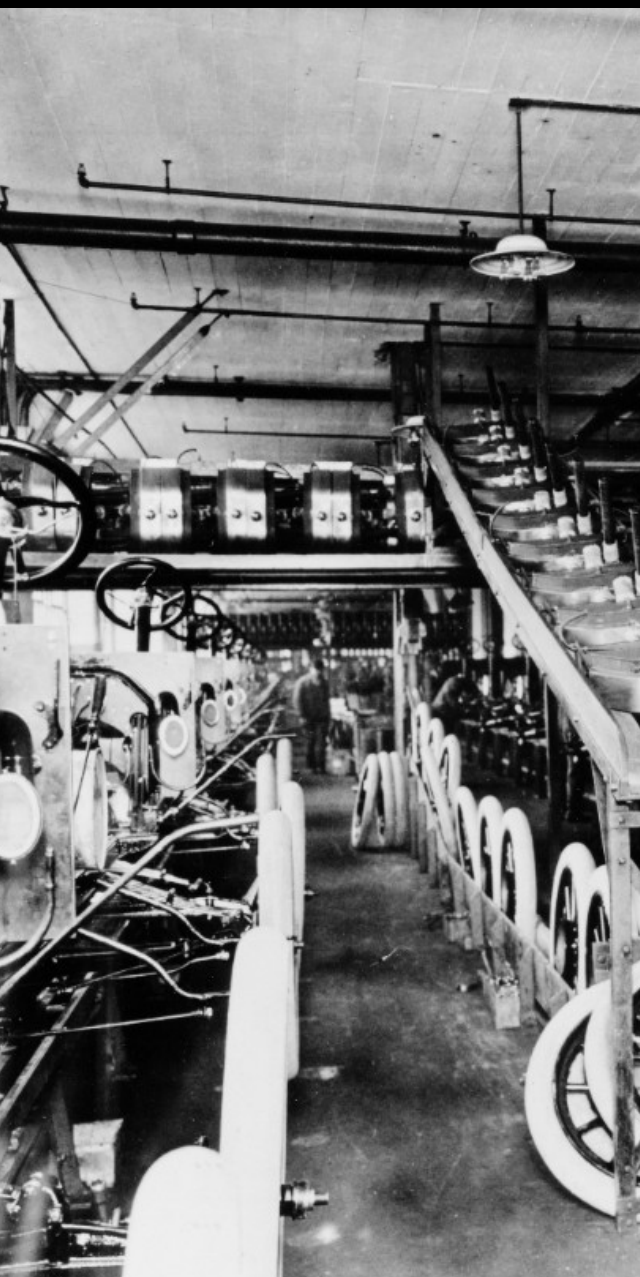




The 21st Century Brilliant Factory

Stephan Biller, PhD
Chief Manufacturing Scientist

Imagination at work.



The Ford Assembly Line

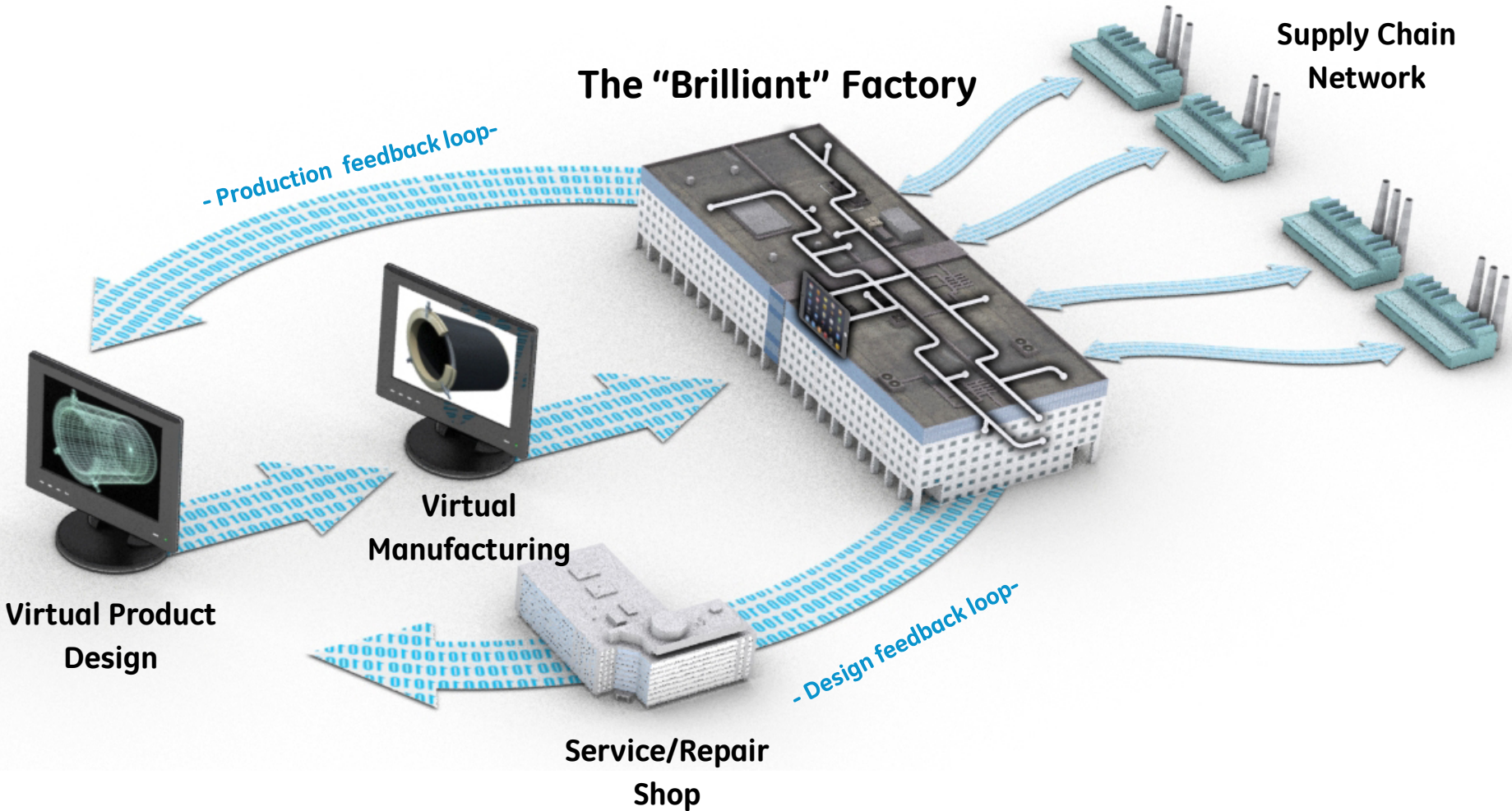


Automotive Lean Factory



GE Brilliant Factory

Brilliant Factory

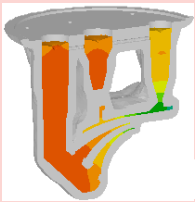


A "digital thread" forms the 21st Century Assembly Line for Smart Manufacturing

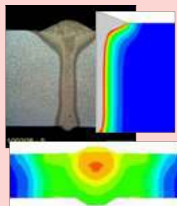
Virtual Manufacturing

Process Modeling

Integrating manufacturing into design, planning



Solidification



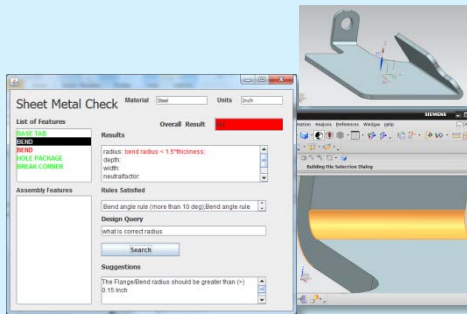
Welding

- Broaden supply base, design space
- Shorten NPI cycle time
- Quality... yield increase
- Cost reduction

Producibility

Turning data into knowledge

- Advisor tool *during* design
- - Producibility, cost, capability
- Enables Design for Manufacturing
- Drives faster NPI
- Opens supply base

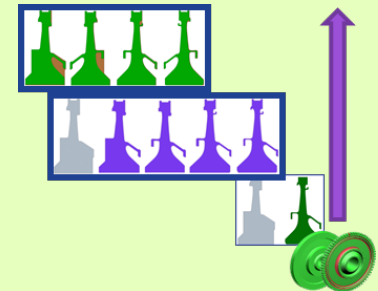


Design Producibility Advisors

Model-Based

"One truth" in design and manufacturing

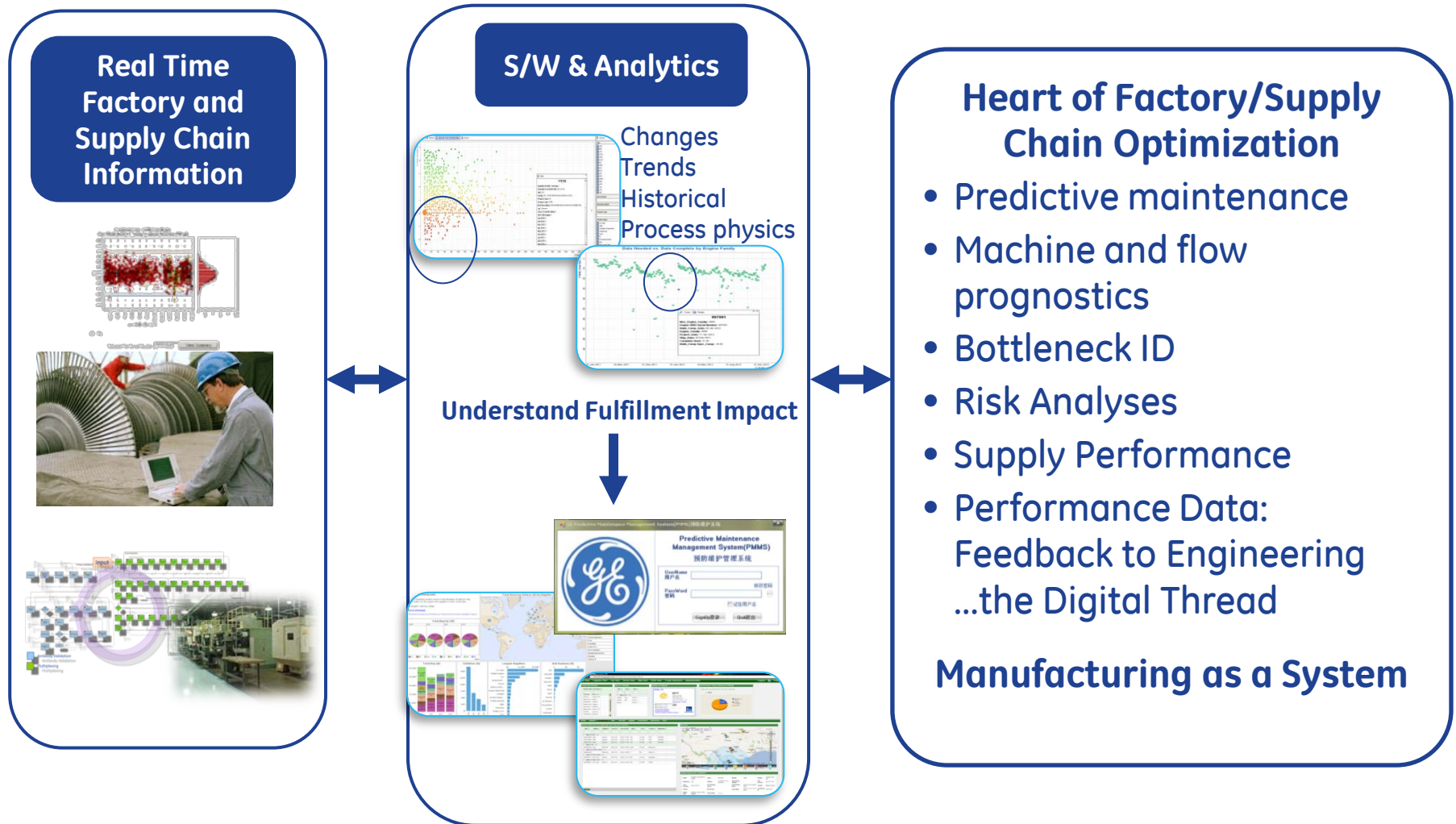
- Engineering data to mfg. model
Today:
 - ✓ Significant manual work
 - ✓ Long time to adapt NC to new part
- In-process models for machining
- Linked to engineering models
- Reusable libraries



In Process Models



Prognostics for Factory/Supply Chain

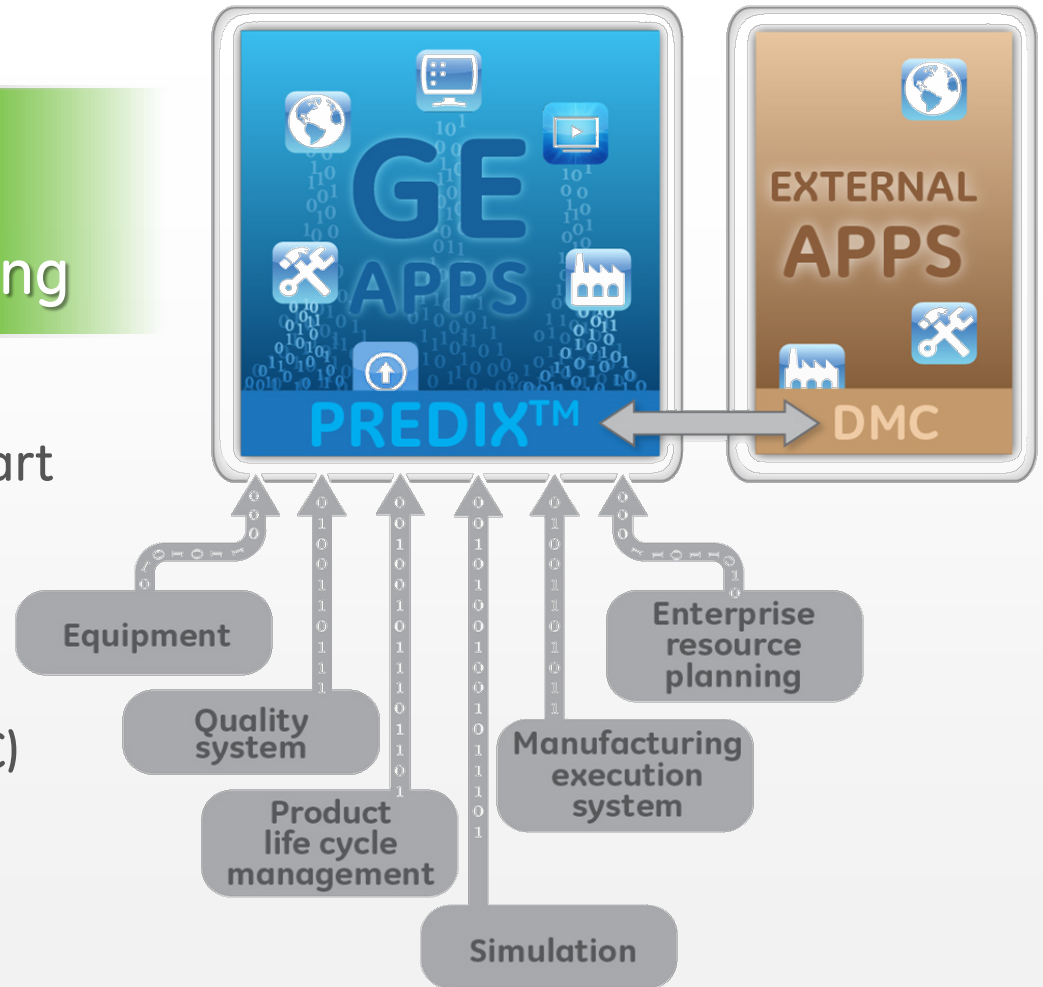


Brilliant Factory

An “App Store” to deliver unprecedented efficiency and speed in manufacturing

Integrate GE’s virtual design/manufacturing and smart factory data through Predix™

Engage with supply chain partners through Digital Manufacturing Commons (DMC)



A paradigm change in optimizing operations



A Public/Private Partnership Digitizing Manufacturing



DMDII

+ a **UI LABS** Collaboration

Established through a 5-year cooperative agreement with \$70M in federal government funding and over \$105M in matching funding from industry, academia, local government, and community partners.



SIEMENS



JOHN DEERE



CATERPILLAR

P&G

TW



**Applied Research
& Development**

*Reduce cost and risk
of commercializing
new technology*

**Technology Integration
& Commercialization**

*Develop innovative methods
and practices for supply chain
integration*

**Education, Technical Skills
& Workforce Development**

*Engage with small & medium-
sized manufacturing enterprises*

Brilliant Factory

- Inter connected
- Automated
- Never surprised
- “Factory that never stops”

