luxexecutivesummit 2018

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When Digital Transforms Your Industry

A data-centric approach to optimizing digital solutions | April 11

Mike Rolfes

Analyst, Lux Research

Agenda

1 | Data Generation and the Future of Digital Industry

2 | A New Framework to Improve Data Management in Digital Industry

3 | Case Study: Applying the Framework

4 | Outlook & Closing Thoughts

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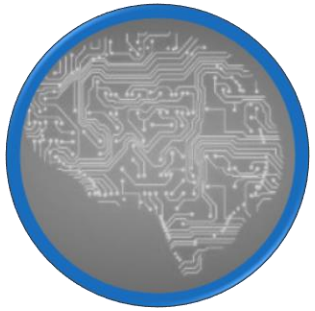
Digital Technologies Transforming Industries:

The Digital Toolbox

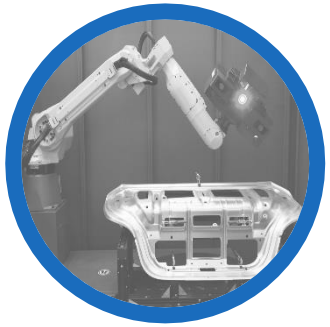
M2M Communication



Artificial Intelligence

Robotics & Autonomous Systems

AR/VR



Machine Vision

What do all of these technologies have in common?

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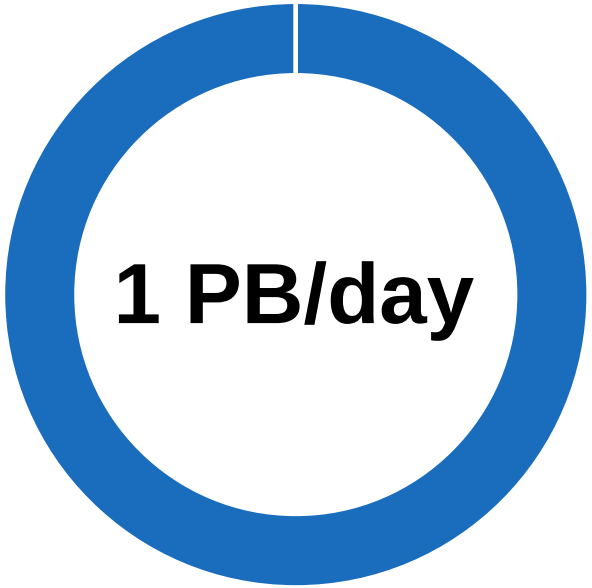
Answer: Data

More specifically, the need to transmit or process large quantities of data, often in real-time

The current rate of data generation

Smart Manufacturing



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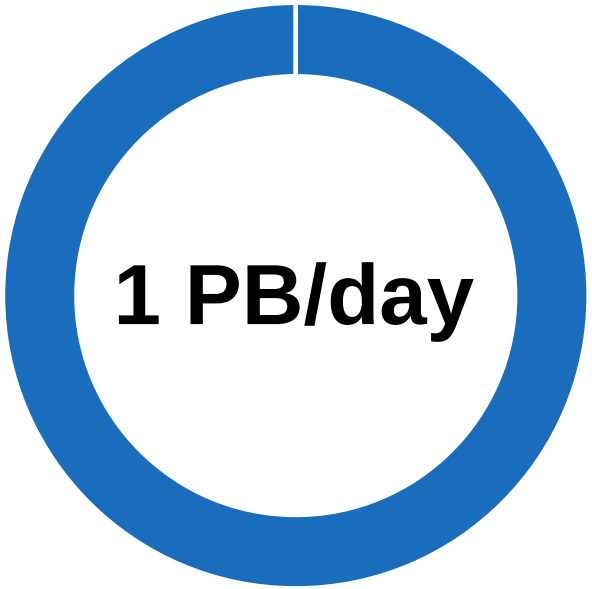
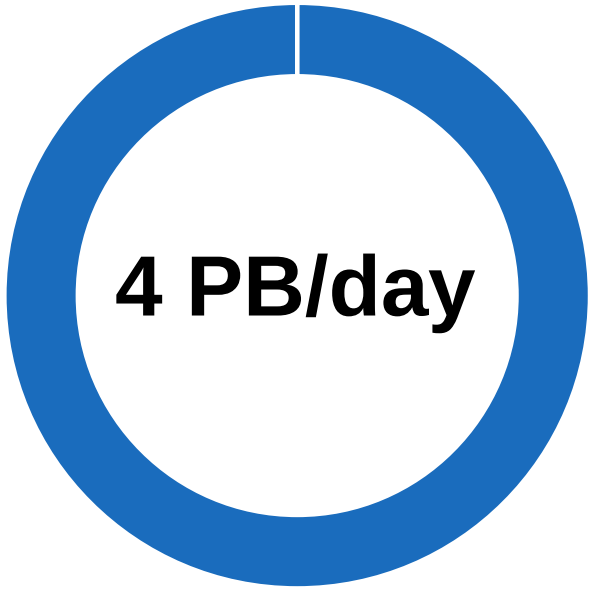
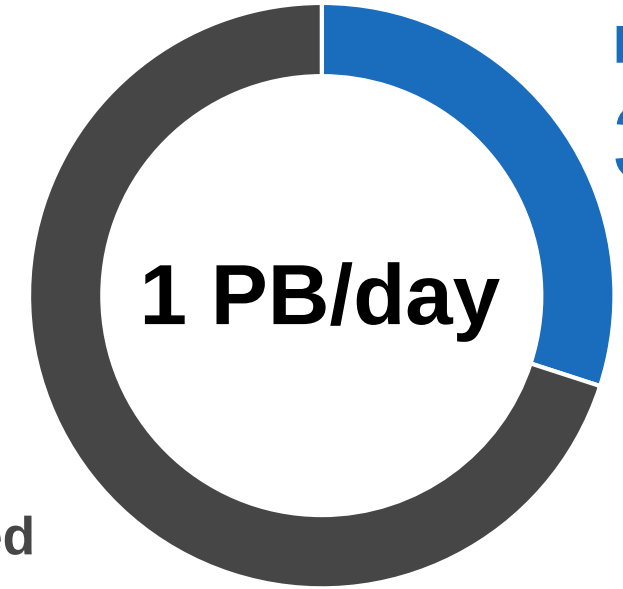


Smart Oil



The current rate of data utilization and waste

Smart Manufacturing



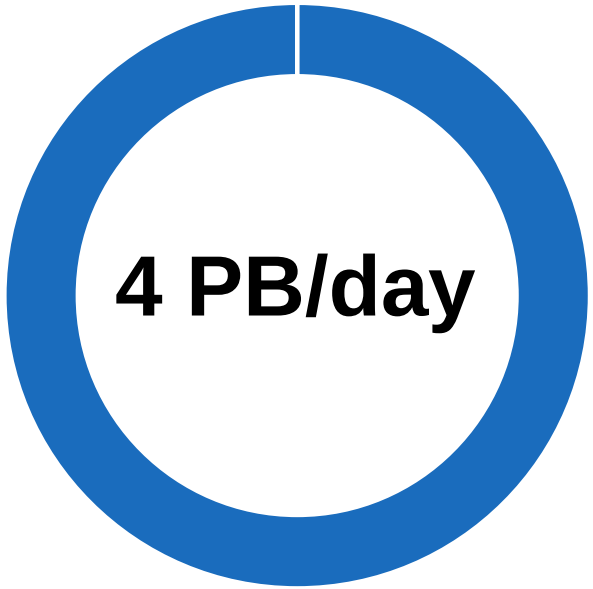
Data utilized

30%

Data wasted

700 TB/day

Smart Oil



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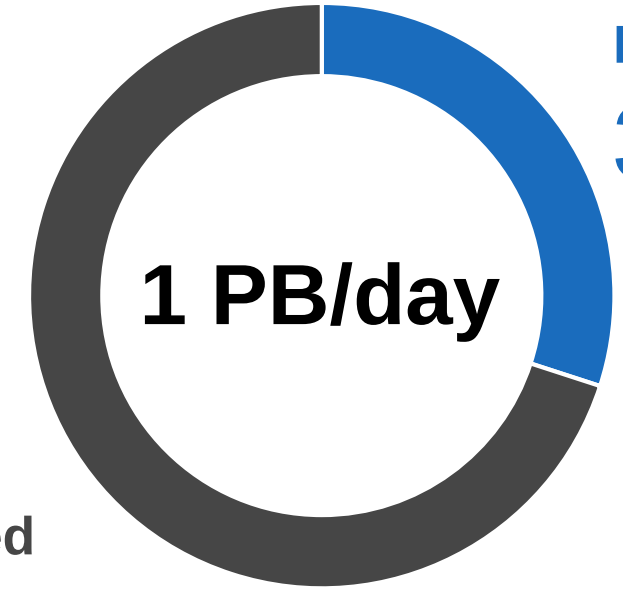

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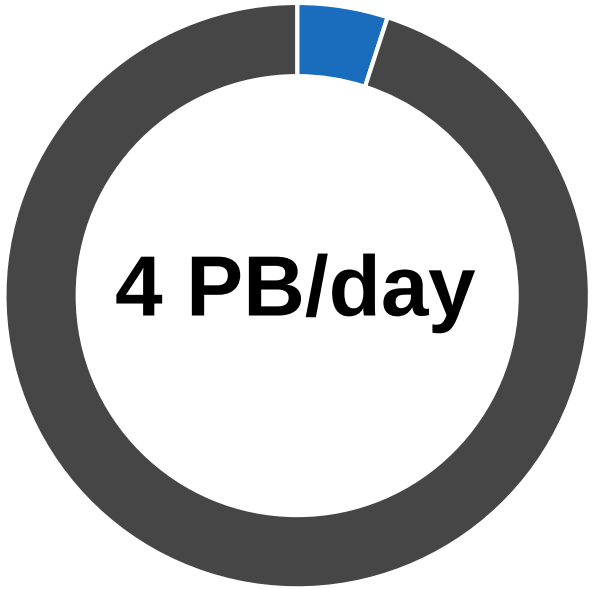
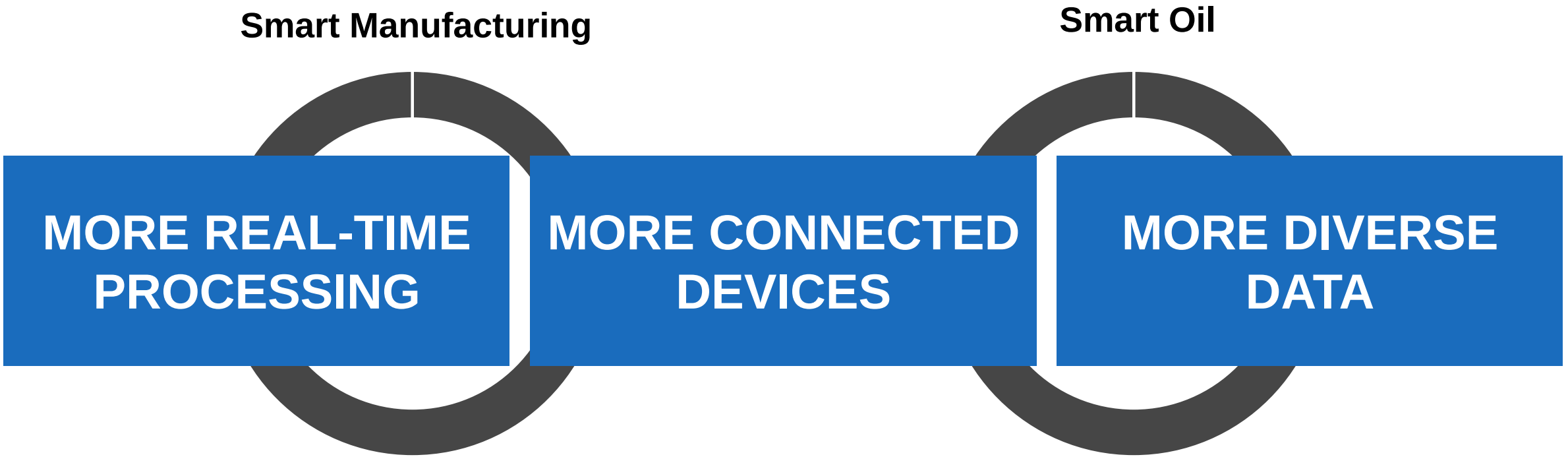


Data utilized
5%

Data wasted
3,800 TB/day

We have a massive, compounding data problem



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Envisioning a data-centric framework:
Key themes and considerations for optimizing digital solutions

- Data **Creation**
- Data **Security**
- Data **Transmission**
- Data **Cleanliness**
- Data **Analytics**
- Data **Storage**
- Data **Sharing**

Envisioning a data-centric framework: Key themes and considerations for optimizing digital solutions

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Also called data generation.
References all activities related to capturing and contextualizing sensor data.

Envisioning a data-centric framework:
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Data **Creation**

Data **Security**

References all activities related to isolating data to a discrete audience of authorized individuals, machines, applications, or processes.

Data **Transmission**

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Envisioning a data-centric framework:
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Data **Creation**

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Data **Transmission**

The connectivity and conveyance of data across the entire end-to-end IoT solution stack.

Data **Cleanliness**

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The relative signal-to-noise ratio of the IoT device data being generated.

Envisioning a data-centric framework:
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Data **Creation**

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Data **Analytics**

References all of the activities related to computational processing and understanding of IoT device data.

Data **Storage**

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References all of the activities related to storing data across the entire end-to-end IoT solution stack.

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References the imparting of data across separate IoT deployments

Key players offering novel technologies and approaches

	ON THE SENSOR	AT THE EDGE	IN THE CLOUD
Data **Creation**	Reliable wireless Onboard compute Energy harvesting		
Data **Security**	Lightweight cryptography Novel detection schema	Lightweight cryptography AI and machine learning	AI and machine learning
Data **Transmission**	Blockchain Embedded communication	Blockchain LPWAN	Satellite and HALTAP
Data **Cleanliness**	On-sensor compute	Lightweight edge software	AI and machine learning
Data **Analytics**		New processor types In-memory processing AI and machine learning	AI and machine learning Codeless development
Data **Storage**	Rugged storage media	Computational storage	Application-specific clouds
Data **Sharing**		Edge computing	Blockchain

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Case Study | Gas Oil Separation Plant

Phase 1: Going Smart

Initial Requirements

- Increase production uptime
- Improve process quality
- Increase equipment effectiveness (OEE)

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- Data **Analytics** ✗
- Data **Storage**
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Phase 2: Getting “Smarter”

Refined Requirements

- Connect to existing SCADA system
- Fuse and process heterogeneous data
- Machine-learning based prognostics
- Accurate, actionable alerts

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Revised Implementation

- Data **Creation**
- Data **Security**
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- Data **Cleanliness**
- Data **Analytics** ✓
- Data **Storage**
- Data **Sharing**

Early Results

Two-weeks to train models, and fully implement the solution

29 alerts over the course of the first month after deployment, of which only 3 were false positives

Claims to have saved its customer roughly $100,000 in a single event by proactively identifying and triaging a cooling water leak in a heat exchanger

Case Study | Kemira Oyj

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- Sensor-compatible analytics platform
- Remote condition monitoring solution with vertical expertise in wastewater

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Early Results

Kemira is now able to provide real-time estimates and alerts of customer inventory needs

Streamlined ordering; reported one customer instance where monthly purchase orders were reduced from 25 down to 1

Now piloting new value-added services, such as SMART sludge management; claims to have saved one customer €90,000 per year with the new service, while also driving new revenue growth for itself

Kemira expects its new digital products will account for 50% of revenue within the next 5 years

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Outlook & Closing Thoughts

You need to be good at ALL of the framework components – not just some of them.

Focus on applications that fit the needs of your organization.

Ask yourself: What is most important to my organization – top-line growth or bottom-line savings?

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Thank you for joining us.

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