Bit by Bit, Manufacturing Goes Digital

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Analyst

The Future Of Manufacturing

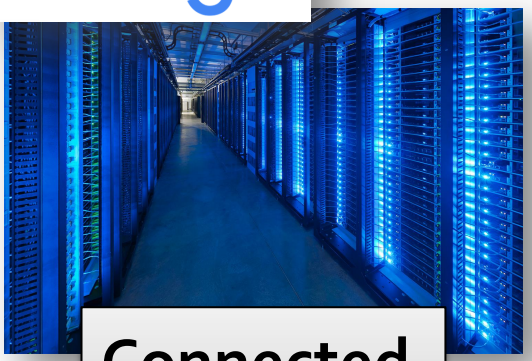
May 11th, 2016

lux executive summit

Boston, MA · May 9 - 11, 2016

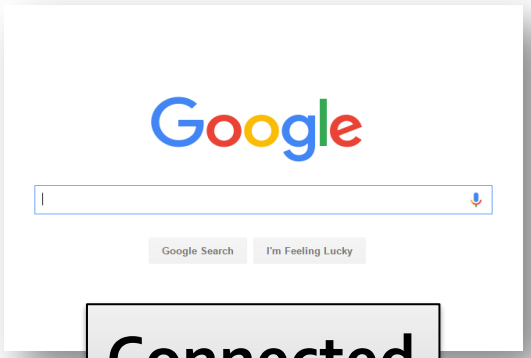
Every industry can (and should!) become an information industry

Google

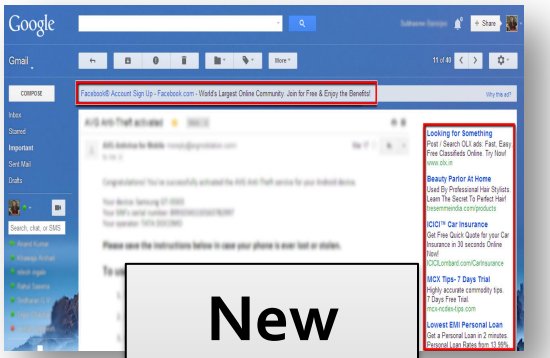


Connected Operations

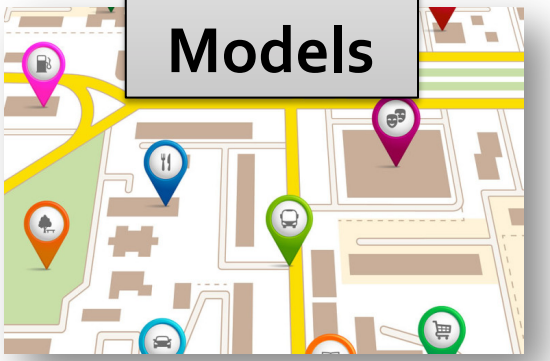
verizon



Connected Products

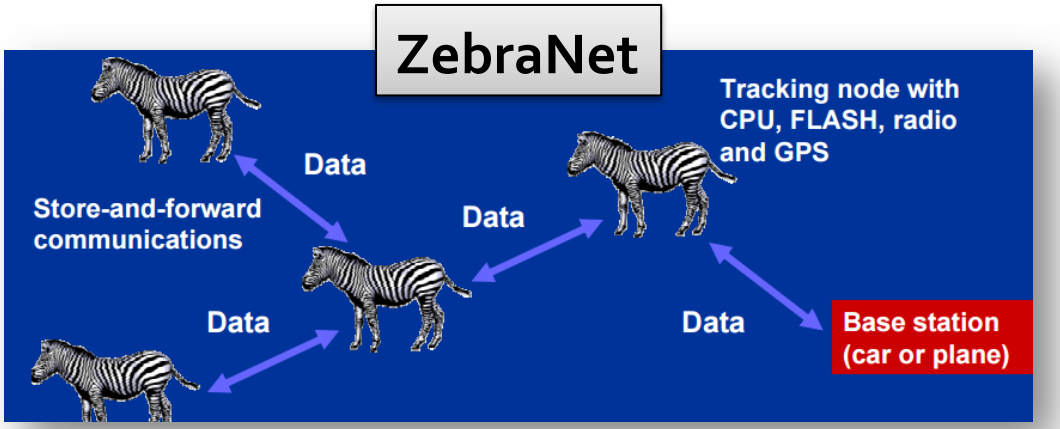


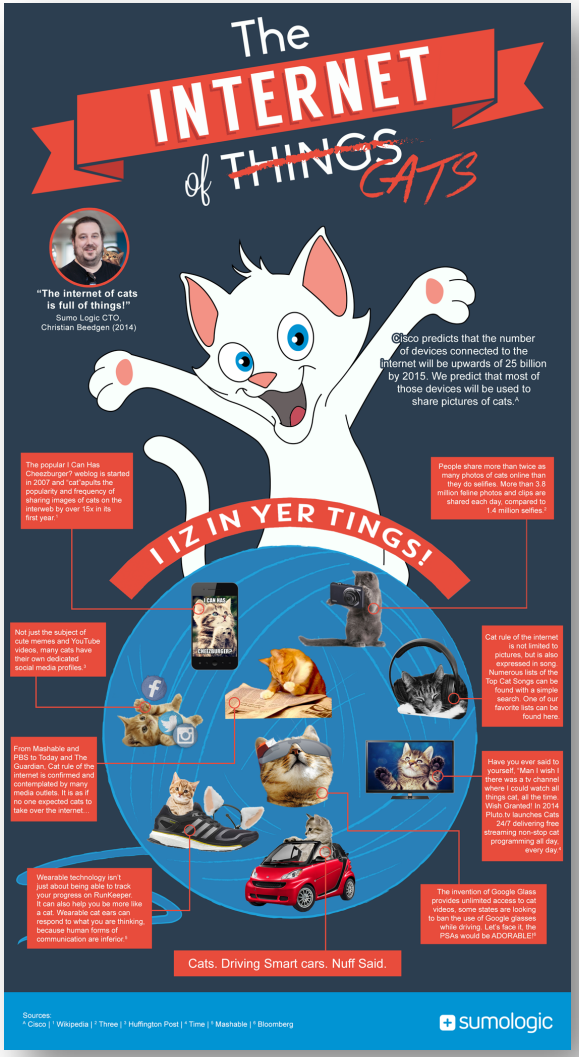
New Business Models



luxexecutivesummit

This approach is broadly applicable





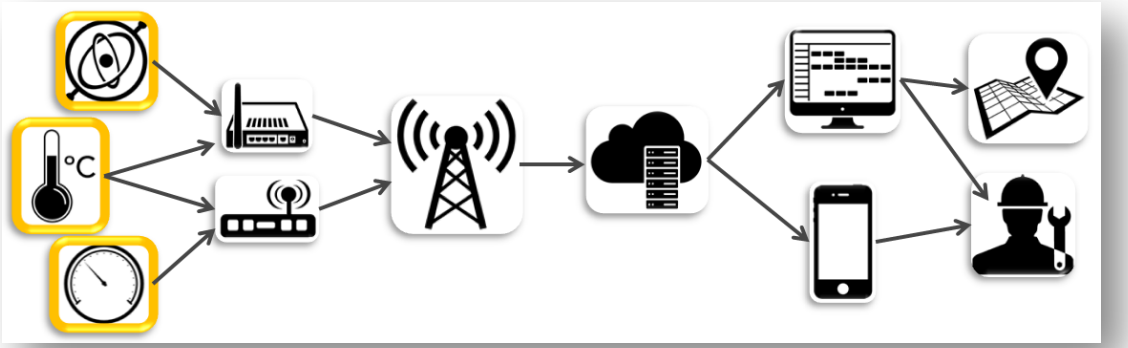
Agenda

- **The Industrial Internet needs a toolbox**
- Better harder faster stronger: C*onnected Operations*
- Putting your money where your data plan is: *Connected Products*

Connectivity has a transformational impact on how we make things and how we monetize them

- **Buzzword Ale**
  - Industrie
  - The Indus
  - The Indus

Sensor Innovations

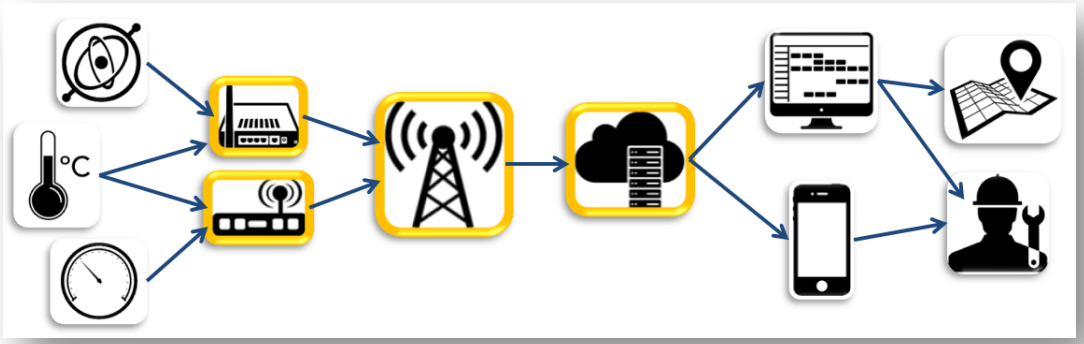


- **Rugged** – operating in extremely harsh environments.
- **Wireless** – operating in locations that present challenges for wiring.
- **Low-power** – enabling use where power consumption is prohibitive.
- **Long-lasting** – meeting the lifetime requirements of industrial use cases.
- **Cheap** – cost-effective for widespread deployment.

psikick

Wireless, battery-less sensor chips running on 5-15 µw generated by thermal, solar, and piezo harvesters

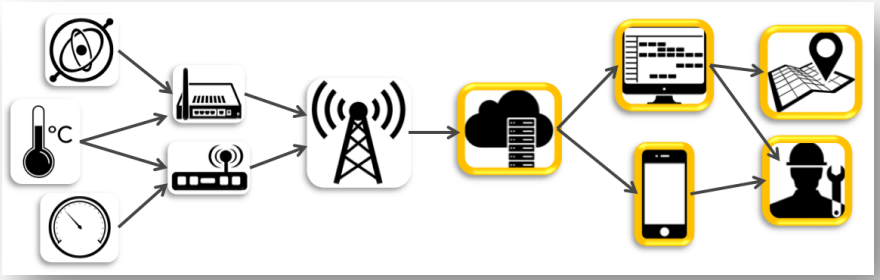
Connectivity Innovations



- Low-power, low-bandwidth, long range solution ideal for sensors and M2M.
- Strong signal propagation through equipment, buildings, and earth.

- Offers global cellular connectivity enablement through partnerships with mobile network operators.
- Enables satellite connectivity for high-value, remote use cases.

Cloud Innovations



- **Unification** – gets all the data into one place.
- **Analytics** – horsepower for insights from the data.
- **Applications** – intuitive user interfaces and reporting tools.
- **Access** – everyone can do it…from anywhere.

Other relevant platforms: GE Predix, AWS IoT, Azure IoT, SAP, Oracle *and many more*

New levels of integration

- It's easy to connect a programmable logic controller to your manufacturing execution system.
- It's easy to connect your materials bins to an inventory systems for automated resupply orders.
- It's easy to connect tracking devices from distribution vehicles to a mapping platform.

…it's **A HUGE SYSTEMS INTEGRATION CHALLENGE** to connect assets and processes across the entire value chain for the creation of new value, but it's happening!

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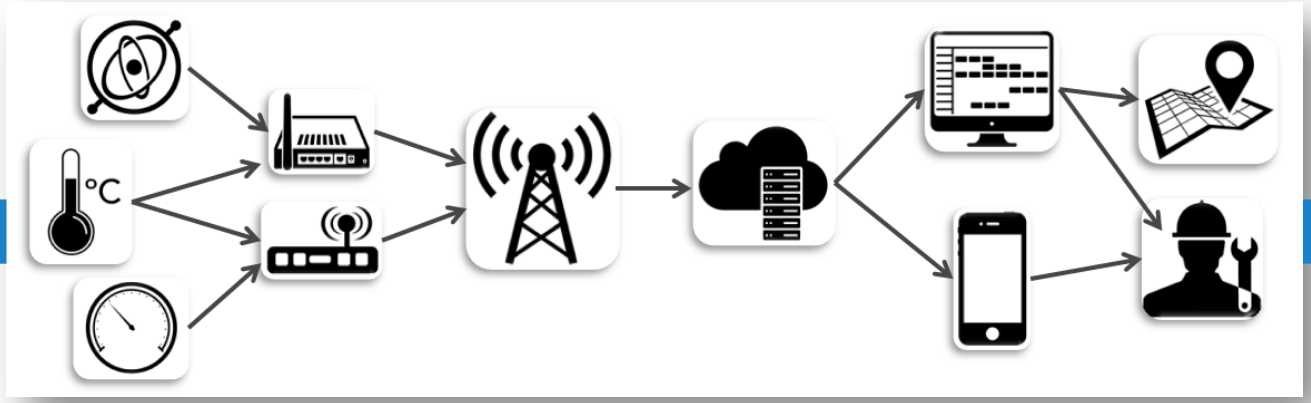
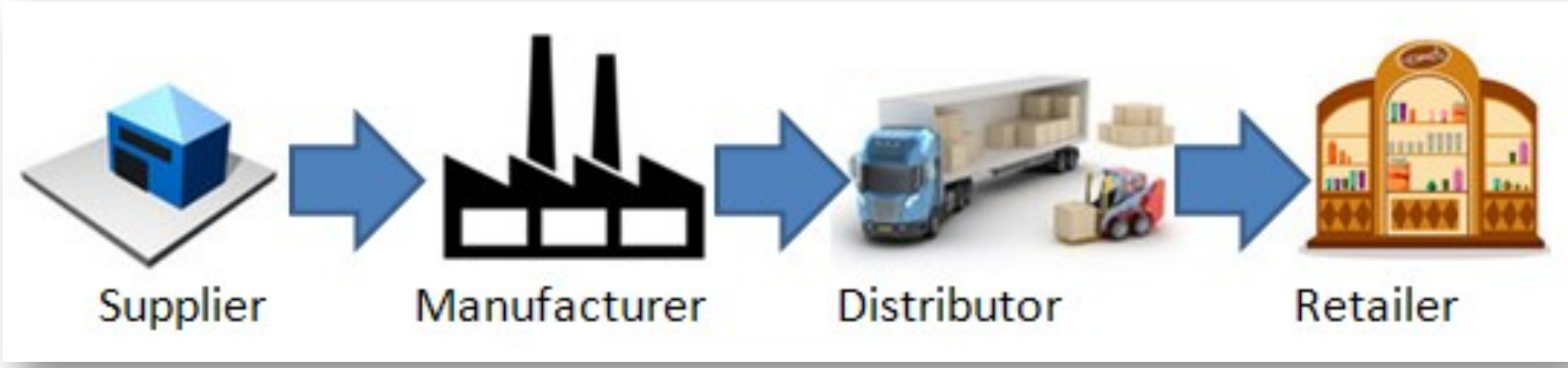
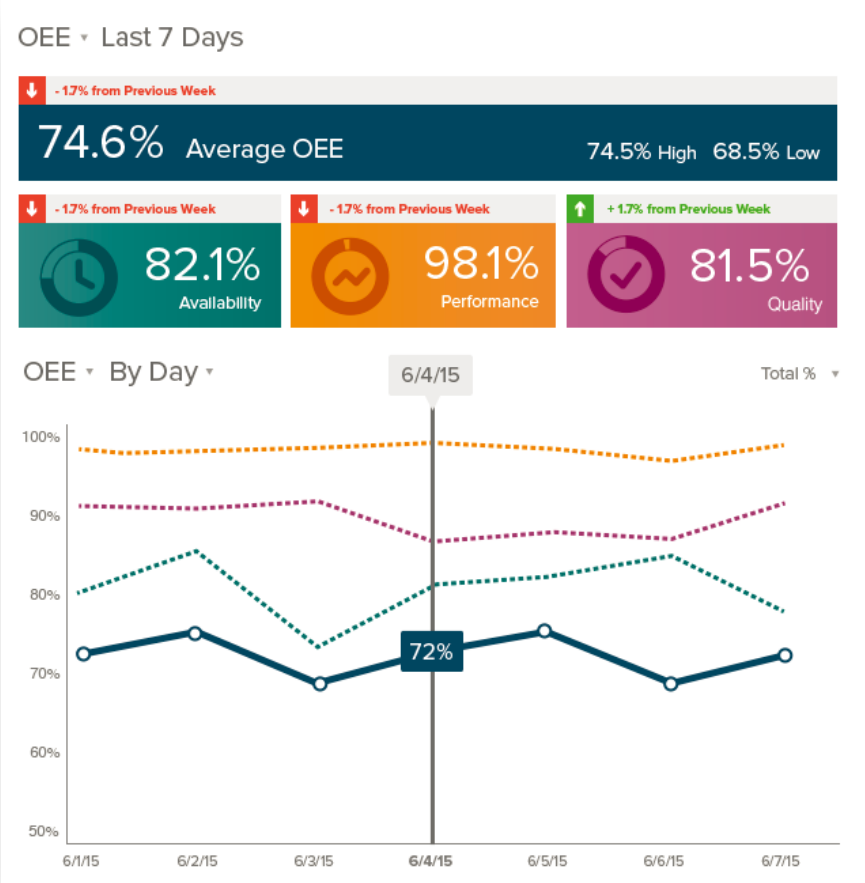
Improvements across the value chain

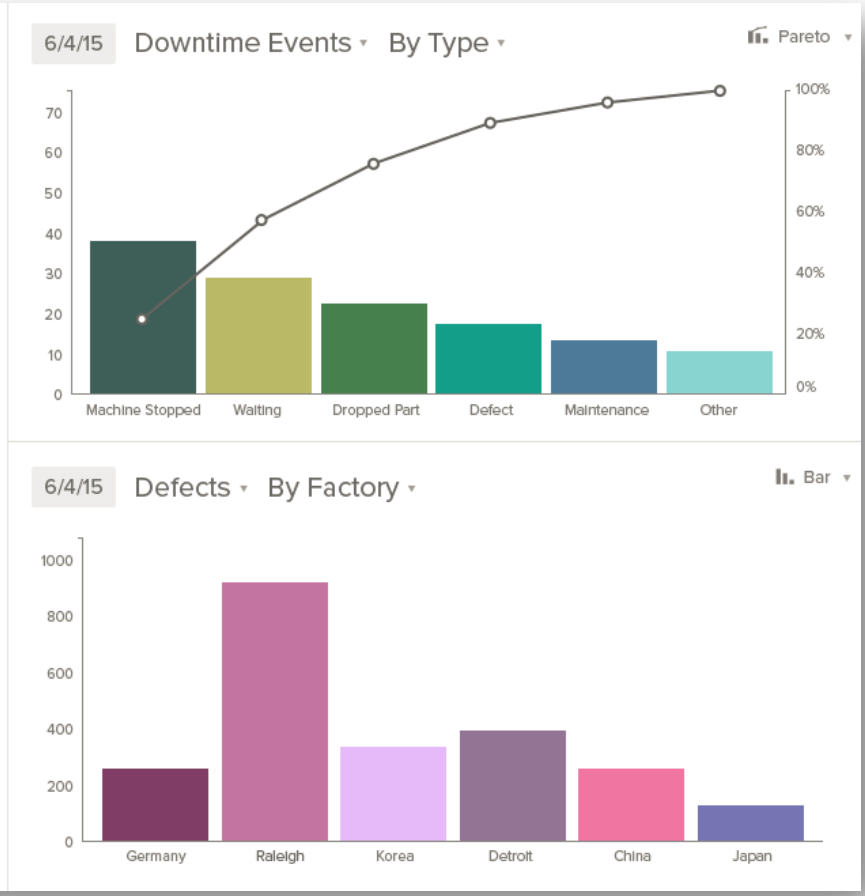




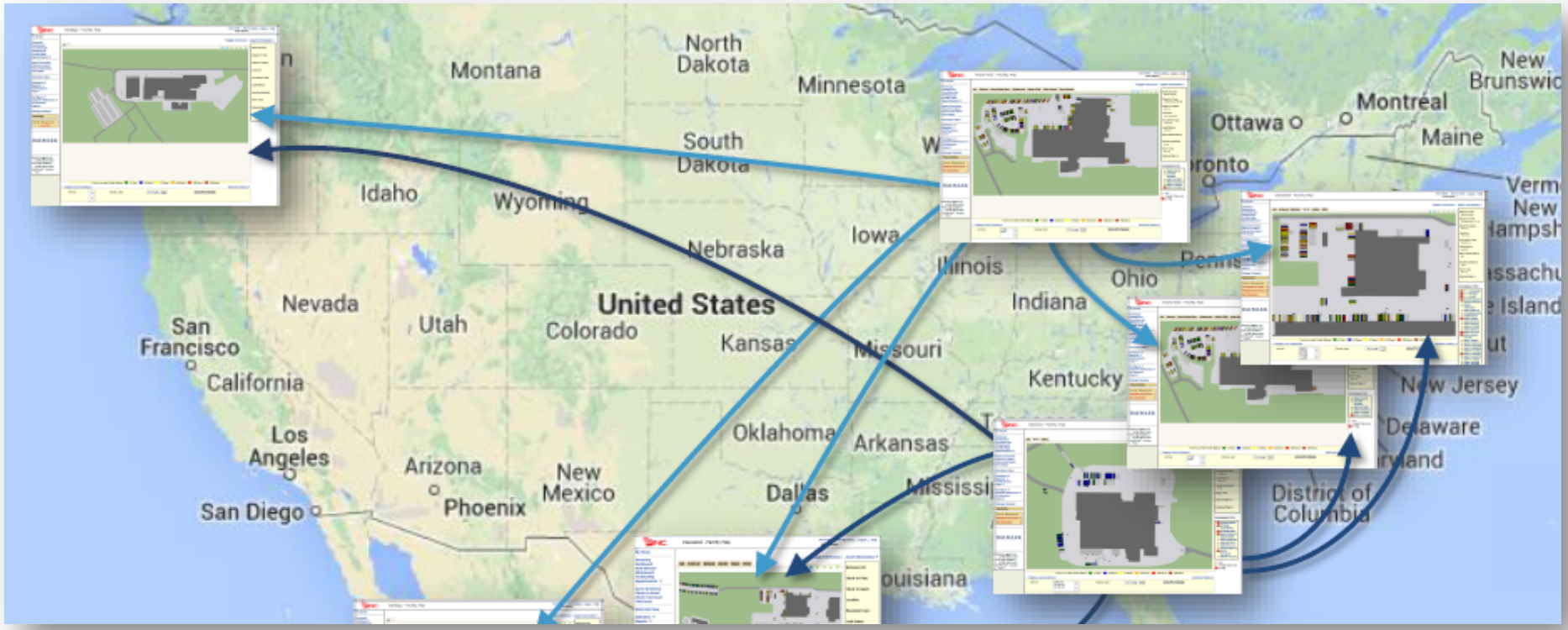
Getting the shop floor out of the dark ages

SIGHT MACHINE
Manufacturing Analytics





Supply chain steroids



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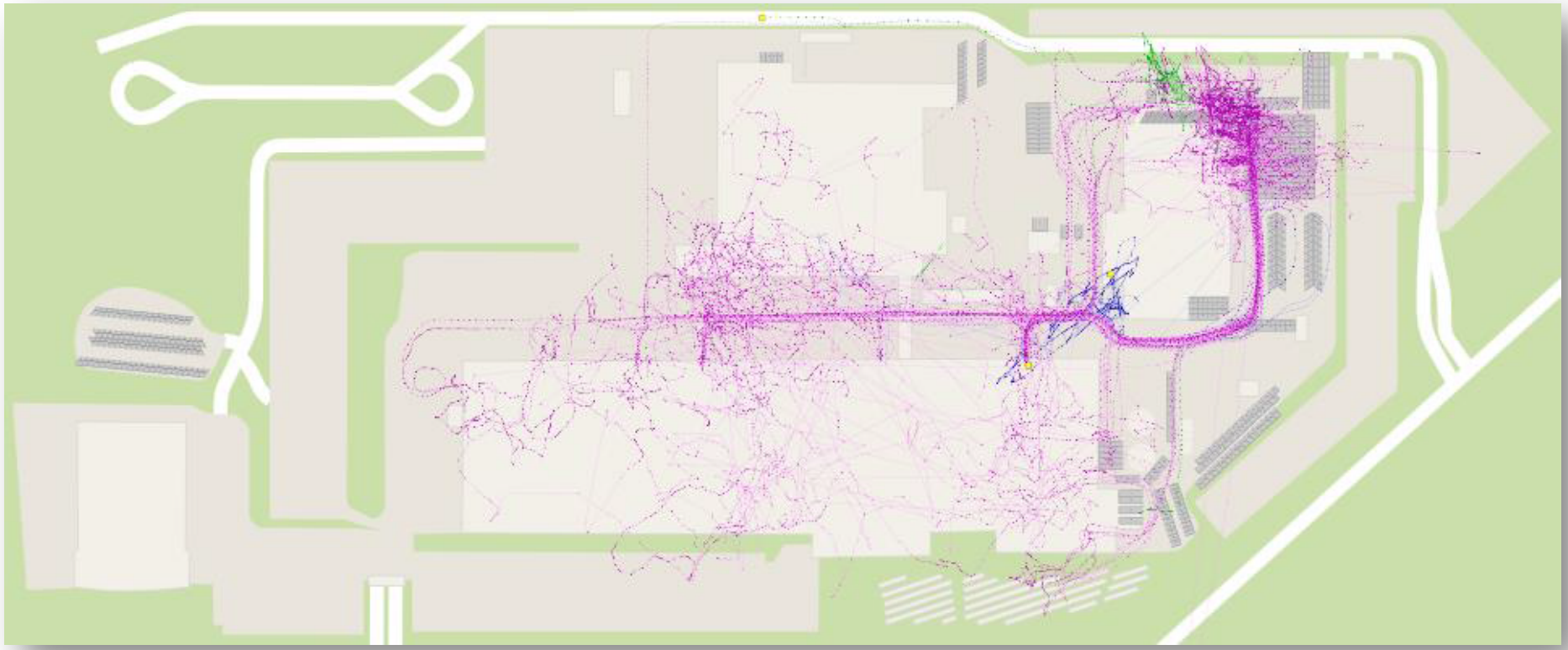
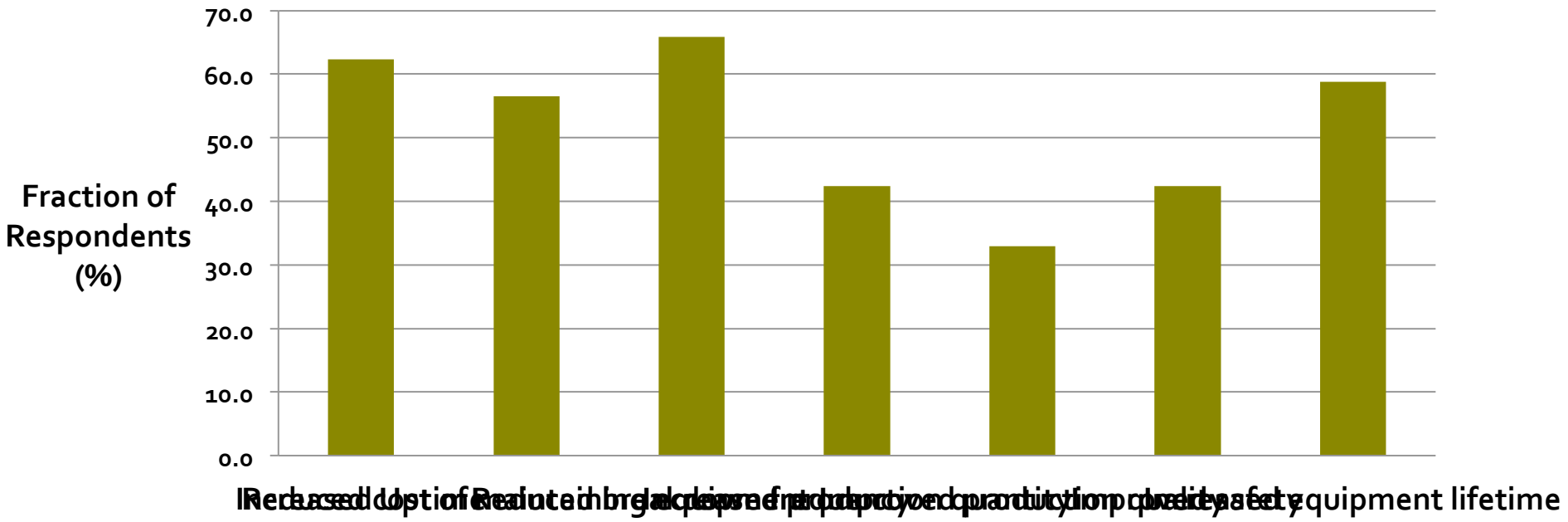


Drastically upping the uptime

- In a recent survey of over 120 operational leaders, Lux found that nearly all organizations had positive outcomes from deploying predictive maintenance.



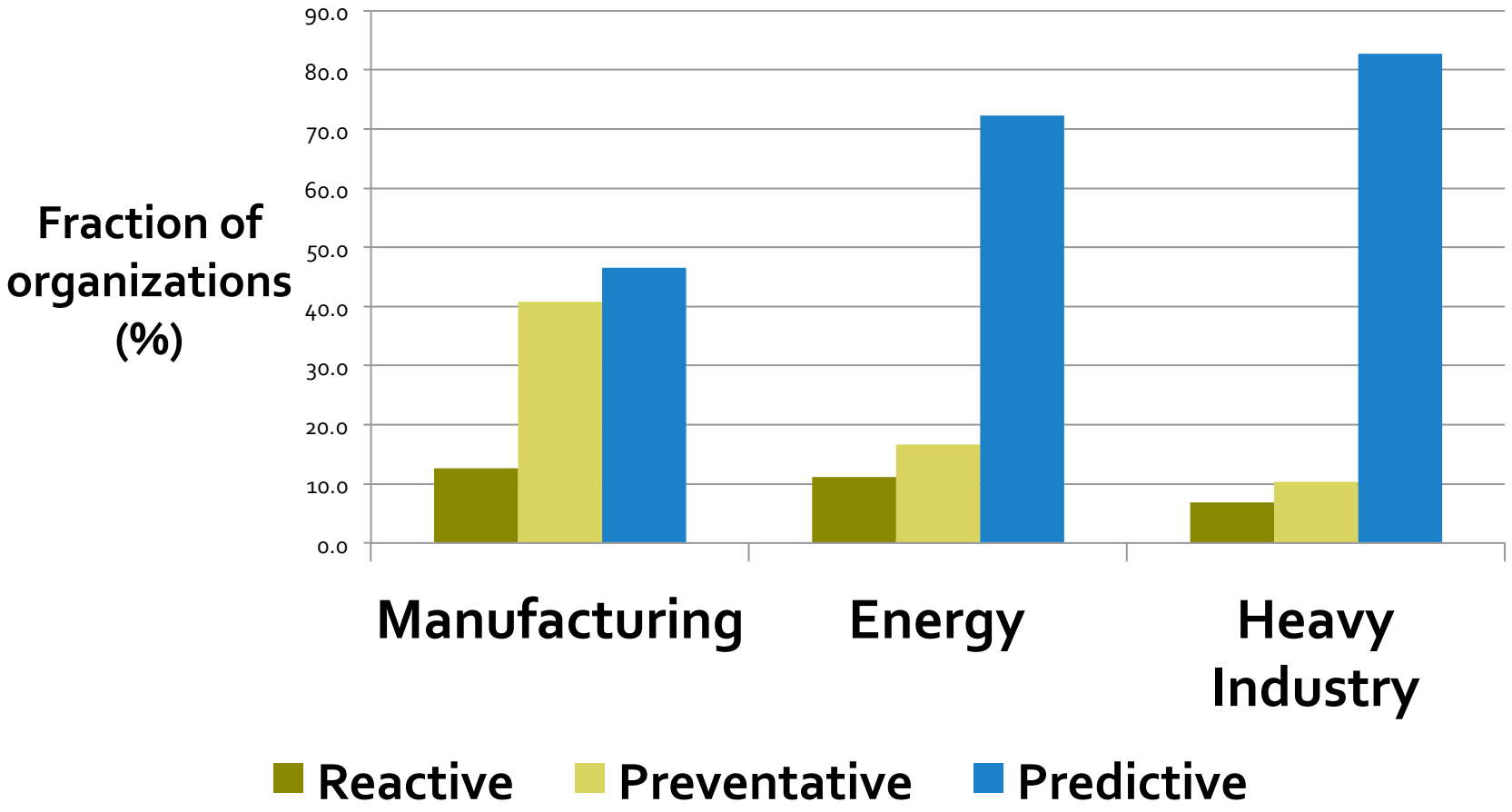
75% Elimination of Breakdowns

10x ROI

25% Increase in Production

Source: *Predictive Maintenance: The Art of Uptime* – Lux Research

Drastically upping the uptime



Source: *Predictive Maintenance: The Art of Uptime* – Lux Research

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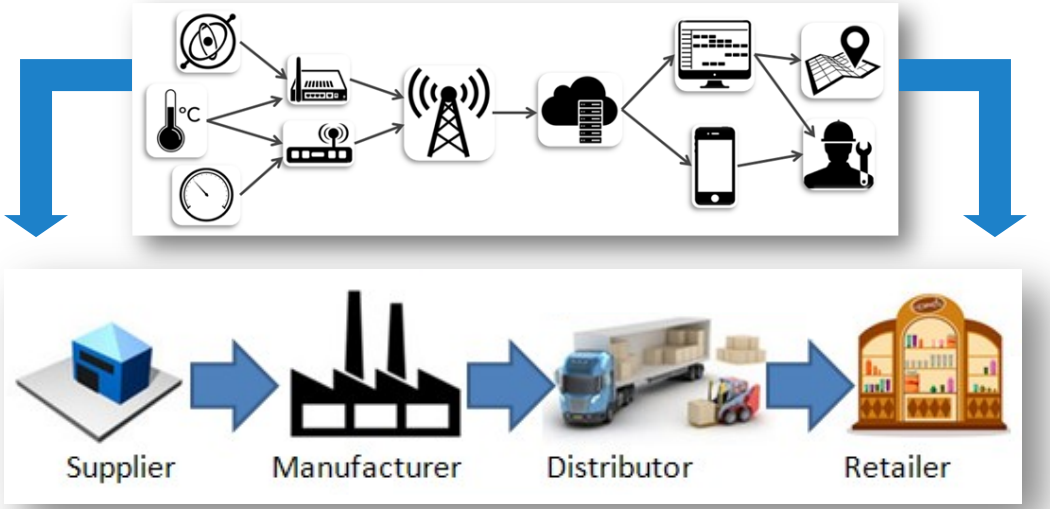
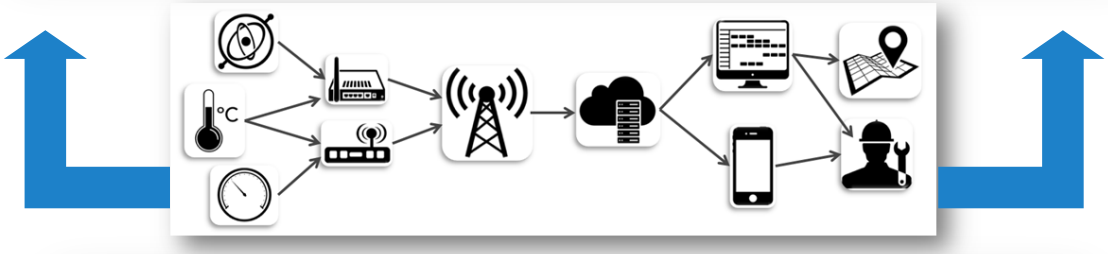
We just applied this approach to operations



Let's apply this same approach to products



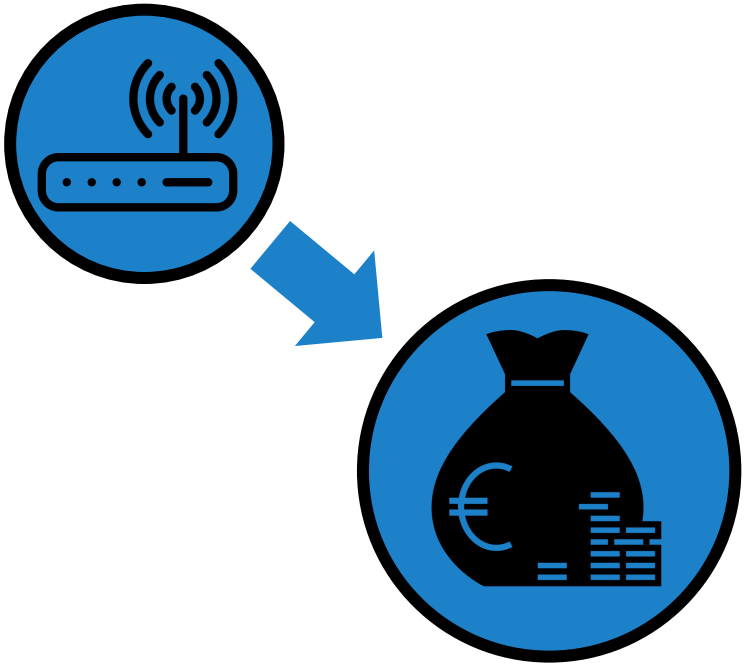
What does this look like for manufacturers?

- Apply sensing, connectivity, and analytics to **operations**
  - Better operations
- Apply sensing, connectivity, and analytics to **products**
  - Better products
- Enhance customer engagement and business intelligence
- Explore new business models
  - Recurring services
  - Pay-per-use
  - Selling data to third parties

This is already happening at industrial manufacturers

KAESER KOMPRESSOREN

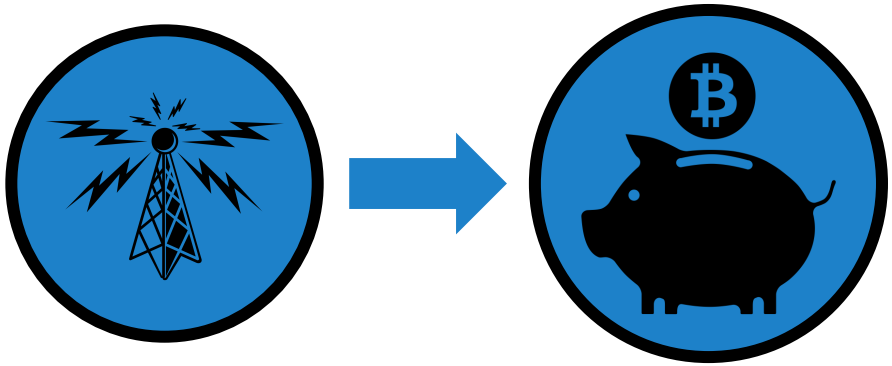
- Historically heavy users of SAP for operations and customers.
- Developed connected gas compressors, which stream to SAP IoT cloud.
- Experimenting with service / pay-per-use business models.
- Could sell usage data to gas chemicals providers or utilities.



Up and down the value chain

ThyssenKrupp

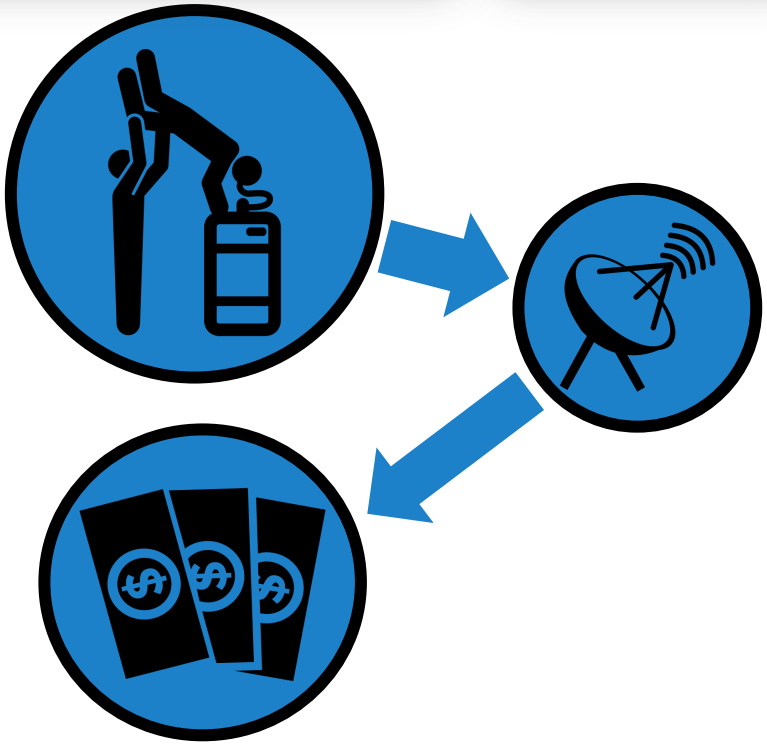
- Developed remotely monitored connected elevator.
- Experimenting with different pricing models.
- Could sell elevator data to the buildings or local merchants.
- May apply platform internally to manufacturing operations.



"The large-scale data gathering and analysis may find a role in maintaining equipment used in manufacturing." --TK Chairman

This applies outside of discrete manufacturing

- Connected kegs light up at bars with promotions.
- Remotely monitor consumption.
- Real-time demand forecasting and business intelligence.
- Could resell data to insurance companies, regulators, or municipalities.



Recommendations

- Manufacturers need to consider how sensing, connectivity, and analytics apply strategically to their ***operations AND products.***

Recommendations

- Manufacturers need to build **services** into their business models.

Services

OPEX vs. CAPEX

Recommendations

- Manufacturers need to **leverage their data**.

Intel

Data = $$$

Recommendations

- Manufacturers need to **DO THIS NOW!** If these developments are not already a strategic initiative, they need to be!

Thank you

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