



## **Teamcenter Compliance:**

RoHS, ELV, WEEE Environmental Compliance

PLM World 2006

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## Introduction & Overview

- ▶ Environmental Compliance – a PLM issue
- ▶ Managing Environmental Compliance with Teamcenter

## Teamcenter Environmental Compliance

- ▶ Demo & Discussion

## Summary / Q & A



# Why worry about compliance?



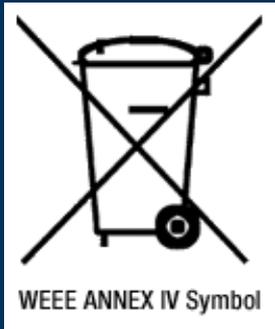
- ▶ If you make a product, you **must** comply with the local and global Environmental Compliance standards
- ▶ ELV (End of Life Vehicle) - All Automotive companies
- ▶ RoHS, WEEE - All High Tech and Electronic companies
- ❖ Fundamental capabilities in Teamcenter help achieve many different compliance standards
- ❖ Teamcenter offers OOTB compliance standards solutions
- ❖ UGS Foundation Partner products help in this area



**You can't afford \*not\* to!**



# Teamcenter Compliance



- ISO 13485
- ISO 9000
- TS 16949

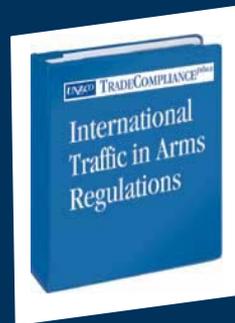


ELV

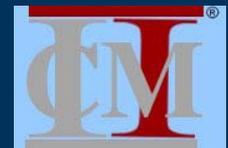
JPGSSI



- DoD 5015.2 (RMA)



- CFR Part 11
- 820
- 483



- Air worthiness Directives

Others . . .



# Teamcenter Compliance Strategy



Utilize fundamental Teamcenter capabilities where possible

- ▶ **Teamcenter Enterprise / Engineering** (e.g. part/document management, mark-up, material & substance management, workflows, reporting, etc.)
- ▶ **Teamcenter Systems Engineering** (for managing product and performance requirements)
- ▶ **Teamcenter Project** (for managing and tracking projects and programs, phase-gates, deliverables, success criteria, etc.)
- ▶ **Teamcenter Lifecycle Sourcing** (for supplier sourcing-related functionality)
- ▶ **Teamcenter Global Services** (for the location and retrieval of information from diverse, physically distributed applications through a logical single point of entry)

Leverage 3<sup>rd</sup> party expertise

- ▶ Industry standards (keeping up with the latest standards)
- ▶ Compliance metrics (verification calculations / reporting)



# Environmental Compliance – A Living Process





# Environmental Compliance



- ▶ Extended Producer Responsibility (EPR) legislation
  - ▶ Ensure Reuse, Recycling and Recovery
- ▶ **ELV** – End of Life Vehicle Directive
- ▶ **RoHS** (EU and China) – Restriction on the use of certain Hazardous Substances
- ▶ **WEEE** – Waste of Electric and Electronic Equipment
- ▶ Other international and US federal/ state legislation



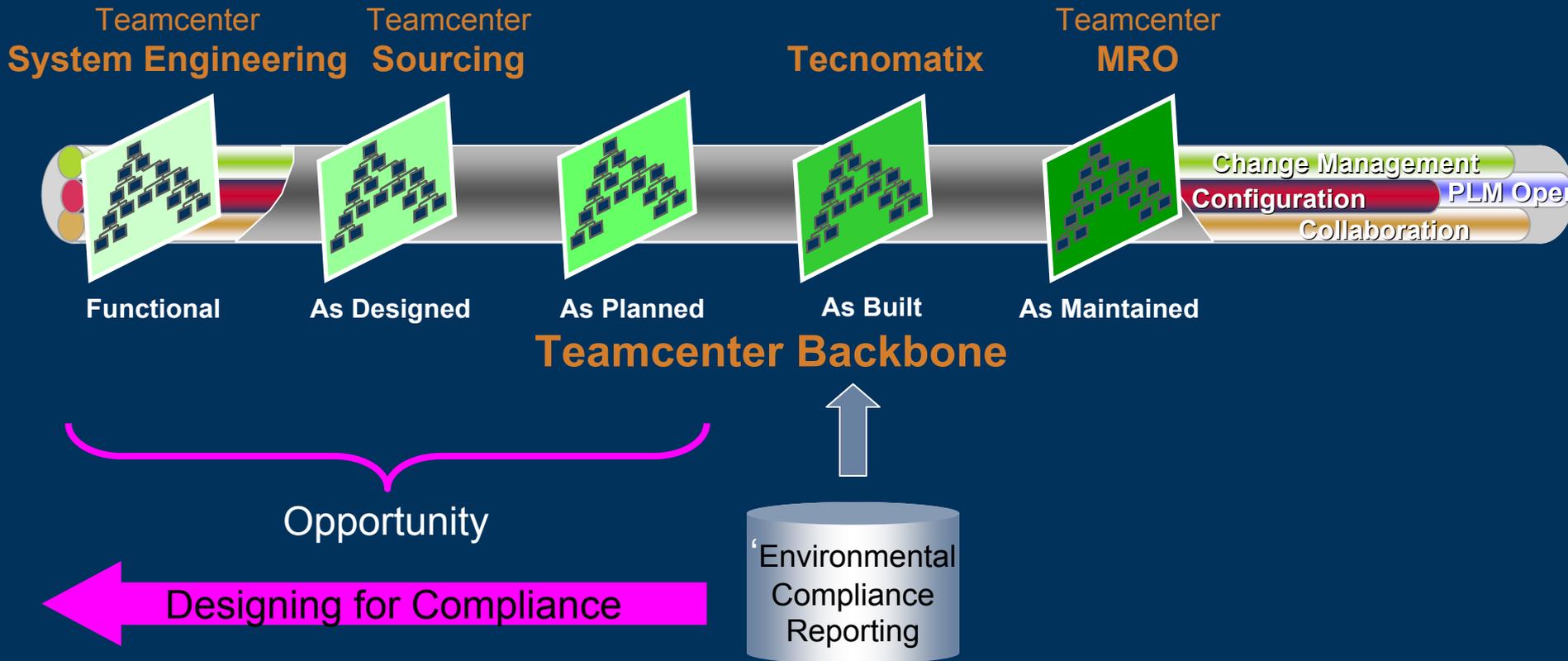
# Hazardous Material Content



- ▶ **Computers**
  - ▶ Harmful substances: Lead, mercury, cadmium, polybrominated diphenylethers
  - ▶ Sources: Circuit boards, connectors, cables
- ▶ **CRT monitors**
  - ▶ Harmful substances: Lead, hexavalent chromium, barium
  - ▶ Sources: Glass, soldering
- ▶ **Flat panel monitors**
  - ▶ Harmful substances: Mercury, lead
  - ▶ Sources: Light bulbs, switches
- ▶ **Digital cameras**
  - ▶ Harmful substances: Polyvinyl chloride, lead acid, cadmium, lithium\
  - ▶ Sources: Casings, batteries
- ▶ **Cellphones**
  - ▶ Harmful substances: Antimony, arsenic, lead, beryllium, cadmium, copper, zinc
  - ▶ Sources: Batteries, circuit boards
- ▶ **Digital music players**
  - ▶ Harmful substances: Arsenic, lead, cadmium
  - ▶ Sources: Batteries, circuit boards



# Compliance – a PLM Issue





# Defining the Solution for managing materials & substances



## Four areas where we are working to resolve:

- ▶ **Teamcenter Data Model** – designing and building a data model in Teamcenter to hold this material and substance data
- ▶ **BOM data mining & aggregation** – pulling BOM material and substance data from various systems (PLM, ERP, MES, SCM, etc.)
- ▶ **Compliance Validation** – the ability to compare a BOM with a particular industry standard (ELV, RoHS, etc.)
- ▶ **Data exchange & reporting** – the ability to roll-up and report this data via IMDS, Compliance Connect™, or other mediums (RosettaNet)



# Teamcenter Environmental Compliance DEMO

**Andrew Wertkin**

Chief Software Architect

Synapsis Technology, Inc.



# Teamcenter Environmental Compliance

“PLM Enabled”  
Material Content Data

BOM from  
multiple tools

ERP  
PLM  
MES

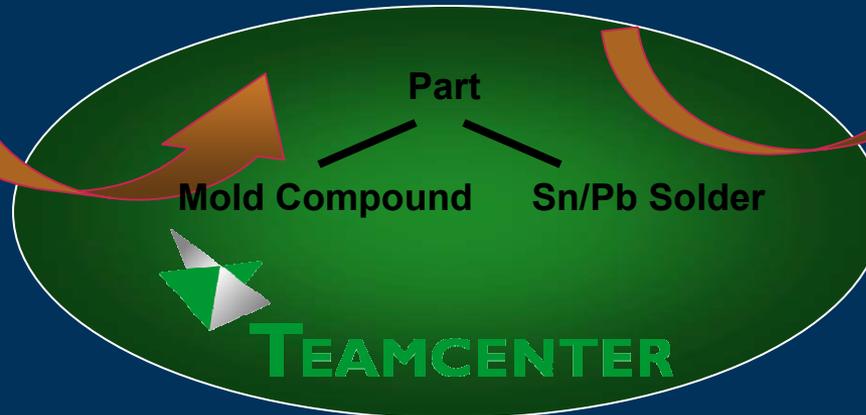
Suppliers

Teamcenter  
Environmental  
Compliance

Customer  
Reporting

- Material Content Data
- Import/Export (Compliance Connect, RosettaNet, other)
- RoHS Compliance Evaluation
- Multi-Source Worst Case Analysis
- Multi-Level Aggregation

- Workflows
- Related Documents
- Supplier Qualification
- Preferred Parts
- CAD Library Interface
- Part Life Cycle Status





# Teamcenter Environmental Compliance

## Key features:

- ▶ Material and Substance Content Management for **Parts and Products**
- ▶ Automatic Compliance validation against **ANY** standard
  - ▶ Prohibited and declarable substance standards (ELV/RoHS)
  - ▶ Regulatory exemption management
- ▶ Data source independent for Part data and Product Bill of Materials
- ▶ Worst case evaluation of *multi-sourced* components
- ▶ Product BOM aggregation at multiple levels
- ▶ Communicate Data Exchange Protocols
  - ▶ Export/Import Excel based tools i.e. AIAG Compliance Connect spreadsheet, JGPSSI
  - ▶ Bi-directional communication via IMDS, RosettaNet, IPC1752 PDF
  - ▶ Support for other format via XSLT configurable reports





# Configurable Reporting to Customers



## Environmental Data Manager



*Generate the report once  
Send and track to multiple customers*

## Customers



RosettaNet XML



IPC 1752 PDF



Compliance Connect™



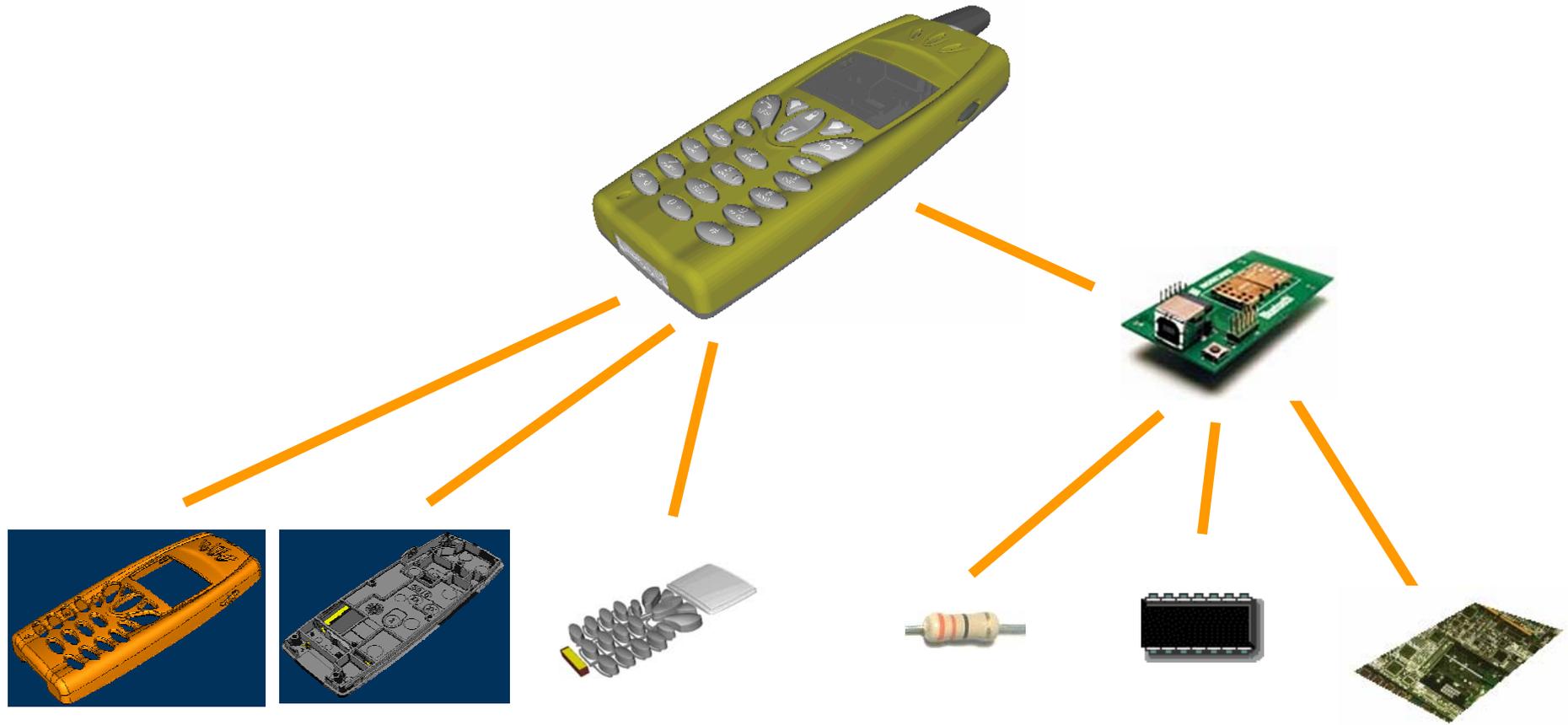
IMDS

Part Number	Part Mass	UOM	Pre-Consumer Recycled (%)	Post-Consumer Recycled (%)
78-7130-02	8.5	G	0	0

Material	Supplier	Substance	Class/Category
CERAMIC	SUPPLIER9	CALCINED CLAYS	7.2 CERAMIC GLASS OTHER
LEAD	SUPPLIER5	LEAD	3.5 LEAD LEAD AND COMPOUND
MOLDING COMPOUND	SUPPLIER14	ALUMINUM SILICATE DIHYDRATE AZACYCLOTRIDECAN-2-ONE, HOMOPOLYMER FIBROUS-GLASS-WOOL MISCELLANEOUS	5.4 DURUM OTHER OTHER OTHER
SILVER	SUPPLIER4	AG	4.2 OTHER OTHER

# ***BOM Aggregation***



*Teamcenter Environmental Compliance allows Complete or Selective Aggregation and Full Disclosure*



# What are the products?



## Compliance **MANAGER**

- ▶ Includes all available / supported protocols (ELV, RoHS, etc.)

### *Targeted Users*

- ▶ Corporate Compliance Officers
- ▶ People who do IMDS or other kind of Compliance Reporting
- ▶ Authors of compliance data into the system
- ▶ Procurement (editing / adding compliance information)
- ▶ Component Management / Commodity Group

## Compliance **ACCESS**

### *Targeted Customers*

- ▶ The entire Teamcenter population including designers and other “users” of the compliance data



# Teamcenter Environmental Compliance Contact

TEAMCENTER

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**UGS**

*Transforming the  
process of innovation*



Thank you!