

Intelligent Manufacturing

Real time based optimization through entire value chain

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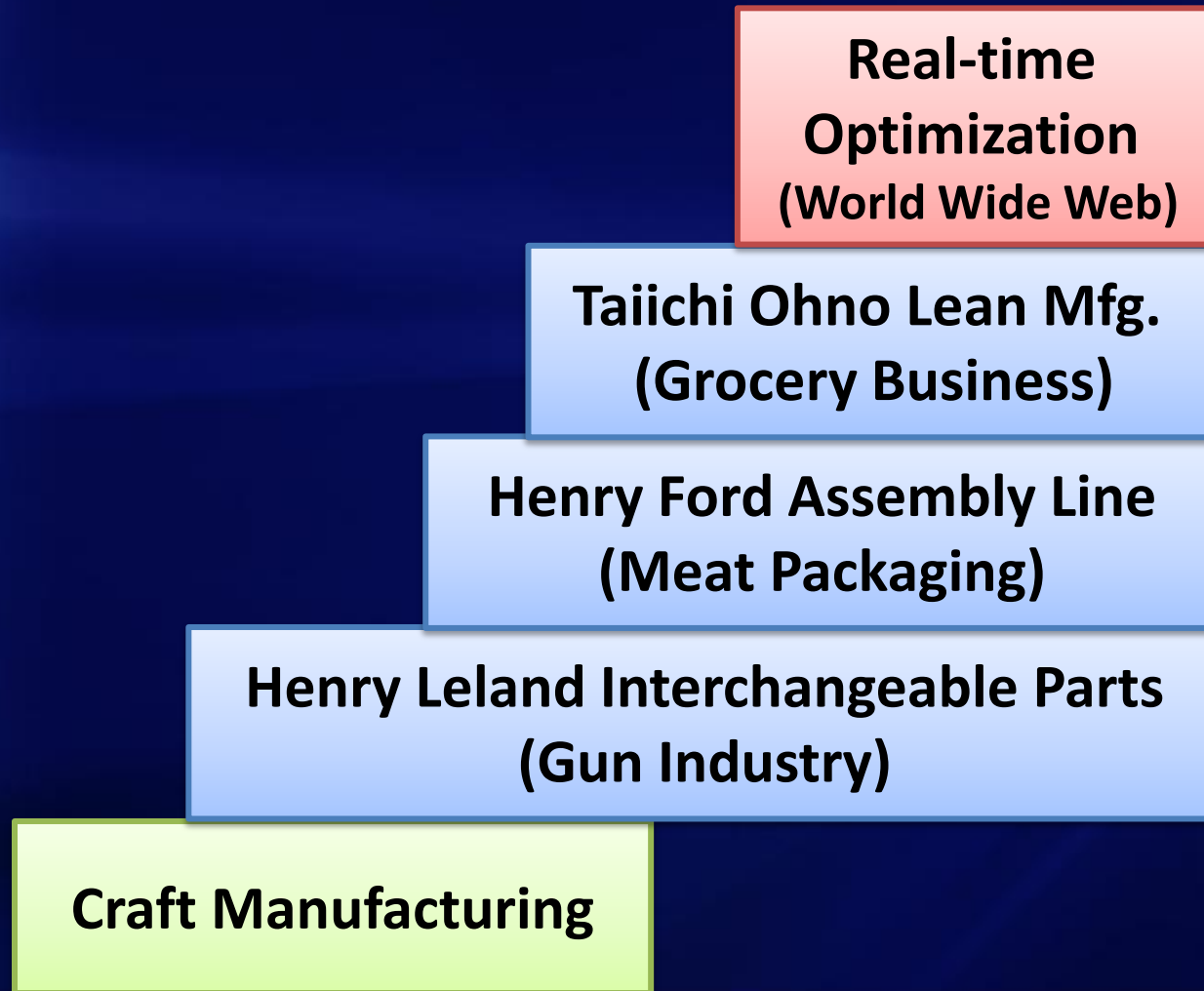
Chief Scientist for Manufacturing

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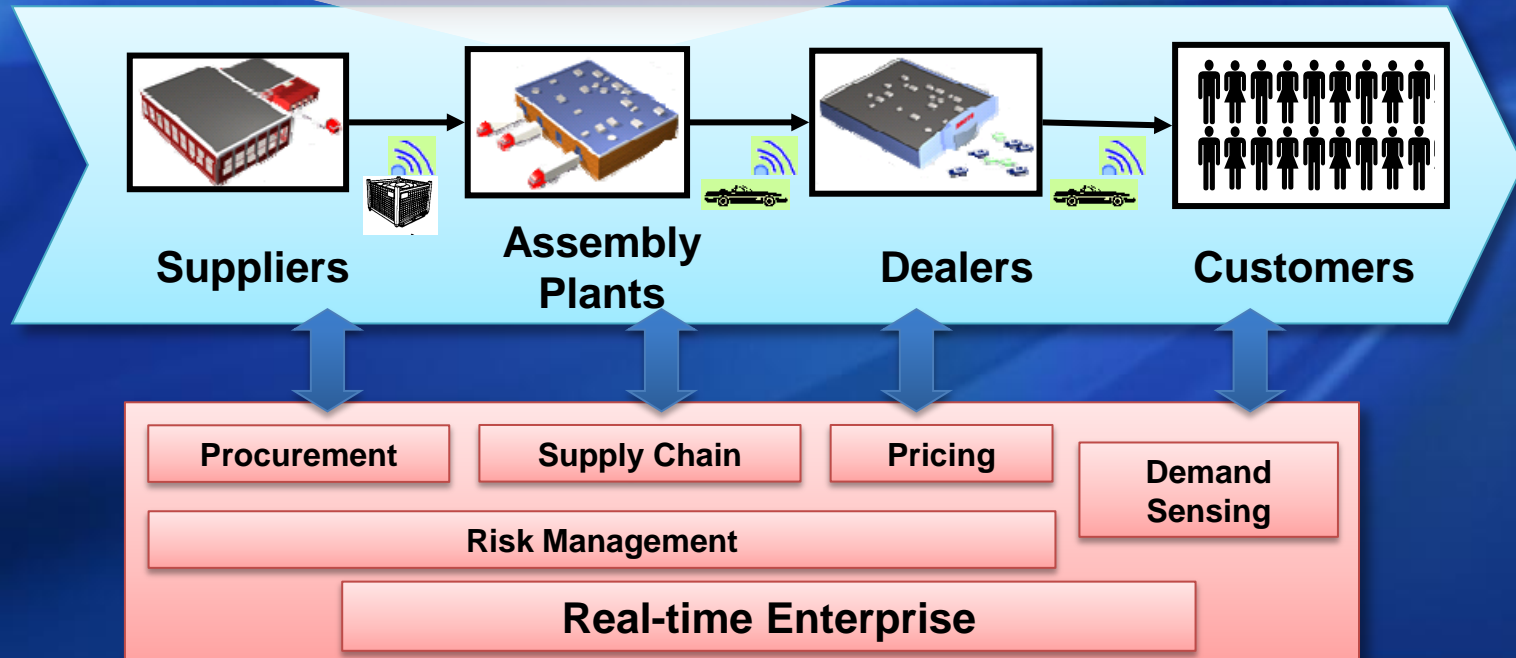
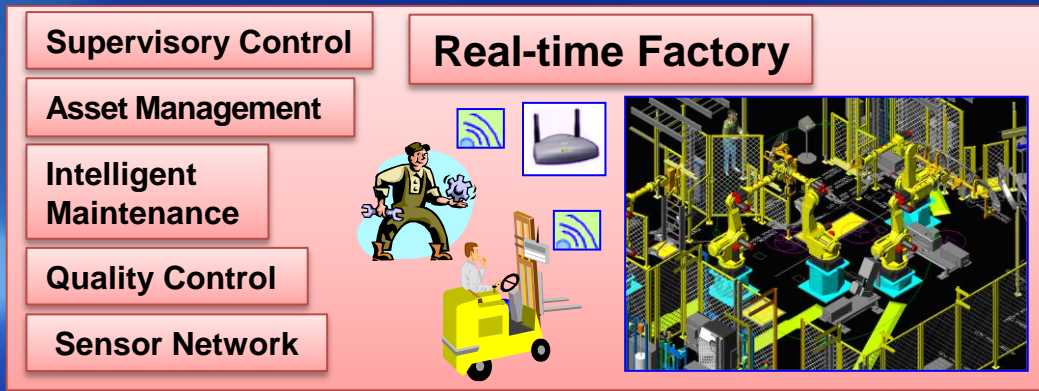
Warren, MI

Intelligent Manufacturing is Real time Based Optimization

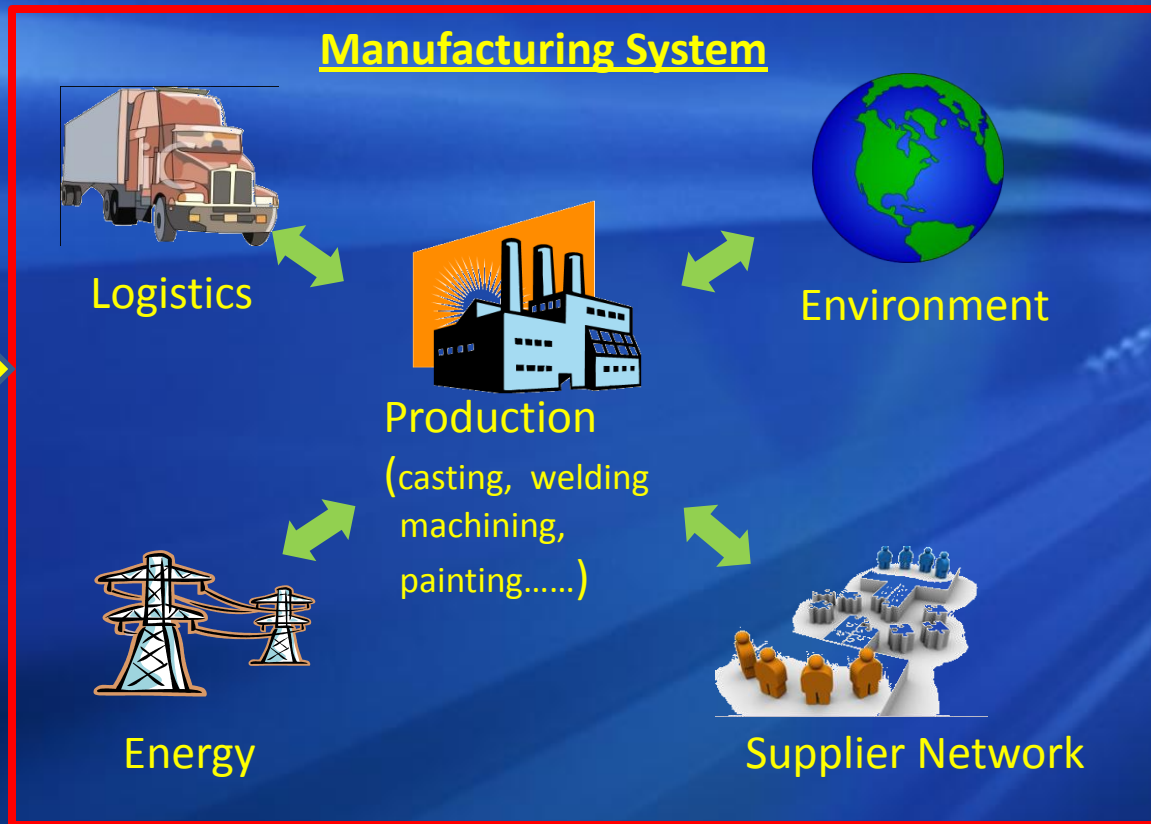


Manufacturing Paradigm Evolution →

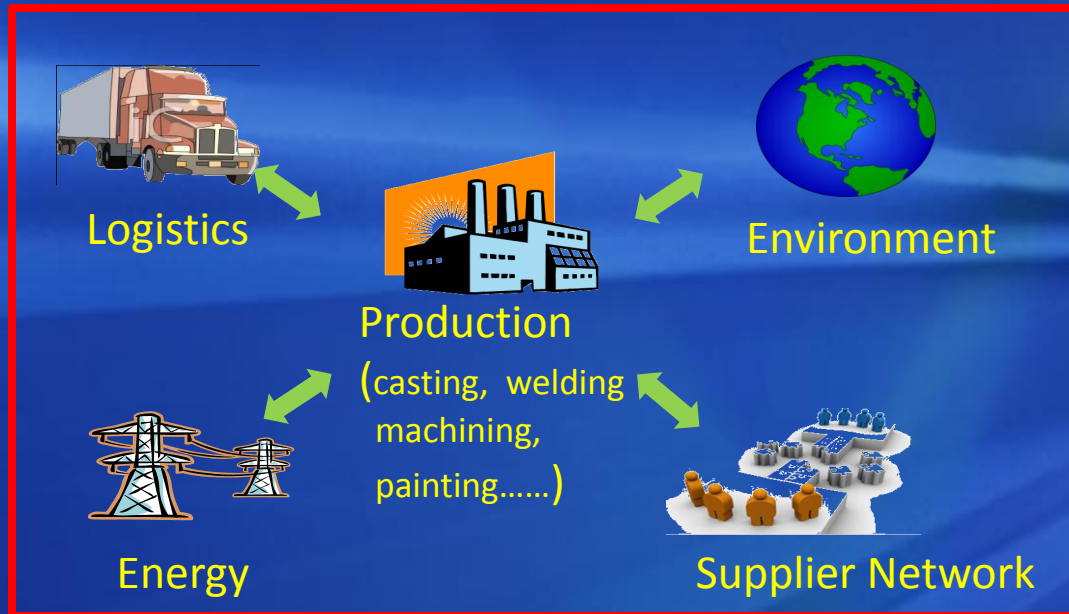
Intelligent Manufacturing – Innovation Program



Intelligent Manufacturing SCOPE



So ...what does an intelligent Manufacturing System of the future comprise of ?



Some thought starters.....

What We Want

When We Want

Where We Want

How We Want

Infinite Flexibility

Agility

Movability

Green +

- Flexible Tooling
- Smart Equipment
- **Automation**
- etc.

- RT scheduling
- RT ordering
- **RT Tracking**
- etc.

- **Plant in a Box**
- Flexible Enterprise
- After-sale Assembly
- etc.

- **Energy Environment**
- System Metrics
- etc.



Dexterous Robots



Wireless

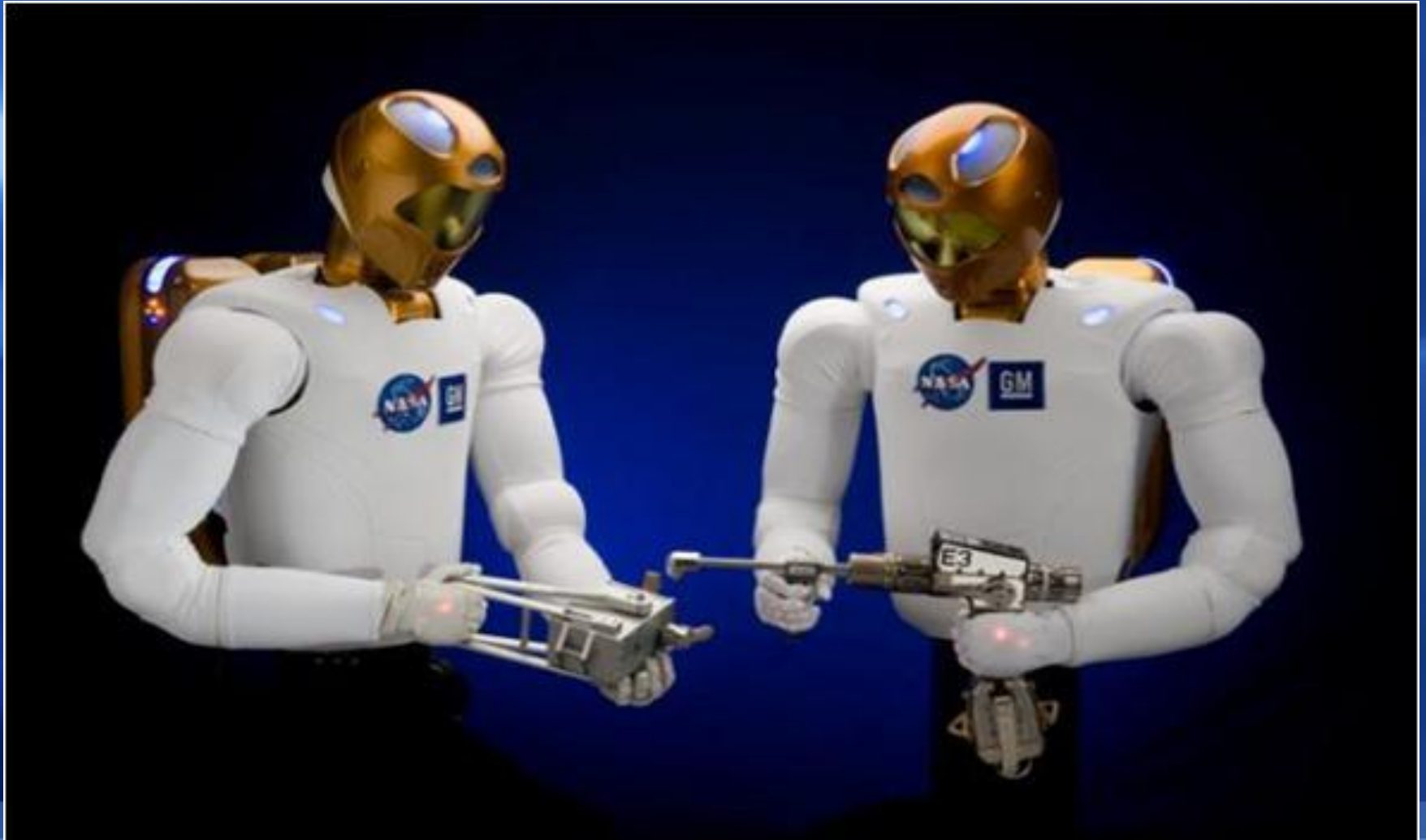


DVT in a Box – General Assembly



Modeling of Energy Consumption

humans and robots working in harmony



Some questions for Session 1 Participants

What is needed to make manufacturing in this country “more intelligent” and solve the challenge of manufacturing -

**What
We Want**

**When
We Want**

**Where
We Want**

**How
We Want**

What technologies will transform USA manufacturing enterprises into the most attractive global manufacturing options?

