Key Supplier Challenges and Opportunities

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SUPPLIER CHALLENGES & OPPORTUNITIES

• INDUSTRY “BUZZ” ... ADVANCED MANUFACTURING

• SUPPLY CHAIN REALITY

• LEVERAGE EXISTING TECHNOLOGY

• CHALLENGES & OPPORTUNITIES
WHAT IS ADVANCED MANUFACTURING?

MANUFACTURING.GOV
A National Advanced Manufacturing Portal

- 3D Printing:
- Additive Manufacturing:
- Advanced Manufacturing:
- Agile Manufacturing:
- Automation:
- Benchmarking:
- Bottleneck:
- Cellular Manufacturing:
- Composites:
- Computer-Aided Design:
- Computer-Aided Manufacturing:
- Continuous-Flow Manufacturing:
- Computer-Integrated Manufacturing:
- Computer Numerical Control:
- Cross-Training:
- Digital Manufacturing:
- Discrete Manufacturing:
- Flexible Manufacturing System:

Industry 4.0:
- Just-in-Time:
- Kaizen:
- Lean Manufacturing:
- Manufacturing cost:
- Manufacturing Cycle Time:
- Manufacturing Innovation Institute:
- Manufacturing USA:
- National Network for Manufacturing Innovation:
- North American Industry Classification System:
- OEM:
- Planning and Scheduling Technologies:
- Process Manufacturing:
- Product-Development Cycle:
- Rapid Prototyping:
- Robotics:
- Six Sigma:
- Smart manufacturing:
- Supply-Chain/Logistics Systems:
- Total Quality Management:

KEY CHALLENGES AND OPPORTUNITIES
One of the most widely used definitions of advanced manufacturing involves the use of technology to improve products and/or processes, with the relevant technology being described as "advanced," "innovative," or "cutting edge." For example, one organization defines advanced manufacturing as industries that "increasingly integrate new innovative technologies in both products and processes. ... Wikipedia

What is Additive Manufacturing?

+ **HIP**: For processing castings, metal powders can also be turned to compact solids by this method,

+ **SLS**: like SLA technology Selective Laser Sintering (SLS) utilizes a high powered laser to fuse small particles of plastic, metal, ceramic or glass.

+ **SLA**: Very high end technology utilizing laser technology to cure layer-upon-layer of photopolymer resin (polymer that changes properties when exposed to light).

+ **FDM**: Process oriented involving use of thermoplastic (polymer that changes to a liquid upon the application of heat and solidifies to a solid when cooled) materials injected through indexing nozzles onto a platform.
SUPPLIER CHALLENGES

- Build to Print Contracts / Design
- Verbatim Compliance
- Competitive Environment
- Scope Creep
- Change Management, Notice, Negotiation
- “REASONABLE ASSURANCE”
- NRC Oversight, Inspection, Corrective Action
- Safety Conscious Work Environment
- Cost Control, Competitive Advantages

WHERE ARE THE SUPPLIER OPPORTUNITIES?

LEVERAGE TECHNOLOGY

- ROBOTICS
- DATA COLLECTION

PLANNING

- CHANGE BID PLANING PROCESS
- IMPROVE COMMUNICATION W/ BUYER
INITIATIVE

Improve Data Package Development & Review

- Develop Electronic Traveler Data Base
- Incorporate Design of Generic Data Package
- Eliminate Duplication, Optimize DP Content
- Leverage Process Control to Minimize Data
- Increase Collaboration – Empower Reviewers w/ Elect. Data
- Eliminate “Legibility” as Issue

RESULT

- Documents Reviewed Real Time
- Progress Monitoring
- Hard – Stop “HOLD POINTS”
- > 50% QAE Staff Reduction – Same Work
- < 3 Days From Steel Complete to Submit Package
- Dramatically Reduce Re-work
CURRENT LEVEL OF PLANNING

Incorporate Zone Traceability Logic

Facilitate Individual Repair Document.

SUPPLY CHAIN LEVERAGE TECHNOLOGY
DATA DEVELOPMENT & REVIEW

KEY CHALLENGES
AND OPPORTUNITIES
Leverage Technology – Robotics

- Extensive Robot Welding Use
- Use of “No Tack” Fixtures
- Extensive Statistical Analysis – Shrinkage & Distortion
- Ergonomic Access
- Electronic Data Collection
ROBOTICS BENEFITS & REALITIES

- Improved Consistency
- Reduced Documentation
- Superior Process Control
- Sequence Control
- Increased Setup / Programming
- Less Margin for Error
- High Capital Costs
PLANNING & ENGINEERING SUPPORT

- Re-Think Buyer vs. Seller Relationship
- Strong Per-Bid Planning & Communication
- Buyer & Seller Collaboration
- Hard to Develop Trust … Easy to Lose
- Seller Planning Moves Up in Process
- Different Procurement Paradigm
- Seller Gives IP…?????
- Buyer Foregoes Competition … ?????
KEY CHALLENGES AND OPPORTUNITIES

SUPPLY CHAIN CHALLENGES
- Stay Alive – Competitive
- Commodity Procurement
- Capital Costs / Shrinking Market
- Reach New Technology
- Maintain Competitive Advantage
- Support Industry – Keep Advantage

SUPPLY CHAIN OPPORTUNITIES
- Existing Technology
- Improve Planning
- Change Paradigm – Business Development
- Bigger Pond
- Improved Relationships
- Improved Cost Performance

SUPPLY CHAIN BENEFITS
- Technology Can Make it Safer
- Improved Planning Makes us Better
- Collaborative Environment Helps All
- Bigger Pond
- Improved Relationships ... More Work
- Improved Cost Performance... More Work