TRANSSFORM Manufacturing: An Industry Perspective

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Rockwell Automation

Rockwell Automation at A GLANCE

$6.7B
FISCAL 2019 SALES

22,000
EMPLOYEES

80+
COUNTRIES

WORLD'S LARGEST COMPANY DEDICATED TO INDUSTRIAL AUTOMATION AND INFORMATION

AUTOMATION SOLUTIONS for a ***broad range of industries***

SERVING
CUSTOMERS FOR
115 YRS

- Innovation
- Domain expertise
- Culture of integrity & corporate responsibility

2019 WORLD'S MOST ETHICAL COMPANIES® WWW.ETHISPHERE.COM

ABOVE-MARKET GROWTH | PRODUCTIVITY | INTELLECTUAL CAPITAL **VALUE CREATION**

Smart Manufacturing: Life Sciences Example

KEY DRIVERS

- Faster agency approvals and time to market
- Enterprise-wide risk management and business continuity
- Aging and lack of access to skilled workforce
- Improved operational efficiencies with scalable information and analytics solutions
- Personalized medicine

STRATEGIC IMPERATIVES

1. Flexible solutions in primary manufacturing
2. Faster time to market
3. End-end optimization: digital transformation
4. Intelligent systems (robotics, ICT, AGV, etc.)
5. Sustainable production

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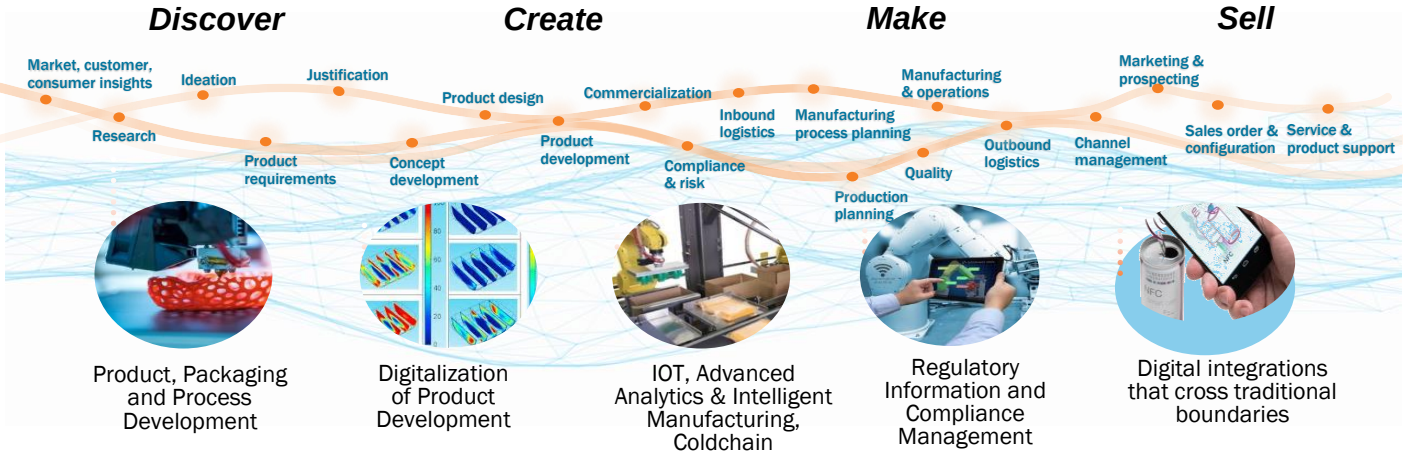
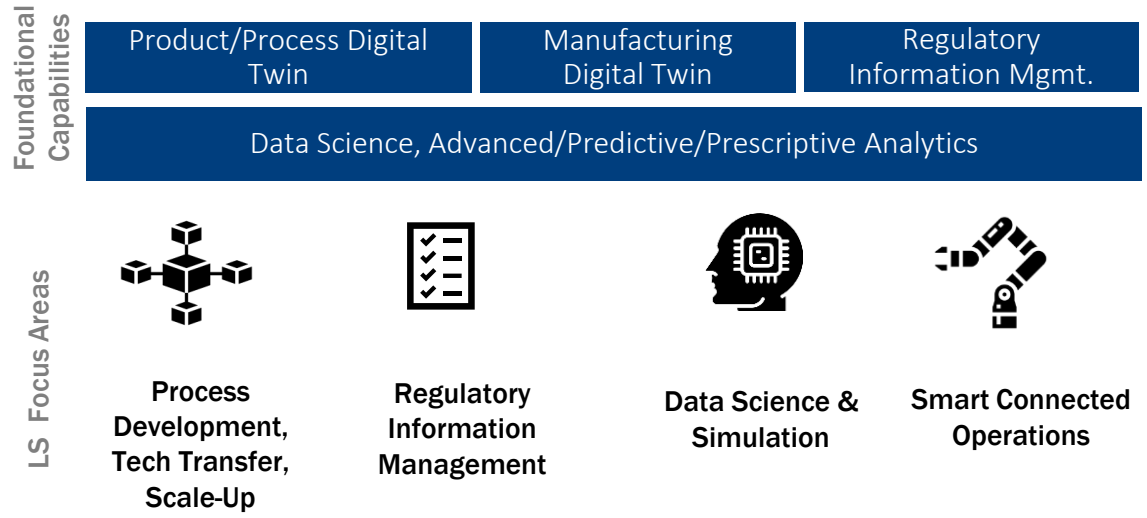
Smart Manufacturing Imperatives

Three strategic business drivers:

- **Agility**
- **Resilience**
- **Sustainability**





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Future Manufacturing: Agility

The “What”

- Integration of design-operate-maintain
- Demand prediction
- Flexible production
- Optimized production
- Workforce safety, availability, training

The “How”

- Digital twins, digital threads
- Simulation
- Software-defined, robots, mobility
- AI/ML, models
- Mixed reality

Business model implications: Software-defined / SaaS, greater remote workforce

Future Manufacturing: Resilience

The “What”

- Supply chain resilience
- Cyberthreats
- Operational downtime
- Logistical disruptions

The “How”

- Cross enterprise data access and visibility
- Defense-in-depth, new approaches
- Autonomous systems
- Models (physics) + AI

Business model implications: localization of supply chains, services for integration and secure operations, cross-enterprise collaboration

Future Manufacturing: Sustainability

The “What”

- Waste to wealth
- Carbon neutrality
- Energy

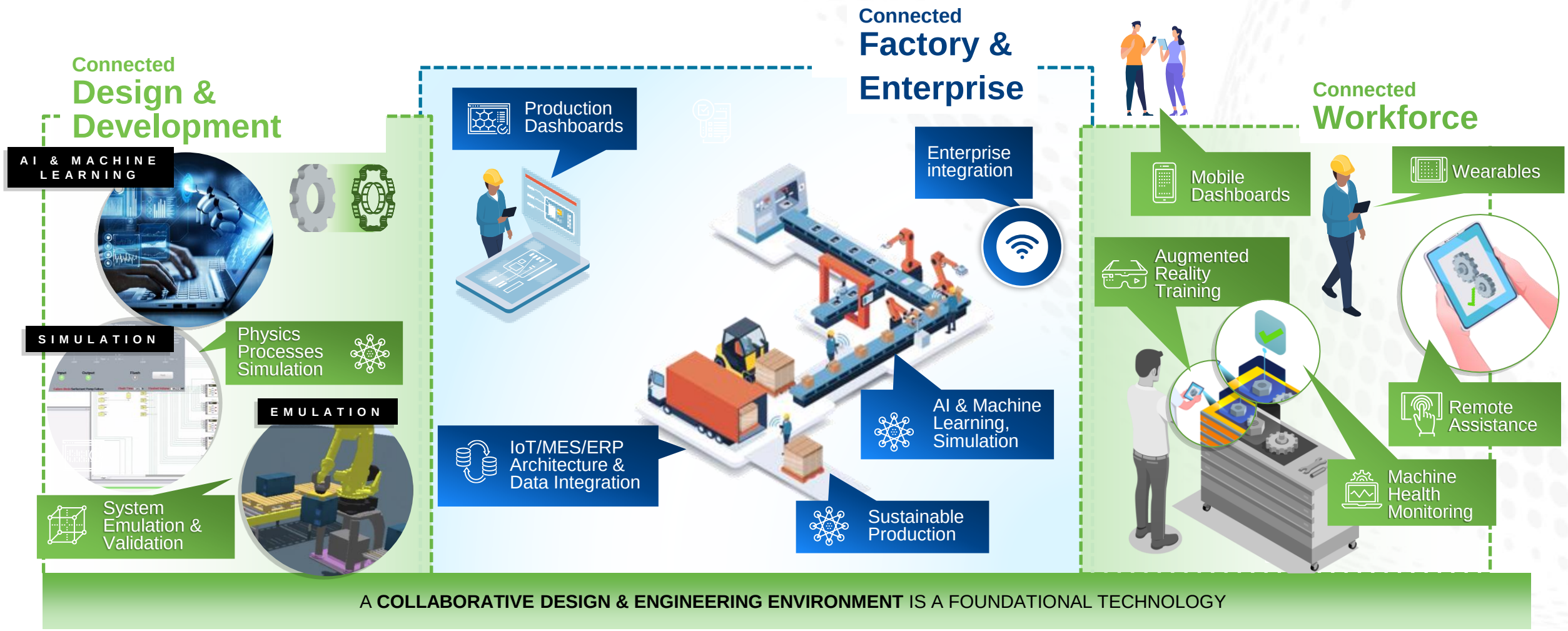
The “How”

- Recycling, sustainable materials
- Less reliance on fossil fuels, monitoring/control of emissions
- Energy optimization, alternate energy

Business model implications: alternate materials (e.g., packaging), energy, regulatory compliance, reporting, collaboration

Agile, Resilient, Sustainable Manufacturing

Transformative, Resilient, Adaptive, Nimble, Sustainable, Smart, Flexible, Optimal, Robust, and Model-Based



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Six R&D Imperatives

Transformative, Resilient, Adaptive, Nimble, Sustainable, Smart, Flexible, Optimal, Robust, and Model-Based

Agility **Resilience** **Sustainability**

1. Software-defined, secure manufacturing
2. Pervasive AI and simulation
3. Enterprise data models and connectivity
4. Highly flexible machines
5. Workforce development
6. Framework and solutions for sustainable manufacturing by industry

Thank you

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