Smart Manufacturing Leadership Coalition (SMLC)
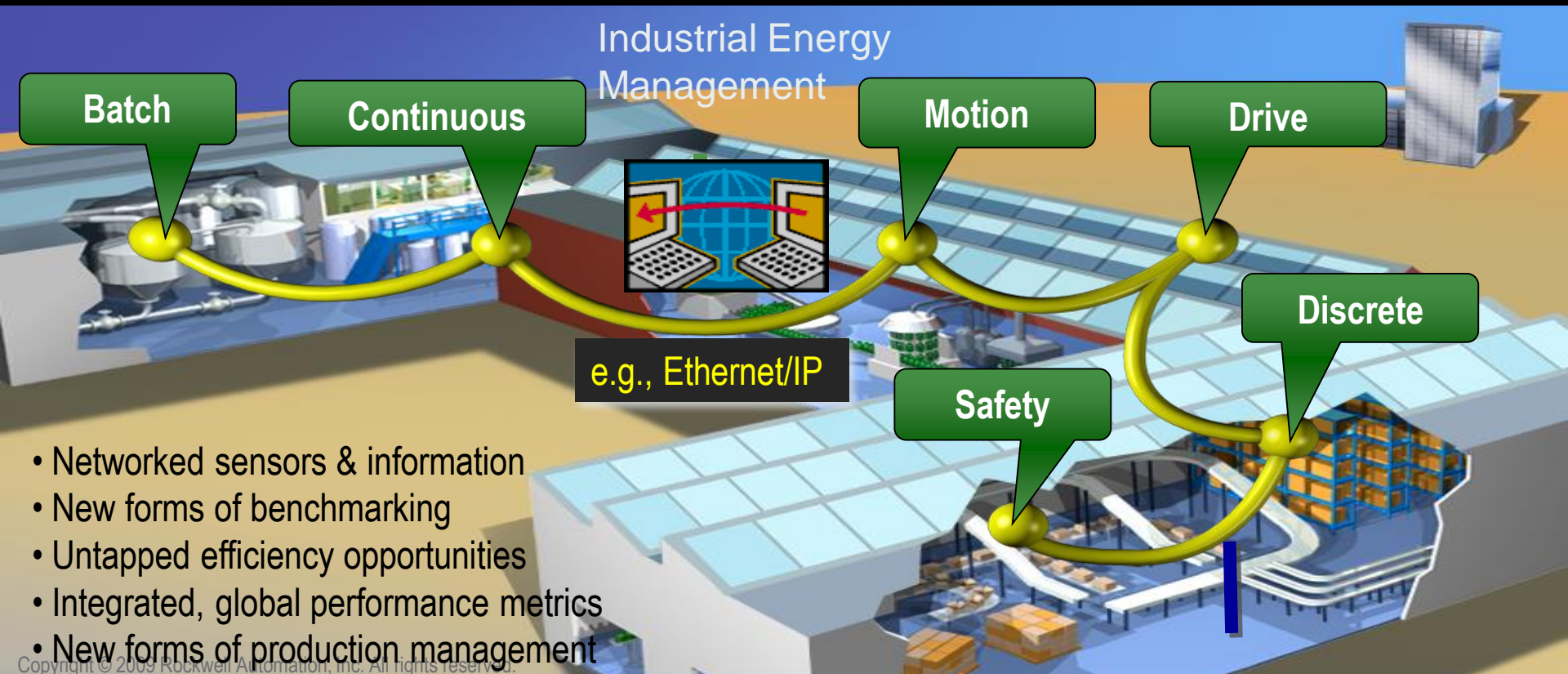
The infusion of intelligence that transforms the way Industries conceptualize, design, and operate the manufacturing enterprise.

Presented by **Denise Swink, CEO - SMLC**

Smart Manufacturing 101
Networked Information & Integrated Decision-Making

Industrial Energy Management

Batch

Continuous

Motion

Drive

Discrete

e.g., Ethernet/IP

Safety

- Networked sensors & information
- New forms of benchmarking
- Untapped efficiency opportunities
- Integrated, global performance metrics
- New forms of production management

End-to-end data and information connectivity across the plant floor

SMLC's Partnerships

Test Beds - General Dynamics, General Mills, General Motors, Praxair, Corning, Pfizer, NETL, Alcoa, Center for Advanced Technology Systems/RPI

Design/Manufacturing Platform Providers – JPL/NASA, UCLA, Rockwell, Honeywell, Emerson, Schneider Electric, Nimbis Services Inc.

Modeling & Simulation Materials, Design, Manufacturing – Caltech/JPL, NETL, Argonne, UCLA, UT Austin, Tulane, NCSU, CMU, Penn, Purdue

Smart Manufacturing/Smart Grid – EPRI

Global Metrics/Outreach – AIChE, ASQ, ACEEE, NCMS, MESA, SME, Sustainable Solutions, Spitzer & Boyes

Agency partners – DOE, NIST, NSF

Regional/National Partners – ASERTTI, Center for Smart Manufacturing Innovation in CA (CMSI), NASEO, Wisconsin Manufacturing Institute
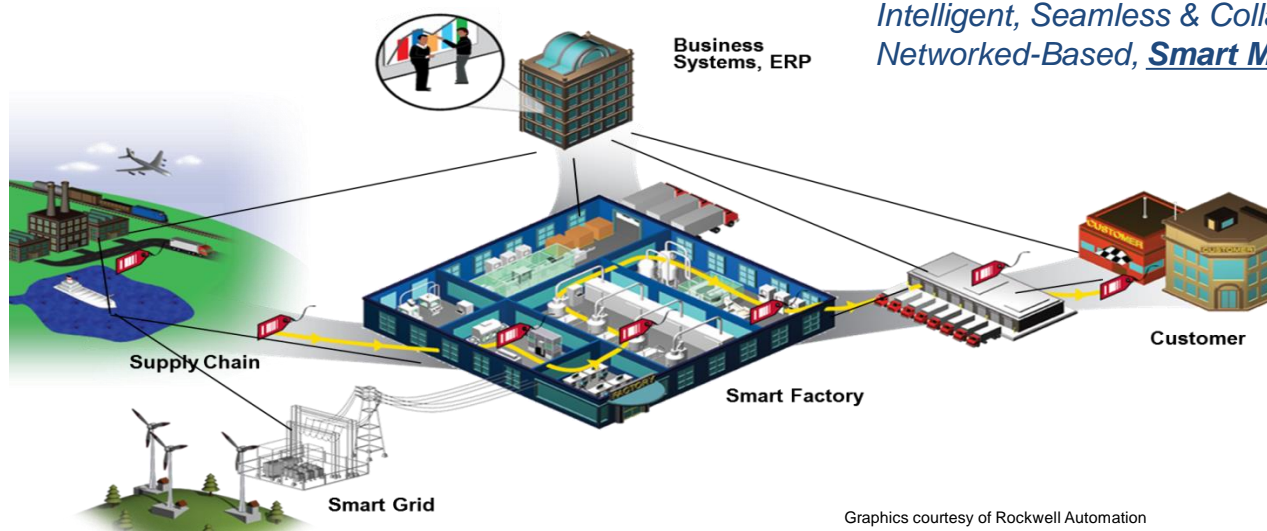
SMLC

Affordable, Accessible, Innovative and Secure

Discrete | **Batch** | **Continuous**

*Intelligent, Seamless & Collaborative Networked-Based, **Smart Manufacturing***

Business Systems, ERP

Challenges

SCALE
COMPLEXITY
DATA –INFORMATION
AUTOMATION SILOS
SECURITY
INTEROPERABILITY
TECHNOLOGY

Supply Chain

Smart Grid

Smart Factory

Customer

Graphics courtesy of Rockwell Automation

Vision

NETWORKED
COLLABORATIVE
INNOVATIVE
PROVEN
SCALABLE
GREEN
ECONOMICAL
COMPETITIVE
JOBS

Connected Supply Chain	Optimized Production	Sustainable Production	Energy Efficient	Safe Production
• Agile • Demand Driven • Raw Material to Finished Product	• Asset Utility/Zero Downtime • Quality/Zero Defects • Reliable results	• Higher value products • Data for decision making • Product Lifecycle Management	• Lower emissions • Less energy • Green manufacturing	• Improved safety • Fewer incidents • More user friendly

Workflow, Data, Time & Cost

Separate
Data & apps

Data to apps
paradigm

Single scale time
requirement in workflow

Data Partnership
Workflow Orchestration

Data collection, modeling
& synchronization defined
by workflow

Decision

Smart Manufacturing
Open Architecture
Platform

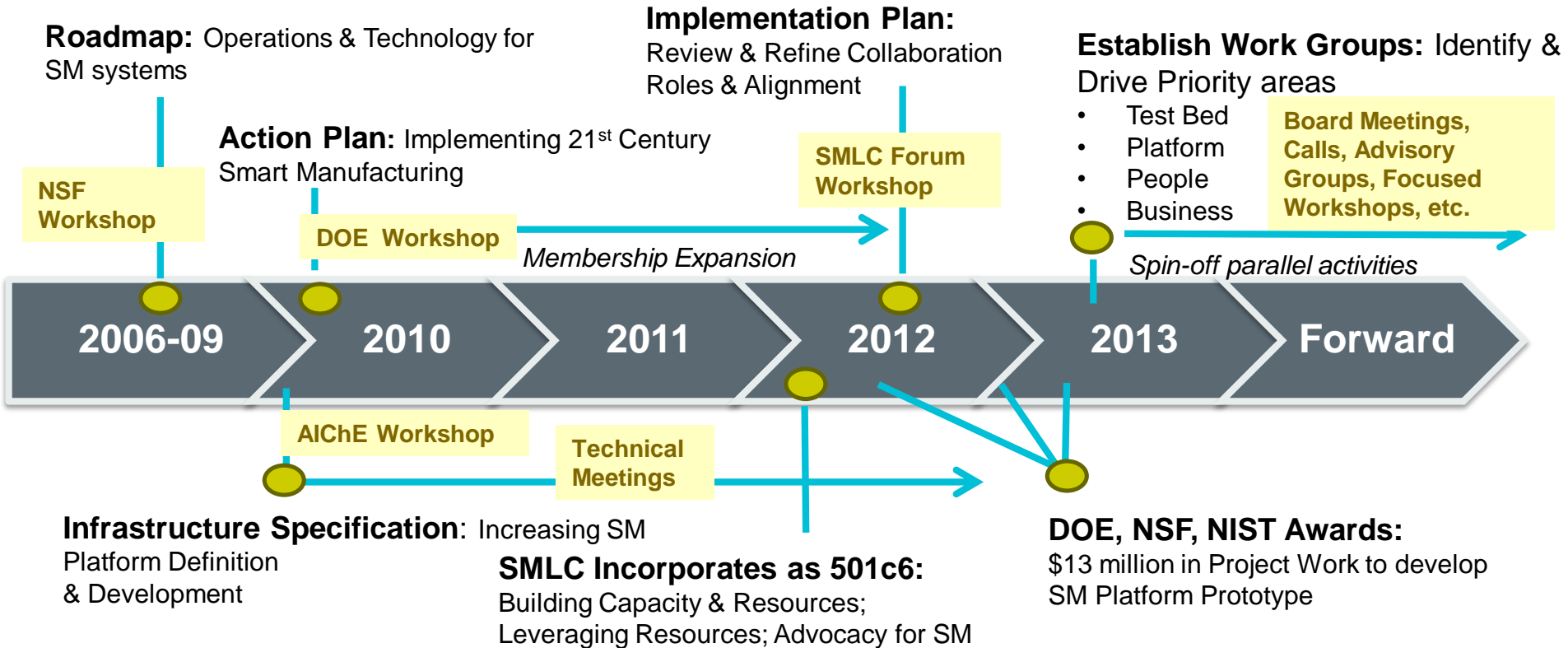Sensor
Data

Insertion

Toolkits

Apps Store

Control & Automation
Propriety Optimized
Automation Workflows

Data collection,
modeling &
Synchronization
multi-scale time
requirements
embedded

Composability
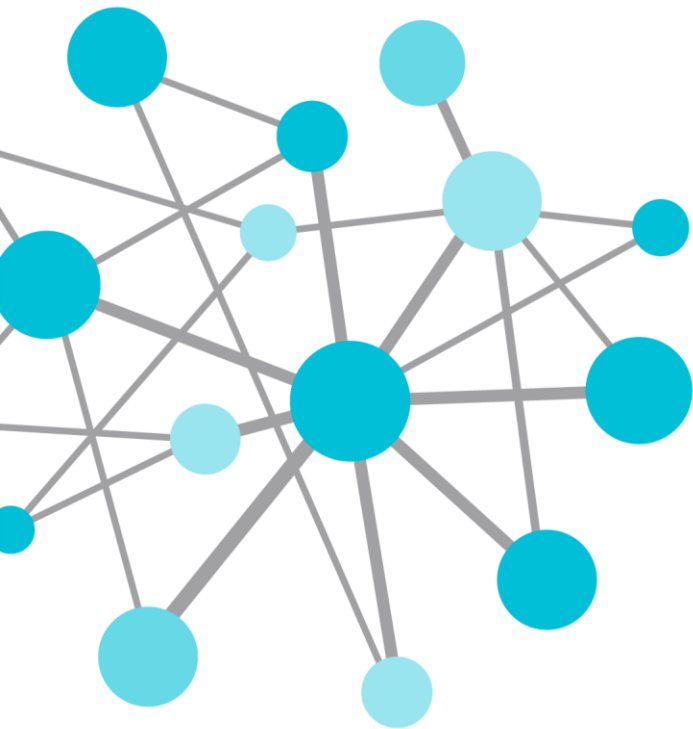Design to manufacturing
Workflow libraries

SMLC's Industry-Driven Strategy

Roadmap: Operations & Technology for SM systems

Implementation Plan: Review & Refine Collaboration Roles & Alignment

Establish Work Groups: Identify & Drive Priority areas
- Test Bed
- Platform
- People
- Business

Action Plan: Implementing 21st Century Smart Manufacturing

NSF Workshop

DOE Workshop

Membership Expansion

SMLC Forum Workshop

Board Meetings, Calls, Advisory Groups, Focused Workshops, etc.

Spin-off parallel activities

| 2006-09 | 2010 | 2011 | 2012 | 2013 | Forward |

AIChE Workshop

Technical Meetings

Infrastructure Specification: Increasing SM
Platform Definition & Development

SMLC Incorporates as 501c6:
Building Capacity & Resources;
Leveraging Resources; Advocacy for SM

DOE, NSF, NIST Awards:
$13 million in Project Work to develop SM Platform Prototype

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- CEO
- SMLC (Smart Manufacturing Leadership Coalition)

THANK YOU

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