Open Interoperability Standards

Manufacturing

Agenda

- Introductions

- Review problem statement and goals

- Develop recommendations

Attendees

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- *Scott Edwards,*
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- *Utpal Roy,*
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- *David Wilson,*
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- *Dwayne Hardy,*
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- *Yacine Ouzrout*

- *Rosalyn Docktor,*
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- *Sebti Foufou*

- *Dan Bart,*

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Making IT Better- NAE report (2000)

Social applications of IT serve groups of people in shared activities. The most straightforward of these applications improve the effectiveness of geographically dispersed groups of people who are collaborating on some task in a shared context. ... ...Characteristic of social applications of IT is the embedding of IT into a large organizational or social system to form a "socio technical" system in which people and technology interact to achieve a common purpose--even if that purpose is not obviously social, such as efficient operation of a manufacturing line (which is a conjunction of technological automation and human workers) or ... .Social applications of IT--especially those supporting organizational and societal missions--tend to be large-scale and complex, mixing technical and non technical design and operational elements and involving often-difficult social and policy issues such as those related to privacy and access."

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Goals

1. *Suggest the steps NIST, NSF, and others should take to better participate in the open standards process.*

2. *Suggest how the open standards process might be improved.*

3. *Identify User Scenarios in the Manufacturing space we believe should be investigated, and the open standards coverage they suggest.*

Seed Questions

1. *What impact have open standards had and are there existing best practices which need to be embraced and exploited?*

2. *What gaps exist in the open standards set today? What information, if it were standardized, would make a difference? What challenges exist when attempting to put these standards in place?*

3. *What processes and activities within manufacturing should be the subject of open standards efforts?*

4. *What unique requirements must be addressed, and to what extent must future vision be accommodated?*

5. *Is there a relationship between competitiveness within a global manufacturing climate and the application of open standards?*

Issues raised by the group

- *Concepts such as cylinder are not common among applications which address the same sets of requirements.*

- *Horizontal data interchange is not possible (across the design environment).*

- *Vertical data interchange is not possible (between design and shop floor).*

- *Lack of common concepts increases complexity. Content issues must be managed, which is a waste of time. This needs to be fixed if we're to take advantage of distributed design and manufacturing.*

- *How can standards be used to enable without compromising our ability to profit from added value?*

- *We need to address both scope and complexity in the manufacturing space.*

- *We need to consider application requirements (via use cases), technical challenges, and methodologies.*

- *Today there are standards focused on the supply chain space (abstract) and standards focused on integration between products (specific). These two sets of standards are disjoint.*

Group Recommendations

1.   *Promote clarification of terms such as "open standard" and "open process".*

2.   *NIST and NSF should promote the development of common syntax and semantics in and beyond the manufacturing space.*

   a)   *Focus: As a first step we recommend that NIST and NSF facilitate work among industry and other stake holders (ANSI, Trade Associations, etc.) to identify the "use cases" which articulate current and projected future need for heterogeneous interoperability within and between manufacturing domains and enterprises (such as supply chain).*

   b)   *Explore: NSF and NIST should collaborate to explore syntactic and semantic interoperability within the manufacturing space, building on work already done. This would include exploring the use of "etiquettes" as a means to assist with standards evolution and reconciliation.*

   c)   *Apply: NIST should explore the use of its "test beds" as a means to assist in the application of open standards to improve interoperability.*

Reference

Reference Material

- Economic Impact of Inadequate Infrastructure for Supply Chain Integration
  http://www.nist.gov/director/prog-ofc/report04-2.pdf

Our Questions

1. Accomplishments and Best Practices
   - How are standards developed today in this arena? Are there any barriers to entry for standards development participation? If so what are they? How does it affect the stakeholders and what are the possible solutions?
   - What are the unique standards requirements in the area of manufacturing informatics?
2. Where and how in the manufacturing network do you expect standards to play an important role?
3. Can you make a case for and against the need for open standards in this area?
4. What role can academia, industry, and government play a role in this process?
5. Can standards help you leverage the work in different parts of society?
6. What are the gaps in the standards and what standards overlap?
7. How to address the issue of standards and technology evolution?
8. How does "openness" relate to developers, implementers, and end users?