MBE and the SMM

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Introduction

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Work History:
MxD USA, Sr. Technology Strategy Associate
IMI Precision, Project Engineer
Atkore Int’l, Operations Supervisor
Medtronic, Operations Supervisor
DuPont, Mechanical Technology Engineer
GE Aviation, Lean Engineering Intern
Agenda

Takeaways

Problem Statement

Potential Solutions

Closing
Bottom Line, Up Front

SMM culture is changing

Engage with MxD

Seek opportunities to subsidize SMM digitalization
Problem?

- Continuous improvement
- Everybody wants data
- Regulations/Qualifications
- Industry 4.0 proliferated data sources
- Cost vs. ROI
- Burgeoning new tools like AI
The Makeup of the U.S. Manufacturing Industrial Base

239,607 U.S. MANUFACTURING FIRMS

178,210 Small Manufacturers
< 20 Employees

57,373 Medium Manufacturers
20 < Employees < 500

4,024 Large Manufacturers
>500 Employees

Source: https://www2.census.gov/programs-surveys/susb/tables/2020/us_state_6digitnaics_2020.xlsx
Adoption Barriers

- Unclear of MBE and associated technologies
- ROI
- Unaware of resources available through MEP, State, and Local governments
- Long term benefits
Adoption Barriers

- Unaware of the benefits
- Not applicable to their business (IP owning vs job shops)
- Skeptical of customer’s use of data
- Full toolset provided by MBE
- Suspicious view of service providers’ claims
Adoption Barriers

- Human
  - Resources
- Knowledge
  - Change management
  - Know-how
- Investment
  - Business case preparation
  - Disruption of services
  - Money
Adoption Barriers

- Customers need to build the capabilities
- Lack of horizontal pressure to change
  - Cultural
- Lack of standardization
- Near vs far sighted
So What? – Effect on OEMs/DoD

**Digital Thread**
- Need data!
- Inability to create a digital twin
- Integration of new technologies

**Compliance**
- Manually linked compliance data
- Raw material/component sourcing [Regulatory]

**Continuous [Product] Improvement**
- Lack of cradle to grave information continuity
- Added [implied/soft] costs from production
- Supply chain implications [Risk Mgmt.]
Overcoming Costs

- MEP, State, and Local opportunities to subsidize costs for SMMs
- Segment suppliers by job shops vs. IP containing – customizers
- Training opportunities to cover a perfunctory period
- Value realization must happen to continue
Making it Easy to Do

- Team up with other industry OEMs
- Set similar standards/codes that do not conflict
- Biggest hold up – OEMs not driving the change
Engaging with MxD

• MxD Technology mapping

• MBE assessment upgrade

• Future LLM projects

• Projects
Recap: Overcoming Barriers to SMM Digitalization

• More SMMs are starting to digitalize
• Limited pressure on SMMs
• OEMs need to drive MBE

Engage with MxD

• MxD is doing a lot of work focused on SMMs
• Engage with our road mapping effort to help build requirements

Seek opportunities to subsidize SMM digitalization

• Work with MEPs, and state and local opportunities to help subsidize costs
• Work with SMMs to help build out business case
Call to Action

- How many SMMs are in attendance today?
- How can MxD support MBE awareness effort at SMMs?
- Who would be interested in a pilot program with MxD?
- Who is interested in working with MxD for technology road mapping?
The Digital Manufacturing & Cybersecurity Institute