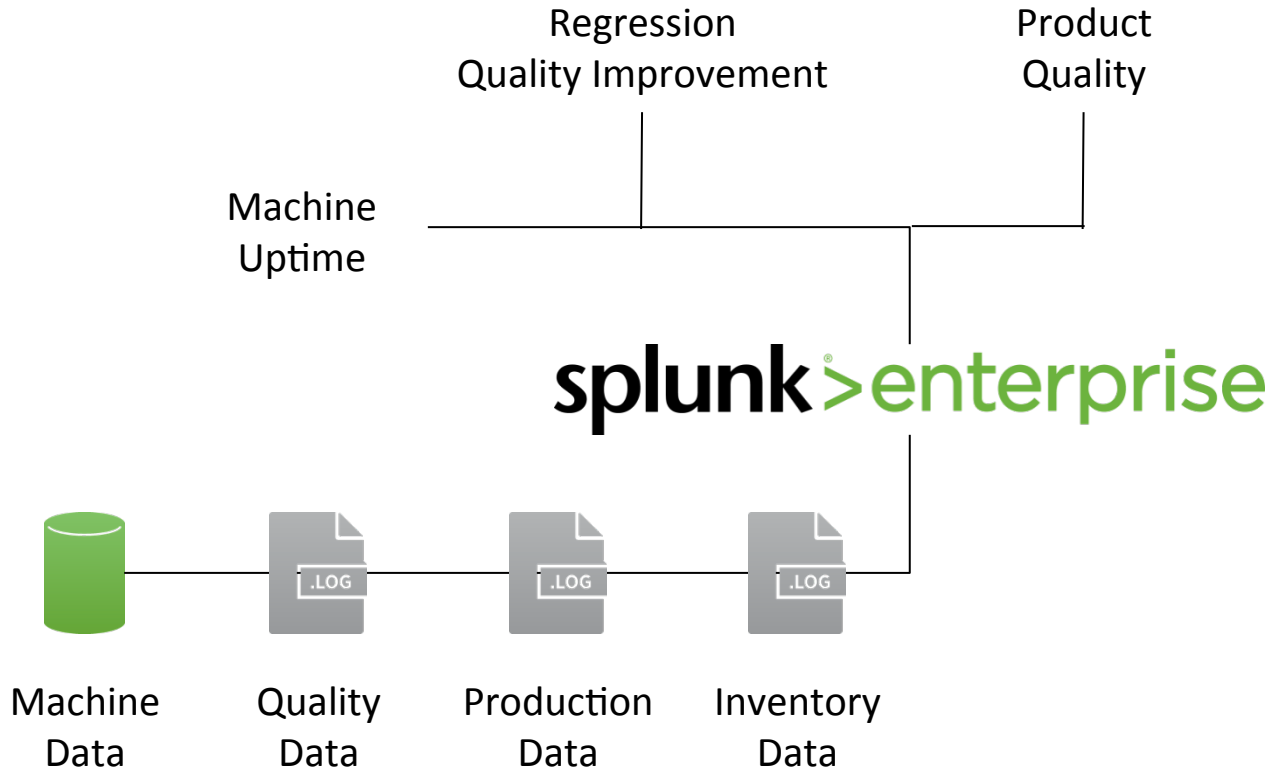
Quality
Data

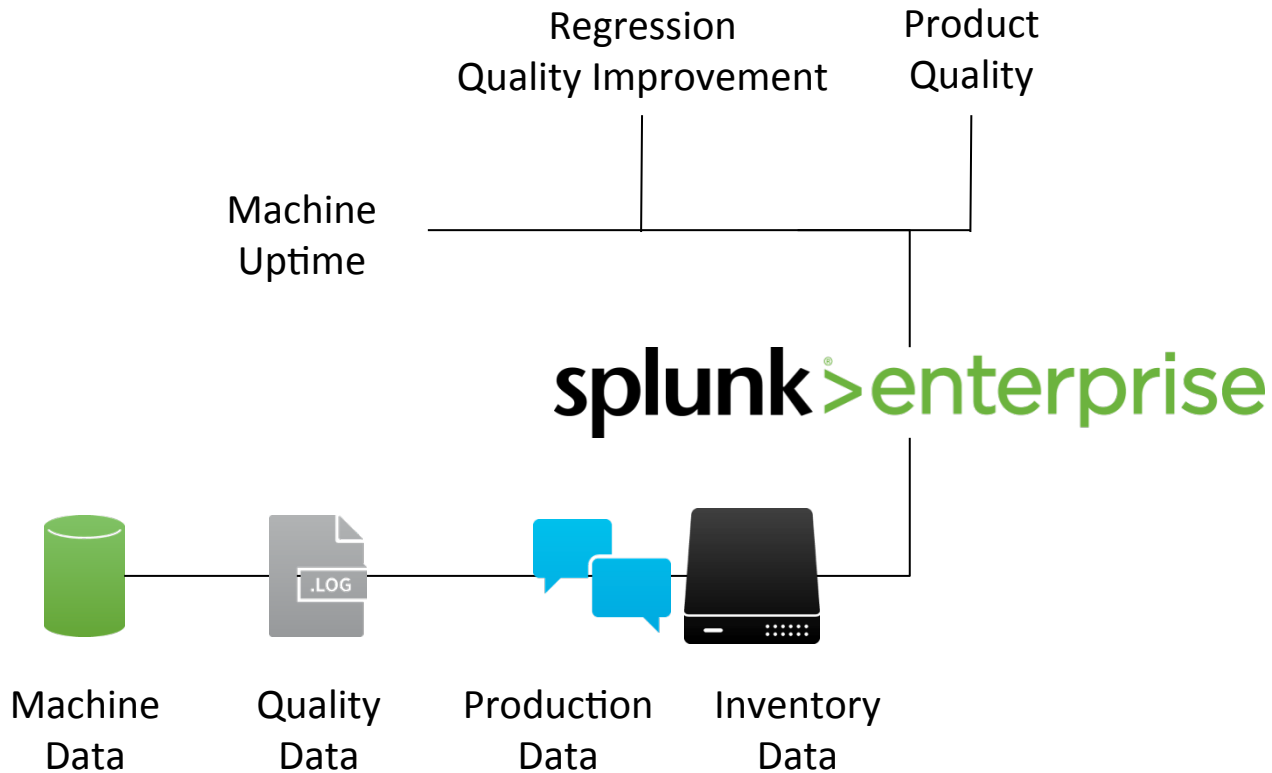


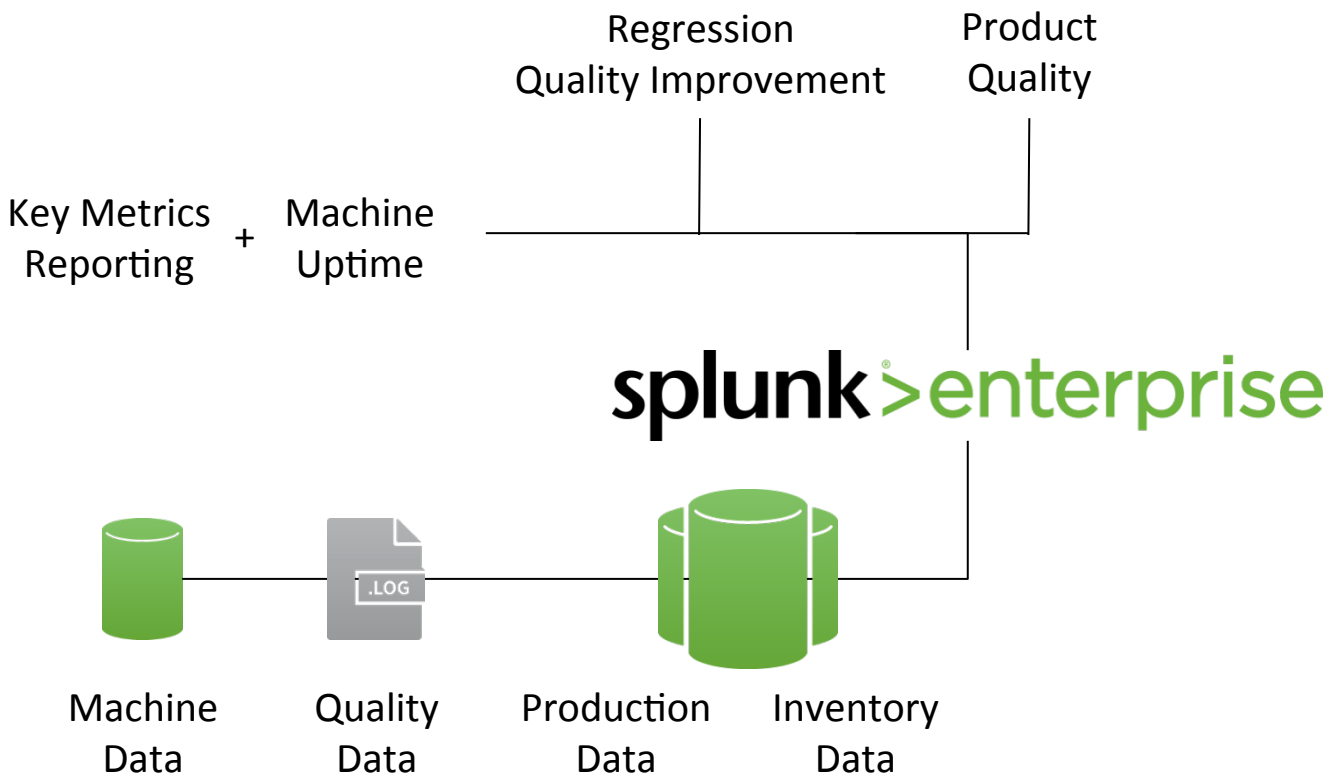
Production
Data

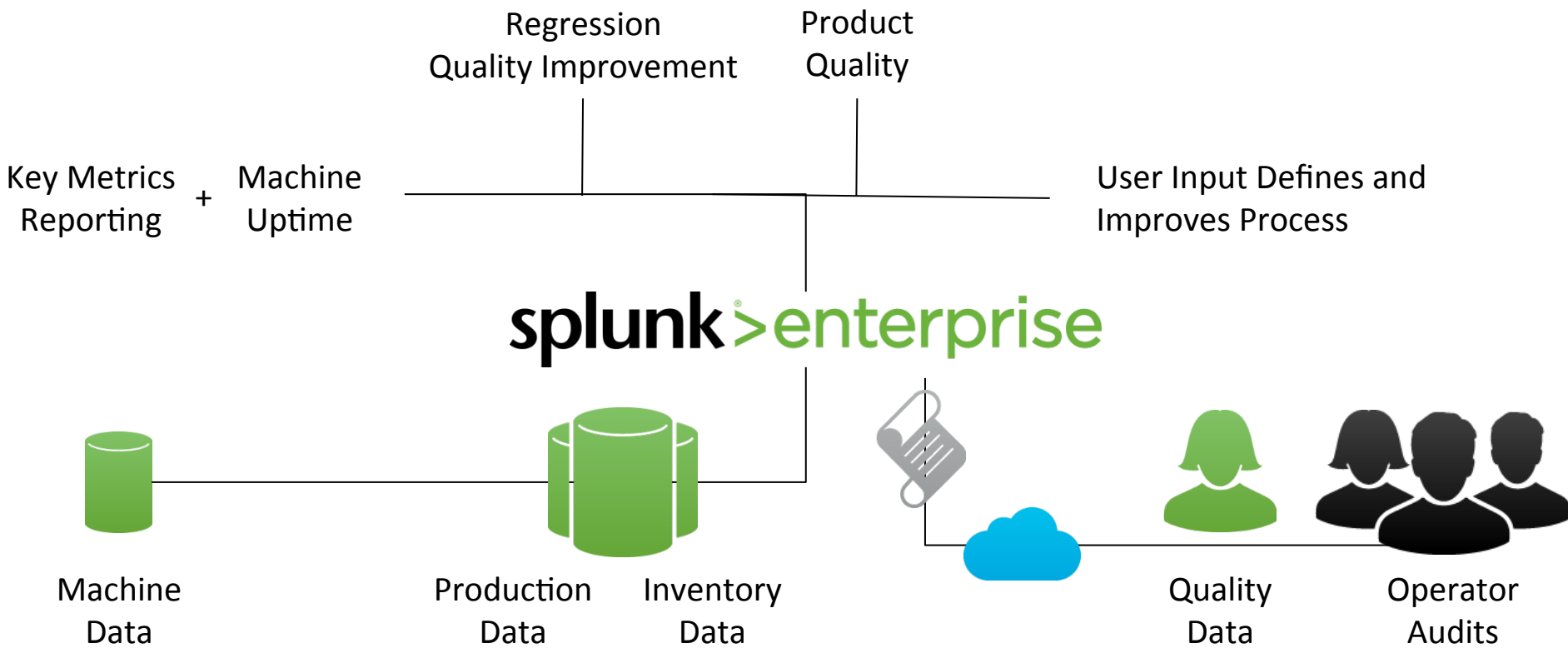


Inventory
Data









A Toolkit For Splunk (On The Shopfloor)

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What's In Your Toolbox?

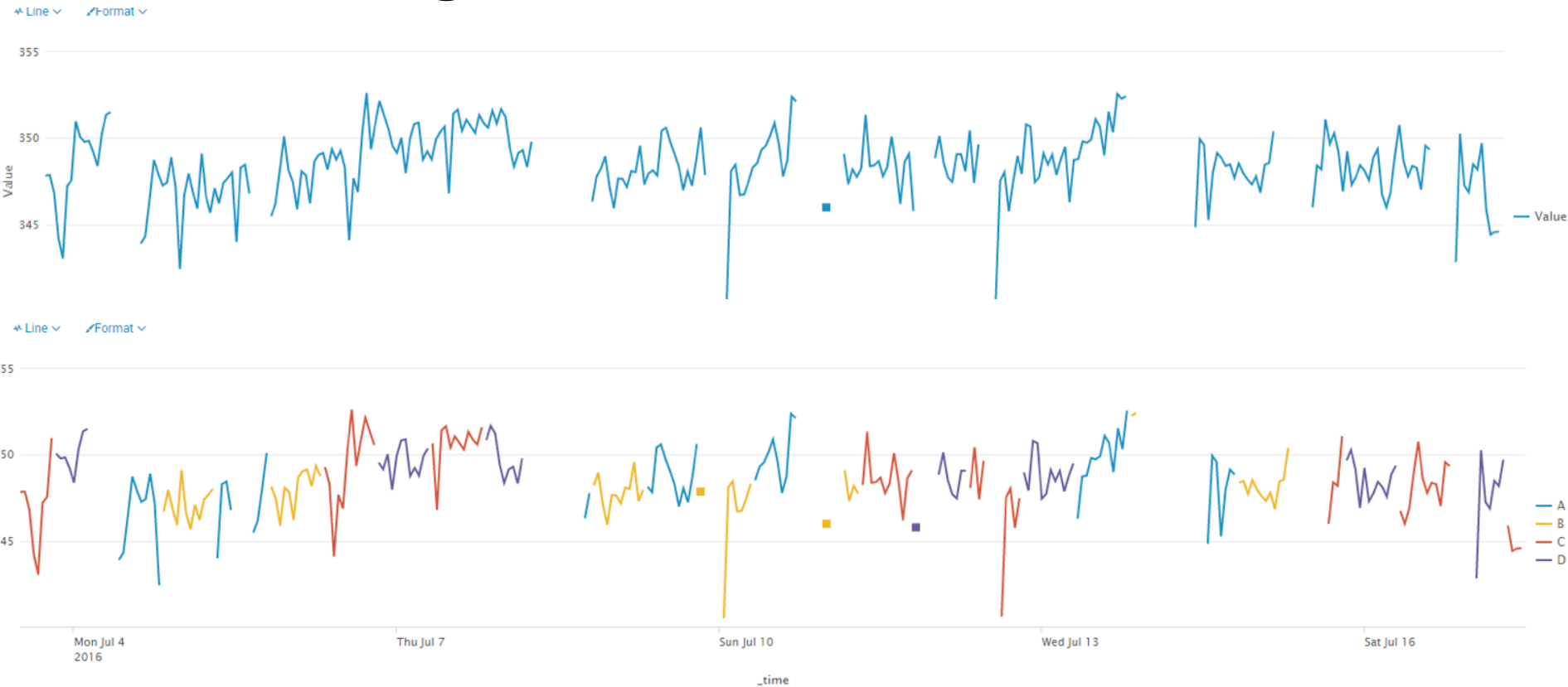
- **Shift Time**
- **Real time dashboards**
- **Automated reporting**
- **Knowledge objects & process evolution**
- **Operator audits (case study)**

Shift Time

1. Create a master shift table for plant

datetime	plant	shift
16-Sep-2016 08:00:00	XYZ	1st
16-Sep-2016 20:00:00	XYZ	2nd
17-Sep-2016 08:00:00	XYZ	1st
17-Sep-2016 20:00:00	XYZ	2nd
18-Sep-2016 08:00:00	XYZ	DOWN

Adding Context To Machine Data



Real Time Dashboards

Splunk Talk Key Metrics Clone

Edit ▾ More Info ▾ ⌵ 🗑

Current Shift

A

Current Shift

Process #1 Uptime

97%

Current Shift

Process #2 Uptime

94%

Current Shift

Production WIP

10,493

Current Shift

Extrusion Production

12,934

Current Shift

Off Quality %

0.21%

Current Week

Process #1 Uptime

98%

Current Week

Process #2 Uptime

92%

Current Week

Production WIP

34,562

Current Week

Extrusion Production

112,044

Current Week

Off Quality %

0.48%

refresh="30" in dashboard or form xml

Automated Reporting



Knowledge Objects

- Example: Eventtype
- Macro

Operator Audits aka a Brief History of “Work”



Operator Audit Example

Kitchen Audit

Cleaning Jobs

	Checked or Quality Good	Completed
Floors swept	<input type="radio"/>	<input type="radio"/>
Floors Mopped	<input checked="" type="radio"/>	<input type="radio"/>
Sink cleaned	<input type="radio"/>	<input checked="" type="radio"/>
Counters cleaned	<input checked="" type="radio"/>	<input type="radio"/>
Dishes Put Away	<input type="radio"/>	<input checked="" type="radio"/>

Last Done	Task	Status
Mon 20:03	Floors Swept	Incomplete
Tues 15:14	Floors Mopped	Checked or Quality Good
Tues 15:14	Sink Cleaned	Completed
Tues 15:14	Counters Cleaned	Checked or Quality Good
Tues 15:14	Dishes Put Away	Completed

SUBMIT

Challenge: Provide Actionable Info Flatten The Learning Curve Empower Users

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Lessons Learned

Focus on delivering business value

Ask for help

Engage resources

Consider user experience

Thanks to our collaborators

Jeff Meyers, Grey Dziuba, Ben Still, Billy Edwards,
Jay McClure, Paul Beechner, Ishmal Lewis

The 21st Century Factory Floor

A better future starts here.

The success of our company, and the success of our associates go hand-in-hand. We are more than a flooring company – we are 22,000 people who are united in creating a better future for our customers, for our people, for our communities and for our company.



*A better
future
starts here*

(where we're headed)

THANK YOU

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