March 18, 2021

IIoT World's Manufacturing Day

The largest Industrial IoT virtual event in the world

IIoT World

Send your questions using:

#IIoTWorldDay #IIoTWorldDays

Industry 4.0 Manufacturing Maturity Model

5:30 PM – 6:00 PM ET

Jim Wetzel

NxGen Group

Ted Rozier

Festo

Doug Berger

NxGen Group

Manufacturing Maturity

Where are we ?

Where do we need to be?

What to do about it ?

Jim Wetzel

Doug Berger

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Conducted Industry 4.0/Smart Manufacturing Assessment

- Sent to IIoT-World members
- Online process
- Gaps to Business Goals
- Characterization of Operations
  - Current
  - Future
- Disruptions
- Impediments and Opportunities

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IIoT World

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a2i2 Model

assess

Online, crowd-sourced
Gap-to-Goal Misalignment

A holistic view of manufacturing and supply chain - NOT technology-centric

1. Gap-to-Goals … the trajectory of performance matched to goals
2. Linkage between those business goals and capabilities … those on-hand today and advances needed in the future
3. The magnitude of gaps … gaps in achieving goals and gaps in capabilities
4. Disruption … impact and preparedness
5. The imbalance between types of capabilities and other areas of organization impediment
6. Priority areas for Industry 4.0 investment
7. Insights available from listening to outlier perspectives

Aim for Transformational Insights … “I never realized that” insights from tapping the wisdom and experience of your most respected practitioners.

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a2i2 Model

assess	align	impact	improve
Online, crowd-sourced Gap-to-Goal Misalignment	Alignment Shift in mindset	High Impact Targets Cascade Objectives	90-day Sprints Breakthrough skillset & Toolset

A holistic view of manufacturing and supply chain - NOT technology-centric

1. Gap-to-Goals … the trajectory of performance matched to goals
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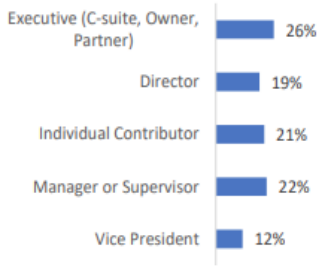
assess

Demographics

Respondent Profile

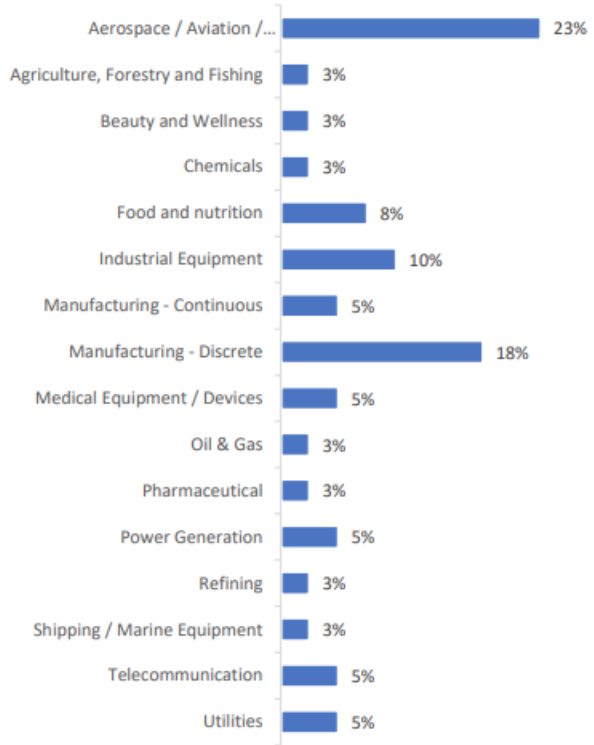
Job Functions

Organization Level

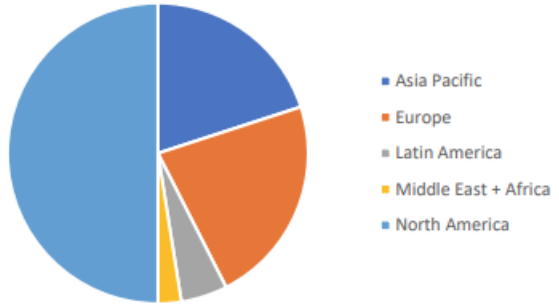


Company Profiles

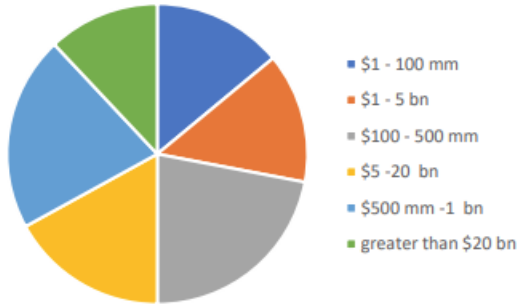
Industries



Regions



Company Size



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Survey Says...

How are we doing?

Where do we need to be?

What are we doing about getting there?

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CURIOSITY

Building the business case

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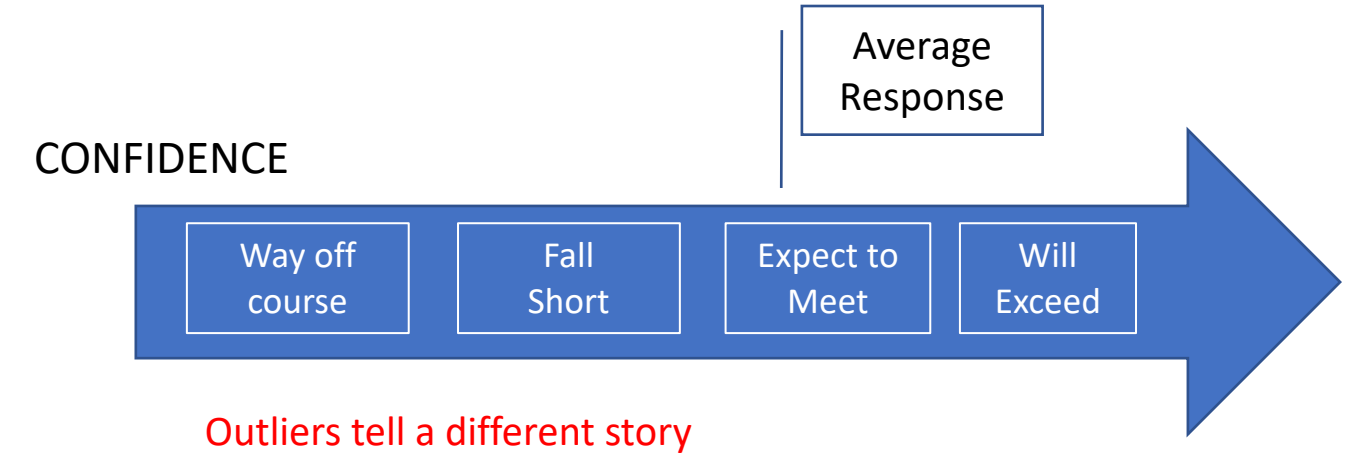
assess Matching Gaps-to Goals with Approaches

Goal Ranking

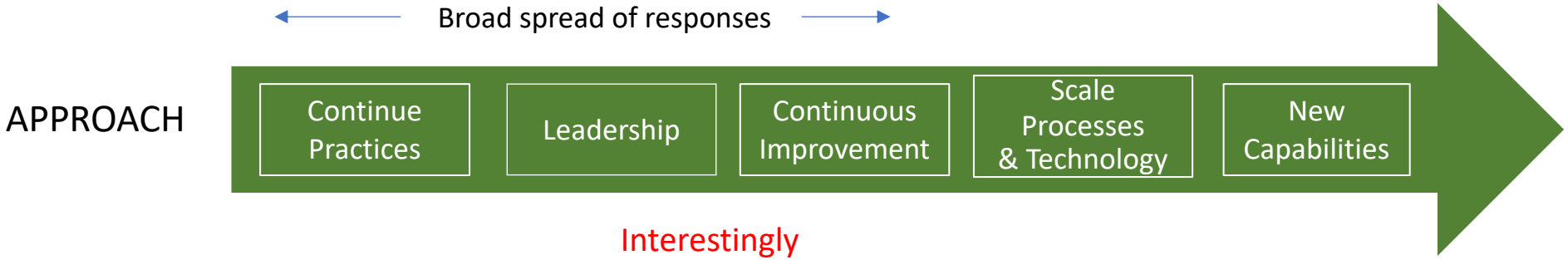
Cluster 1
1. Safety
2. Quality

Cluster 2
3. On-Time Delivery/Customer Service
4. Cost
5. Asset Utilization

Cluster 3
6. Supply Chain Resilience/Agility
7. Sustainability



Outliers tell a different story
- Safety and Quality … only goals with significant 'will exceed'
- Remaining goals … 20% of respondents expect to fall short



Interestingly
- Only 15-20% plan to scale technology
- Both manufacturers and vendors see little need for new or emerging capabilities

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VUCA

Volatile

Uncertain

Complex

Ambiguous

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CURIOSITY

Disruption factoring into strategy

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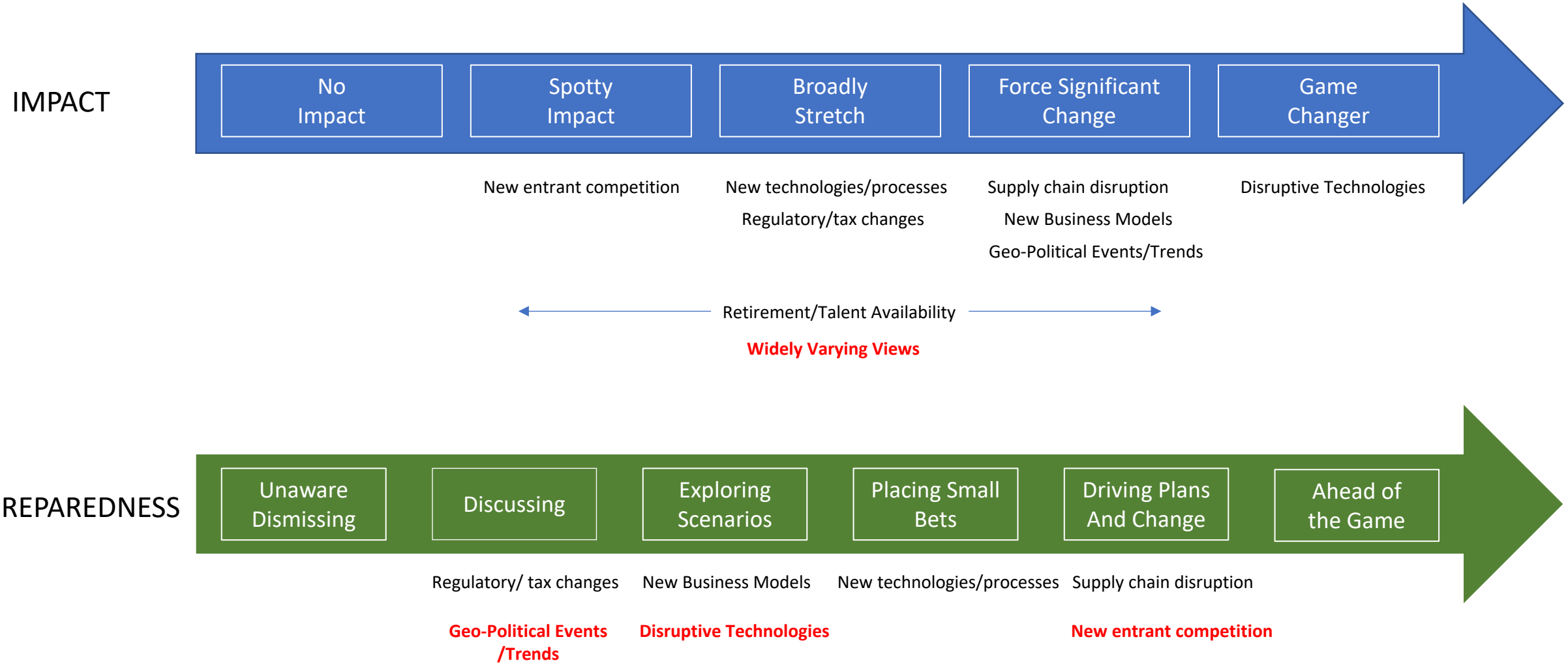
assess

Impact & Preparedness Inconsistent



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CURIOSITY

Imbalances among dimensions of manufacturing maturity

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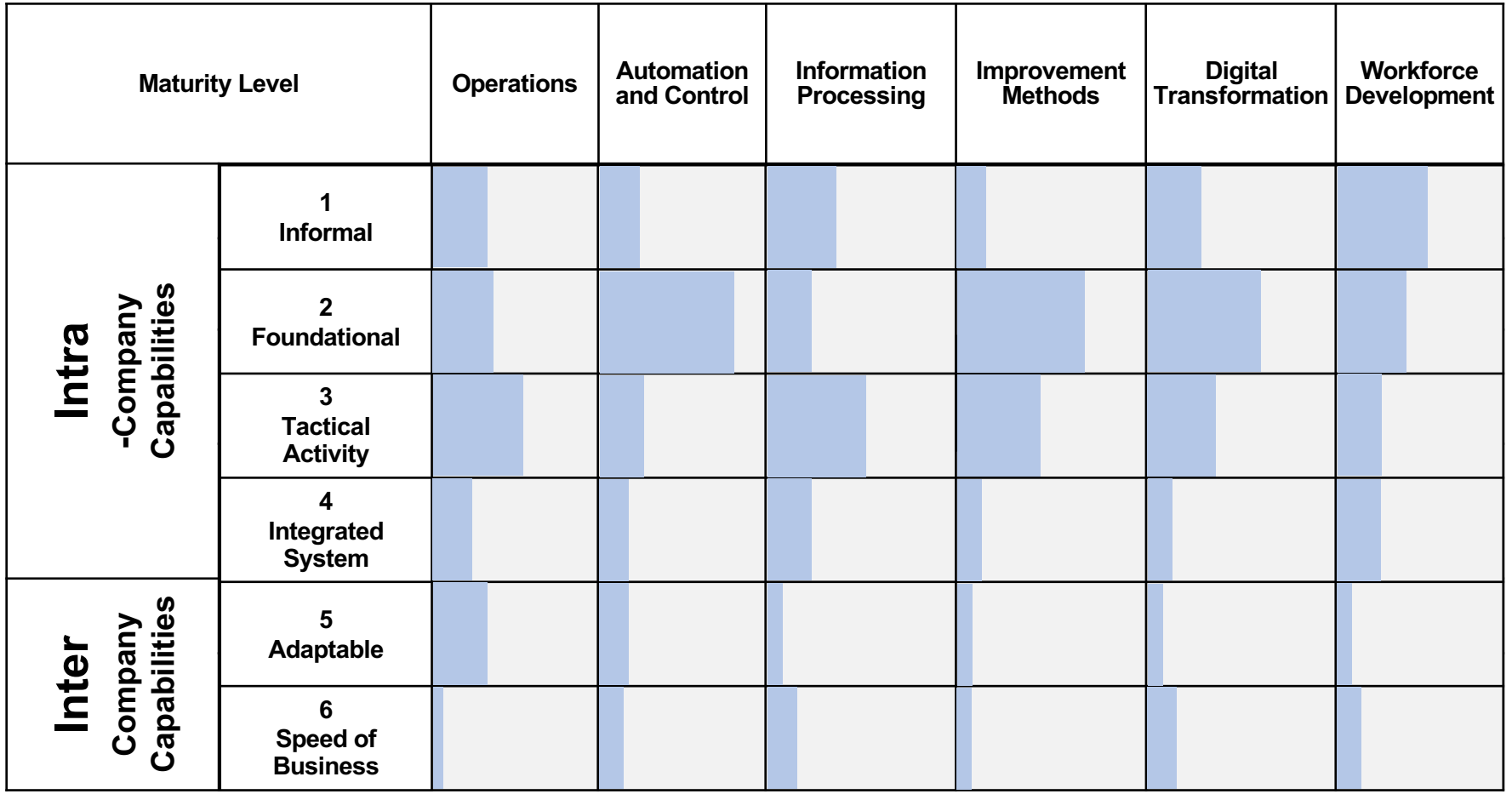
assess Manufacturers are at Basic Levels

Current State



Dimensions and maturity of knowledge supporting Smart Manufacturing adoption

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assess Most Manufacturers can't support Advanced Capabilities

Current State

Maturity Level		Operations	Automation and Control	Information Processing	Improvement Methods	Digital Transformation	Workforce Development
Intra -Company Capabilities	1 Informal	Not Ready to Advance					
	2 Foundational	38%	58%	38%	53%	55%	53%
	3 Tactical Activity						
	4 Integrated System						
Inter Company Capabilities	5 Adaptable						
	6 Speed of Business						

Dimensions and maturity of knowledge supporting Smart Manufacturing adoption

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assess 80/20 Rule Still Applies

Current State

Maturity Level		Operations	Automation and Control	Information Processing	Improvement Methods	Digital Transformation	Workforce Development
Intra -Company Capabilities	1 Informal	Not Ready to Advance					
	2 Foundational	38%	58%	38%	53%	55%	53%
	3 Tactical Activity						
	4 Integrated System						
Inter Company Capabilities	5 Adaptable	Top Tier					
	6 Speed of Business	18%	18%	15%	10%	15%	13%

Dimensions and maturity of knowledge supporting Smart Manufacturing adoption

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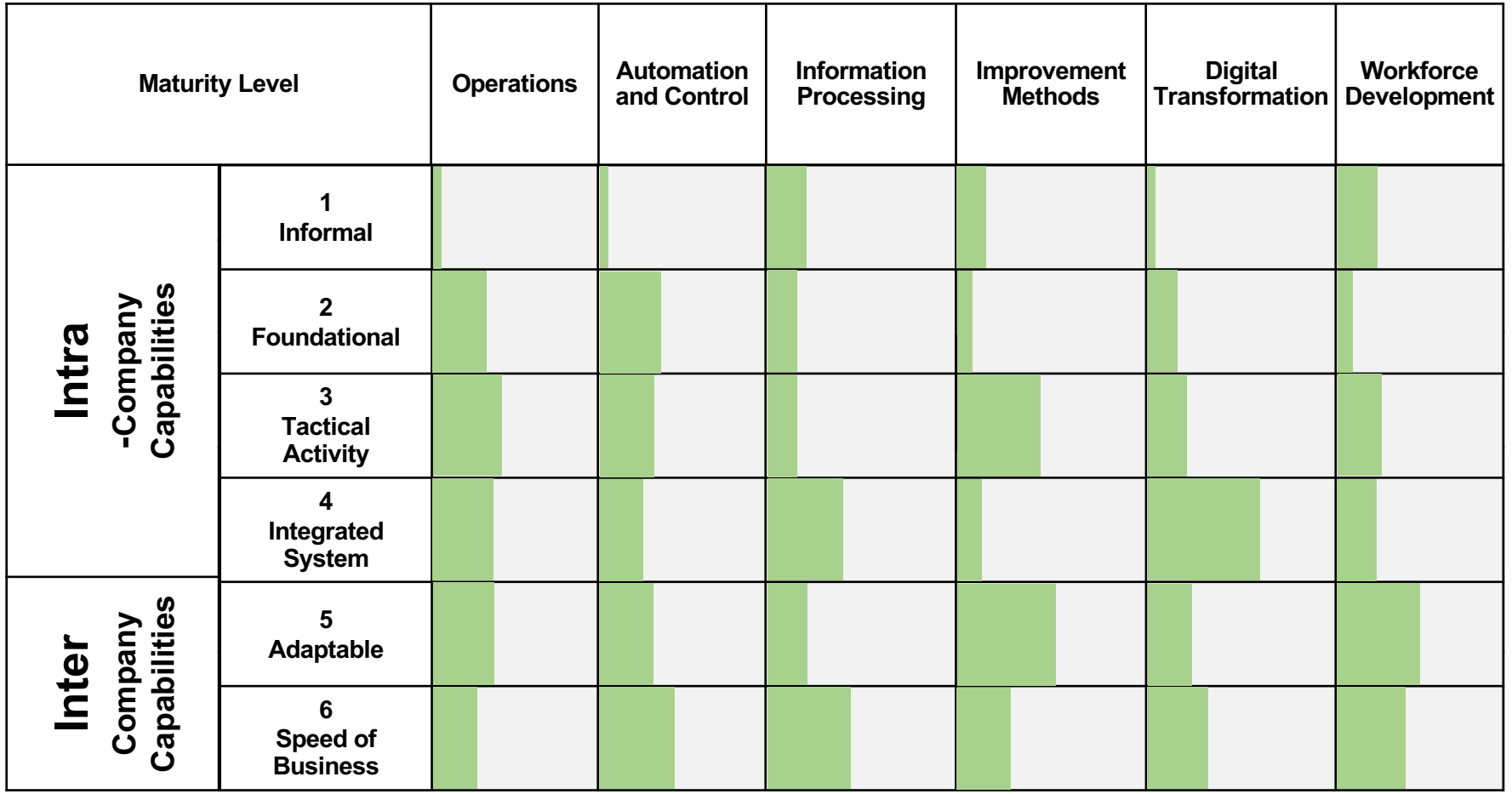
assess Manufacturers Expect a Large Shift

Future State – 3-5 years



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assess

Manufacturers move up

Future State – 3-5 years

Maturity Level		Operations	Automation and Control	Information Processing	Improvement Methods	Digital Transformation	Workforce Development
Intra -Company Capabilities	1 Informal	Not Ready to Advance					
	2 Foundational	20% (1/2)	23% (2/5)	23% (2/3)	15% (1/4)	13% (1/4)	18% (1/3)
	3 Tactical Activity						
	4 Integrated System						
Inter Company Capabilities	5 Adaptable	Top Tier					
	6 Speed of Business	35% (2x)	43% (2.5X)	40% (2.6x)	50% (5x)	35% (2x)	50% (3x)

Down 50+ %

Up 200-300%

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CURIOSITY

Internal Organizational Effectiveness

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assess Organizational Effectiveness – Pain Points

Strategic Goal Alignment (Policy Deployment)

Vast majority reported alignment between strategic goals and departmental objectives

Available, accurate data - 59% sufficient

Expertise and Resources - 67% sufficient

Competitive Awareness - 28% understand and transfer in best practices

Adequate Funding - 48% sufficient

Collaboration with others - 51% sufficient

Adoption of new proven capabilities-- 51% sufficient.

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assess Key Priorities – Connectivity, Availability, Sharing

Manufacturing Capability Priorities (pick 3)

1. The Connected, Augmented Worker
2. The Connected Factory 2
3. Connected External Experts on Demand
4. Chain of Custody and Genealogy
5. Interoperable Supply Chain
6. Real-time Demand Driven Supply Chain 3
7. Predictive and Prescriptive Insights 1
8. Right Data, Any Place, Anywhere, Anytime 4
9. Integrated Product Development
10. Plant Digital Simulation/Twin

Alignment on Priorities

Connecting data internal and external and altering the practices to be real-time and future looking

Connected Supply Chain

74% of respondents that understood the organizations capabilities were willing to share data in a connected supply chain

57% were just starting or well on their way

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WHAT GOT US HERE...

...WILL NOT GET US THERE.

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The Digital Promise - Why Unfulfilled?

1. Execution is not flowing from Vision and Strategy
2. Plant and enterprise initiatives are fragmented and disconnected.
3. Technology marches to its own beat … not in sync with closing performance gaps and advancing the culture

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Reimagine …

What will world-class manufacturing and supply chain be in 2025? in 2030?

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Housekeeping

Click the link in the Chat session

or

Assessment Report

All participants who completed the survey will be sent the complete Assessment Report

To continue the conversation

Clubhouse
Drop-in Audio

Deeper Dive

a2i2 inside your organization

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Jim.Wetzel@nxgengroup.net

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THANK YOU
QUESTIONS ?