



The Source for Critical Information and Insight™

Ensuring Environmental Compliance*

IHS Environmental Content and Data Services

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Agenda

- Introduction
- Information challenges of EMS
- Parts Management Solution from IHS
- Necessary Critical Use Models (not just compliance!)
- IHS Complete Content Solution
- Q & A



Introduction

- Supply Chain environment changed because of RoHS/WEEE requirement.
- EMS company need the most update information to keep company stay in the game.
- IHS is the biggest knowledge base company to provide the total solution for the parts management.



Who is IHS?

- Established in 1959, we are a leading provider of critical technical information, decision support tools, and related services.
- Over 47 year operating history, we have developed and acquired a portfolio of products that have earned strong brand-name recognition in the marketplace.



Our Capabilities

Deliver value through a broad set of offerings: *critical information*, *decision support tools*, & integration-based *services*.

- Acquire and aggregate data from thousands of sources
- Develop proprietary content
- Deliver value-added information products and solutions
- Provide complementary services



- Customers obtain constant access to critical information through a convenient single source
- Enable improved efficiency of key processes and better critical decision-making



We believe that the information challenges fall into four major business process types

Information Challenges for Engineering Customers



Information Challenges

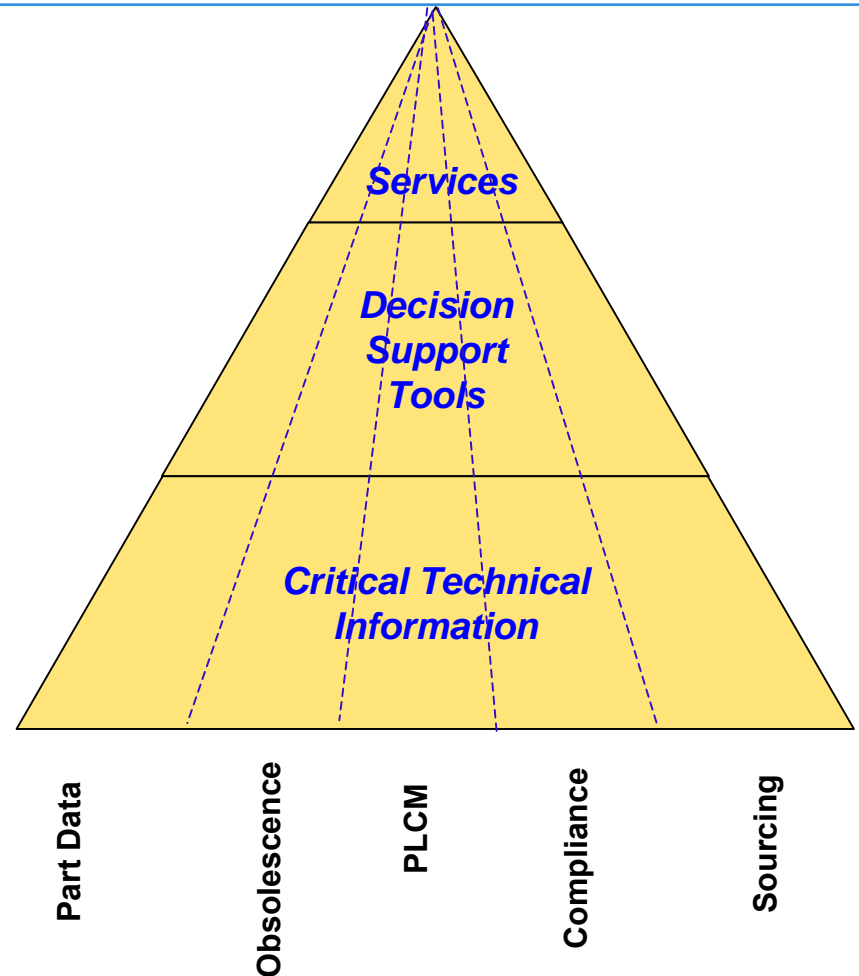
- Can't find correct part
- Poor lifecycle, material, interchange, manufacturability, shelf life, & hazmat information
- Poor alert knowledge
- Poor visibility to supplier preferences
- No visibility to parts used in other programs
- Can't manage to AMLs/AVLs
- Maverick buys
- Supplier proliferation
- Parts proliferation & duplication
- Material knowledge and management
- No linkage to supplier inventory
- Changing P/Ns
- Lack of visibility to inventories
- Maverick buys
- Can't manage to AMLs/AVLs
- Disparate data sources and systems
- Lack understanding of interchangeability requirements
- Lack of standardized product information
- Difficult for customers to easily see into their inventory
- Lack of competitive and product differentiation



The challenges fall into five broad sets, and require a combination of info, tools & services

Five Core Challenges

Challenges	Description
Core Part Data	<ul style="list-style-type: none">• Parts attributes
Obsolescence Management	<ul style="list-style-type: none">• Reactive solution when component parts become obsolete
Product Life Cycle Management	<ul style="list-style-type: none">• Proactive solution to match product life cycle to component life cycle
Compliance Management	<ul style="list-style-type: none">• Design and procure parts in compliance with regulations
Sourcing	<ul style="list-style-type: none">• Strategic and tactical process for sourcing parts



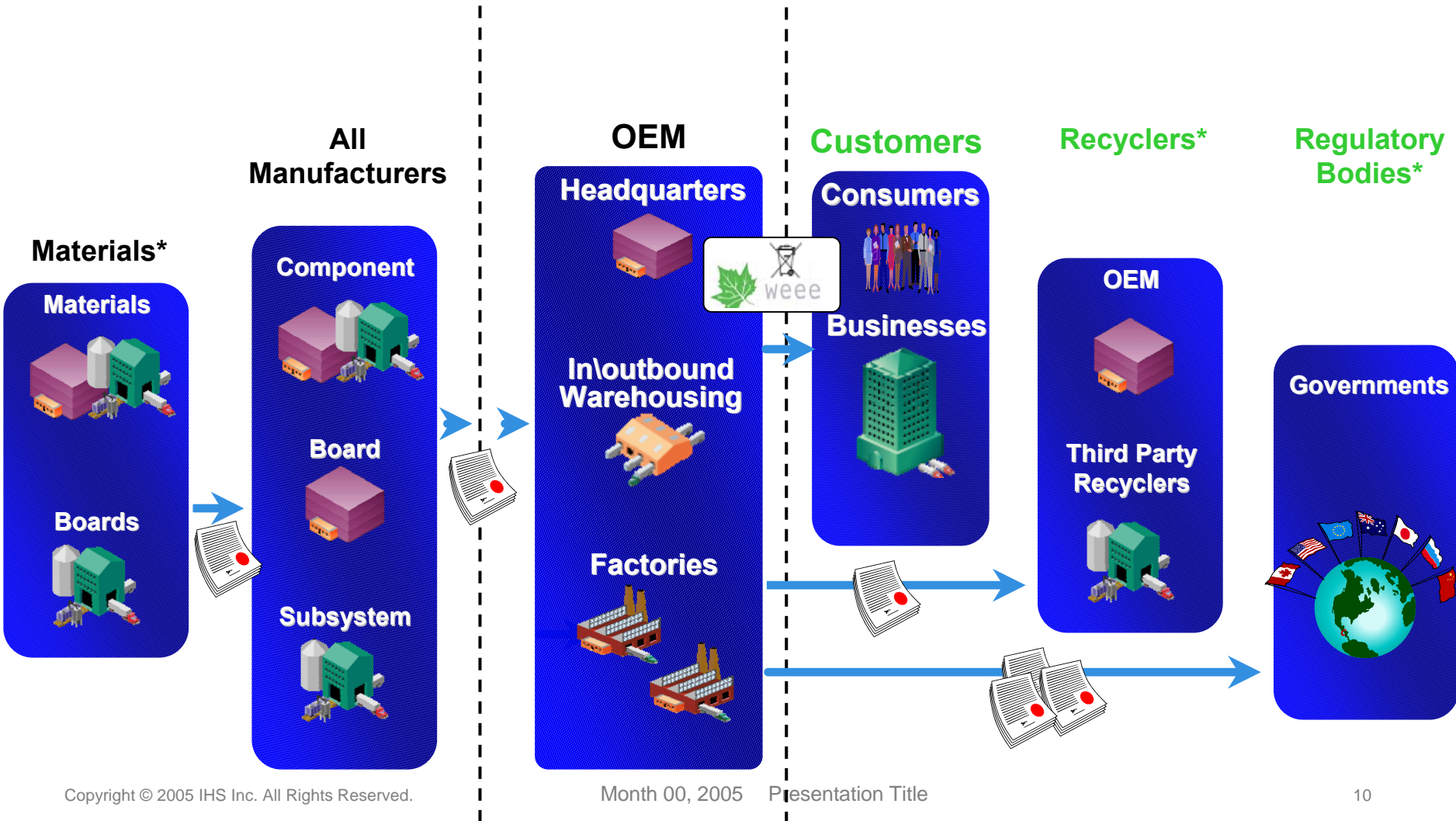


What and how can we help with your RoHS compliance problem?

IHS HazMat Content Services Customers: Distributors / EMS / Appliances / Computers / Telecom



Solution Must provide necessary information to support external information flows (use models)





Our Offerings Overview

1. Services

- Data Collection Services
 - Extraction from IHS content offerings
 - Collection of substance data in accordance to RoHS directive
 - Collection of custom attribute data per customer requirements
- Expert Design and Content Services--Integration

2. Reporting and Analysis Tools

3. Content

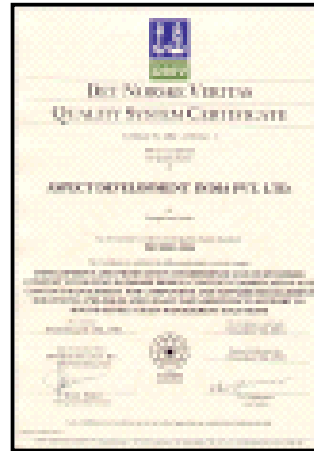
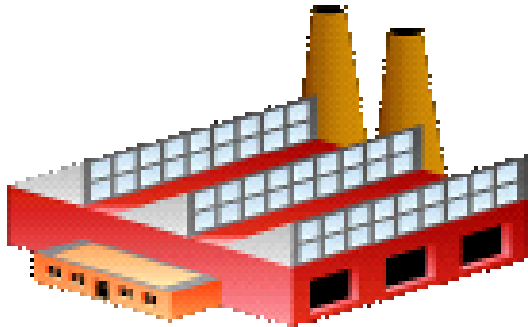
- Component compliance data from our parts data sources
- Component compliance data captured by IHS for customers from data collection services



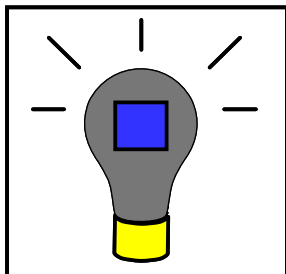
Data Collection Services

- Proven methodology, Professional team
- Customers, including **Lucent, Benchmark, Nortel, Celestica** and others.
- Typically priced on a per part basis
- Several levels of RoHS Data collection
- Customer-specific data collection

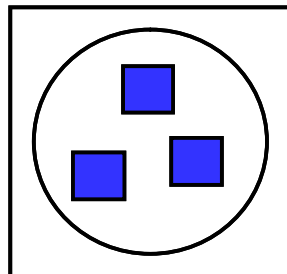
Hazmat Services Overview



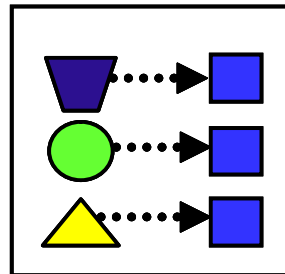
**ISO 9001
Certified
Process**



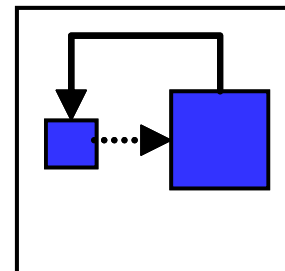
**Domain
Expertise**



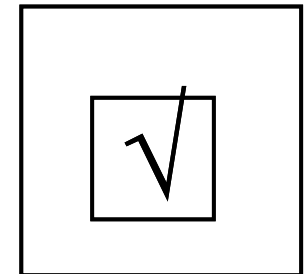
**Aggregate
& Track**



Standardize



**Logic
Check**



QA



Reporting and Analysis Tools -Software

- RoHS-WEEE.NET Software Solution
- RoHS-WEEE.NET provides the infrastructure for companies to comply with their national and international regulatory and reporting requirements for RoHS, WEEE in an easy, affordable and scalable manner.
- BOM management tool- 4D online BOM optimizer



Reporting and Analysis Tools



BOM Mgmt & Database Overview

- Solution Definition
- Value
 - BOM-level view
 - Engineering Efficiency:
 - Environmental regulation BOM analysis
 - Manufacturability BOM analysis
 - Obsolescence BOM analysis and reporting
 - Views to concentrate on attributes needed for tasks
 - Share reports, BOMs, layout, searches

IHS Content: 4D on-line Parts Universe



- Compliance analysis
- Aggregating and Reporting

- Overall compliance
- Part selection
- Analysis and Reporting

<u>Restricted Material / Substance</u>	<u>Total Weight</u>	<u>Maximum Concentration</u>	<u>Related Attributes</u>	<u>UOM</u> (or valid values, examples)
Lead	mg	ppm	Disclosure Date	Date
Cadmium	mg	ppm	RoHS-Compliant	Yes/No
Mercury	mg	ppm	RoHS Exemption(s)	List all exemptions cited (ex: Lead-Glass, Lead-Alloying Element, Lead High-Temp Solders, Lead Ceramics, etc.)
Hexavalent Chromium	mg	ppm	Item Weight	mg
PBB's (Polybrominated Biphenyls)	mg	ppm	<u>Processing (solderable parts)</u>	
PBDE (Polybrominated Diphenyl Ethers)	mg	ppm	Terminal/Contact Finish	SnPb, NiPdAu, SnAgCu, Sn (Bright), Sn (Matte), etc.
<u>Joint Industry Guide Substances (May 2004 version)</u>			JESD-97 Code	e1, e2, e3, e4, e5, e6, e7, N/A
<u>Level A Substances</u>			Peak Reflow Temperature	°C
Asbestos	mg	ppm	Time @ peak reflow temp.	seconds
Azo Colorants (leather and textiles only)	mg	ppm	MSL @ peak reflow temp.	1, 2, 2a, 3, 4, 5, 5a, 6
Ozone Depleting Substances	mg	ppm	Tin Whisker Mitigation Strategy	plating, Fusing, etc.
Polychlorinated Biphenyls (PCBs)	mg	ppm	<u>Alternate Processing (Pb-based; solderable parts)</u>	
Polychlorinated Biphenyls (PCBs)	mg	ppm	Alternate Reflow Temperature	°C
Radioactive	mg	ppm	Time @ alternate reflow temp.	seconds
Certain Short Lead Time Parts	mg	ppm	MSL @ alternate reflow temp.	1, 2, 2a, 3, 4, 5, 5a, 6
Tributyl Tin (TBT)	mg	ppm	<u>Lifecycle</u>	
<u>Level B Substances</u>			Planned years-to-end-of-life (YTEOL)	years
Antimony	mg	ppm	<u>Compliant Replacement Part</u>	
Arsenic	mg	ppm	RoHS-Compliant Part Number	Manufacturer Part Number
Beryllium	mg	ppm	RoHS Identifier (method of distinguishing compliant part)	Part Number/Date Code/Lot Code
Bismuth	mg	ppm	Date Code or Lot Code of Compliant Part (same MPN)	Date Code / Lot Code (values)
Brominated Diphenyl Ethers (BDEs)	mg	ppm	Planned Availability of Compliant Part	Quarter and Year
Nickel	mg	ppm	<u>Certificate</u>	
Phthalates	mg	ppm	Manufacturer's Certificate of Compliance	AS AVAILABLE ON WEBSITE; Expect low coverage to increase over time with maintenance
Selenium	mg	ppm		
Polyvinyl Chloride (PVC)	mg	ppm		

- Part selection
- Part handling and part ID
- Manufacturing compatibility

- Backward Compatibility with Pb-based processes

- Part selection
- Procurement
- End of Life Planning

- Part selection and NPI
- Procurement
- Compliant part identification

Compliance Attributes:



Comparison of Attributes in IHS databases and Services Offerings			
Attribute	Reference Database	Services	Partner Offerings
	4D Online Parts Universe	RoHS + JIG A/B	Underwriters Laboratories Compliance DB
Key Compliance Attributes			
RoHS Compliant (Yes/No)	●	●	
Lead Free (Yes/No)	●		
RoHS Exemption(s)	●	●	
Item Weight (mg)	●	●	
Disclosure Date		●	
Processing Attributes			
Terminal / Contact Finish	●	●	
JESD-97 (Code)	●	●	
Contact Material (Connectors)	●	●	
Contact Finish Mating (Connectors)	●		
Contact Finish Termination (Connectors)	●		
Contact Finish (Connectors)	●		
Peak Reflow Temperature	●	●	
Time @ Peak Reflow Temperature	●	●	
MSL @ Peak Reflow Temperature	●	●	
Tin Whisker Mitigation Strategy		●	
Lifecycle and Compliant Replacement Part			
Planned years-to-end-of-life (YTEOL)	● (predictive/PCN)	● (sourced)	
RoHS-complaint Number (replacement part)	●	●	
RoHS Identifier (MPN, date code, lot code)	●	●	
Date Code of Compliant Part (when MPN's are same)		●	
Planned Availability of Compliant Part		●	
Documents			
Product Change Notices and Datasheets	●		
Certificates of Compliance or similar (AS AVAILABLE)		●	
RoHS: Substance Concentrations and Weights			
Lead (concentration and weight)	●	●	
Cadmium (concentration and weight)	●	●	● & report
Mercury (concentration and weight)	●	●	● & report
Hexavalent Chromium (concentration and weight)	●	●	● & report
PBB's (concentration and weight)	●	●	● & report
PBDE's (concentration and weight)	●	●	● & report
Joint Industry Guide: Substance Concentrations and Weights			
Level A Substances			
9 additional substances (concentration and weight)		●	● & report
Level B Substances			
9 additional substances (concentration and weight)		●	● & report

• Compliance

• Manufacturing Compatibility

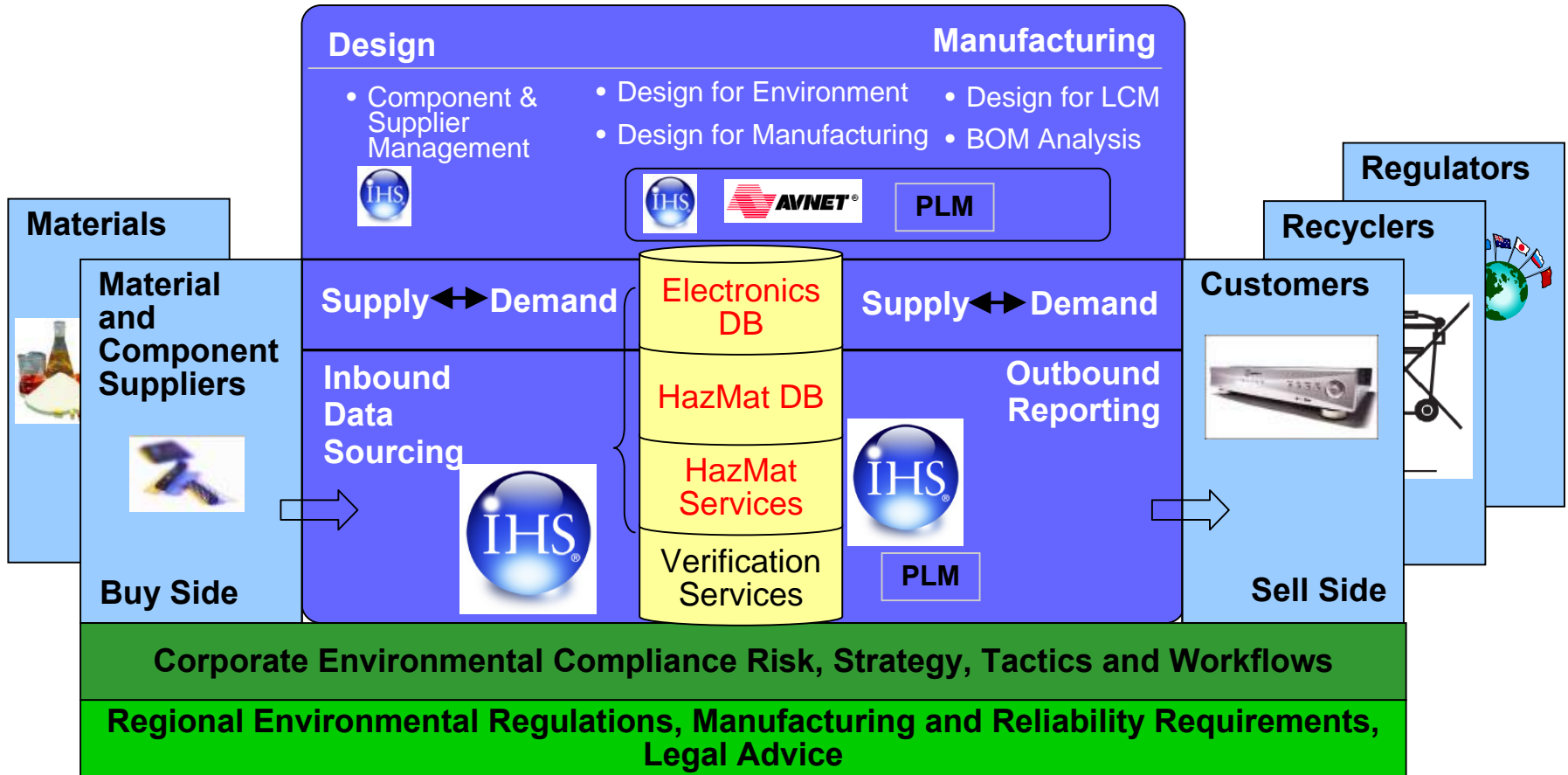
• Lifecycle planning
• Supply chain planning

• Lifecycle planning
• Documentation

• Lab Verification

• Supporting information
• Substance Aggregating
• Reporting

IHS supports corporate compliance strategies



Content

Applications

Verification

Workflows



IHS Advantages

- Robust Solution based on European and Legal Guidance
- Fuels internal and external use models
- Mix of Reference DBs, Services and Partner Verification
- Provides most cost effective solution
- Solution evolves as regulations, manufacturers abilities and industry standards
- Provides build and maintain services
- Leverage experience to ensure most robust solution



Q & A