

Manufacturing Process Innovation with Data and Modeling

Jim Davis

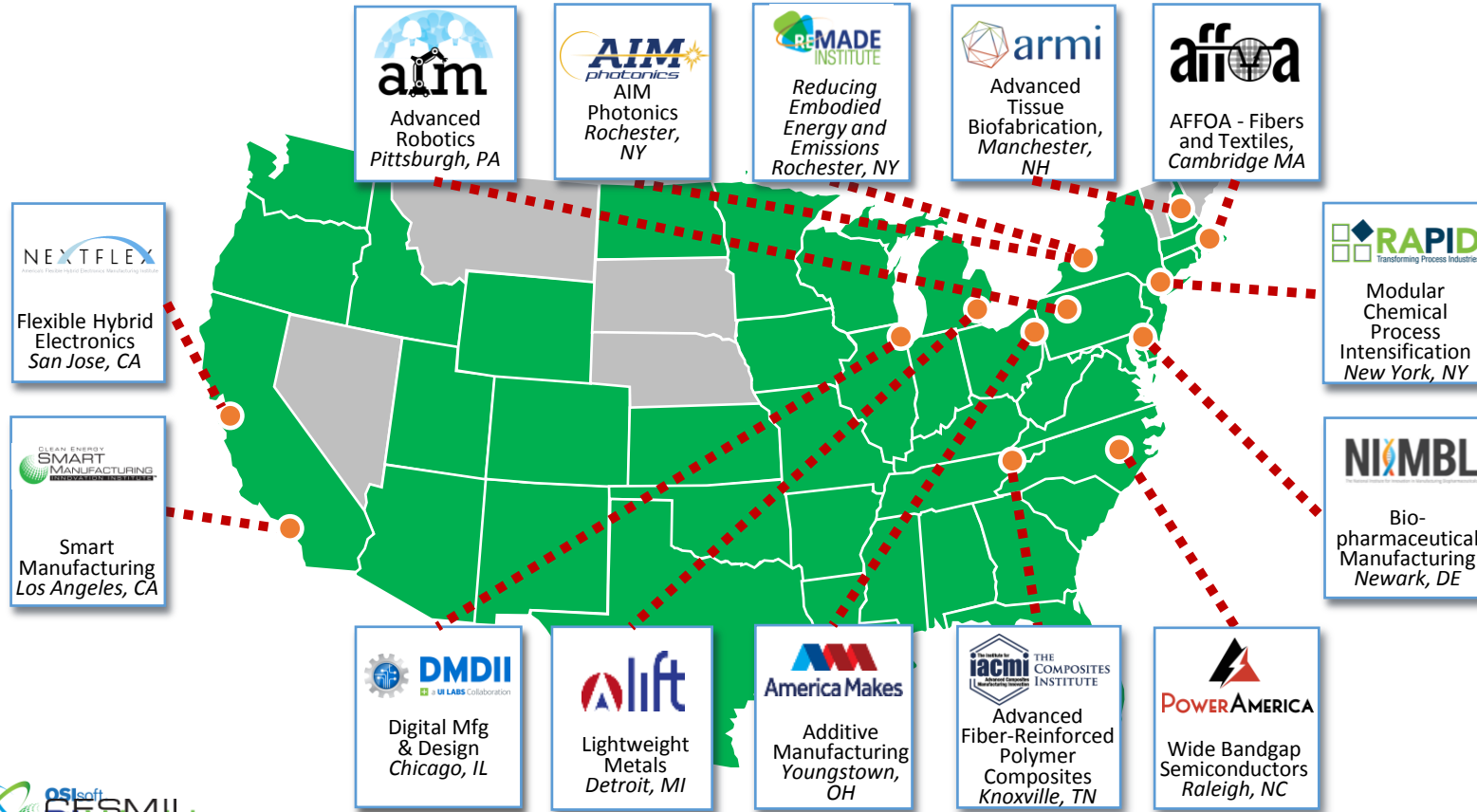
CTO Smart Manufacturing Leadership Coalition

Governance Board Clean Energy Smart Manufacturing Innovation Institute

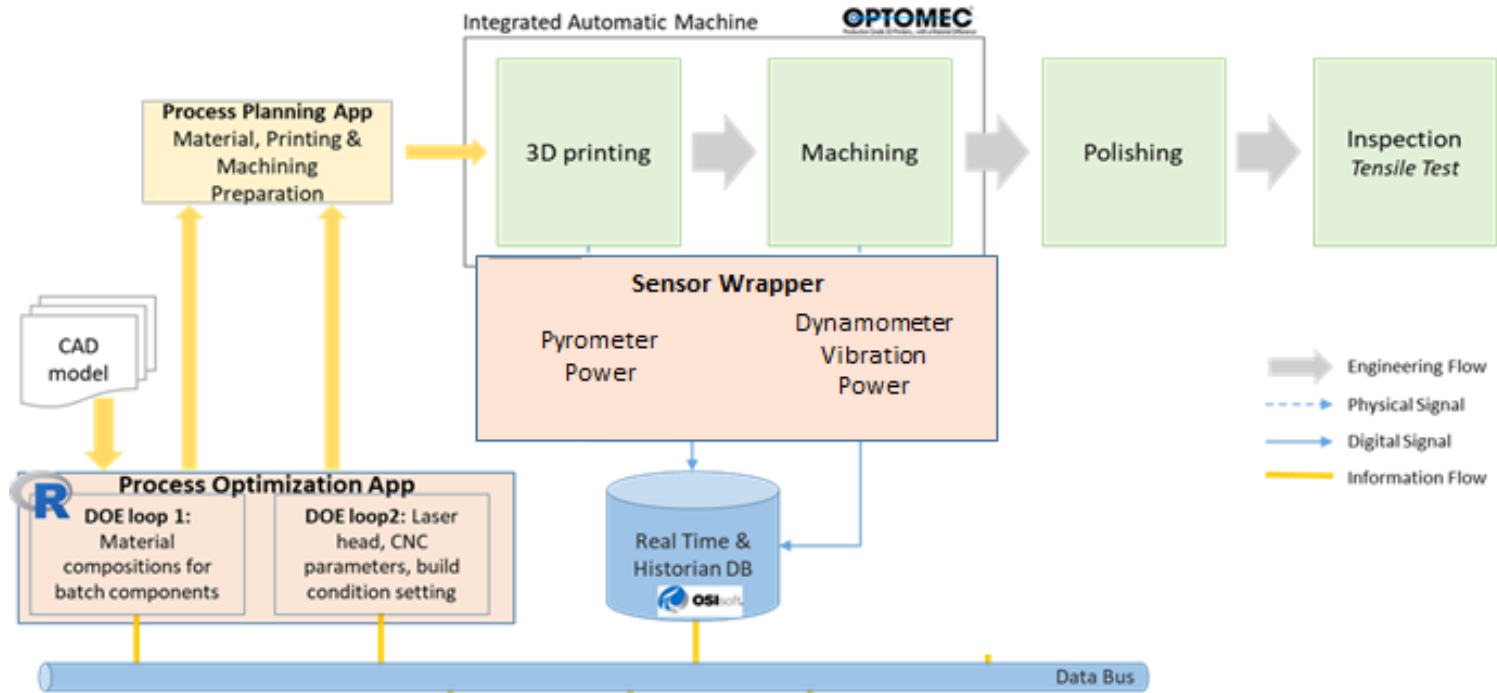
Vice Provost and CTO UCLA

<https://www.cesmii.org>

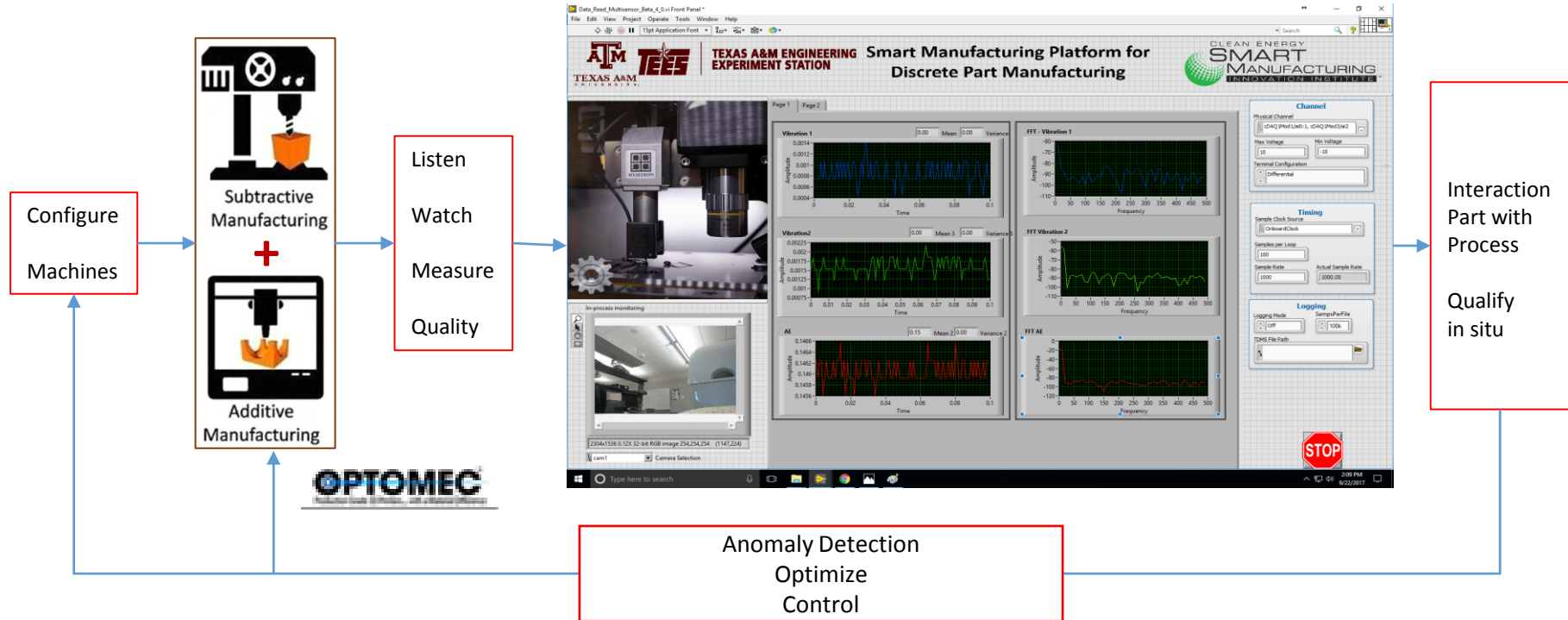
Manufacturing USA Today



Use Case Additive + Subtractive Manufacturing Data Play a Key Role

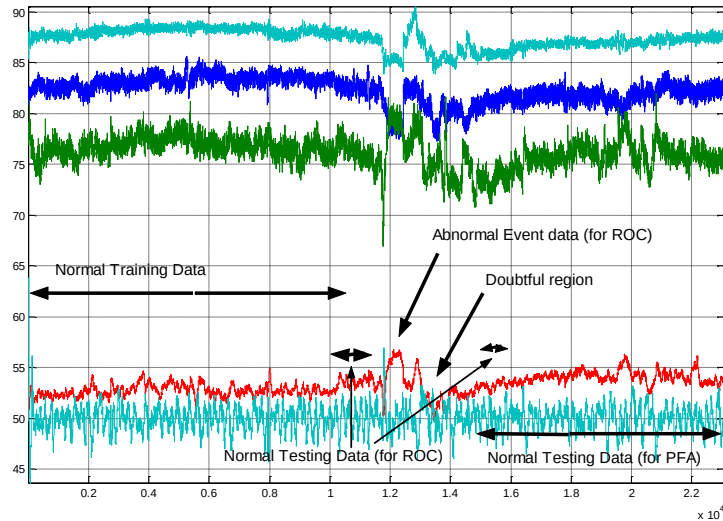


Precision, Performance and Productivity Innovation with Data

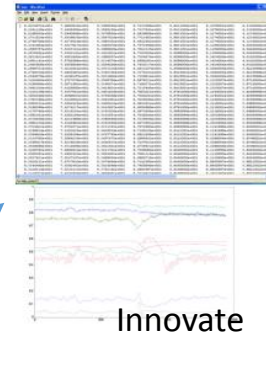


AI Machine Learning Digital Twin

Operational Data

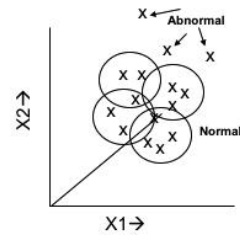


Learn &
Automate



Innovate

Apply test file for
the same threshold

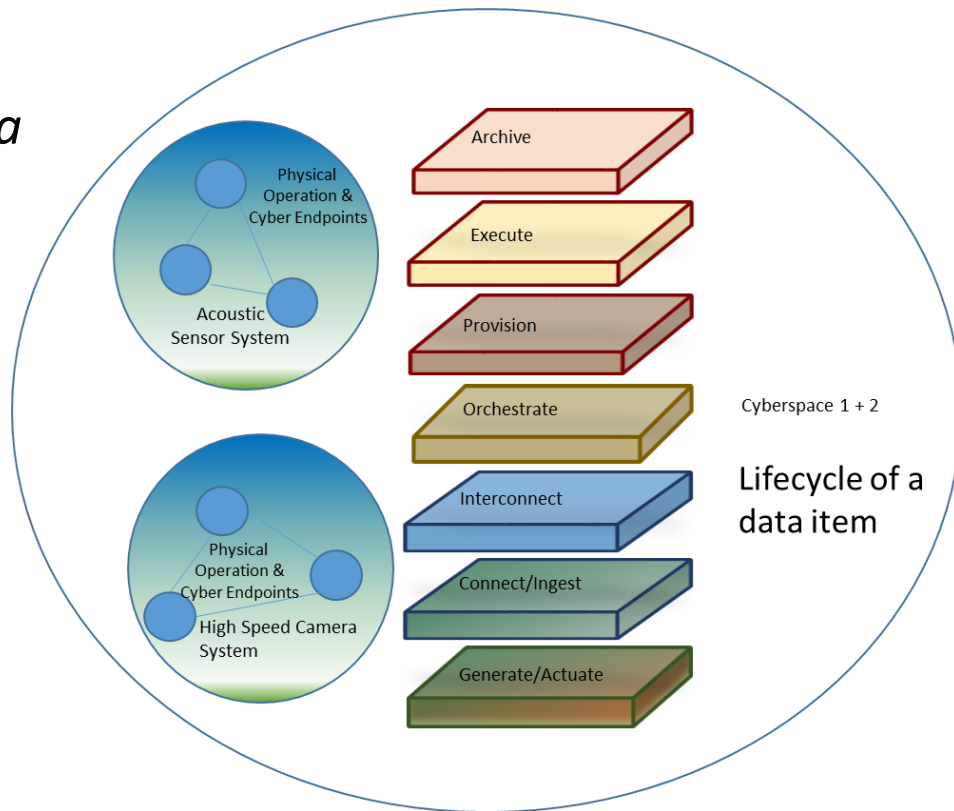


Predict

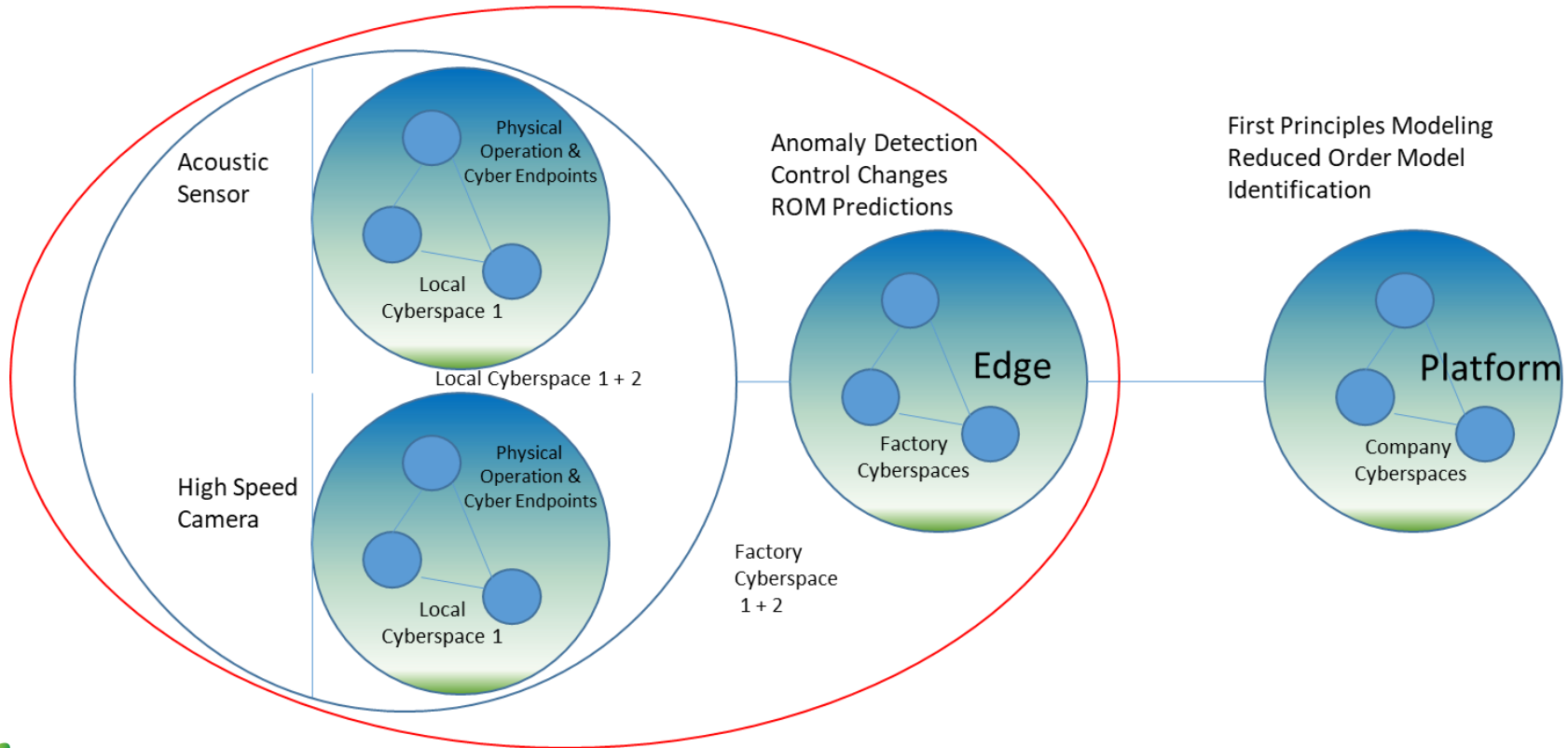


Architect for Data / Decision Centricity

- *Reduce complexity with data system patterns*
- *Interconnect systems of service systems securely*
- *Drive security with business data exchange & trust*



Architect for Data Infrastructure Productivity



Smart Manufacturing Data Innovation Infrastructure

Infrastructure

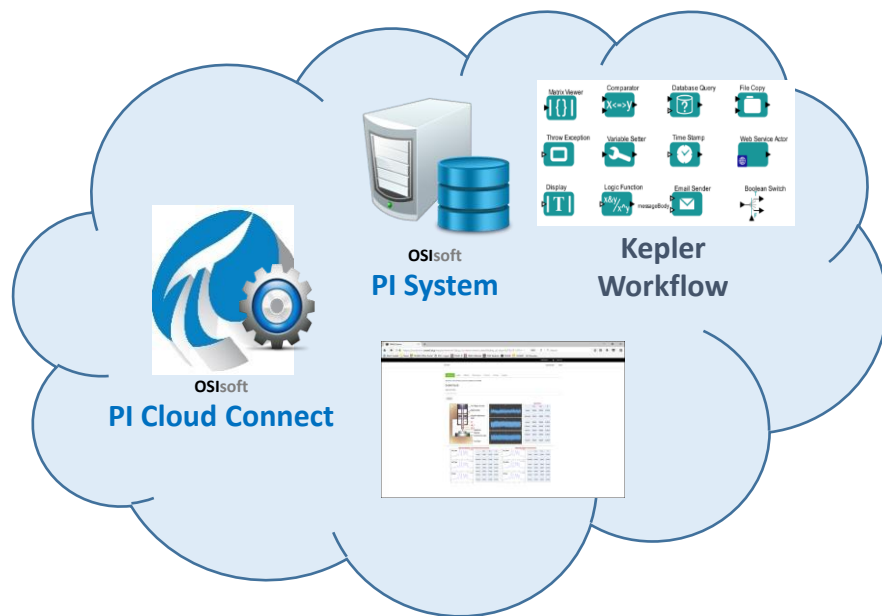
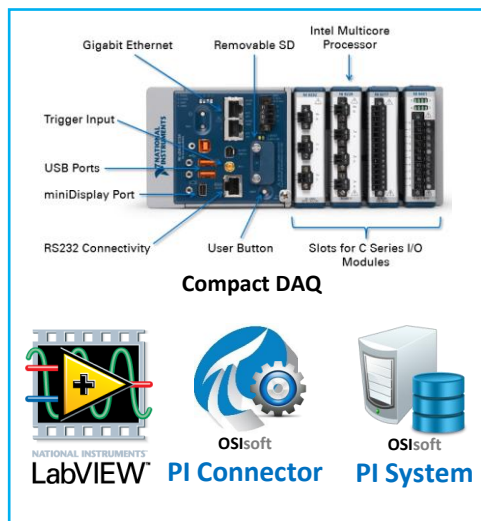
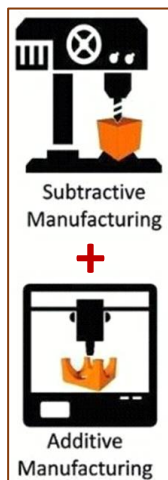
OT/IT Assets, Integration

Orchestration

Workflow, Composability

Deployment

Marketplace, Tools

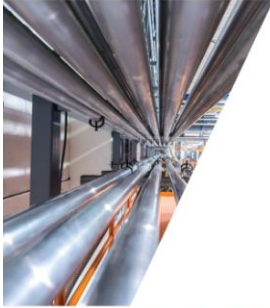




Conservative Economic Potential

- **15%** reduction in total energy consumption
- **\$175 billion**
- **1 million jobs**
- **5,000 jobs in tech industry**

Reinvestment



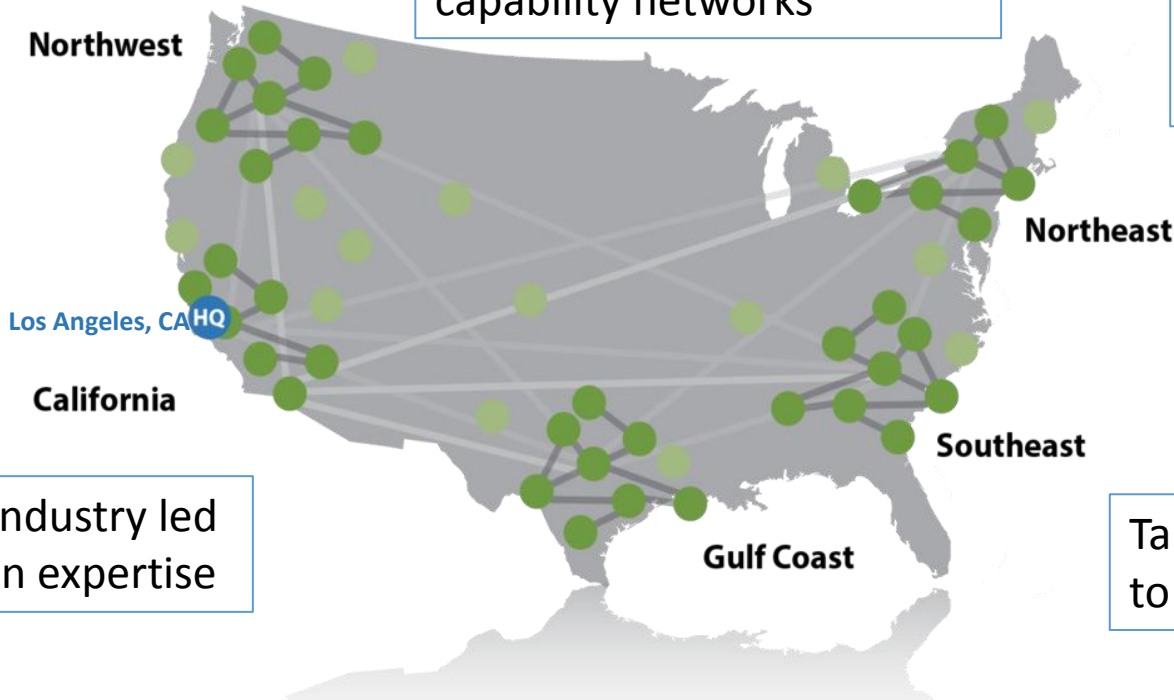
Engage Manufacturing Where It IS



CESMII national network of capability networks

Leverage NIST MEP program

Metrics



Build industry led domain expertise

Take the Institute to Manufacturers



SAN FRANCISCO 2018

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#PIWorld

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Merci

谢谢

Спасибо

Danke

Gracias

Thank You

감사합니다

ありがとう

Grazie

Obrigado

Enhancing the Value Chain with the PI System

Terri Lewis – Digital & Technology Director
Ankit Dhorajiya – Digital Analytics Specialist



Conference Theme & Keywords



About Caterpillar Inc.

**Founded in
1925
(California)**



**Present in almost every country
in globe**



Dealer



\$45.5B
Revenue 2017

98,400
Employees

175+
Dealers Globally



Progress Rail
A Caterpillar Company

Solar Turbines
A Caterpillar Company



6 Million Machines Working Hard Globally



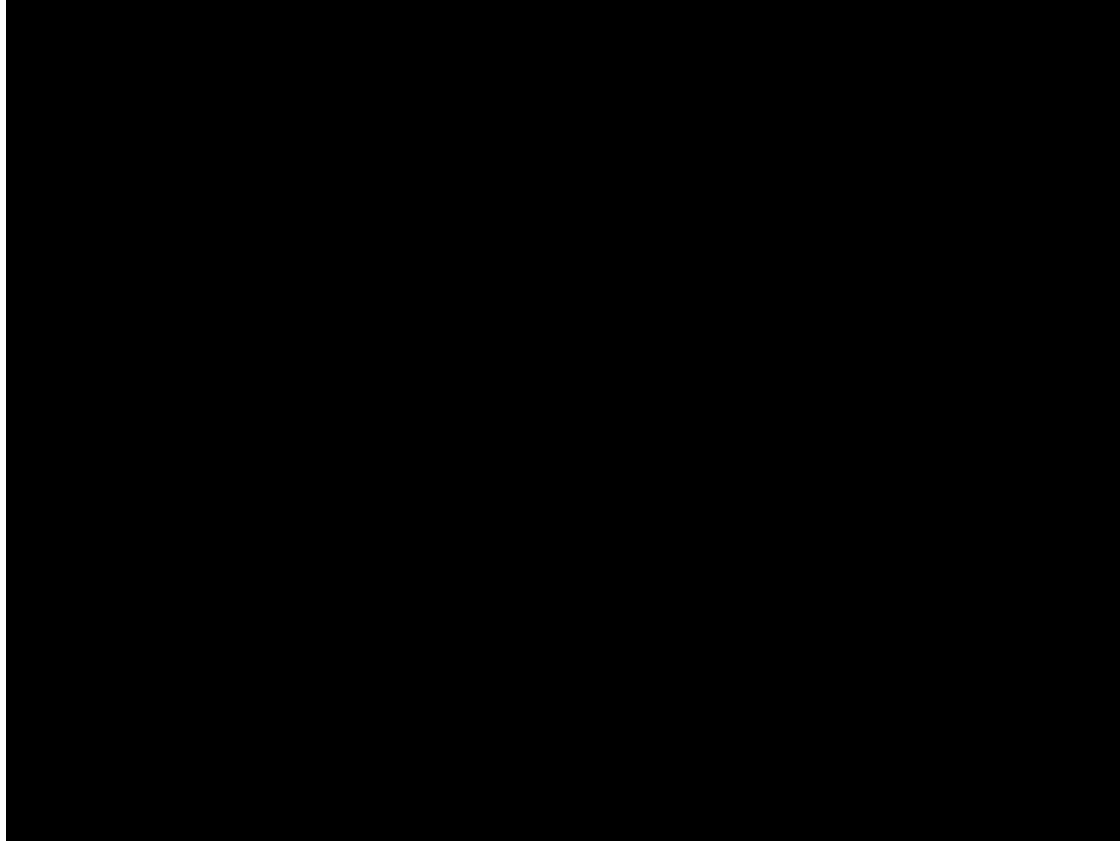
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Caterpillar's Digital Beginnings (circa 1995)





CAT CONNECT STRATEGIC INTENT

“ PROVIDE SOLUTIONS WHICH HELP OUR CUSTOMERS SUCCEED WITH THE COMBINATION OF DEEP DOMAIN EXPERTISE AND TECHNOLOGY THAT ALLOWS US TO BE SMARTER, FASTER, ANYWHERE.

**NO ONE COMES BETWEEN
US AND SERVING OUR
CUSTOMERS' NEEDS.”**

Cat Connect is about turning Data into ACTIONABLE Insight

Too Much Data

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Right Data

[illegible]

Right Data = Information that provides value to the User

Please Join us on **25th Apr, 2018 (Wed) @ Continental Ballroom 6** for **System Integration from Connectivity to Operational Insight: Leveraging PI system**



- **Terri Lewis**
- [LEWIS TERRI L@cat.com](mailto:LEWIS_TERRI_L@cat.com)
- Digital & Technology Director
- Caterpillar Inc



- **Ankit Dhorajiya**
- Dhorajiya_Ankit@cat.com
- Digital Analytics Specialist
- Caterpillar Inc

Questions

Please wait for the
microphone before asking
your questions



State your
name & company

Please remember to...

Complete the Online Survey
for this session

Merci

谢谢

Спасибо

Danke

Gracias

Thank You

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Grazie

Obrigado