

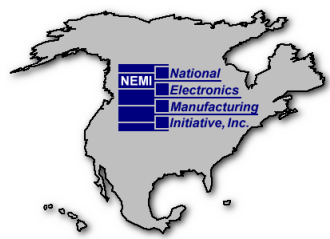
Business to Business Data Exchange

MCD: Making Sense out of Chaos

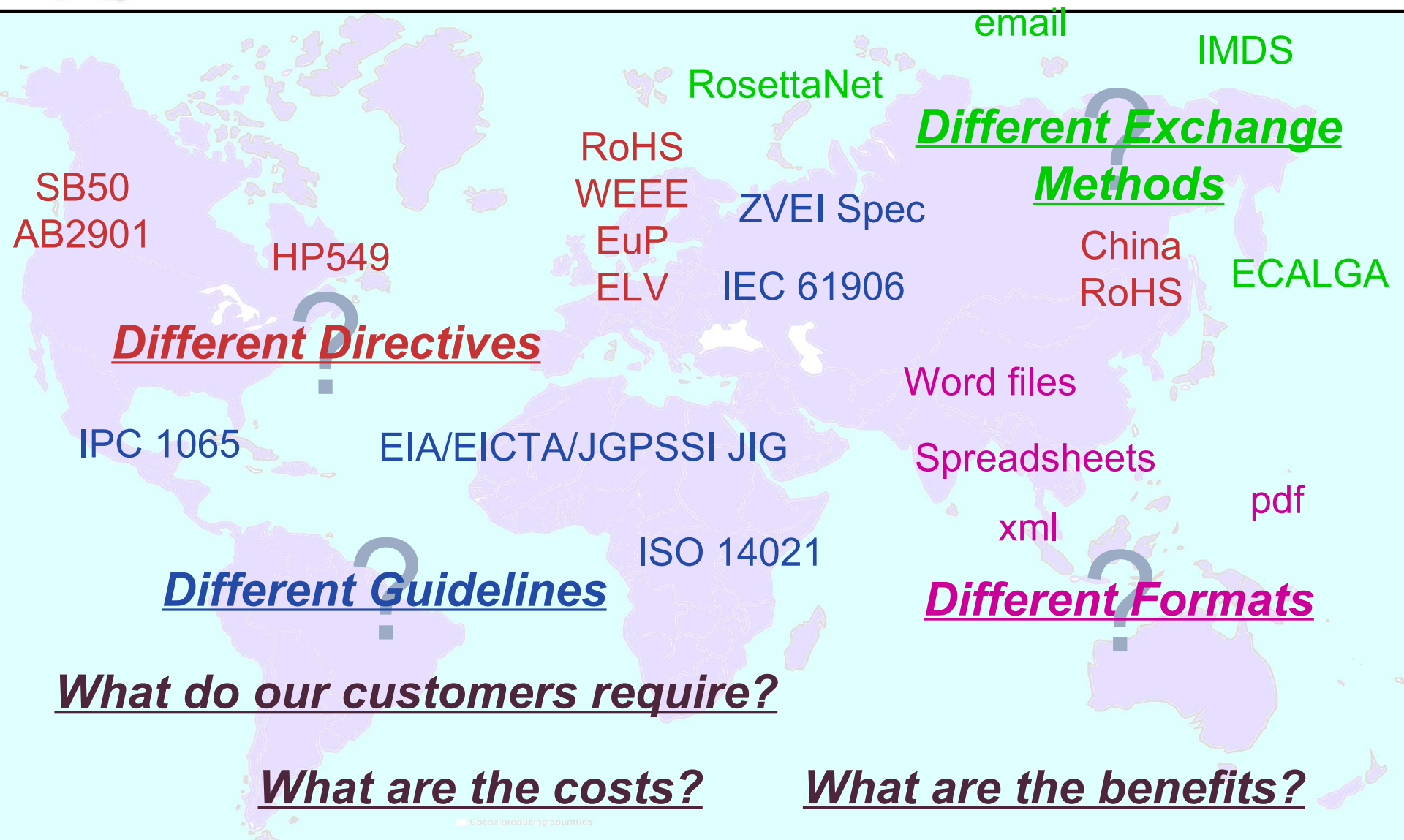


Richard Kubin, E2open

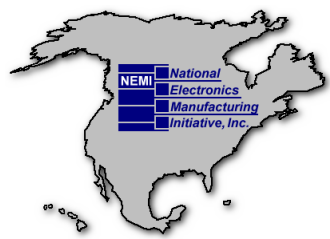
October 19, 2004



Current Status – Confusion & Chaos Reign Supreme!



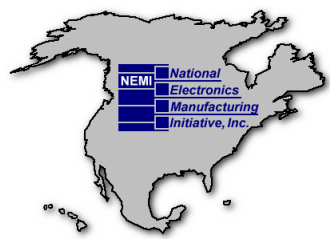
Connect with and Strengthen your Supply Chain



Where Are We Today?

- **No standard has been established within the community**
 - Each company asks for different information
- **Most companies using some sort of spreadsheet and email to exchange data**
 - Each company uses different spreadsheet format
- **Most companies don't yet have a searchable database of material content that can be integrated for B2B exchange**
 - Filling out spreadsheets manually
- **Most companies have no way to know what they sent to whom**
 - Not able to ensure receipt or most recent version

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Some Standards are Needed...

- **Guidance Standards/Documents**
 - UK DTI RoHS Regulations Government Guidance (draft)
 - Joint Industry Guide (JIG)
 - IEC 61906
 - IPC 1065
- **Format Standards**
 - JGPSSI spreadsheet
 - Compliance Connect spreadsheet
 - RosettaNet 2A10 and 2A13 PIPs
 - PDX 2.0
 - ZVEI Umbrella Specs
- **Exchange standards**
 - email – RNIF – EDI – webservices – others...
- **Many standards = no standard**

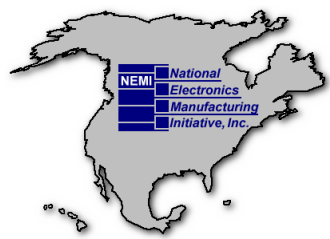
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The Trouble with Spreadsheets...

- **Spreadsheets provide a way for humans to make sense out of data**
- **However-**
 - **Very difficult to automate – require high level of human interaction, therefore error prone**
 - **Not ubiquitous (Microsoft does not rule the universe...)**
 - **Data integrity and version control issues**
 - **Security and virus concerns with macros**
- **Can support near term needs, but not extensible for automated B2B**

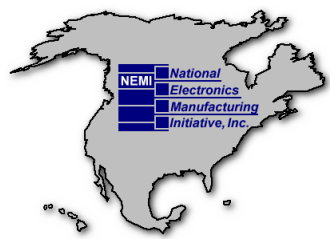
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RosettaNet

- To date, implementation has been relatively expensive for most companies in supply chain
 - Adoption rates have been slow - primarily within large, multi-national companies
 - Difficult to extend across an entire supply chain
- Initial focus has been on transaction based exchanges
 - PO's, forecasts, ship notices
- 2A10 and 2A13 PIPs have been developed to support the exchange of material content data
 - Both will support JIG requirements
 - Data fields are meant to be consistent, but there are differences in the message structure; not directly interchangeable
- New programs, specifically RAE and MMS, are aimed to significantly reduce the cost and complexity of entry and allow entire supply chains to communicate, but...
- ***Still unproven for MCD for the masses***

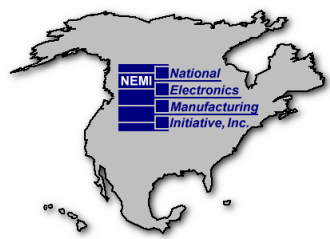
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PDX 2.0

- In initial stages of development – extending PDX 1 to include MCD attributes associated with BOM elements
- Discussion has been initiated with IEC to make PDX an international standard
 - Unclear who has ownership IPC, IEC TC93 WG3, NEMI(?)
- Unclear how widely adopted it is/will be
- Will define message content, but not exchange protocol/mechanism
- **PDX 2.0 can provide a BOM-based format, but does not solve automated B2B exchange problem**

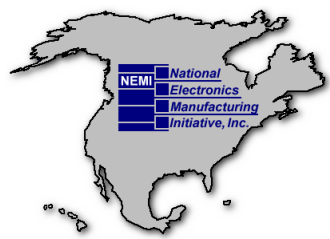
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NEMI's Role

- **NEMI teams are**
 - Developing a universal data exchange business process
 - Defining a universal data exchange format
 - Evaluating exchange protocols/mechanisms in support of the above
- **Process is business process**
 - Meant to be universal
 - All sub-processes should map to it
- **Format**
 - Identifies all current standards
 - Identifies fields being exchanged currently
 - Identifies any additional needs
- **Data Exchange**
 - Defining pilots to exercise and validate
 - Validate process and format recommendations
 - Support RosettaNet validation
 - Support PDX 2.0 validation

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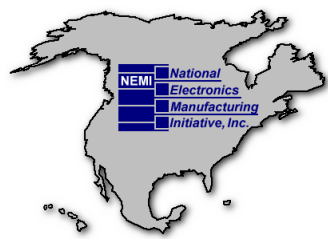


Some Remaining Issues...

- **Part and Material Hierarchy**
 - Need to agree on language to describe the hierarchy for both parts and materials
 - Parts – Product, Part, Sub-Part, Component
 - Materials – Heterogeneous material, homogeneous material, individual constituent, substance
- **JGPSSI - do we need to support compound to element or “substance group” to “breakdown substance” conversion?**
i.e.:

– Substance	Formula	Metal	Conversion Factor
– Lead (IV) oxide	PbO ²		0.866
- **DIN/ZVEI Umbrella Spec - do we need to support the concept of “Parts Families” – a group of parts that have the same material composition (e.g. Capacitors, Resistors)?**
- ***If we don't decide at this point we will need to translate/map the fields later***

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Materials Composition Data Exchange Project

Statement of Work

Chair: Richard Kubin
Chair, NEMI Business Leadership Team
VP, PLM Solutions
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Co-Chair: Marissa Yao
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Purpose:

- Work with the appropriate international standards bodies to help define and validate standards for the electronic exchange of Material Composition data between all elements of the value chain and across the entire product lifecycle in order to support requirements of the WEEE and RoHS Directives:
 - Support for bulk material, component, sub-assembly and finished product level reporting
 - Definition of standard data exchange formats and transfer protocols
 - Automate data exchange query and response where possible, while also supporting human interaction

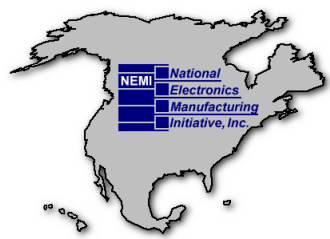
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Project Scope

- **International Materials Composition Data Exchange Format Standards**
- **International Materials Composition Data Exchange Protocols**
- **B2B infrastructure requirements required to support the above**
- **Support for “low-tech” data exchange (i.e. email/excel) and its integration into “high-tech” (i.e. xml-based) systems**
- **Support for bulk material, component, sub-assembly, and product level reporting**
- **Support for query and response (customer -> supplier -> customer), as well as publish (supplier -> customer) data exchange processes**
- **Support for multi-tier supply chain data collection**
- **Support for “electronic signature” of supplier provided data to support liability requirements**

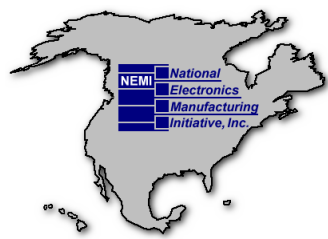
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Recent Project Activities

- **Workshop: “Material Declaration of Components and Electronic Assemblies: Data Exchange Solutions for Global Environmental Requirements”**
 - August 30/31, Hosted by Intel in Santa Clara, CA
 - Over 85 participants, representing over 45 organizations, including participants from Japan & Taiwan
- **NEMI Sponsored European Meeting: “Material Data Exchange Coordination Meeting”**
 - 9 September, 2004, 9-13:00 h, Fraunhofer IZM Berlin
 - Held in conjunction with “Electronics Goes Green 2004+” conference

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Project Pilot Activities

- **Pilots are currently being planned**
- **First Pilot will involve Agilent and Celestica with data exchange via RN 2A10 PIPs**
 - Second phase will extend to component suppliers
 - Will use real production BOM
- **Working with project members to identify opportunities for additional Pilots**
 - RosettaNet 2A13 validation
 - RosettaNet RAE validation (may be combined with above)
 - PDX 2.0 exchange
- **Objective is to produce initial report by end 2004**

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Path Forward – Increase Harmonization

- **NEMI Format Spreadsheet**
 - Fully supports JIG requirements with recommendation on mandatory fields for RoHS and WEEE
 - Should become the “superset” of data fields for material information exchange
 - Users could select or de-select from the superset to create the subset of fields they want
 - Forms and data exchange standards should be developed to support all the fields in the superset
 - **Drive “harmonization” of standards and guidelines**
 - Continue work with IPC, IEC, RosettaNet, JIG (EIA-JEDEC)
 - Understand who is driving RN 2A10, 2A13 and PDX 2.0, and why
 - **Promote the NEMI developed Materials Declaration Process and Format as industry standard, but...**
 - where should it reside?
 - need critical mass of users across the value chain to validate and support standardization
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