Manufacturing Division

Technology Committee

June 04, 2014

"Winning the Future with Innovative Defense Manufacturing"
Our Participants

- Ed Bacheson
- David Baldini
- Dean Bartles
- Steven Basile
- Karen Berecz
- Michelle Bezdecny
- Peter Black
- Craig Blue
- Tim Comerford
- Nancy Crews
- Dave Dombrowski
- Dale Easley
- Diane Elliot
- Dick Engwall
- Paul Evans
- Paul Faughnan
- Kevin Fischer
- Gary Fleegle
- Bill Flite
- Jon Fournier
- Scott Frost
- Mark Gordon
- Rob Gorham
- Ian Harris
- Allan Hartong
- Dennis Harwig
- Tom Jackson
- Ben Kassell
- Bob Kiggins
- Dennis Kox
- Greg Krieger
- Jerry Kroon
- Abigail Kuchan
- Abhai Kumar
- Mike Lemon
- Ming Leu
- Wangen Lin
- Brandon Lovett
- Carl Lombard
- Dave Madden
- Jay Mandelbaum
- Mike McGrath
- S McQueen
- Susan Moehring
- Bob Moreira
- Des Newman
- Andy Nichols
- John Olewnik
- Sid Palas
- Rusty Patterson
- Bill Peter
- Ethan Plotkin
- Greg Pollari
- Tim Quinn
- Ralph Resnick
- Walter Roy
- Dave Rugaber
- Kurt Schier
- Tom Scotton
- Tim Shinbara
- Joey Skoloda
- Charlie Stirk
- Parker Sykes
- Rebecca Taylor
- Walter Tomczykowski
- Curtis Toone
- Bob Torrani
- John VanKirk
- Darrell Wallace
- John Wilczynski
- Jim Williams

"Winning the Future with Innovative Defense Manufacturing"
Agenda

• 2014 Focus
  – Cyber Security for Manufacturing (Mike McGrath)
  – Technology and ECO ROI Investigation (Mike Lemon)
  – Additive Manufacturing (Darrell Wallace)

• JDMTP asked for success stories on how ManTech has helped industry
  – Define actionable deliverable based on portfolio of programs (JDMTP and CoE)

• Other Topics (All)
  – Recent RFI for New Institutes for Manufacturing Innovation

"Winning the Future with Innovative Defense Manufacturing"
2014 Focus

- Cyber Security for Manufacturing
  - Awareness and understanding of DFAR 252.204–7012 expectations
  - Help bridge language barrier between IT and MFG
  - Identify technology to help fill gaps in cyber security solutions
  - Engage other industry for cross collaboration (e.g. automotive)
  - Support cyber security test bed opportunities (e.g. red team observer)
- ECO ROI Investigation
  - Develop white paper to define data necessary to estimate value chain between engineering change and program outcomes as well as define variables
  - Identify SME and support DMC presentation
- Additive Manufacturing
  - Activity that supports America Makes
- Support Institutes for Manufacturing Innovation
  - Consider ways to support IMI

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Cyber Security for Manufacturing
(Mike McGrath)

- Support Joint Working Group
  - Supported white paper development
  - Consider NDIA assistance to host forums
  - Work with DoD on improving factory floor cybersecurity
  - Support new DFAR requirements in defense supply chains
  - Consider how to engage with small and medium suppliers – they do not have same bandwidth and support personnel to address topic like cybersecurity

- Consider NDIA Ad Hoc committee (joint with Cyber Division)
  - Cyber attack of mfg in ways that shut down operations, alter data, or steal data/IP
  - Focus on factory floor and digital thread for defense products
  - Consider interaction with emerging DMDI
  - Serve as observer to red team study
  - Consider NIST concept of a maturity model
  - Consider avoidance model approach (like the NDAA counterfeit parts model)
ECO ROI Investigation (Mike Lemon)

Metrics for Late ECO’s
Value Chain: Development Process – Manufacturing Processes – Program Costs

Drivers of Late Engineering Change
- Data Quality and Integrity
- Producibility Issues
- Fluid Requirements

Manufacturing Process Impact
- MFG Churn
- Scrap
- Rework/Retool

Program Cost
- Part Costs, Repair Costs, Inventory Costs

FMEA for MFG. - Engineering Changes/MFG Inhibitors

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Further Investigation of *Best Practices* for evaluating value of enabling model based technologies and related new processes

- Leverage MANTECH CSI Customer Supplier Interoperability case studies to analyze MBE impact to manufacturing OUTCOMES
  - Honeywell/IMS Study Collaboration
  - Rockwell-Collins “Moving MFG to the left”
  - NAVAIR – GD&T Driven vs. Model Driven MFG.
- NDIA Tech Committee leading white paper development
  - Enlist more Industry/Gov. participants/outreach to similar initiatives
    - AIAG, JDMTP, DMDI, PDES
  - Define data needed to establish value chain between technology, engineering change, and program outcomes
- Define variables, data requirements, and sources to develop algorithms and calculations to plot and track metrics
- Demonstrate the manufacturing and product cost impact of enabling best practices of MBD/MBE/MBM to reduce engineering change

Goal to submit whitepaper and presentation for DMC by Sept 1, 2014
ECO ROI Investigation
(Mike Lemon)

- Hidden Costs of Late Changes in Defense Manufacturing
- Where are opportunities to address impact in cost, timeliness, and quality due to late cycle changes?
- Activities
  - Team meeting with Paul Huang 11:30AM 6/6
    - Focus on MBE Business Case and MBE Maturity Index
    - DMDII, PDES, AIAG, NDIA, JDMTP, AFEI Represented
    - Measure correlation between MBE adoption/Business impact
  - Enlisting help from University of Cincinnati students
  - Scheduling series of bi-weekly workshops
  - Help ID Subject Matter Expert (from Industry) for DMC
  - Submit whitepaper and presentation for DMC by Sep 1, 2014

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Additive Manufacturing
(Darrell Wallace)

• There is a need for broad applicability inputs (e.g. standards, best practices, etc.)
  – Identify activity that supports America Makes (e.g. AM Tech Roadmap input)
  – What are the modalities of additive manufacturing?
  – What technology is industry considering adopting that involves America Makes?
  – What are barriers to industry consideration and adoption?
  – What assumptions can be applied?
  – Engage with America Makes as there are briefs to the division
  – Engage with America Makes to consider division to host event for larger community
New Areas to Consider (All)

- How can NDIA engage with the other new manufacturing institutes
  - America Makes (Additive Manufacturing) – see prior slide
  - Next Generation Power Electronics Manufacturing
  - Digital Manufacturing & Design Innovation
    - Engage Dean Bartles
    - Engage Dennis Thompsen regard Tech Transfer
  - Lightweight & Modern Metals Manufacturing
    - Engage Ian Harris or Larry Brown

- Recent RFI for New Institutes for Manufacturing Innovation
  - Flexible Hybrid Electronics
  - Photonics
  - Engineered Nanomaterials
  - Fiber and Textiles
  - Electronic Packaging and Reliability
  - Aerospace Composites

- RFI is scheduled to close on July 14
- Each IMI is to be funded at roughly $75M over 5 years
- Requires 1:1 cost share from industry

https://www.fbo.gov/index?s=opportunity&mode=form&id=20149a9325aab69ace3bf57124df053a&tab=core&cview=0

"Winning the Future with Innovative Defense Manufacturing"
Back-up Slides
Technology Committee Mission:

Drive and support innovation in technology and practices to provide superior defense manufacturing value and collaboratively address challenges in capability, efficiency, readiness, and sustainability.
Key Technology Stakeholders

• Industry
  – Defense Supply Chain – all tiers (e.g. primes, large OEM, small/medium suppliers)
  – Technology providers (e.g. tools, equipment, processes, services, etc.)

• Government
  – ManTech (e.g. JDMTP subpanels)
  – AT&L (e.g. S&T, acquisition, logistics, etc.)

• Collaboration
  – Manufacturing innovation institutes
Our Objective and Charter

Objective:
Advocate a unified industrial voice representing manufacturing technology resources and needs, which can be communicated with defense and government decision makers for priorities and action

Charter:
• Actively support collaboration between government, industry, universities, associations and consortiums and promote manufacturing capability and transition
• Provide access to industry manufacturing technology sources and expertise
• Identify and develop consensus on key manufacturing technology issues
• Communicate manufacturing technology trends and needs in a unified voice to defense and government decision makers
• Support the development and pursuit of ManTech strategic plans and roadmaps
• Facilitate alignment of DoD and industry manufacturing technology priorities
Our Responsibilities

**Responsibilities:**

- Complete specific committee goals and deliverables as defined and aligned each year with the division theme and approach.
- Identify sources for division meeting speakers on technology topics showcasing innovative solutions for the key challenges.
- Recommend and secure endorsements for specific manufacturing technology initiatives and policies.
- Recommend and draft manufacturing technology white papers for division distribution.
- Provide specific manufacturing technology issues for input to the NDIA Top Issues publication.
- Support DMC tracks for manufacturing technology topics.

"Winning the Future with Innovative Defense Manufacturing"
Technology Committee
Leadership

Chair
Kevin Fischer
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