Annual Member Meeting 2020

A New Decade. A New Outlook on Manufacturing.

Conrad Leiva
CESMII Anti-Trust Statement

As participants in this meeting, we need to be mindful of the constraints of antitrust laws. There shall be no discussions of, agreements or concerted actions that may restrain competition. This prohibition includes the exchange of information concerning individual prices, or any other competitive aspect of an individual company’s operation. Each participant is obligated to speak up immediately for the purpose of preventing any discussion falling outside these bounds.
## CESMII Focus Areas

### SM Ecosystem and Workforce Development - Plan

#### Educational Areas of Focus

<table>
<thead>
<tr>
<th>I. Framing the Smart Manufacturing Journey and Business Strategy</th>
<th>Audiences</th>
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<tbody>
<tr>
<td><strong>SM trends, SM overview and concepts,</strong> SM ecosystem readiness, competitiveness</td>
<td>Execs, Enterprise Leaders, Consultants</td>
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<tr>
<th>II. Smart Manufacturing Cultural &amp; Technological Transformation</th>
<th><strong>Audiences</strong></th>
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<th>III. Smart Manufacturing Orchestration, Automation &amp; Connectivity</th>
<th><strong>Audiences</strong></th>
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<th>IV. Smart Manufacturing Secured Infrastructure &amp; Technologies</th>
<th><strong>Audiences</strong></th>
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<tbody>
<tr>
<td>Advanced Manufacturing, Additive/Subtractive, Smart Machines, Robotics, Cloud and Edge Computing, Cyber-Security Infrastructure</td>
<td>Execs, Enterprise Leaders, Consultants</td>
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**Mission:** Provide value-added services to accelerate adoption by helping manufacturing leaders with their internal “why” and “what” analysis of Smart Manufacturing initiatives.
Accelerating SM Adoption with Extended **Transformational** Services

Pilot program was executed to explore ways to accelerate the adoption of Smart Manufacturing (SM) with services that address bottlenecks in people, process and technology. These “Extended Transformational Services” go beyond core technical training and help manufacturing leaders with their internal analysis of the “why” and “what” of SM initiatives.

CESMII partnered with NxGen Group to research with member companies the services that will make a difference in realizing business value from Smart Manufacturing.

Presenters:
- Conrad Leiva, CESMII Director of Ecosystem & Workforce Development
- Jim Wetzel & Doug Berger, Co-Founders, NxGen Group
- Chris Damsgard, Principal Engineer on Global Reliability, General Mills

NxGen and General Mills share the findings of this research and engagement.
IT ALWAYS SEEMS IMPOSSIBLE UNTIL IT IS DONE

NELSON MANDELA
CESMII Pilot

- Identity differential value to its members, through menu of services
- Pilot services in limited mode with specific members
- Develop service delivery model for external partners
- Identify differential value for technology partners/members
- Accelerate membership
- Develop scalable and sustainable approach
about NxGen Group

NxGen Group is a virtual boutique of industry experts focused on assisting manufacturing organizations to evolve in response to today’s 21st century hyper-competitive environment of continual disruption. Our approach integrates linear, continuous improvement with proven yet not widely deployed breakthrough approaches.

- Deliver order of magnitude gains in business results
- Focus digital transformation on mission-critical deployment
- Eliminate the negative environmental footprint of manufacturing
- A workplace and culture in sync with the digital savvy workforce
Common Issues

I get it, but… nobody listens to me
The technology is not ready
We can't afford it
Should we buy it or build it
What is the ROI
How does it fit with the IT infrastructure
What problem am I solving
Is this a game changer
I just need to get my project approved
Where is the support…bottom up or top down
Where do I start
What skills do we need
Are we ready
What is it
CHALLENGES and LESSONS LEARNED  
(Survey says…)

- Failing to become data driven
  - 72% have yet to forge a data culture
  - 69% have not created a data-driven organization
  - 53% not treating data as a business asset
  - 52% not competing on data and analytics

- Digital Technology is not just a thing to buy and plug in
  - Multi-faceted and diffuse
  - Changes the way you do business
  - Requires foundational investments in skills, infrastructure, IT
  - Requires mixing people, process and equipment

- Digital Readiness of your Industry
  - Internal Maturity
  - Customers and Consumers
  - Supply Chain
  - Competitors

- Remain Calm
  - Hype is real
  - Processes are difficult to standardize
  - Not all will succeed --- pivot
  - Solid Foundation

- Biggest Challenge to Becoming Data Driven
  - People 63%
  - Process 30%
  - Technology 7%

- Biggest Challenge to Business Adoption
  - Lack of organizational alignment/agility
  - Cultural resistance
  - Understanding data as an asset
  - Executive Leadership

- Pace of Investment is Accelerating
  - Yes 92%
  - No 8%

- Fear of Disruption
  - Yes 75%
  - No 25%

Source: newvantage.com - "How Big Data and AI are Accelerating Business Transformation"
Root Causes of Industry 4.0 Friction:

1. Industry 4.0 has been disconnected from competitive advantage and business strategy.
   • Uncertain business return
   • Technology centric
2. Fragmentation (misalignment) … internal and external
3. Lack of a comprehensive methodology, common terminology and toolkit
4. Don’t know where to start
New Mindset
Paradigm Shift
The future is happening NOW, it is just unevenly distributed

William Gibson

HOLISTIC THINKING
The NEW Narrative … NEW World Mindset

- Closing Business Gaps through a new paradigm of People – Process – Technology
  - Linear Approaches … focus and discipline
  - Non-linear approaches … new capabilities

- Speed of the Digital World into the Physical

- Workplace matching the “New Collar” workforce
  - Unleashing talent … curiosity, experimentation, agility
New Mindset

**Old World**
- Technology-centric
- “Inside the Walls”
- ROI based
- Mfg as a cost center
- Integrated Supply Chain
- Incremental Improvement

**New World**
- Business-centric
- End-to-End … “No Walls”
- Customer Value-added
- Technology as enabler
- Synchronized Value Network
- Bend-the-Curve Improvement

**VUCA** is the new normal
- Volatile
- Uncertain
- Complex
- Ambiguous
Pathways for ACTION - Extended Services -

Establishing the narrative
- Reframe from technology to business … closing gaps in achieving goals and preparedness for disruption
- Assessing your company's business gaps and related capabilities

Getting it to “STICK”
- Leadership workshop/experience sessions
- Mission-oriented Governance

Breakthrough Training
- Developing the leadership skills to transform

Quick Wins
- In 90 days show how it can be done

Peer Deep Dives
- Lesson learned from others

Embedded Messaging with Technical Partners
- SM principles embedded into vendor strategies

Road mapping
- Developing the strategy (deployment plan)
Let’s take a look
Maturity Assessment @ GMI
# a2i2 Assessment

## Dimensions of Smart Mfg

<table>
<thead>
<tr>
<th>Maturity Level</th>
<th>Operations</th>
<th>Automation and Control</th>
<th>Information Processing</th>
<th>Improvement Methods</th>
<th>Digital Transformation</th>
<th>Workforce Development</th>
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<tbody>
<tr>
<td>Industry 3.0, Lite Company</td>
<td>1 Informal</td>
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<td>2 Foundational</td>
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<td>3 Tactical Activity</td>
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<td>4 Integrated System</td>
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<tr>
<td>Industry 4.0, Lite Company</td>
<td>5 Adaptable</td>
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<td>6 Speed of business</td>
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## Assessment Covers:

- Gap to Strategic Goals
- Disruption
- Velocity and Impact of Improvement
- Culture and Behaviors
- Dimension of Smart Manufacturing
- Size of the Prize
- Areas for focus
**Assessment**

**Socialize**
Review the a2i2 assessment tool and question set with broader cross-sectional team.

**Take Ownership**
Insert GMI goals and disruptions into survey.

**Execute**
Create link into preamble and broadcast to participants.

**Internalize**
Develop plan of action basis new insights and roadmap.

**Understanding**
Review the a2i2 assessment tool and question set.

**Sponsorship**
Engage with leadership across functions to develop sponsorship of assessment and outcomes.

**Leadership**
Work with Sponsors to develop pre-amble and breadth of participation.

**Report Out**
Review results and insights with NxGen Group before broad release.
Profile/Scope

• Sponsor
  • VP NA Mfg, VP Engineering/Environmental/Safety

• Respondents
  • 250/320 (77%)

• Scope
  • North American Manufacturing Field and Corporate Functions

• Levels
  • VP, Directors, Plant Managers, Plant Leadership Teams, Operations Managers, Technical Leaders across IT and OT/Engineering

• Functional Areas
  • Corporate/Field Operations and Manufacturing, Engineering and IT

* On-Line Survey sent to participants with link from email with preamble from VP
Crowd Sourced Data…

…with External Insight
Transformational Insights

Reframing Smart Manufacturing as a STRATEGIC business enabler

Large Opportunity

We are not where we need to be

- Gaps in achieving strategic goals
- Areas of misalignment leading to friction, ineffectiveness and delays
- Gaps that can be closed through scaling and discipline of current capabilities
- Gaps that require you ‘bend the curve’ and deploy new, advanced capabilities

Through crowd sourcing the ‘touchy’ topics become discussable

The magnitude of the effort and the areas to prioritize are in plain sight
# CESMII Pilot

- Identity differential value to its members, through menu of services
- Pilot services in limited mode with specific members
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## Extended Services
- Executive Alignment
- Maturity Assessment
- SM Leadership Training
- Peer to Peer
- Quick Wins
- Vendor Alignment
- Road Mapping
- Partner programs
- More to follow

## Key Contributors
- GMI
- J & J
- ArcelorMittal
- Microsoft

## Delivery Model
- Through CESMII vetted partners
- Trained on CESMII principals and tools

## Membership
- Early excitement about potential offerings
- Leverages membership commitment
- Entices new members
- Supports objectives of technology members

## Sustainability
- Program managed by CESMII
- Broadly deployable by skilled, trained partners
- Efficient
- Will evolve and be refined
Accelerating SM Adoption with Extended Transformational Services

**Mission:** Provide value-added services to accelerate adoption by helping manufacturing leaders with their internal “why” and “what” analysis of a Smart Manufacturing initiative.

**NEXT:**
- Establish “CESMII Recognized” Program
  - Based on SM Principles, Imperatives, SM Benchmarking
- Expand the Catalog
  - Add Extended Transformational Education and Services
- Expand the Ecosystem of SM Service Providers
- **Continue providing Extended Transformational Services to our members!**
  - Not just to larger companies but also to small and medium companies.
ENGAGE WITH US!

Democratizing SMART MANUFACTURING

EDUCATED, DATA-DRIVEN CULTURE
SMART ASSETS
SMART DECISIONS
OPERATIONS & SUPPLY CHAIN VISIBILITY

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