



Material declaration standards & SCM implementation strategies of industry for eco-compliance

Seigo ITO (Toshiba)
Chair, ELCI Working Group
(Environmental Life Cycle Information-WG)
RosettaNet Japan

November 23, 2006



Agenda

Today's presentation

1. Background

2. Material Composition Milestone Program

3. Support for both MNCs and SMEs

4. Activities of RosettaNet Japan (RNJ)

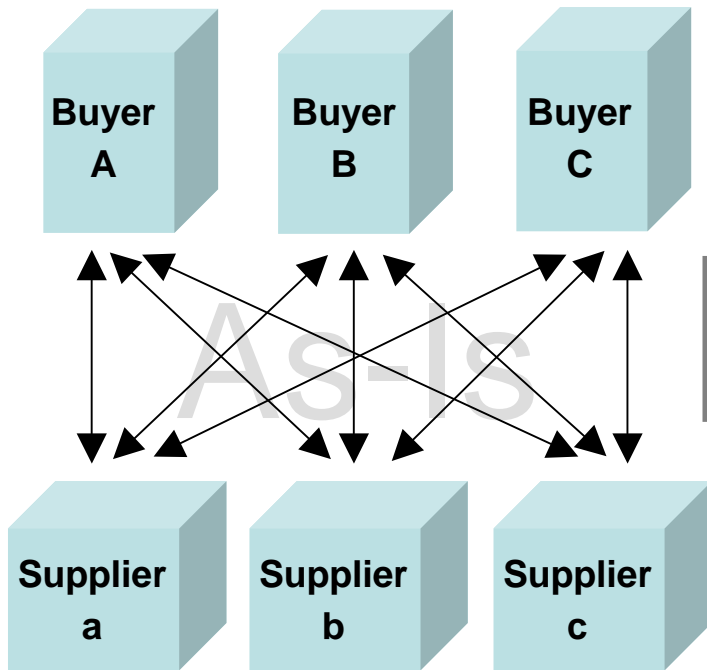
5. Engineering Information Management

6. Summary

The Need for Material Information Exchange

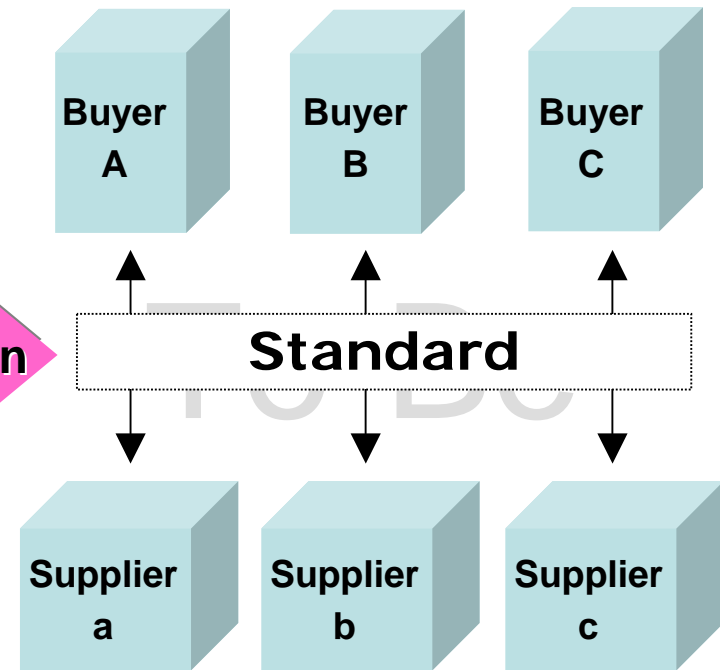
Partners should use the same standards

To comply with Regulations, Buyers have to investigate if any hazardous materials exist in product.
(Investigate Green procurement)



Standardization

If we can standardize the rules, we can reduce the work load for the buyers and suppliers!

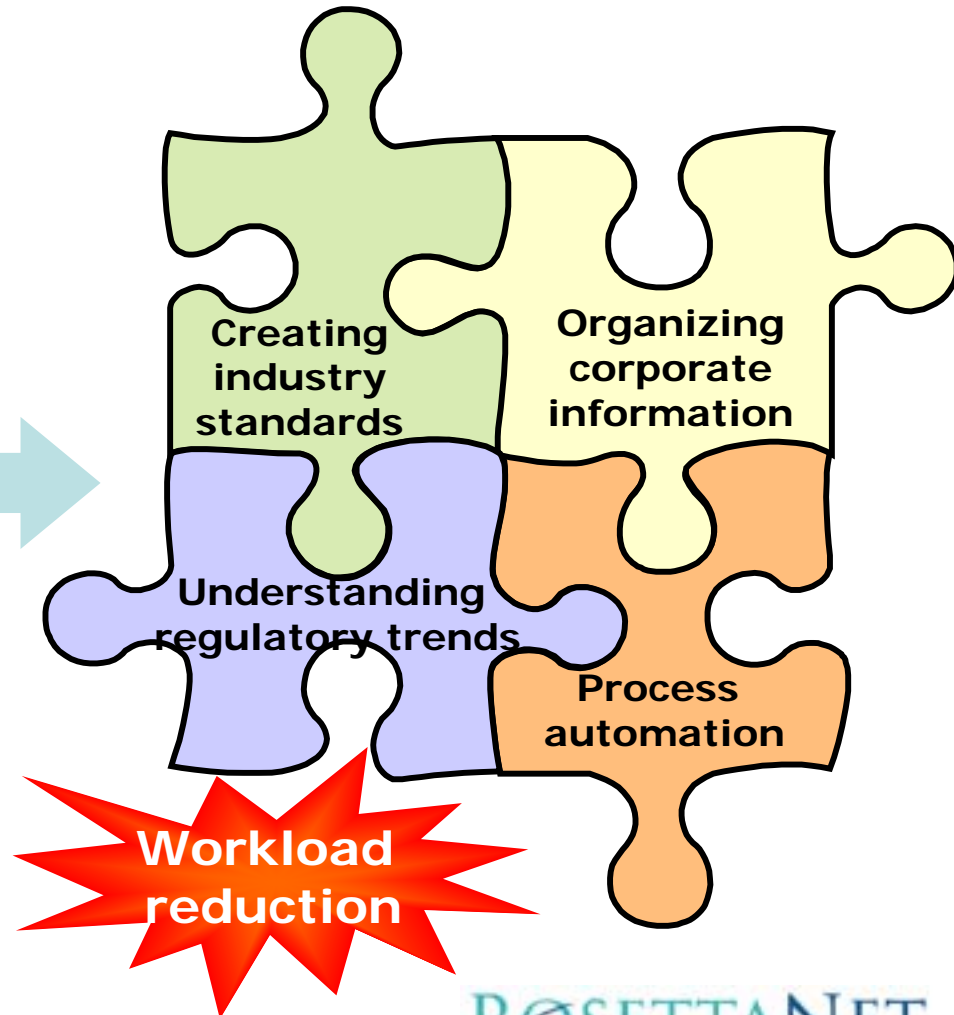


Each company has different requirements, target materials/substances and response paper formats, so suppliers' work load increases.

Material Declaration Issues and Solutions

Workload reduction is the biggest issue

- **Differing requirements from each company**
 - **Chemical substances**
 - RoHS substances
 - JIG A&B
 - Company dependent
 - **Structure**
 - Product level
 - Homogeneous material level
 - Location (subpart) level
 - **Input formats**
 - Paper
 - Excel
 - Web etc.
- **Errors due to manual input**
- **Increase in data volumes handled**





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Material Composition

RosettaNet Milestone Program

OVERVIEW

Material composition e-business process allows companies to exchange material composition between supplier and customer. The idea is to include material composition information into other product information exchange. Main reasons to collect material composition information are upcoming legal requirements and increasing market requirements.

VALUE PROPOSITION

In response to government regulations and emerging customer expectations, the high-technology supply chain can streamline the exchange of material composition and related information through a standardized and automated global process.

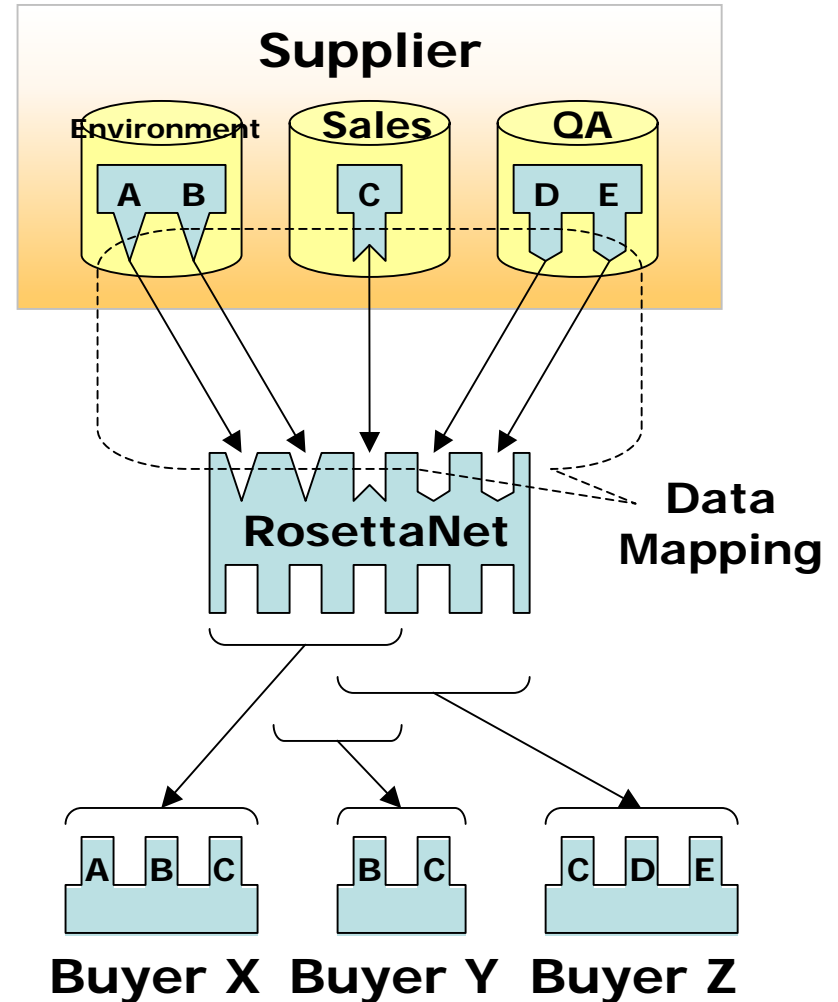
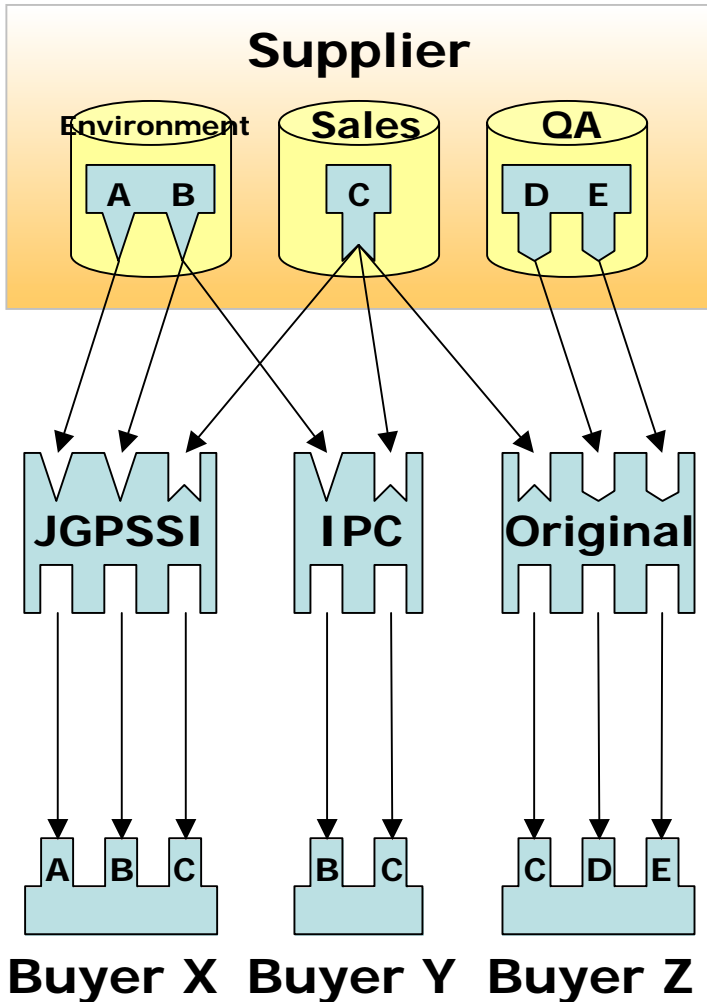
COMPANIES

ADOS, Agilent Technologies, Amkor Technologies, Cisco Systems, Future Electronics, Intel, Kyocera, LG Electronics, Motorola, National Semiconductor, Nokia, SAP, Sony Electronics, STMicroelectronics, Synapsis Technology, Texas Instruments



RosettaNet does not depend on any format

Handles contents defined in any format





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Today's presentation

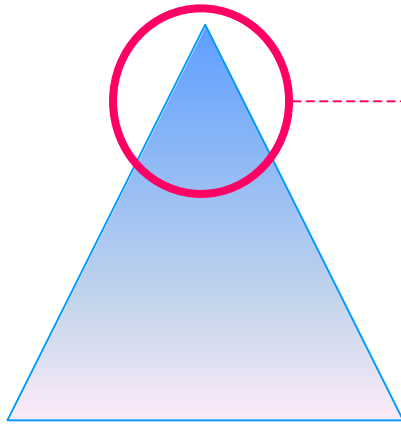
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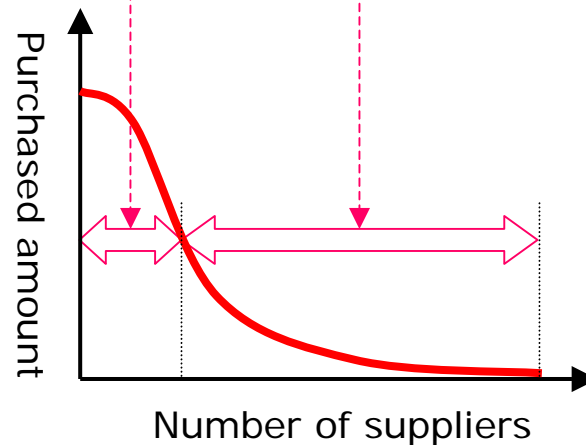
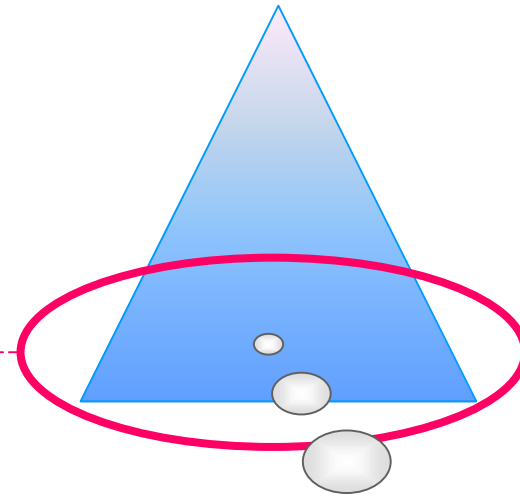
Emphasis in B2B exchanges depends on the kind of information

Comparing purchasing with material reporting

Purchasing Information



Materials information



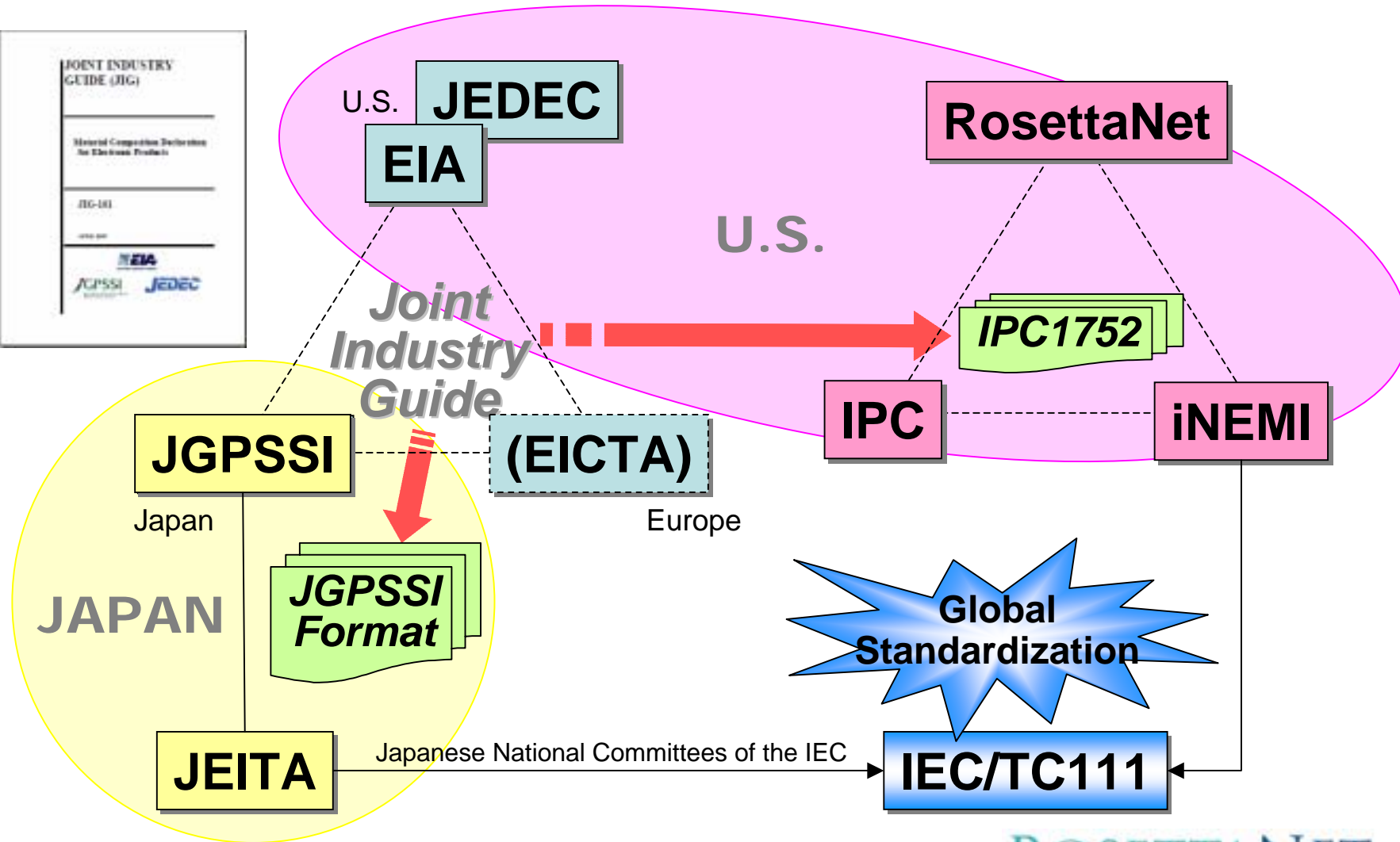
Gathering information from SMEs is essential.

*SMEs: Small and Medium-Sized Enterprises



Standardization activities in materials reporting formats

Interrelationship between standardization organizations





Material Declaration Format

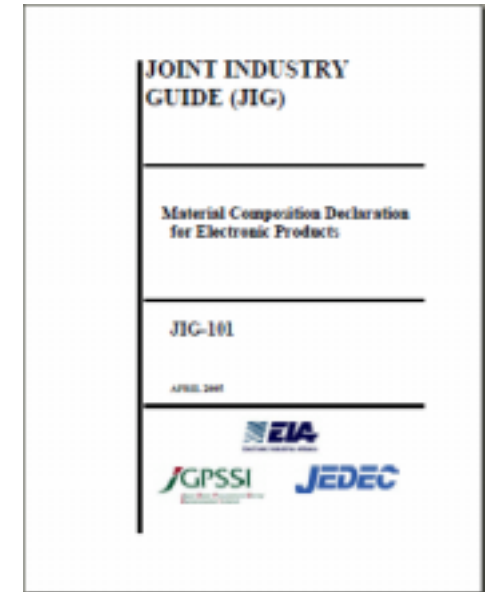
2 Formats that comply with JIG (Joint Industry Guide)

1) JGPSSI Format

- Developed by JGPSSI
- Excel Format
- Standard type and Detailed type
- Rolled Format compliant
 - > Only the Material/Substance Category in the products
- Ver.3 released Jun. 13 (currently Ver.3.11)
 - > http://210.254.215.73/jeita_eps/green/green11-2eg.htm

2) IPC-1752

- Developed by iNEMI, IPC, RosettaNet
- PDF Format (Ver.7.0)
- Format defined in IPC-1752-1/1752-2
- Full Format compliant
 - > BOM Level description available
- Ver.1.0 released March 9
(Ver.1.1 under development; Ver.2.0 to be final version)
- U.S. is proposing IPC-1752 to TC111 WG1
 - > http://members.ipc.org/committee/drafts/2-18_d_MaterialsDeclarationRequest.asp



Released May 25, 2005



IPC1752

Multiple reporting levels and participating companies

Class	Declaration Type				Form type	
	RoHS Yes/No	JIG formatted substances	RoHS, JIG & other substances	Manufacturing Process Information	IPC 1752-1	IPC 1752-2
Class 1	X				X	X
Class 2	X			X	X	X
Class 3	X	X			X	
Class 4	X	X		X	X	
Class 5	X		X			X
Class 6	X		X	X		X

The following companies have indicated that they will support/use the IPC-1752 standard for materials declaration. (http://members.ipc.org/committee/drafts/1752_Support.asp)

Agere Systems, Celestica, Inc. , E2open, Foxconn Electronics Inc., Freescale Semiconductor, Future Electronics, GE Security, The GoodBye Chain Group, Jabil Circuit, LG Chemical, Lucent Technologies, Maxtor Corp., Molex Corporation, National Semiconductor, Panasonic Electronic Devices Co., Ltd., Qualcomm, Inc., Solectron Corporation, Sun Microsystems, Synapsis Technology, Texas Instruments, Tyco Electronics etc.

IPC1752 details

e.g., IPC1752-1



Joint Industry Guide (JIG) Mat
 Instructions: Declare whether the item substances must be declared if they are homogeneous material level and option weight and optionally the PPM at the p

JIG	Category Name
Level	As defined in the Joint Indust
A	Asbestos
A	Certain Azo colorants
A	Cadmium/Cadmium Compounds **
A	Hexavalent Chromium/Hexavalent C
A	Lead/Lead Compounds **
A	Lead/Lead Compounds - PVC Cabl
A	Mercury/Mercury Compounds **
A	Ozone Depleting Substances - Clas
A	Ozone Depleting Substances - Clas
A	Polybrominated Biphenyls (PBBs) **
A	Polybrominated Diphenylethers (PB
A	Polychlorinated Biphenyls (PCBs)
A	Polychlorinated Naphthalenes (+ 3
A	Radioactive Substances
A	Certain Shortchain Chlorinated Para
A	Tributyl Tin (TBT) and Triphenyl Tin
A	Tributyl Tin Oxide (TBTiO)
B	Antimony/Antimony Compounds
B	Arsenic/Arsenic Compounds
B	Beryllium/Beryllium Compounds
B	Bismuth/Bismuth Compounds
B	Brominated Flame Retardants (othe
B	Nickel (external applications only)
B	Certain Phthalates
B	Selenium/Tellurium Compounds
B	Polyvinyl Chloride (PVC)

Save the fields in this form to a file

RoHS Material Composition Decl

RoHS Directive: 2002/95/EC
 RoHS Definition: Que
 Polybrominated Diphe

RoHS Declaration *

Exemptions: If the declared item does not above and checkboxes will appear below. C

- Mercury in compact fluorescent lamps no
- Mercury in straight fluorescent lamps for halophosphate lamps
- Mercury in straight fluorescent lamps for lamps with a normal lifetime
- Mercury in straight fluorescent lamps for lamps with long lifetime
- Mercury in other lamps not specifically m
- Lead in glass of cathode ray tubes, elect
- Lead as an alloying element in steel con
- Lead as an alloying element in aluminu
- Lead as an alloying element in copper c
- Lead in high melting temperature type a weight or more lead)
- Lead in solders for servism, storage and for switching, signalling, transmission as we

Declaration Signature
 Instructions: Complete all of the requ the declaration (if required by the Requ

IPC Material Composition Declaration
 © Copyright 2005 IPC, Reno, NV, USA. All rights reserved under both international and Pan-American copyright conventions.

This document is a declaration of the substances within the manufacturer listed item. Note: If the item is an assembly with lower level parts, the declaration encompasses all lower level materials for which the manufacturer has engineering responsibility.

Adobe Reader version 7.0.5 is required to complete this declaration.

IPC-1752-1 v1.0
 1752-1

IPC Web Site for information on IPC-1752 Standard
<http://www.ipc.org/IPC-1752>

Form Type * Request/Reply
 Declaration Class * Class 4 - RoHS Yes/No, JIG Format Substances, Mfg Info

Requester information

Company Name *	Company Unique ID	Unique ID Authority	Request Date *	Request Document ID	Respond By Date
Contact Name *	Contact Title	Contact Phone *	Contact Email *	Requester Comments or URL for Additional Information	
My supplier ID	The File Type and Destination fields control how the form is submitted by the supplier. Consult your IT staff for configuration.		File Type PDF	Destination - URL or Email Address	
Item Number *	Item Name	MP Item Number *	MP Item Name	MP Item Version	Manufacturing Site

Supplier information

Company Name *	Company Unique ID	Unique ID Authority	Response Date *	Response Document ID				
Contact Name *	Title - Contact	Phone - Contact *	Email - Contact *	<input type="button" value="Duplicate Contact -> Authorized Representative"/>				
Authorized Representative *	Title - Representative	Phone - Representative *	Email - Representative *	Supplier Comments or URL for Additional Information				
Requester Item Number	MP Item Number	MP Item Name	Effective Date	Version	Manufacturing Site	Weight	UCM	Unit Type
Alternate Recommendation			Alternate Item Comments					

Manufacturing Process Information

Terminal Plating / Grid Array Material	Terminal Base Alloy	I-STD-020 MSL Rating	Peak Process Body Temperature	Max Time at Peak Temperature	Number of Reflow Cycles
Comments			C	seconds	

Created by Adobe

Sheet 1: Requester Info., Supplier Info., Mfg Process Info.

Sheet 2: RoHS Mat. Comp. Declaration, Declaration Signature

Sheet 3: JIG Mat. Comp. Declaration

Form enabled by Adobe



IPC1752 functionality

XML import and export

Save the fields in this form to a file Import fields from a file into this form Clear all of the fields on this form Lock the fields on this form to prevent changes

RoHS Material Composition Declaration Declaration Type *

RoHS Directive: RoHS Definition: Quantity limit of 0.1% by mass (1000 PPM) in homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE); and quantity restriction by mass (100 PPM) in homogeneous material for Cadmium

1a. Mercury in straight fluorescent lamps for general purposes not exceeding 0 mg. in triphosphate lamps with a normal lifetime.	9. Hexavalent chromium as an anti-corrosion of the carbon or refrigeration.
2c. Mercury in straight fluorescent lamps for general purposes not exceeding 0 mg. in triphosphate lamps with long lifetime.	10a. Deca BDE in polymeric applications.
3. Mercury in straight fluorescent lamps for special purpose.	10b. Lead in lead/bronze bearing shells and bushes.
4. Mercury in other lamps not specifically mentioned in this list.	11. Lead used in compliant pin connector systems.
5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.	12. Lead as a coating material for a thermal conduction mod.
6a. Lead as an alloying element in steel containing up to 0.35% lead by weight.	13a. Lead in optical and filter glass.
6b. Lead as an alloying element in aluminum containing up to 0.4% lead by weight.	13b. Cadmium in optical and filter glass.
6c. Lead as an alloying element in copper containing up to 4% lead by weight.	14. Lead in solders consisting of more than two elements for package of microprocessors with a lead content of more than
7a. Lead in high melting temperature type solders (i.e. lead based solder alloys containing 95% by weight or more lead).	15. Lead in solders to complete a viable electrical connector within integrated circuit Flip Chip packages.
7b. Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunications.	

Declaration Signature

Instructions: Complete all of the required fields on all pages of this form. Select the "Accepted" on the Supplier Acceptance drop-down. This is the declaration (if required by the Requester) and click on Submit Form to have the form returned to the Requester.

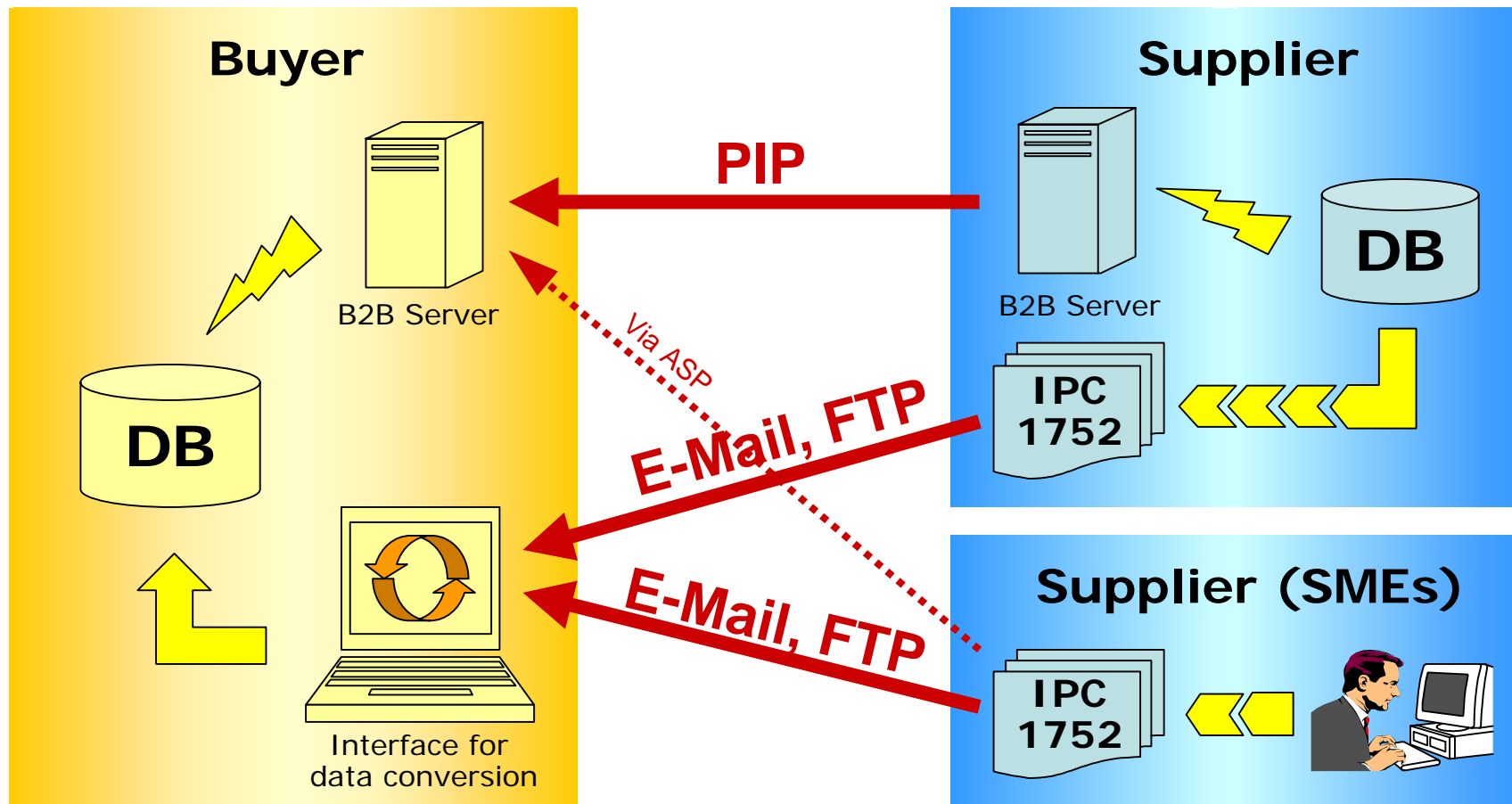
* Required Field CAS Registry Number(R) is a Registered Trademark of the American Chemical Society

```
<?xml version="1.0" encoding="UTF-8" ?>
<MCD declarationType="All" formType="Request/Reply" ipcStandard="1752-1" version="1.0">
  <Product manufacturerItemNumber="XYZ456" requesterItemNumber="ABC123" />
  <Request date="2006-12-11" fieldLock="unLock">
    <OtherSubstanceList rizer email="h.rosetta@rn.com" name="Hanako Rosetta" phone="0333334444" />
    <SubstanceCatagory er name="Rosettanet Corporation" />
    <SubstanceCatagory ct email="t.rosetta@rn.com" name="Taro Rosetta" phone="0311112222" />
    <SubstanceCatagory ct unitVolume="Each">
      <Amount unitOfMeasure="mg" />
    </SubstanceCatagory>
  </Request>
</MCD>
```

This button produces XML data from the PDF content (Ver.2.0 will output a PIP)

Gathering materials information from the buyer's point of view

A simple input form is necessary for SMEs



Note: PIPs are in XML. IPC1752 can import/export XML.

*ASP: Application Service Provider

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Nokia's strategy for materials reporting

Using both PIP2A13 and IPC1752

The Standardized Approach

- Speed, visibility and collaboration in extended value chain
- Efficiency in each business transaction
- Efficiency and speed in implementing new business processes with trading partners
- Standard-based automated processes

ROSETTANET
as key enabler

1. RosettaNet Partner Interface Processes (PIP 2A13)

- Global, industry-wide standard
- System-to-system integration
- Efficient solution
 - Flexibility
 - Not Material Composition specific -> Re-usability & cost efficiency
 - Human effort optimized
- Enables integrated approach
 - Material Composition -> Part of normal business (design, component choices,...)

2. IPC 1752

- Adobe Acrobat-based & RosettaNet PIP 2A13 compatible
- Supports Nokia approach to data collection

Company Confidential

10 © 2005 Nokia V1-File:ame.ppt / yyyy-mm-dd / initials

NOKIA
Connecting People

Source: "Managing Material Composition information at Nokia today and in the Future", Mr. Veli Isoniemi, GPC2006
(<http://www.rosettanel.gr.jp/events/GPC2006/doc/2-2-C.pdf>)

ROSETTANET
eBusiness Standards for the Global Supply Chain



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RNJ Members

Board members and partners

Board Members

- > Fujitsu Limited
- > Microsoft Corporation
- > NEC Corporation
- > Nihon UNISYS, Ltd.
- > NTT Communications Corporation
- > Otsuka Corporation
- > Renesas Technology Corporation
- > Rohm Co., Ltd.
- > Sony Corporation
- > Toshiba Corporation

Partner Members

- > ADOS Co., Ltd.
- > ADVANTEST CORPORATION
- > BEA Systems Japan, Ltd.
- > Dai Nippon Printing Co.,Ltd.
- > Data Applications Company Limited
- > E2open Japan
- > Electronic Devices Information Service Co.,Ltd.
- > Freescale Semiconductor Japan Ltd.
- > Global eXchange Services Japan Corp.
- > Hitachi, Ltd.
- > IBIDEN CO.,LTD.
- > Itodhu Techno-Science Corp.
- > Japan Aviation Electronics Industry, Limited
- > JFE Systems, Inc.
- > JSR Corporation
- > Justsystem Coporation
- > Kintetsu World Express, Inc.
- > Kyocera Corporation
- > Matsushita Electrical Industrial Co., Ltd.
- > Mitsui Knowledge Industry Co., Ltd.
- > Mizuho Corporate Bank, Limited
- > MOLEX JAPAN CO LTD
- > NEC Electronics Corporation
- > NEC TOKIN Corporation
- > NBCHICON CORPORATION
- > Nihon Texas Instruments Ltd
- > Nippon Express Co., Ltd.
- > NIPPON CHEMI-CON CORPORATION
- > NS Solutions Corporation
- > NTT DATA CORPORATION
- > PFU Active Labs. Limited
- > PIONEER CORPORATION
- > Sanshin Electronics Co, Ltd
- > SANYO Electric Co.,Ltd.
- > SAP Japan Co., Ltd.
- > SEIKO EPSON CORPORATION
- > Sharp Corporation
- > SHINKO ELECTRIC INDUSTRIES CO.,LTD.
- > Shinko Shoji Co.,Ltd.
- > SOFTBANK TECHNOLOGY CORP.
- > Sterling Commerce K.K.
- > STMICROELECTRONICS K.K.
- > SUMITOMO BAKELITE CO.,LTD.
- > Sumitomo Mitsui Banking Corporation
- > Sun Microsystems K.K.
- > TAIYO YUDEN CO,LTD.
- > The Bank of Tokyo-Mitsubishi UFJ.,Ltd.
- > TIS Inc.
- > Toppan Printing Co.,Ltd.
- > TOSHIBA DOCUMENTS CORPORATION
- > Toshiba Logistics Corporation
- > Tsuken Advanced System Co., Ltd.
- > Tyco Electronics AMP K.K.

**Member organizations
68 (as of September, 2006)**

Coalition Partners

- > Japan Electric Measuring Instruments Manufacturers' Association
- > JAPAN PETRO-CHEMICAL INDUSTRY ASSOCIATION (JPCA)
- > Object Technology Institute, Inc.
- > Common XML/EDI Practice Promotion Council (COXEC)

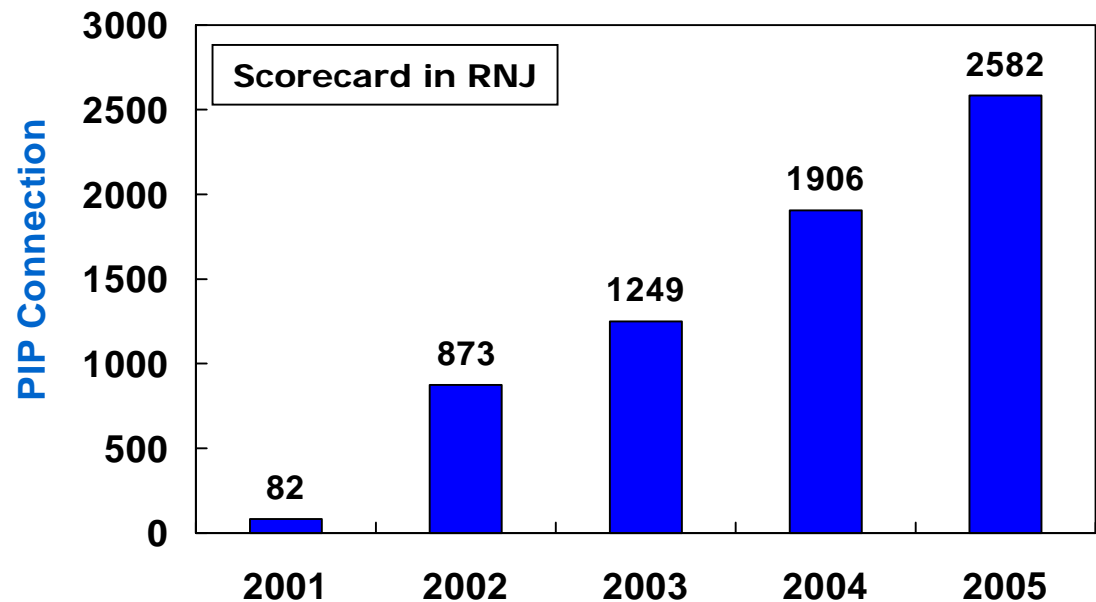
Activities of RNJ

RNJ Key Plans and Accomplishments for 2006

- RN Implementation support for more RN standards Adoption
 - EIM, Material Composition, PCN/EOL
- New Industry Development
 - Chemical
- Contribution to RN Standards & collaboration with RNG and RN Affiliate Organizations
 - RNTD
- Member recruitment and Membership Service Enhancement
- Success of GPC2006

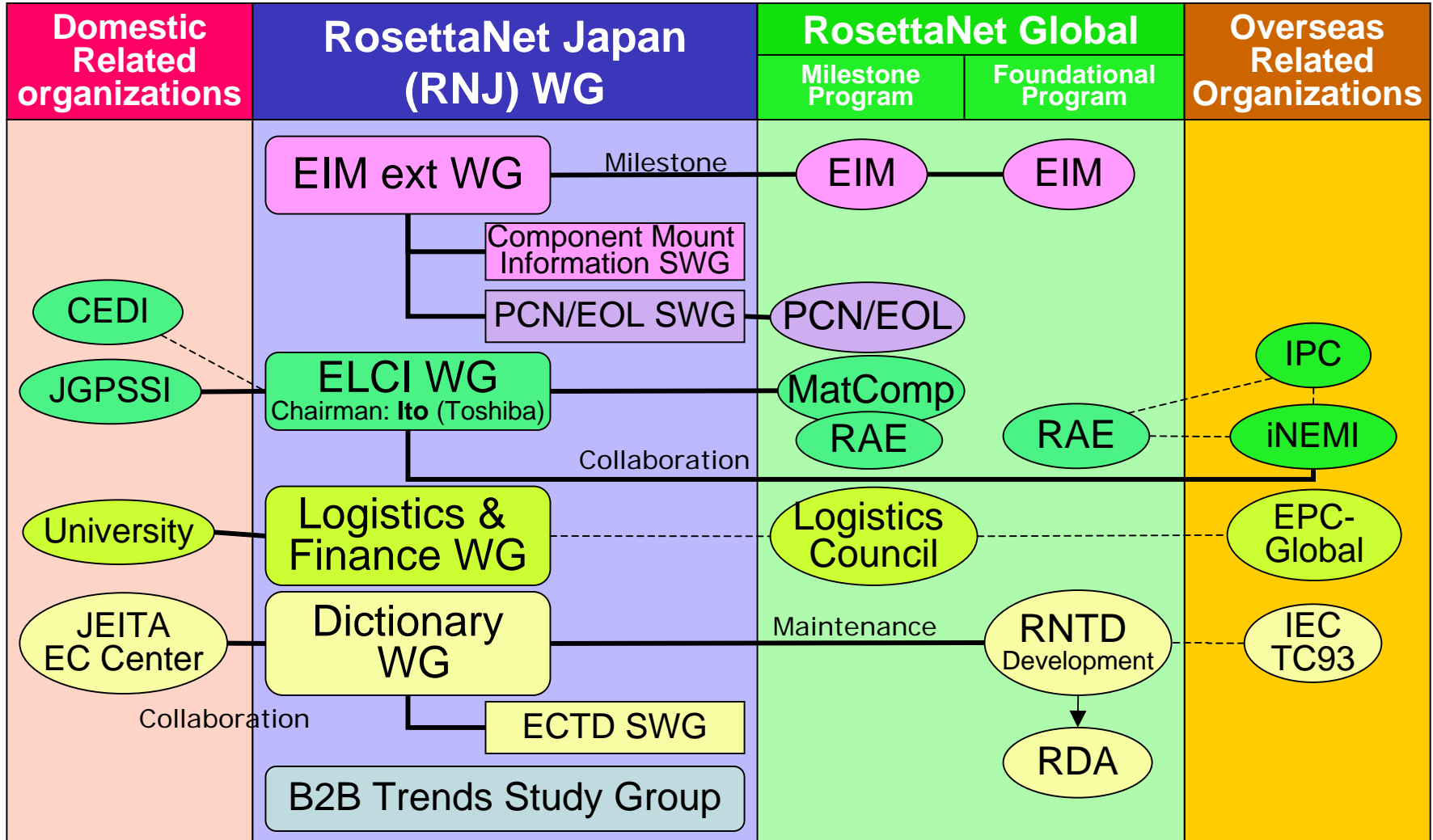


<http://www.rosettanel.gr.jp/english/events/GPC2006/index.html>



RNJ Working Group relationship

Collaboration with related organizations



EIM: Engineering Information Management
PCN/EOL: Product Change Notification/End Of Life

ELCI: Environmental Life Cycle Information



Activities of ELCI-WG

Scope of 2006 activities

1. Promotion of implementations

- Increasing PIP implementations
- Creating implementation guidelines
- Releasing IPC1752 in Japanese
- Investigating data models

2. Compliance

- Study of regulations (EuP, REACH, etc.)
- Study of standardization trends (e.g., IEC/TC111)

3. Cooperation with other organizations

- Collaboration with JGPSSI, iNEMI, IPC, etc.
- Exchanging information with upstream and downstream industrial organizations

4. Publishing information

- Planning workshops
- Participating exhibitions and holding seminars
- Publishing useful information on our website
- Press release



JPCA Show2006
(May 31-June 2)

@RNJ's Booth



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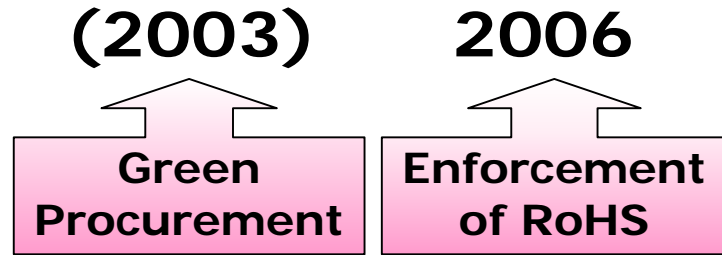
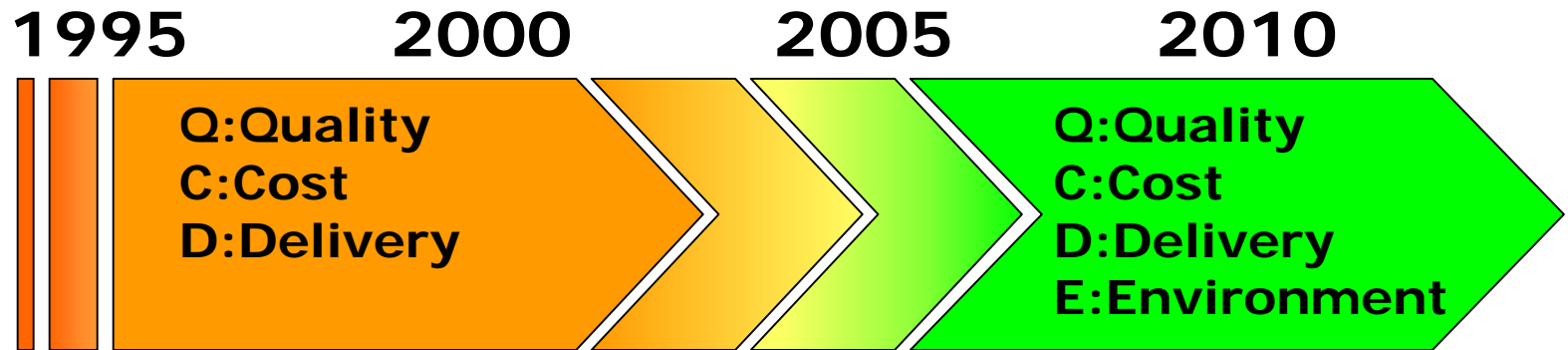
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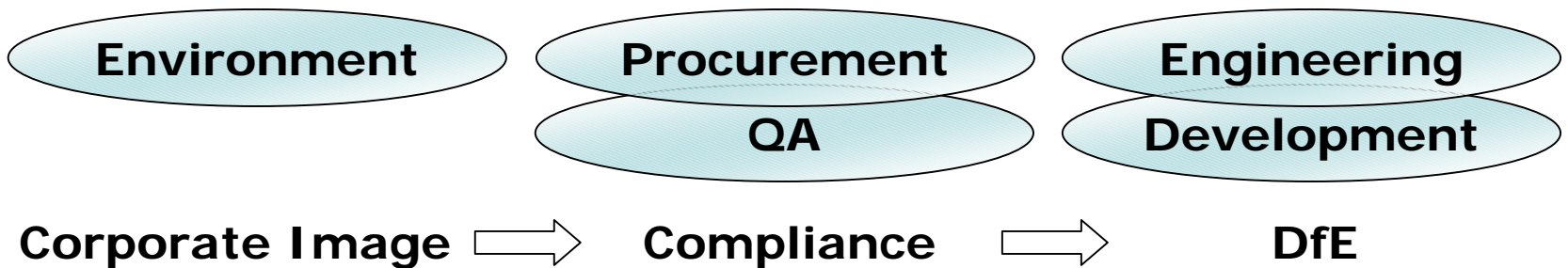


Change in Trading Requirements

Environmental Assurance is a mandatory requirement



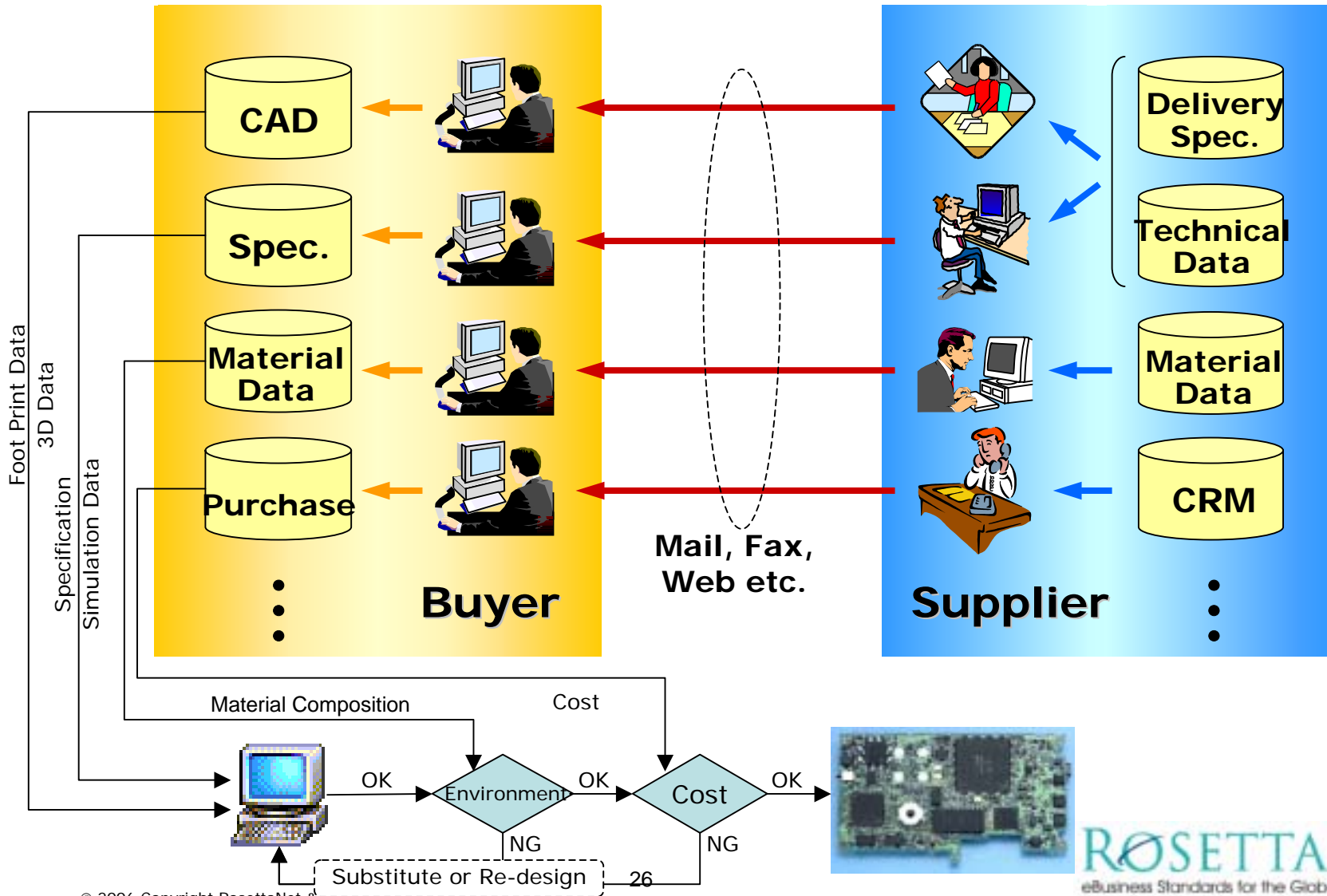
Main Section



*DfE: Design for Environment

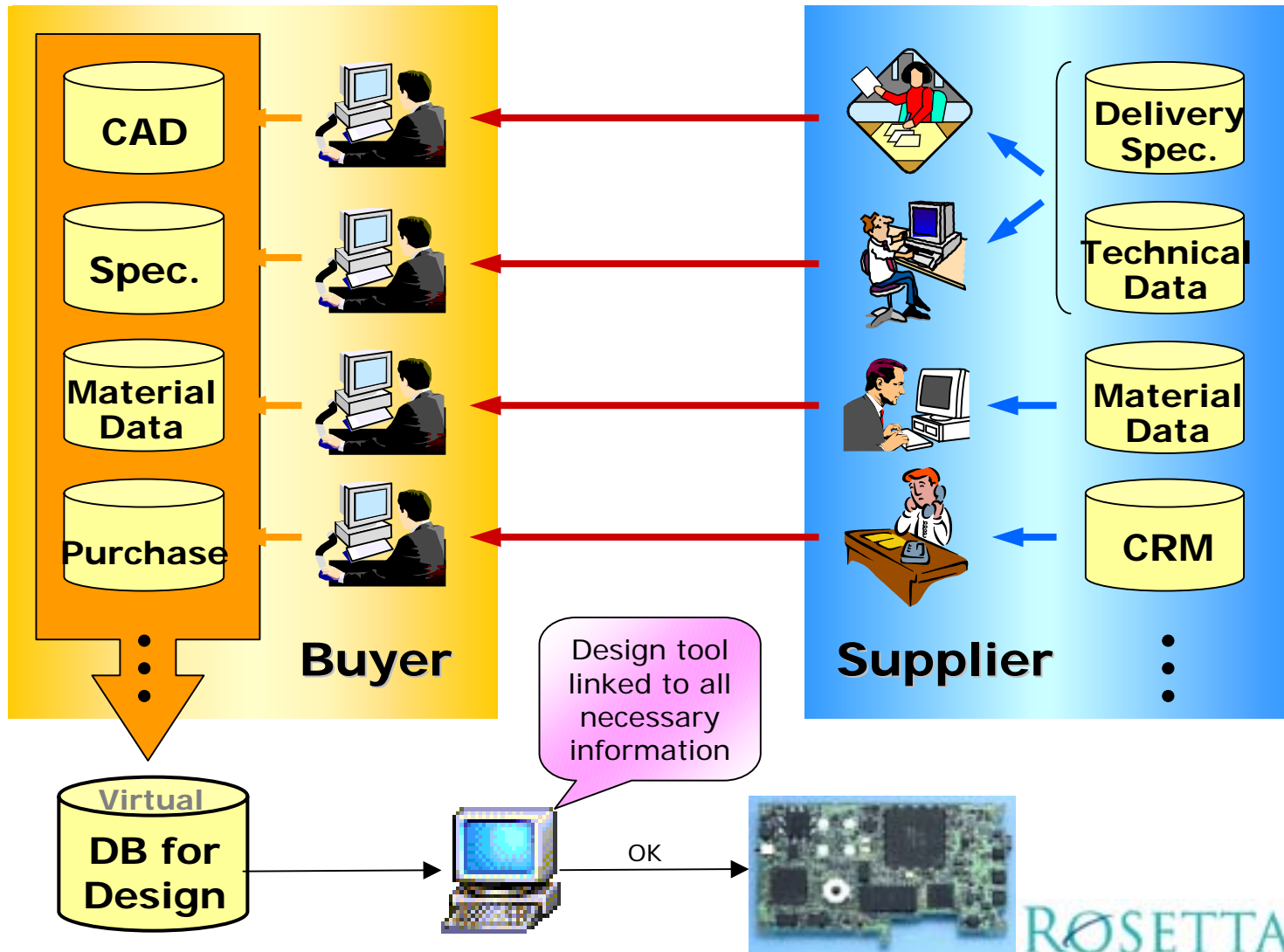
Material reporting in the future

Current design process



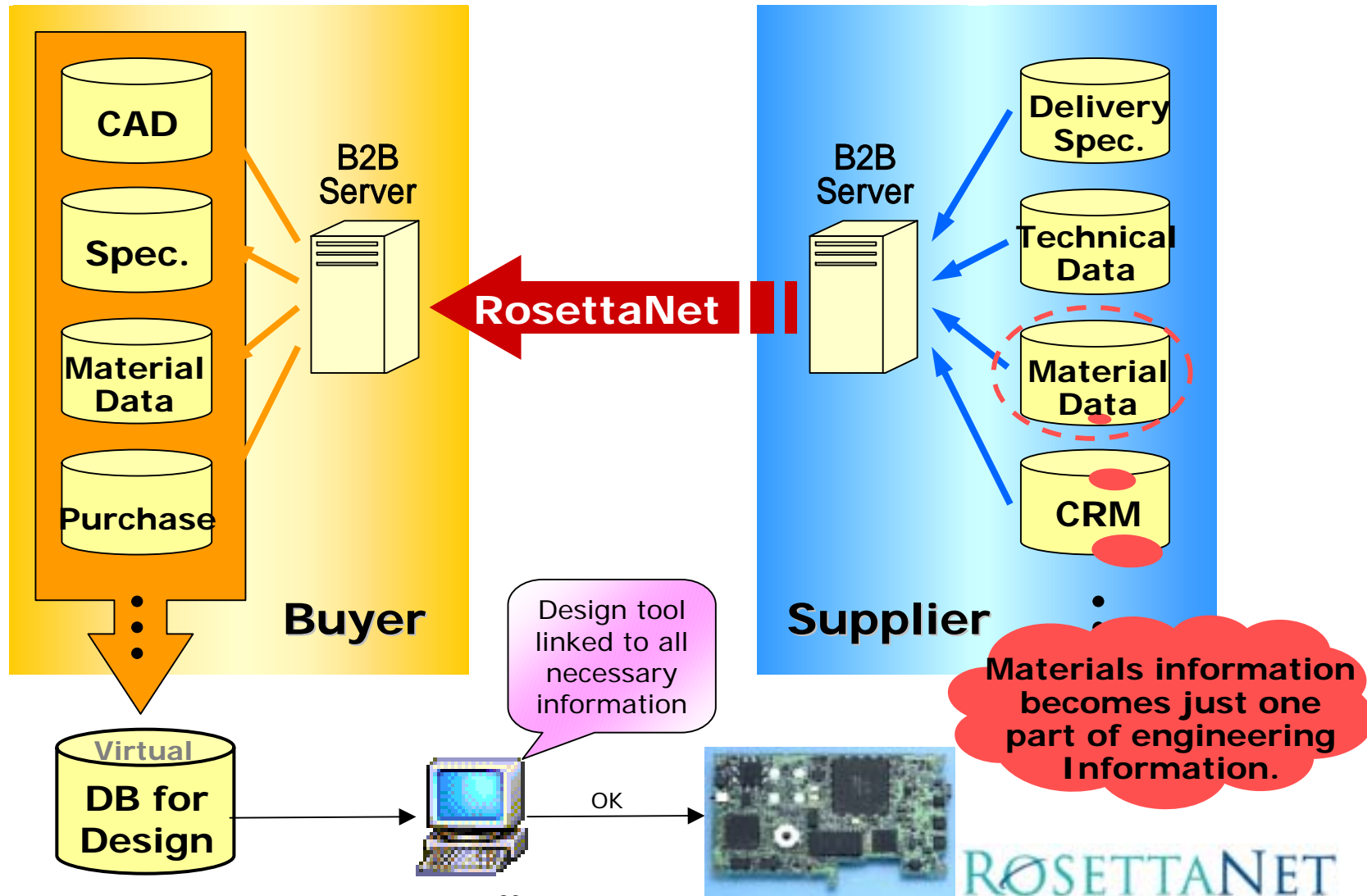
Material reporting in the future

1st step in BPR (Business Process Re-engineering)



Material reporting in the future

2nd step in BPR (Business Process Re-engineering)





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Summary

Materials reporting activities in RosettaNet

- **Flexible materials reporting under RosettaNet**
 - **Global standard**
 - **Covering both MNCs and SMEs**
 - **Handling various formats**



PIP and IPC1752

- **Corporate Business Process Re-engineering**
 - **Materials information is just one part of engineering information**



EIM

(Engineering Information Management)



ROSETTANET

eBusiness Standards for the Global Supply Chain

<http://www.rosettanet.org>

<http://www.rosettanet.gr.jp>

RosettaNet Japan Secretariat

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