



I4.0: FINDING OPPORTUNITY FOR A COMPETITIVE EDGE

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Changing competitive landscape

It is all about the data

Merck – smart factories

Pfizer – connected manufacturing

Sanofi – digital twins and AR

Johnson & Johnson – Apple partner



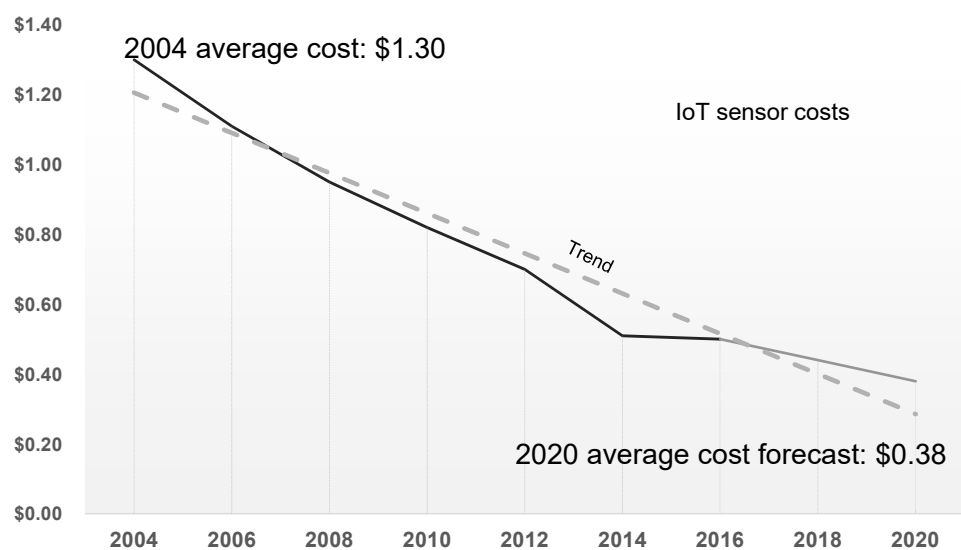
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Data costs are dropping



Source: Bank of America; Merrill Lynch



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The race has begun



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New technologies are attractive



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A Promise or Hype?

- Higher quality products
- Improved responsiveness to market demands
- Cycle time reduction
- Shorter lead times
- Maintaining margins while facing pricing pressures
- Optimization of asset performance
- Improve quality control
- Continuous replenishment for customers while minimizing your own inventories
- Increased energy efficiency



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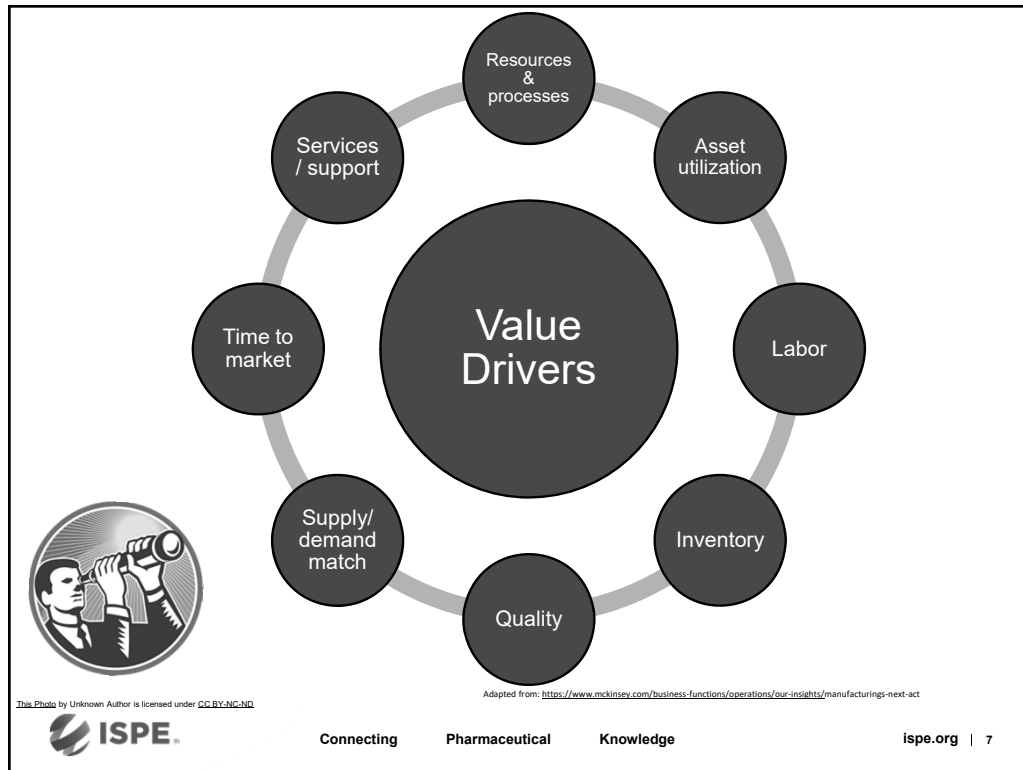


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Navigating a path to value creation

Understand customers and
build relationships

Efficient operations and
optimized supply chains

Innovative products and
services



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Six general areas of focus in manufacturing: Large Pharma Company

- Asset Performance Optimization (APO)
- Digital Performance Management (DPM)
- Integrated Quality & Real Time Release
- Smart Factory
- 3D Printing
- Materials Science



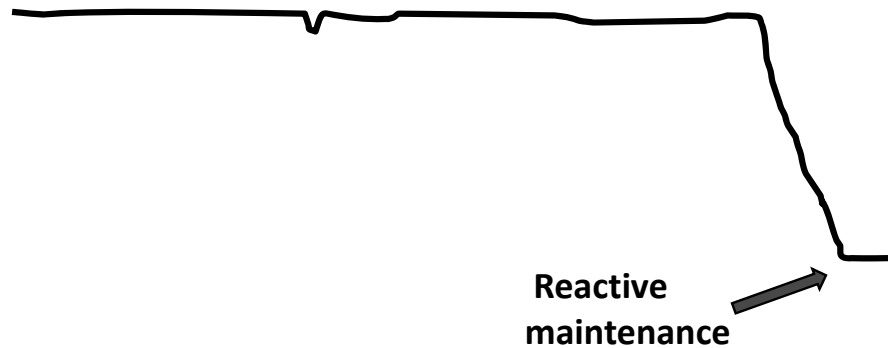
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Use domain-specific data to solve industrial challenges



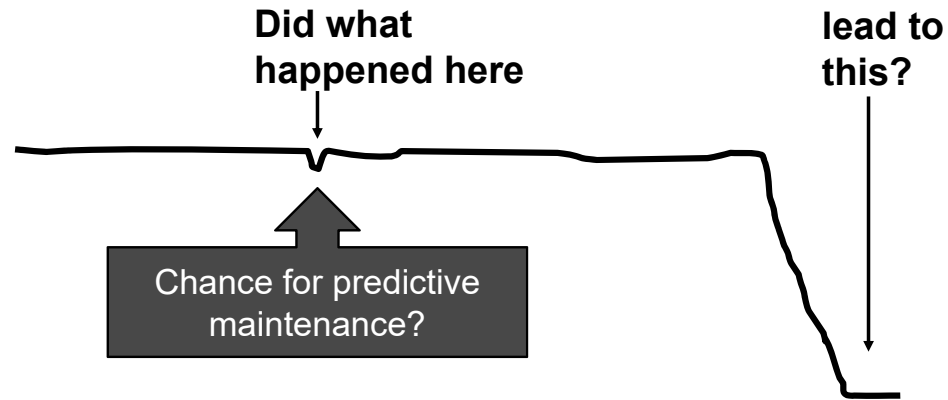
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Condition-based monitoring + advanced analytics and AI: OXYS Corporation



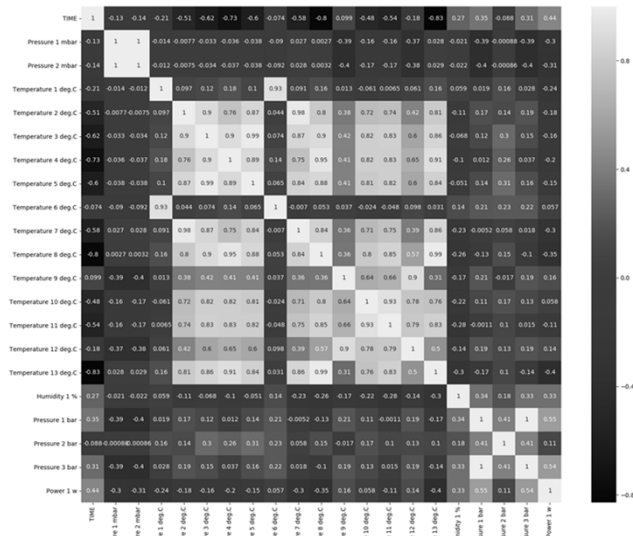
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Example of Historical Data Analysis: OXYS



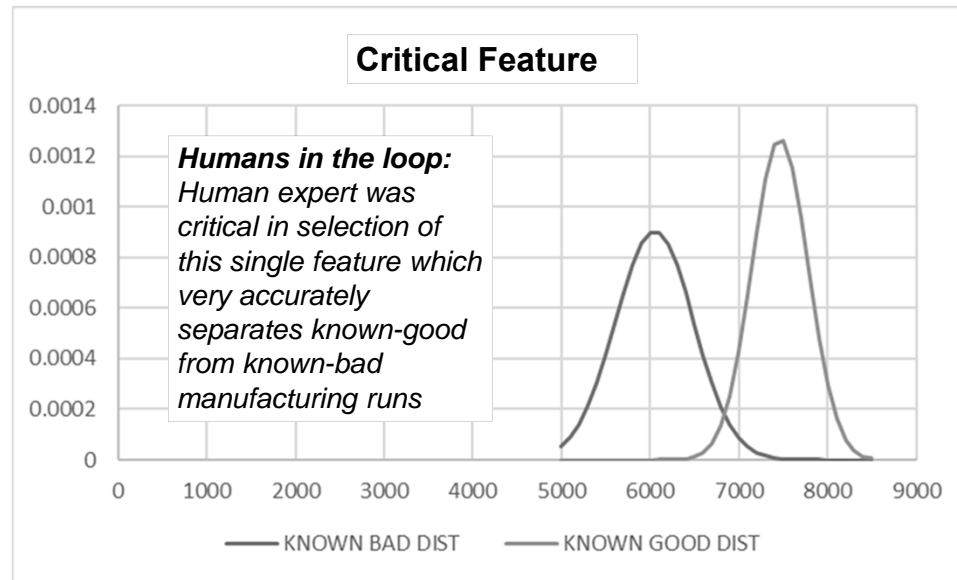
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A more focused data science approach: OXYS



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From batch manufacturing to Real Time Release - Janssen Supply Chain headlines

April 2016 - FDA Approves Tablet Production on Janssen Continuous Manufacturing Line

June 2017 - EMA Approves Janssen Drug Made Via Continuous Manufacturing

January 2019 – Janssen achieves a Pharmaceutical First in Continuous Manufacturing



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Current versus expected state: Janssen



Source: Janssen infographic



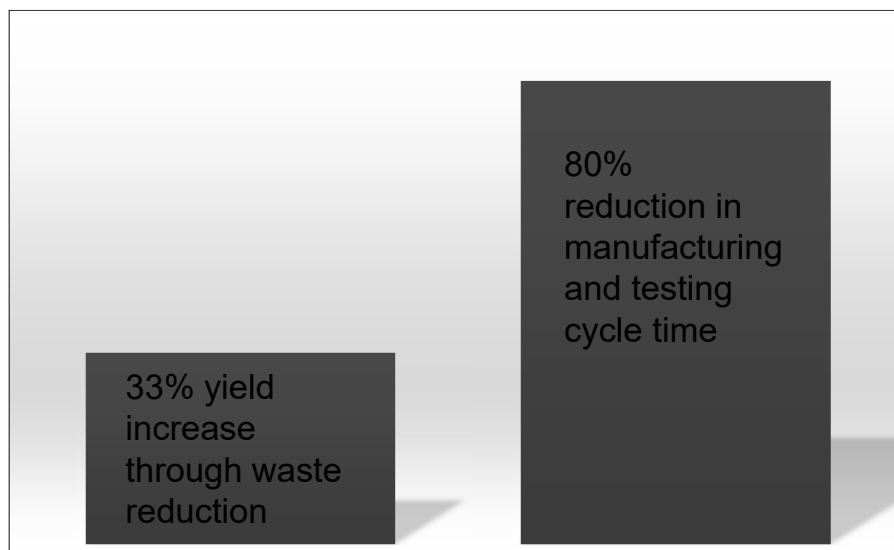
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Projected long term benefits: Janssen



Source: Janssen infographic



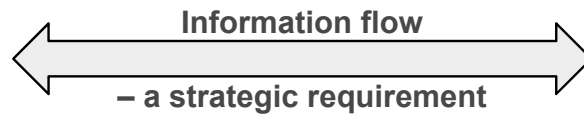
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The I4.0 Implementation Continuum



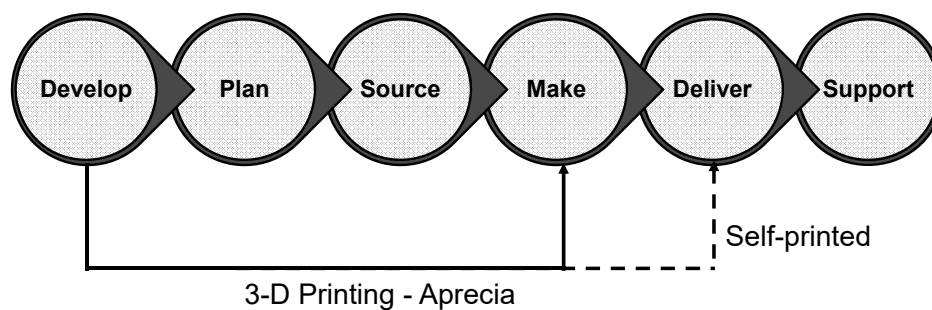
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Supply chain impact

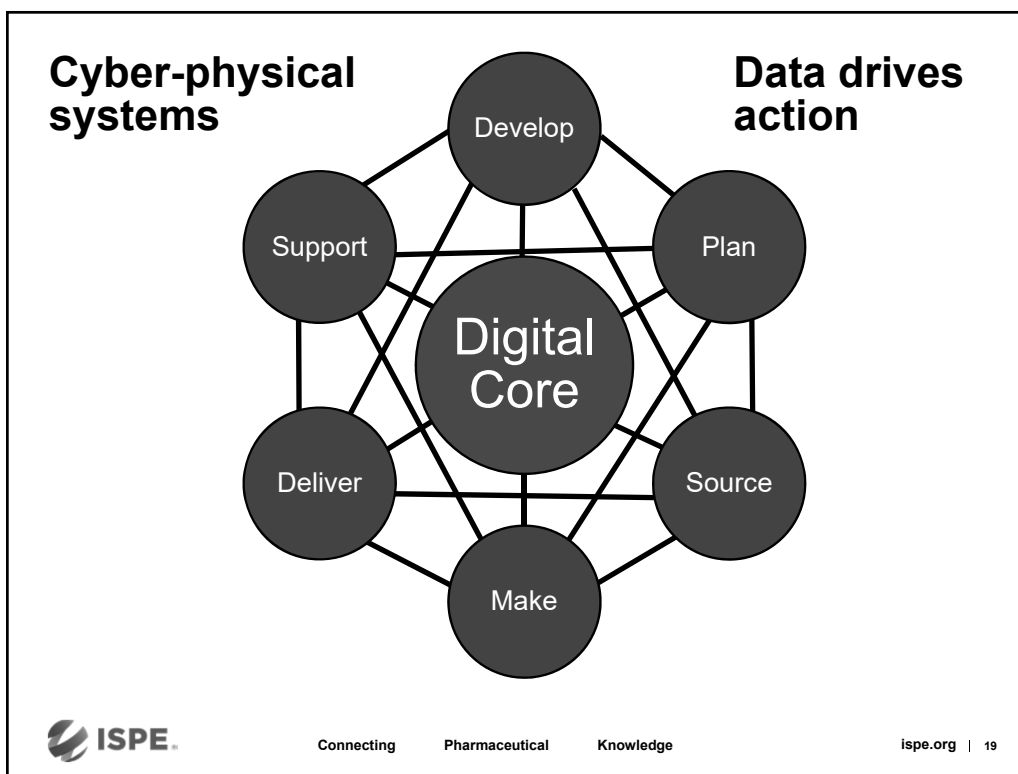


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The I4.0 race to capture value has begun - What kind of race will you run?



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THANK YOU

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