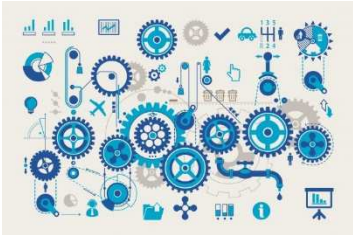
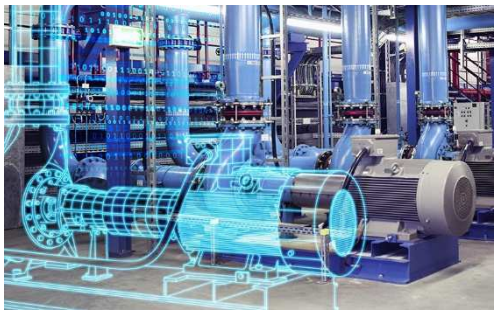
Program Management for Connected Manufacturing

Speaker : Prashant Kulkarni



Connected Devices

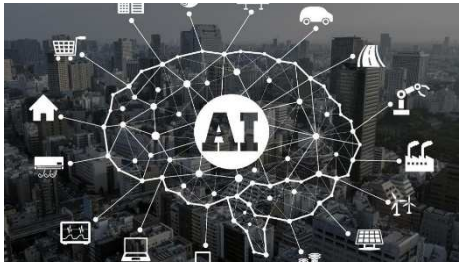


Digital Twin

Big Data Analytics

Machine Learning

Cloud computing



Interoperability

Connected Manufacturing is no more just a concept. Factories are rapidly becoming part of Digital economy.

Industry trends suggest that, not only the large manufacturers but also the small / medium scale plants want to take benefit of advancement in technologies such as AI/ML and connected devices.

As manufacturing moves towards Predictive and Adaptive plants, "Connected Manufacturing" is need of the day .

Connected Manufacturing programs can run in multiple years and bring whole new set of challenges.

Topics

- How tech trends are impacting manufacturing?
- What is Connected manufacturing?
- Program Management for Connected Manufacturing
- Role of program managers
- Summary

Where are we in Industrial Evolution?

Industry-1

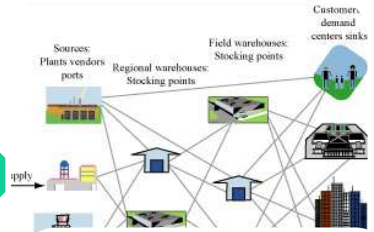
- 1800
- Mechanization

Industry-2

- 1900
- Mass Production
- Assemble Lines
- Electro-Mechanical

Industry-3

- 2000
- Automation
- Digital Silos
- Some Integration



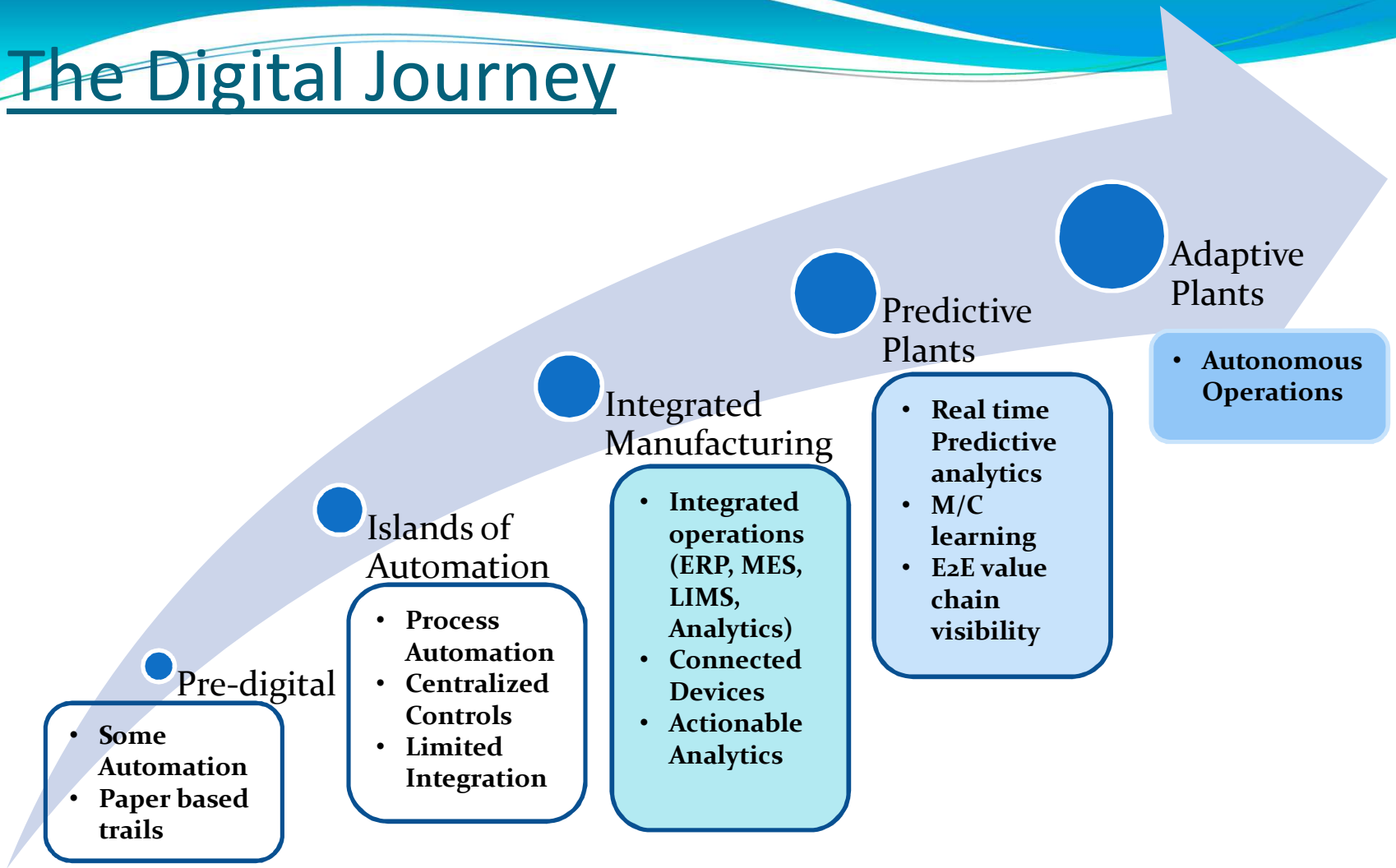
Industry-4

- Cyber Physical Systems
- Information + Operational Technologies

Industry-4

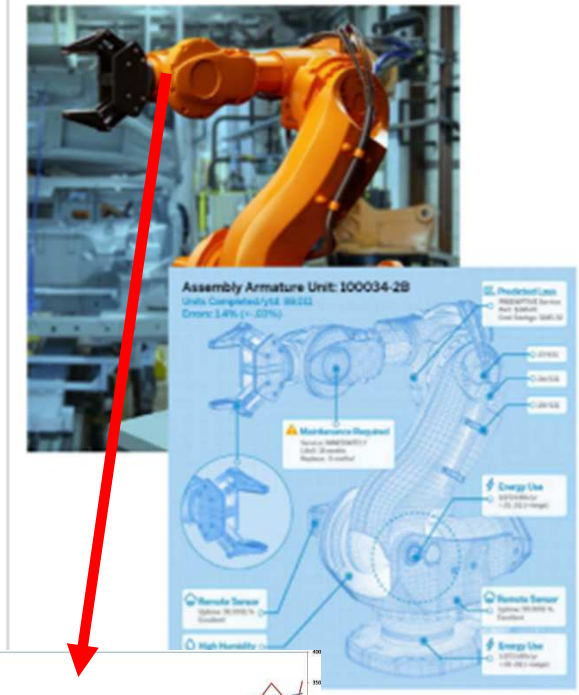
- **Interoperability**
- **Information Transparency**
- **Technical Assistance**
- **Decentralized Decisions**

The Digital Journey

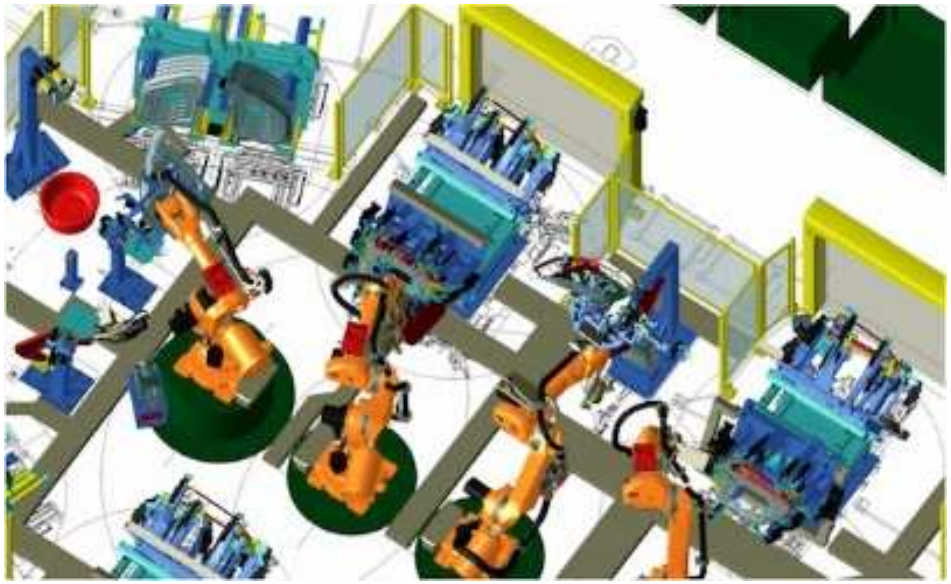


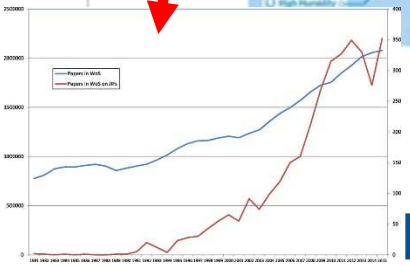
What is Connected Manufacturing?

An Illustration of Connected Plant



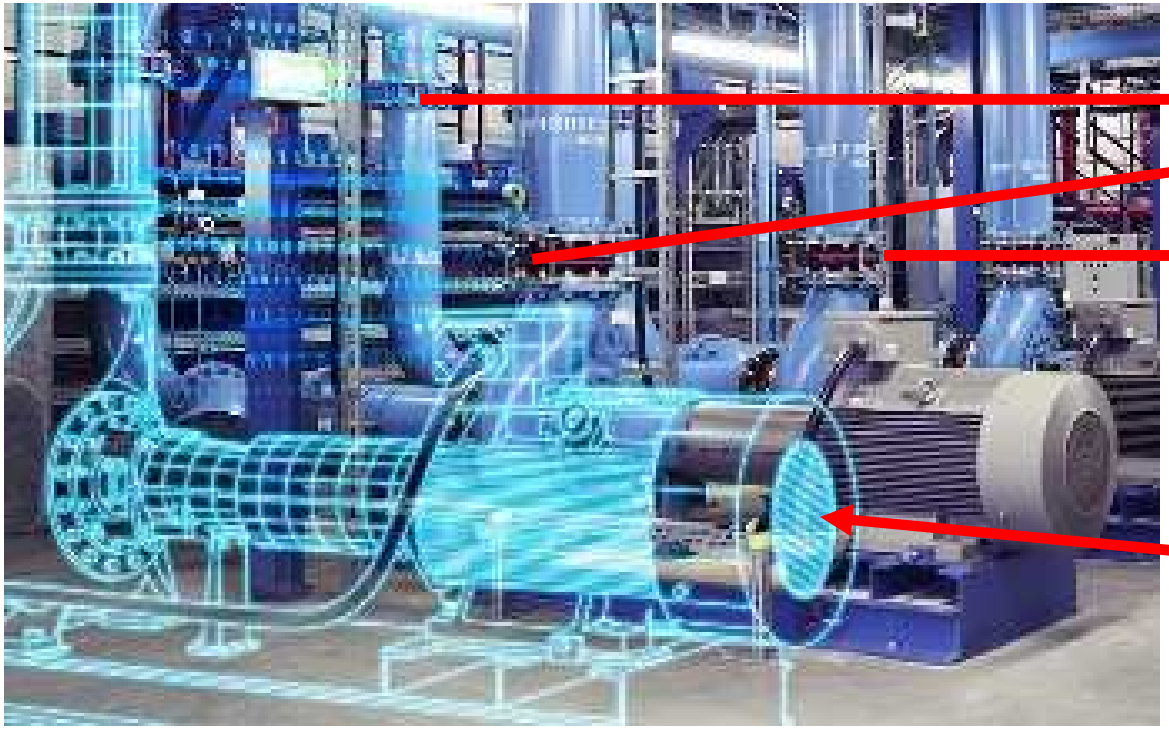
Digital Twin



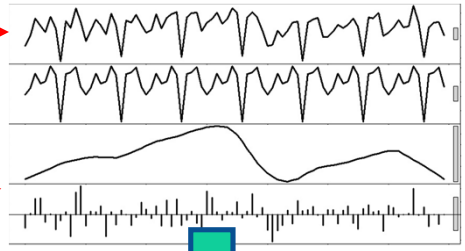


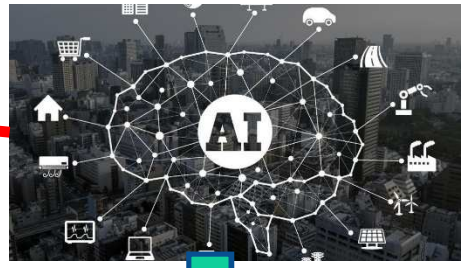
Parameter Trend

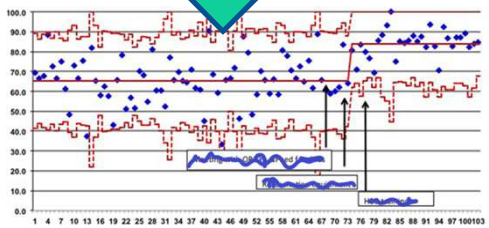
An Illustration of Connected Manufacturing



IoT Devices

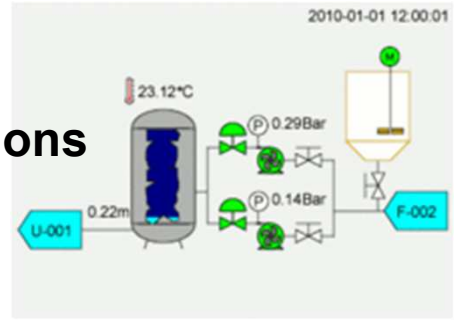






Predictive Trends

Adaptive Actions



What is connected Manufacturing?

- **Connected Manufacturing is not a technological solution**

- **It is a Business Strategy that leverages advancements in information and operational technologies to provide a platform for Predictive and Autonomous manufacturing**

  - Better Visibility across Supply Chain
  - Operational Excellence
  - Safe and compliant operations
  - Relies on I4 principles

Nature of connected manufacturing projects

Technological Savvy + challenging

Disruptive

Transformative

Building Block for Predictive / Adaptive Manufacturing

Go beyond digitization or integrated manufacturing

Rely on principles of I4 manufacturing

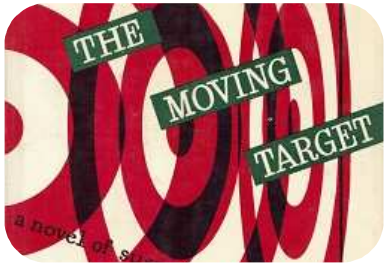
Challenges of Program Management

- **Strategizing** programs / projects
- Management buy-ins – economic challenges
- Multi-year programs
- **Rapid changes in technology**
- Skills acquisitions and Retention
- Limited knowledge / skills (in the areas of need)
- **Unchartered territory**
- Bringing a common vision
- **Inter-dependencies** of projects / solutions
- **Vendor selection / partnerships** – breadth of skills

Role of Program Manager

Bring vision

Talent management



Decipher moving targets

People Aspect – Disruptive Programs

Benefits Management – Benefit manager

Partnerships management

Scope
Cost
Quality
Resourcing
Portfolio Management

Illustrative Projects in program

- CM Strategy / Feasibility Studies
- Sensory / IIoTs and networking
- Data Security and storage
- Predictive / Adaptive Analytics – AI / ML
- Applications augmentation for Connected Manufacturing
- Applications integrations
- Wearable Technology AR / VR
- Remote Operations
- Machine Retrofitting and Augmentation
- Plant Operations / shop floor management
- Workflow Management

Some DOs and DON'Ts

DO

- Decipher Strategy to workable solutions
- Understand underlying technologies
- Buy in from fully committed management and business leaders
- Manage risks as they arise
- Partnerships with experts and external vendors

DON'T

- Hesitate to get external help
- Wait for all information to be available
- Take up large policy changes without proper analysis
- Expect everything to be smooth and as planned
- Get into "Buzz" traps

Summary

- Connected Manufacturing is here to stay
- Advancement in technologies and competitive edge are driving CM
- CM involves multiple technologies and can be very complex
- Managing CM programs bring fresh challenges to program managers
- Vision and Management buy in are key to success