

Manufacturing and Quality Systems

Pam Green
BCA MFG ENG & MES

GLOBAL PRODUCT DATA INTEROPERABILITY SUMMIT 2014



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Welcome to Manufacturing and Quality Systems at GPDIS 2014

Grady Ford (The Boeing Company)

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- **Key Challenges**
- **Additive Mfg.**
- **Industry Collaboration**

Improved Decisions Through Integrated Manufacturing and Business Systems – Dave Pimblett (Dassault Systemes)

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- **Business Process Management**
- **Processes are assets of your business and require investment like all business assets**
- **Review processes often or they will become out of date**

Building a Real-time “Transparent” Factory to Ensure Quality Manufacturing at High Speed – Christopher Steel and Christopher Borneman (Software AG Government Solutions)

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- **Monitor process performance**
- **Correlation at major assembly**
- **Post production monitoring**
- **Real time analytics and intelligent business operations**
- **Supply chain performance monitoring**

- **Event processing works on moving streams of data**

Business as Unusual: Enabling Model-Based Manufacturing and Quality Assurance – Tom Hedberg (NIST)

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- Smart Manufacturing Operations Planning and Control (SMOPAC) Program
- SMOPAC: Digital Thread for Smart Manufacturing Project
- Enabling “Reuse and Traceability of Information”
- Investigating the product lifecycle holistically to extend the digital thread of information with easy implementation into manufacturing systems
- Journey to STEP
- Machine learning to drive context from the lifecycle to answer questions

Optimizing 3D Process-Definition Datasets– Using 3D Product Definition to Improve and Automate Downstream Processes – Bryan Fischer (MBD360 LLC)

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- **Focus on process- and quality-oriented PMI and process definition datasets, such as a manufacturing plans and inspection plans**
- **Visually-Displayed PMI / Annotation**
 - Defined on 2D drawings or improperly in 3D
 - Visual content only
- **Semantically-Modeled PMI**
 - Properly associated to model
 - **Defined in predictable, understandable structure**
 - Computer sensible

Deploying a Common Model Based Enterprise in an Uncommon CAD & PLM World – Chris Garcia & Jim Merry (Anark Corporation)

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- **One way to retrieve data and provide downstream at a low cost**
- **Use the right tool for the right job**
- **Data from many sources to create one 3DPDF package**
- **3D MBE will be the preferred information exchange method**
 - **For Design to Manufacturing and the Supply Channel**
 - **Over 2D Drawings and Paper Based Processes**

Quality Information Framework - A New Interoperability Standard for Quality Information within a Model-Based Enterprise – John Horst (NIST)

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- **QIF is a digital data model defining all key interfaces in the product quality verification life cycle (in ANSI v2.0)**
- **QIF can digitally interface with both STEP and Native CAD**
- **QIF can digitally interface with CAD plus semantically associated PMI**
- **Standards for interoperability enable the Model Based Enterprise (MBE)**

GD&T Encoding and Decoding with SpaceClaim – David Zwier (SpaceClaim)

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- **Featurize the model, not geometry construction features, but function features**
- **The use of decoding provides textual and graphical explanations of the encoded GD&T symbols, decoding also includes verification**
- **First to link GD&T PMI with manufacturing and inspection by taking a geometry-centric approach**
- **Proprietary methods allow objective evaluations of features' abilities to constrain the model**
- **Datum features established in this way map better to manufacturing and inspection processes**

The Role of Configuration Management in Maintaining the Consistency of Engineering- and Product Lifecycle Data – Rainer Romatka, Ph D. (The Boeing Company)

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- **Inconsistency at one step causes inconsistency downstream**
- **Inconsistency can be caused by:**
 - **Assumptions made about requirements**
 - **Data stored in multiple locations**
 - **Same data represented in different ways**
- **Configuration management should provide support to check consistency of the data**
- **Handling inconsistency:**
 - **Approaches to identifying inconsistency**
 - **Timing- when is the right time to handle the inconsistency**
 - **Scope of the data – all or changes only**
 - **Resulting Action – diallow or flag inconsistent data**
- **Stop thinking of config management as one config management system at a time, it is a platform of configuration management systems**

Manufacturing and Quality Systems Roundtable Session Indy Cho and Pam Green (The Boeing Company)

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- **This is an example of how text would look within the slide layout design.**