



A Standard for Automating the Exchange of Material Composition Information Throughout the Supply Chain

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Agenda

Today's presentation

1. Background

2. RosettaNet

3. Support for both MNCs and SMEs

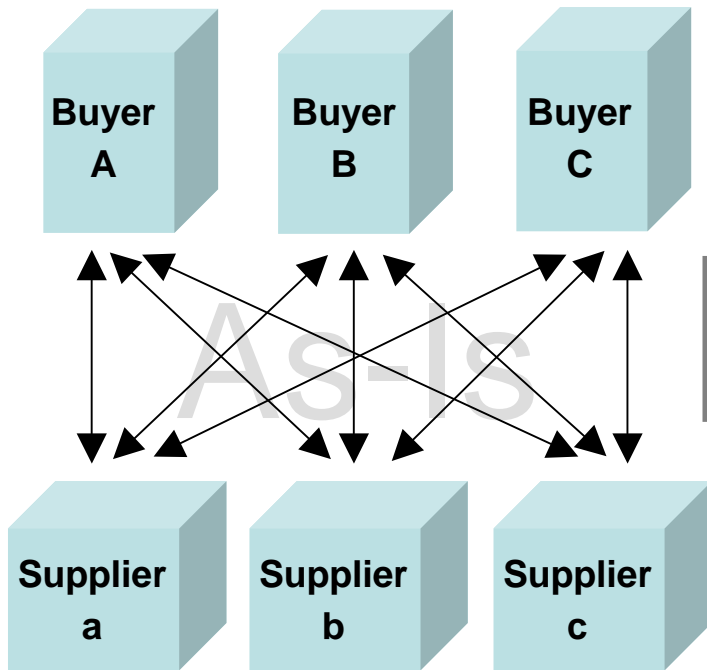
4. Engineering Information Management

5. Summary

The Need for Material Information Exchange

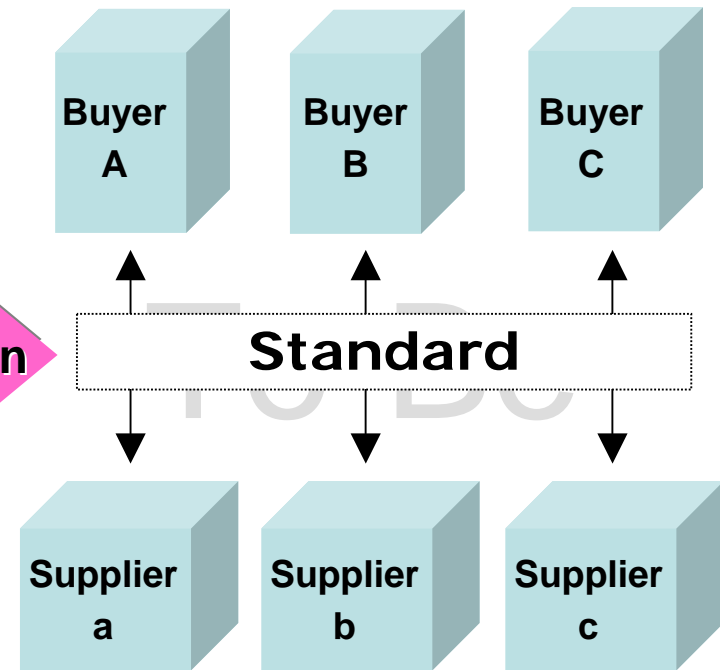
Partners should use the same standards

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!

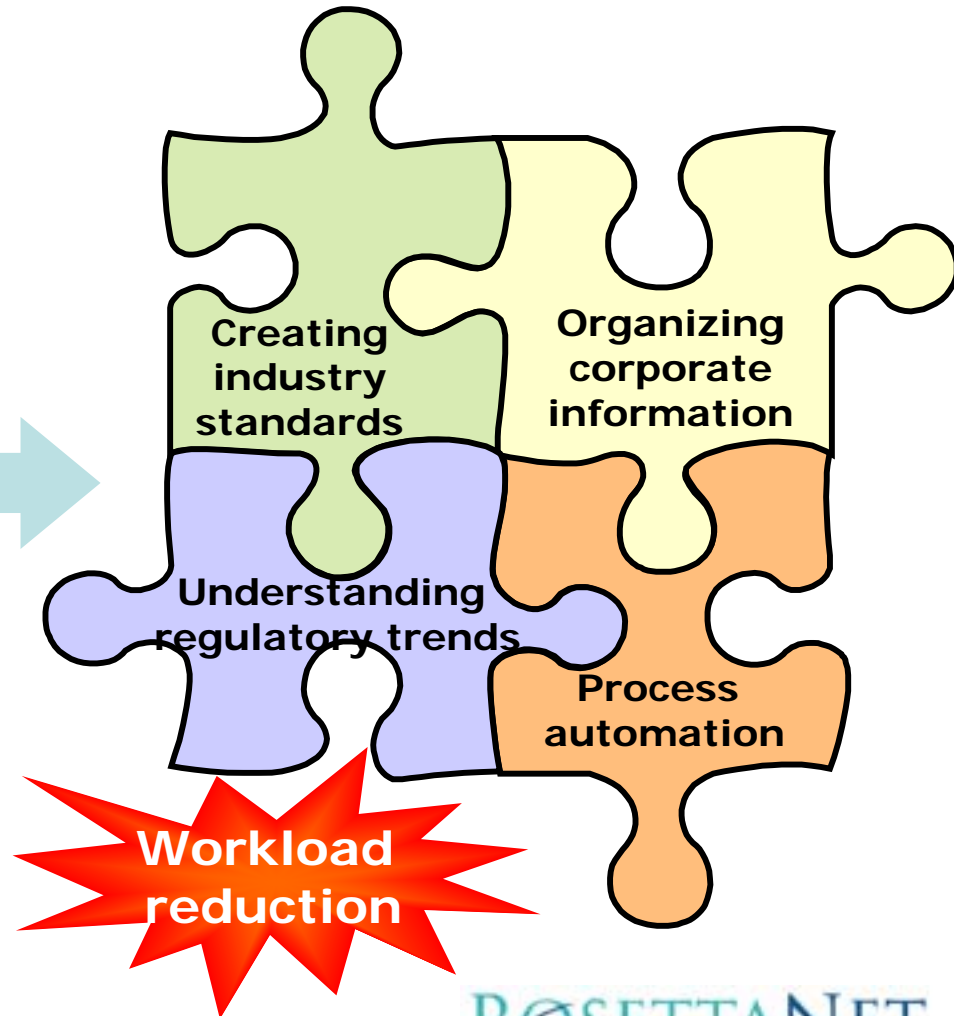


Each company has different requirements, target materials/substances and response paper formats, so suppliers' work load increases.

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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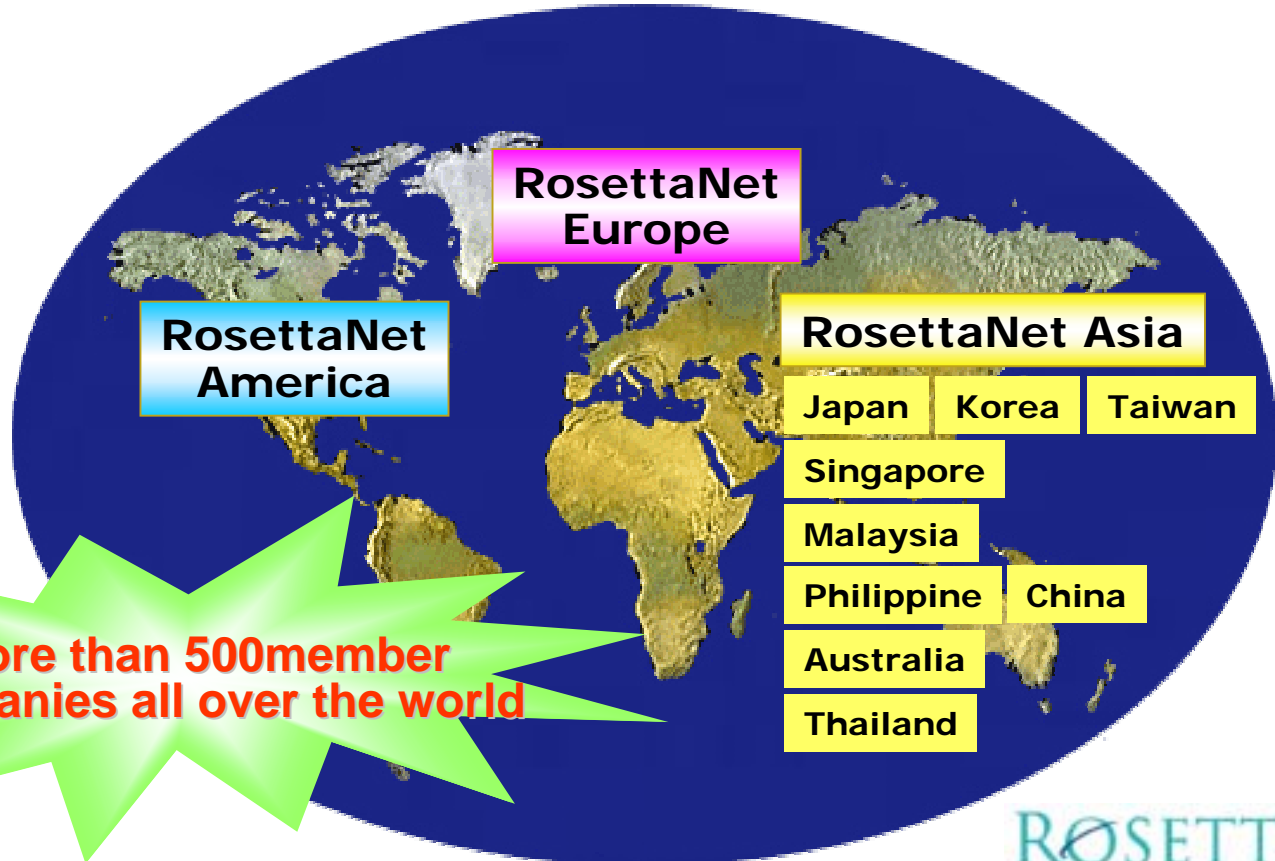
The expansion of RosettaNet World

B2B Global Standards

RosettaNet allows all companies in any supply chain to “speak one language” and to transact with any partner uniformly, using Internet standards protocol, thereby reducing the costs of maintaining the partnerships.



“RosettaNet” originates in Rosetta stone.

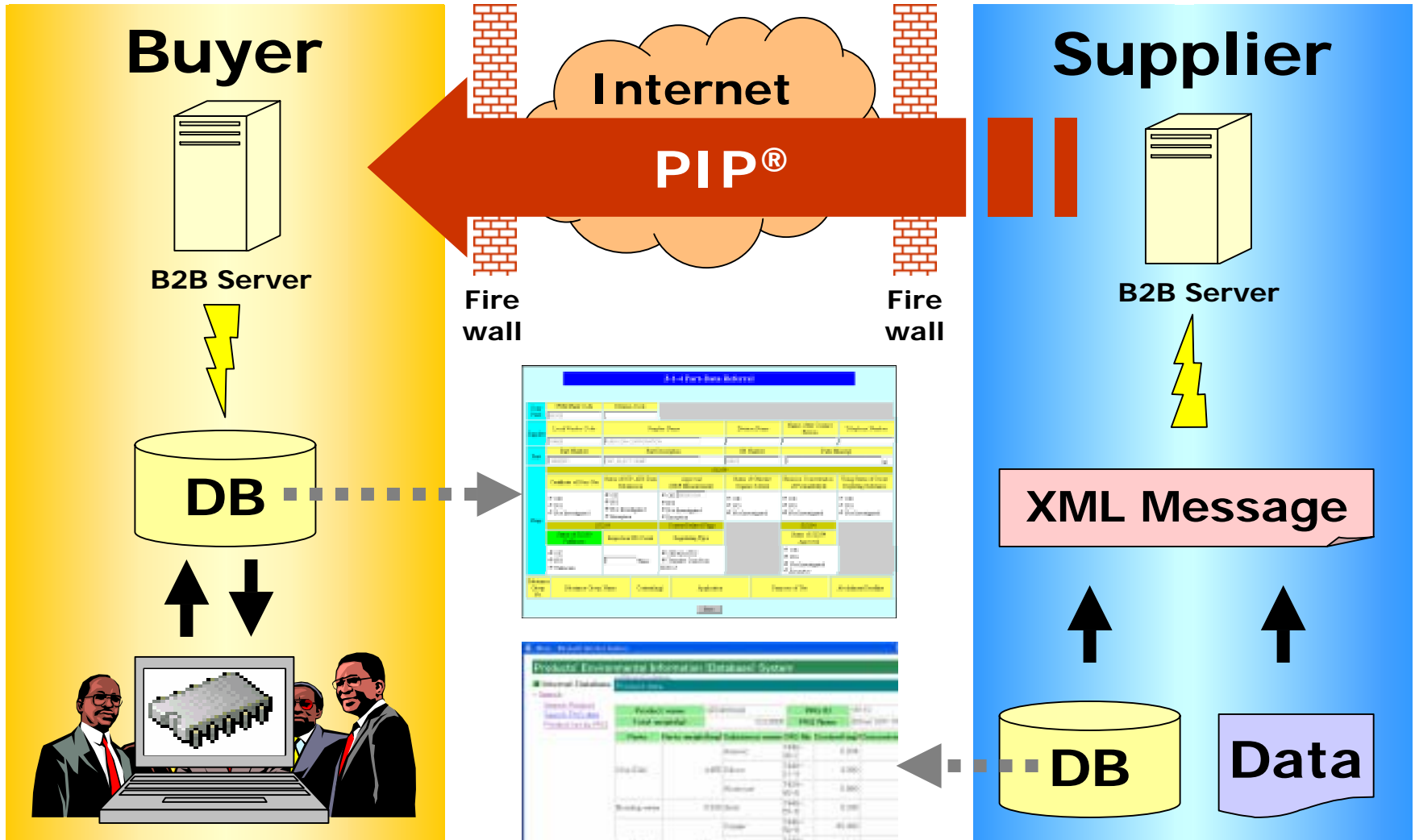


More than 500 member companies all over the world



Sending Data using RosettaNet

From one backend system to another backend system



* XML: eXtensible Markup Language

**PIP®: Partner Interface Process®

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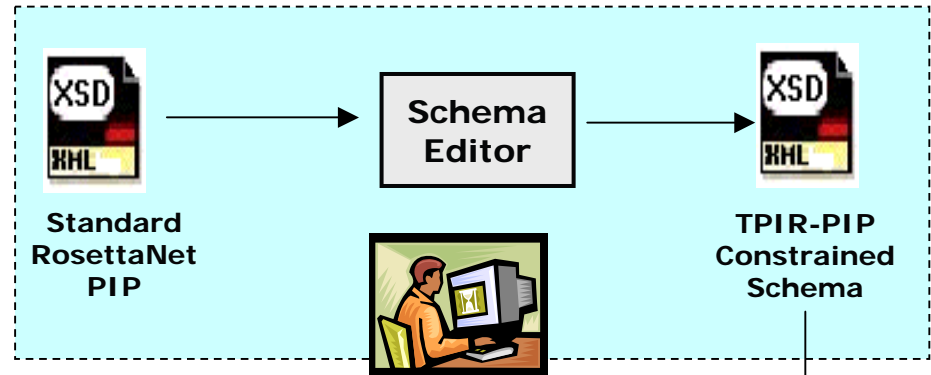
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Design Process

RosettaNet Automated Enablement Program

STEP 1. Supply Chain Business Process and Appropriate Partner Interface Processes (PIPs) Selected

- E.g. Plan, Source, Make, Deliver, Service, Return

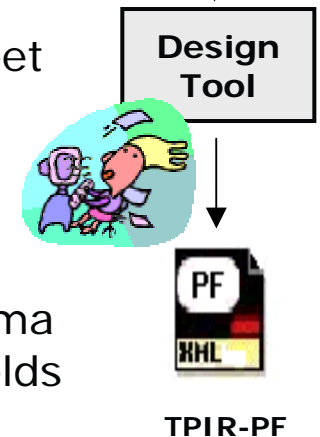


STEP 2. Create TPIR-PIP*

- A company customizes the standard RosettaNet PIPs to meet their implementation requirements.
- The output of this is an XML Schema called TPIR-PIP.

STEP 3. Create TPIR-PF**

- A human readable form is created using the TPIR-PIP schema
- The output is called a TPIR-PF form. It contains only the fields defined by TPIR-PIP schema



*TPIR: Trading Partner Implementation Requirement
** PF: Presentation Format

Ref: John Cartwright, "Accelerating Connectivity with Small and Medium Enterprises", 2005 U Connect Conference, 2005

ROSETTANET
eBusiness Standards for the Global Supply Chain



TPIR-PIP Implementation

Only define the elements you use from a PIP

Community PIP

A PO (3A4) with over 1000 fields

```
<sdctr:Sender schemaVersion="1.0">
  <sdctr:BusinessServiceInformation schemaVersion="1.0">
    <sdctr:ActionName>String</sdctr:ActionName>
    <sdctr:ProcessIdentifier>String</sdctr:ProcessIdentifier>
    <sdctr:ProcessReference>String</sdctr:ProcessReferen
```

Community Schema

```
<uctfi>ContactInformation schemaVersion="1.0">
  <uctfi>Contact>String</uctfi>Contact>
  <uctfi>Email>String</uctfi>Email>
  <uctfi>Fax>String</uctfi>Fax>
  <uctfi>Identifier>String</uctfi>Identifier>
  <uctfi>Phone>String</uctfi>Phone>
</uctfi>ContactInformation>
<uptm:PartnerIdentification schemaVersion="1.0">
  <uctcn:AlternativeIdentifier schemaVersion="1.0">
    <uctcn:Authority>String</uctcn:Authority>
    <uctcn:Identifier>String</uctcn:Identifier>
    <uctcn:AlternativeIdentifier>
  </uptm:PartnerIdentification>
</sdctr:Sender>
</sdctr:DocumentHeader>
<PurchaseOrder schemaVersion="1.0">
  <sdprc:AccountDescription schemaVersion="1.0">
    <sdrcrt:AccountClassification agency="RosettaNet"
  ideListVersion="1.0" Identifier="AccountClassification"
  themeVersion="1.0">CHK</sdrcrt:AccountClassification>
  <sdprc:AccountName>String</sdprc:AccountName>
  <sdprc:AccountNumber>String</sdprc:AccountNumber>
  <sdprc:BillTo schemaVersion="1.0">
    <uptm:SpecifiedIntermittentPartner schemaVersion="1.0">
      <uctfi>ContactInformation schemaVersion="1.0">
        <uctfi>Contact>String</uctfi>Contact>
        <uctfi>Email>String</uctfi>Email>
        <uctfi>Fax>String</uctfi>Fax>
```

The trading partners use common XML tools to edit the original RosettaNet Community PIP of over 1000 fields to just the fields and the constraints they require. The TPIR-PIP is a precise definition of the message structure required for their supply chain.

Trading Partner Implementation

Selects just the fields and constraints they require for their business process

```
<sdctr:DocumentHeader>
  <sdprc:PurchaseOrder schemaVersion="1.0">
    <sdprc:AccountDescription schemaVersion="1.0">
      <sdrcrt:AccountClassification agency="RosettaNet"
  ideListVersion="1.0" Identifier="AccountClassification"
  themeVersion="1.0">CHK</sdrcrt:AccountClassification>
    <sdprc:AccountName>String</sdprc:AccountName>
    <sdprc:AccountNumber>String</sdprc:AccountNumber>
    <sdprc:BillTo schemaVersion="1.0">
      <uptm:SpecifiedIntermittentPartner schemaVersion="1.0">
        <uctfi>ContactInformation schemaVersion="1.0">
          <uctfi>Contact>String</uctfi>Contact>
          <uctfi>Email>String</uctfi>Email>
          <uctfi>Fax>String</uctfi>Fax>
```

TPIR-PIP

Ref: John Cartwright, "RosettaNet Enables Small - Medium Businesses", EDIFICE 94th Plenary, 2005





Example of TPIR-PF; IPC1752

Developed by iNEMI, IPC, RosettaNet

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 Cabi
A	Mercury/Mercury Compounds **
A	Ozone Depleting Substances - Clas
A	Ozone Depleting Substances - Clas
A	Polychlorinated Biphenyls (PCBs) **
A	Polychlorinated Biphenylethers (PC
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 (TBTO)
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 Declaration

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

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 *

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
							mg	Each

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 C	Max Time at Peak Temperature seconds	Number of Reflow Cycles

Comments

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

led 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 in refrigeration.
2a. 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.	12a. Lead in optical and filter glass.
6b. Lead as an alloying element in aluminum containing up to 0.4% lead by weight.	12b. 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.

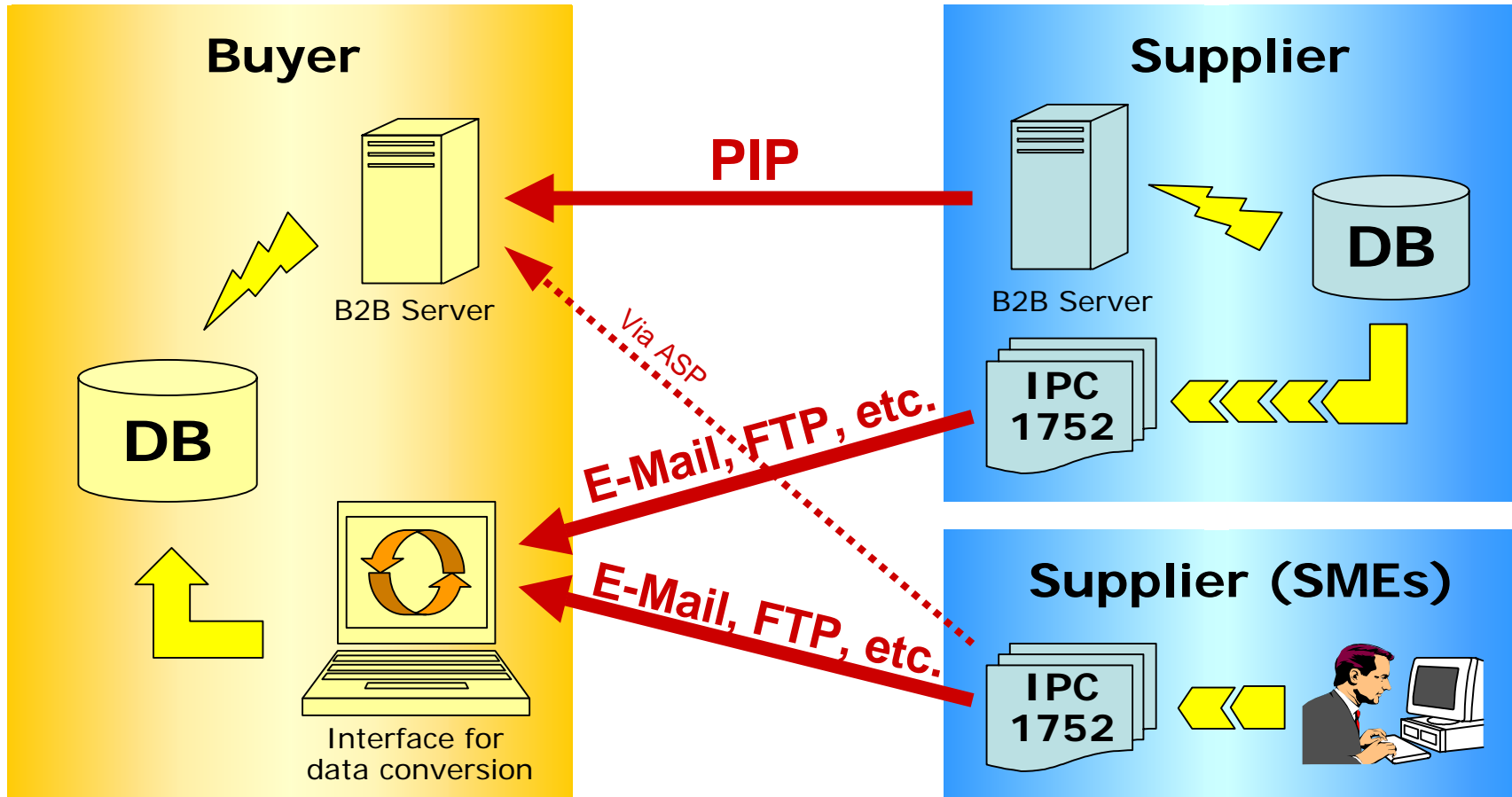
* Required Field CAS Registry Number(R) is a Registered Trademark of the American Chemical Society

```
<?xml version="1.0" encoding="UTF-8" ?>
<MCD declarationType="All" formType="Request/Reply" ipcStandard="1752-1" version="1.0">
  <ManufacturerItemNumber="XYZ456" requesterItemNumber="ABC123" />
  <Request date="2006-12-11" fieldLock="unLock">
    <Requester name="Rosettanet Corporation" />
    <Requester email="h.rosetta@rn.com" name="Hanako Rosetta" phone="0333334444" />
    <Requester contact email="t.rosetta@rn.com" name="Taro Rosetta" phone="0311112222" />
    <Requester unitVolume="Each">
      <Amount unitOfMeasure="mg" />
    </Amount>
  </Request>
  <Response>
    <Product>
      <RoHSDeclaration>
        <ExemptionList version="ExemptionListV1" />
      </RoHSDeclaration>
      <Class34SubstanceCategory jigLevel="A" name="Asbestos">
        <Amount unitOfMeasure="mg" />
        <JIGInfo Threshold="Intentionally Added" overThreshold="false" />
      </Class34SubstanceCategory>
      :
      <Class34SubstanceCategory jigLevel="A" name="Tributyl Tin Oxide (TBTO)">
        <Amount unitOfMeasure="mg" />
        <JIGInfo Threshold="Intentionally Added" overThreshold="false" />
      </Class34SubstanceCategory>
    </Product>
  </Response>
</MCD>
```

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

Gathering materials information

A simple input form is necessary for SMEs



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



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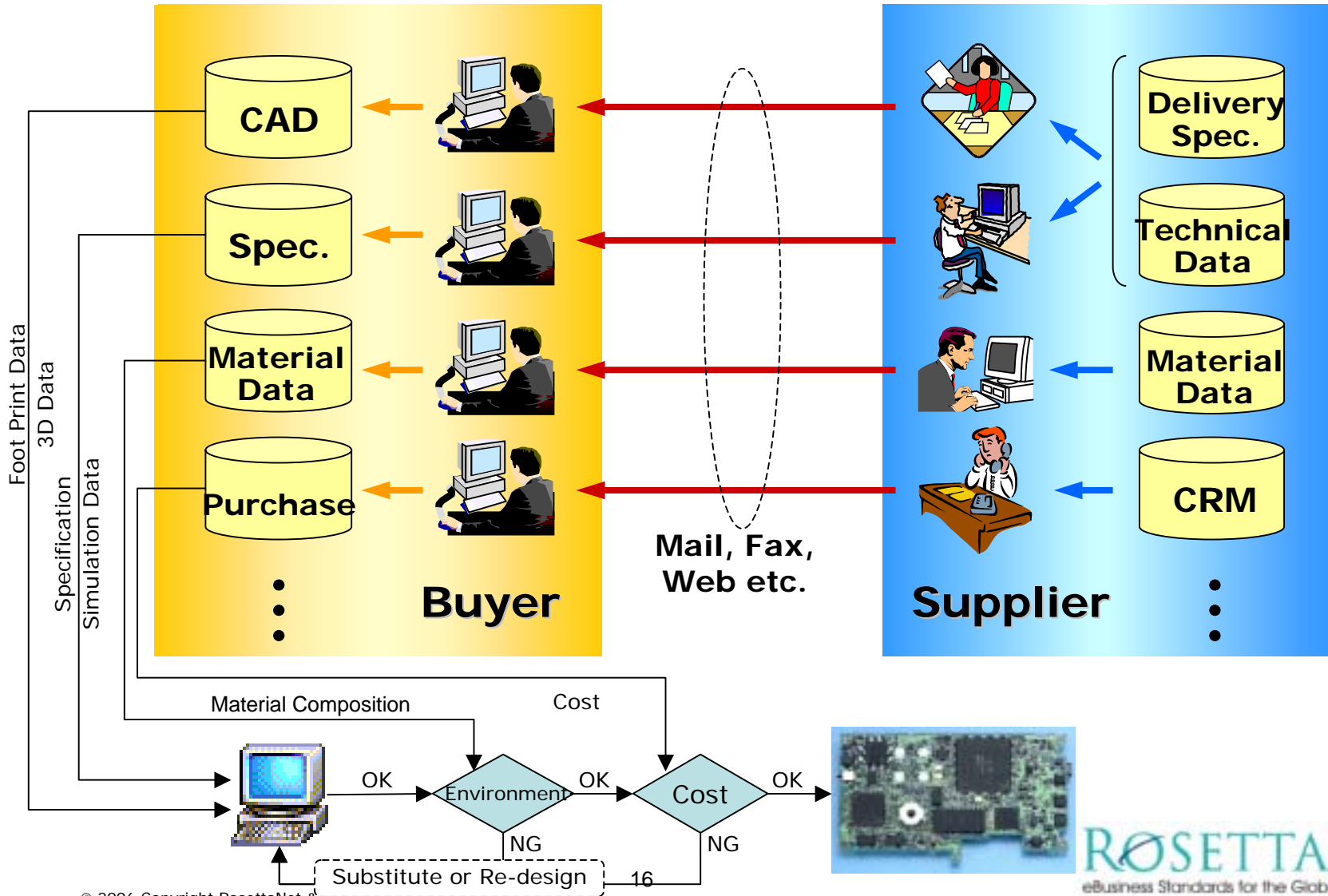
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Material reporting in the future

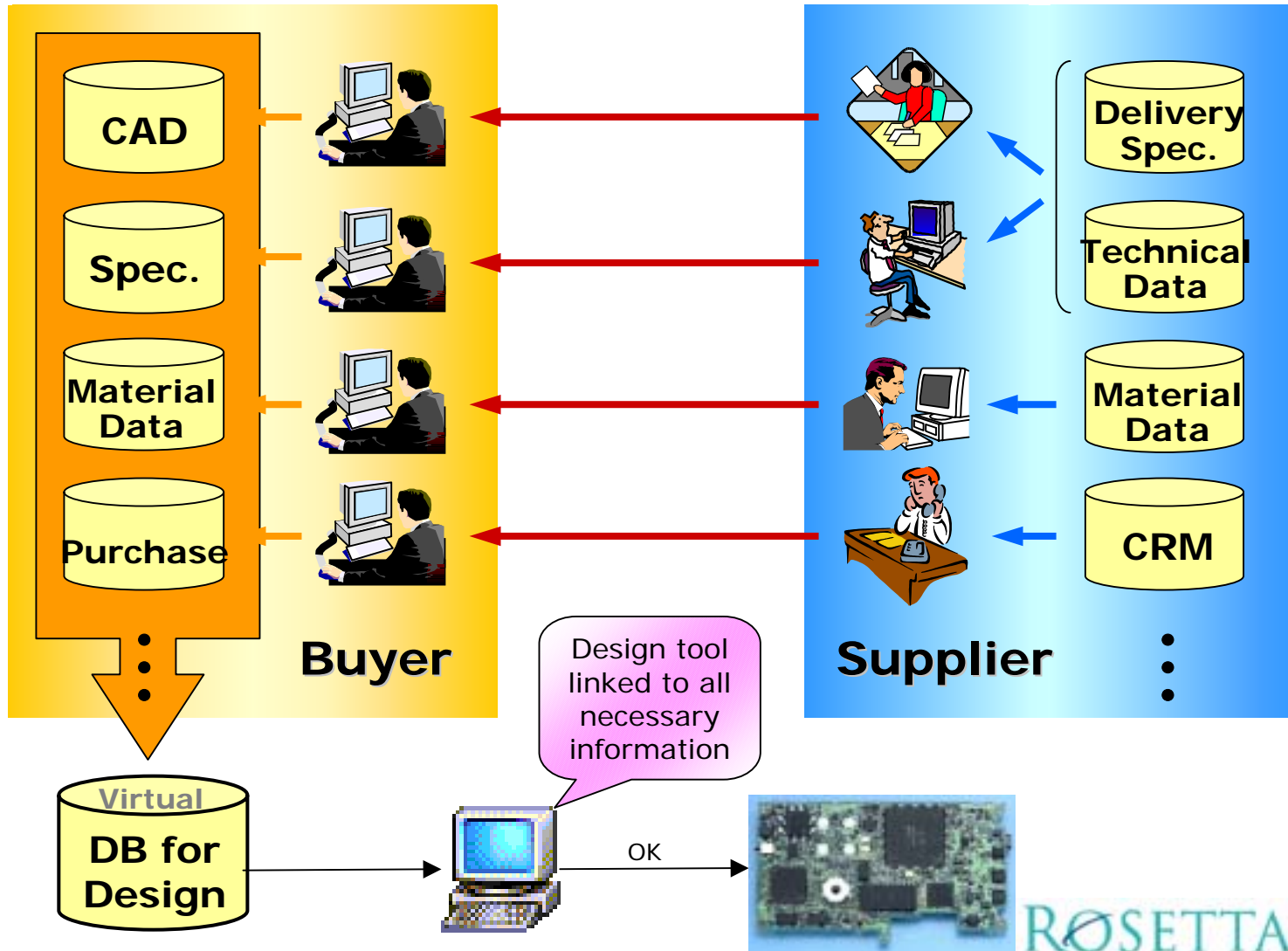
Current design process





Material reporting in the future

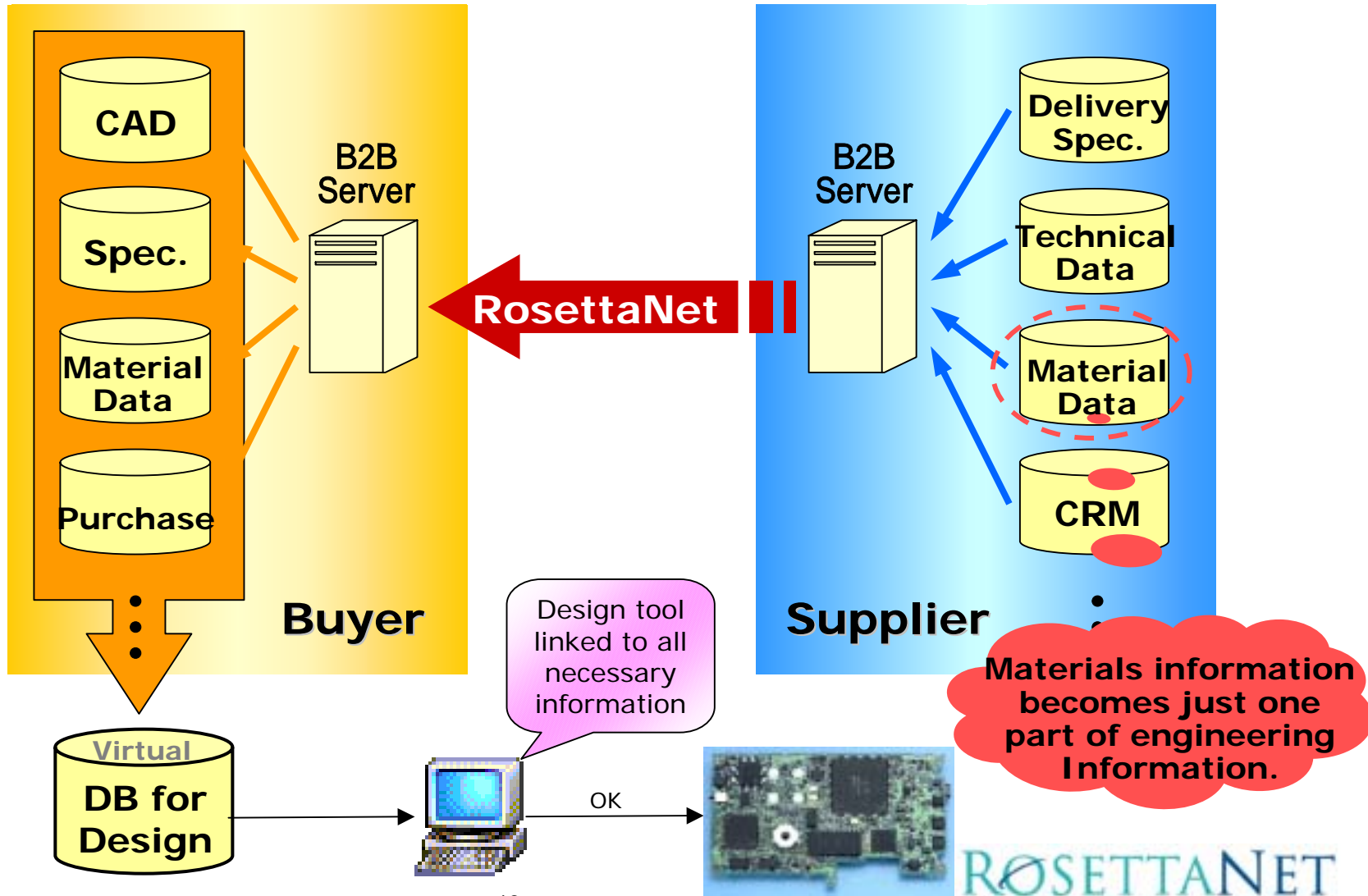
1st step in BPR (Business Process Re-engineering)





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>

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