

PERSPECTIVE

Supplier Traceability and Material Declaration Trends in the Solutions Provider Landscape



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Abstract

Organizations are now coming under increasing scrutiny by regulatory authorities and other stakeholders such as consumers, B2B partners and their suppliers. Product-related compliance setting, in the areas of product safety, material declaration, and now product environmental footprints are increasing in importance and adoption by global companies.

Human health and environmental impact assessment have been the primary drivers. The maturity of the regulations is varied. They differ based on geography and their legislative impact. These regulations are constantly evolving, making it more challenging for companies to stay current. The trend however, leans towards improving traceability of a product from its suppliers while looking at the product holistically. This is where the outsourcing partner can step in and help global enterprises.

A more holistic look at a product will encompass the entire life cycle from raw material extraction, design and conceptualization, manufacture and shipping to recycling, re-manufacturing, and end of life.

In this document, we will look at the various drivers behind material composition declaration regulations such as REACH & RoHS, the issues faced by organizations in meeting them and how the solution provider landscape is evolving to address this need.

Key challenges

There are a number of regulations that manufacturers are to mandate on reporting hazardous content of their products. Figure 1 explains the regulations and the stipulations for each that vary in degrees of enforcement. The EU had first implemented these rules. The rest of the world is now increasingly adopting the framework. These regulations are all in varying degrees of enforcement based on geography. The global manufacturer cannot have different sets of standards to report to, but will need to be equipped to meet the most stringent requirements. Supplier dependency is a huge risk factor for successfully reporting to the regulations.



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End-to-end visibility and traceability

For global companies with thousands of employees, it is daunting to improve supplier transparency to trace products effectively. Supplier volatility, attrition, and new supplier induction are chief drivers, which result in inconsistency in data

collection processes. This has led to the industry coming up with standardization of data formats, supplier exchanges, EDI portals and communication protocols.

Enterprises are relying heavily on their outsourcing partners for standardization and systemic improvements. Outsourcing partners help to enhance their supplier

management functions specifically related to compliance of products. To keep abreast with the changing nature of the regulations such as REACH is challenging. It requires updating the list of SVHC (substances of very high concern), every six months, requiring organizations to be prepared to collect, calculate liability, plan and report in a timely fashion.

| | Entered into force | About | Key obligations |
|-------------------|--------------------|--|--|
| REACH Regulation | June 2007 | Registration, Evaluation, Authorization and Restriction of chemicals applies to all chemical substances produced and used in the EU and places the onus of proof on all suppliers in the supply chain in most companies. | To collect, manage and submit information on the properties and hazards of substances manufactured or imported into the EU in quantities of one tonne or more per year. |
| RoHS Directive | Jul 2006 | Restriction of Hazardous Substances Directive restricts the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment. Applies to manufacturers inside the EU member states and manufacturers outside of Europe wishing to export their products to the EU market. | Manufacturers are obliged to develop and maintain documentation to show that their products are compliant before placing them for sale. |
| WEEE Directive | Feb 2003 | Waste Electrical and Electronic Equipment Directive is part of a legislative initiative to solve the problem of huge amounts of toxic e-waste. | Sets targets for producers on collection of electrical and electronic goods waste and the recovery and re-use or recycling of waste collected including documentation for end-of-life treatment. |
| Battery Directive | Sep 2006 | Battery Directive regulates the use of certain substances in the manufacture of batteries e.g., lead, lead-acid, mercury, cadmium, etc. and disposal of batteries in the European Union. | The directive requires companies to enhance collection and recycling of batteries and to assess information on usage of some heavy metals. |

Figure 1: Key material declaration legislations

Trends in material compliance declaration and reporting

Companies are headed towards full material disclosure (FMD) to address the myriad reporting needs in specific geographies. This requires their suppliers to declare the complete list of materials, substances, and their compositions rather than list only regulated substances. Historically, many companies in certain industry sectors have taken a leadership position in going beyond compliance and simple MSDS (Material Safety Data Sheets).

They address sustainability by regulating their reliance on hazardous elements, conflict minerals, rare earths, and elements that are unhealthy and environmentally unsafe. These company specific lists are in addition to regulated lists.

Industries such as the automotive industry have been working on setting standards for decades and more successful in working with their suppliers. Others such as hi-tech manufacturing industries, medical devices and food & beverage industries are struggling to standardize and regulate.

From an ad-hoc reporting approach,

companies are now globally standardizing processes to support material composition declaration and reporting, across all their products, manufacturing facilities, OEM's and suppliers. Other equally important drivers around sustainability require companies to compute their scope 3 emissions from their supply chain. Pressure from consumers and NGOs to improve supplier transparency and product traceability are forcing manufacturers to look at product compliance holistically and not in isolation to specific regulations.

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Taking a holistic approach to product compliance

Looking at the situation in its entirety will take into account dimensions of product safety, environmental impact, material composition disclosure, recyclability, remanufacturing, and finally disposal. It encompasses business functions of product design and conceptualization, engineering, procurement, environment, health & safety, manufacturing and production. Traditional vendor solution providers that address specific aspects of the product life cycle such as CAD,

CAE, and product lifecycle management (PLM) are now expanding their current capabilities to include material composition data collection and reporting. ERP vendors are now addressing engineering design and manufacturing operations are beginning to add similar capabilities.

It is an established fact that more than 75% of downstream impacts on the environment can be avoided by considering related factors earlier in the product design phase. This applies to material composition declaration as well.

It results in avoiding changes to processes, inclusive of changing parts, suppliers, manufacturing process and reformulations, midstream OEM's and assemblers.

As shown in Figure 3, this trends towards organizations increasing their connect with their suppliers to gather material composition data much earlier in the product life cycle phase. This has increased the ability of companies to virtually guarantee product release schedules globally, cut administrative and processing costs significantly, increase faith in their suppliers and eliminate reactivity.



Figure 2: Holistic product compliance

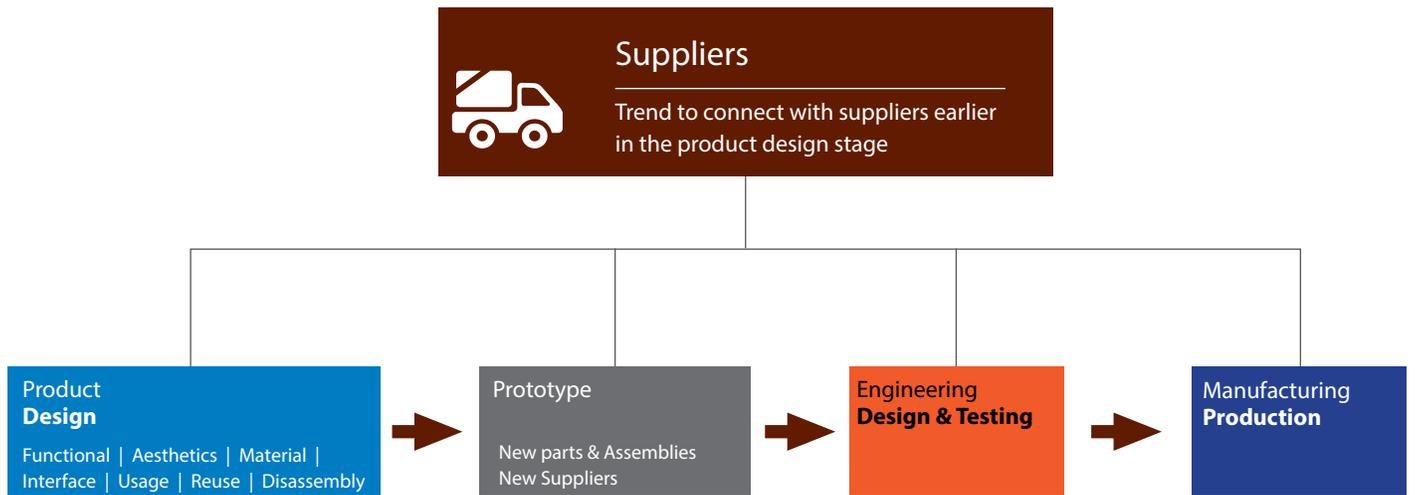


Figure 3: Supplier connect earlier in the design cycle

Supplier collaboration portals

Besides lifecycle assessment (LCA) tools that calculate environmental product impact, supplier portals, a needed component to collaborate with suppliers, along with an outsourced BPO function to enhance supplier enablement is critical to the successful implementation of a product compliance program. Such portals increasingly address data extraction, transform, load (ETL) to meet various needs such as material composition and environmental impact, supplier training and education, communication and stakeholder engagement, compliance

reporting, supplier sustainability ranking and feedback, procurement communications, inventory fulfillment, and vendor payment systems.

Organizations tend to have a tiered stratification of suppliers segregated based on part volume, product(s), geography or a combination of all three. Typically, tier 1 supplies are least volatile and require the least amount of handholding but again it varies by industry and the organization. Figure 5 shows how a conceptual framework, with dependencies to all impacted systems (CAD, CAE, ERP, PLM, and product governance and compliance)

in support of product compliance for an organization, should incorporate a supplier portal. Enablement of such portals on the cloud make them easy to deploy and customize based on supplier specific systems, drive down IT and associated implementation and support costs. Administration of such portals through an enhanced BPO support organization ensures separation of activities now free to be scaled up or down based on need. Such portals also act to unify common supplier interaction functions that tend to be partitioned functionally.



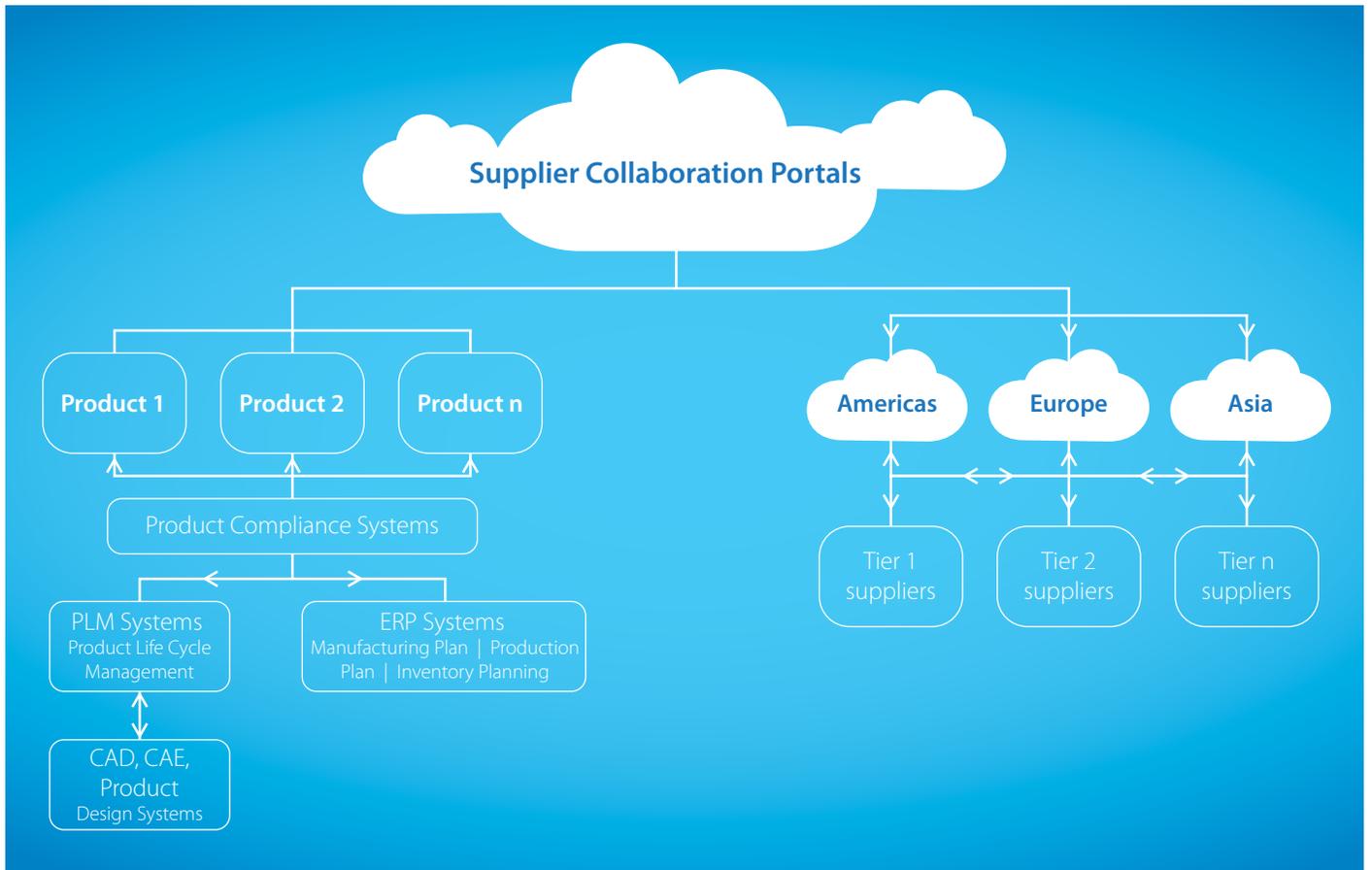


Figure 4: Supplier collaboration portals

Full material disclosure and traceability through BPO leveraged services

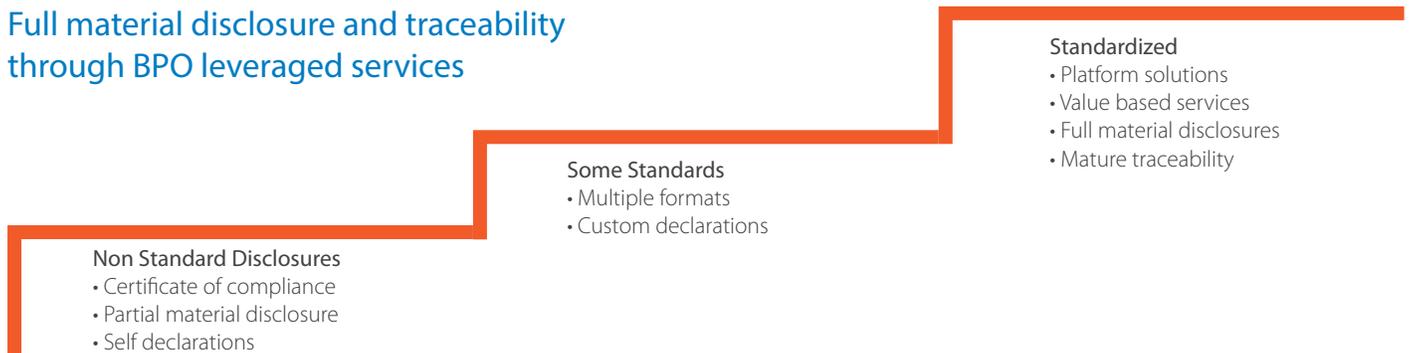


Figure 5: BPO enhanced supplier enablement

Such unifying portals and BPO-enhanced support functions now pave the way for manufacturers to easily adopt a FMD strategy and can further demand it from their suppliers. *Figure 5* depicts the evolution from a set of completely non-standard set of disclosures from one's suppliers (self-declarations, partial

disclosures and simple certificate of compliance), to today's standards based disclosures with a need to drive consistencies and improve traceability. These provide organizations the ability to respond to multiple regulations with varying needs and more importantly constantly changing scope of

reporting and frequency of reporting. As organizations go beyond material declarations to encompass scope 3 emissions reporting, supplier code of ethics and other sustainability related data, the range of data needed and the complexities in collecting made simpler through a portal but still very complex to implement.

The road ahead

What we have discussed so far is the growing trend towards improving one's transparency and hence traceability. Not only are consumers demanding these, parts of it are being increasingly legislated in many parts of the world. The challenges faced by a global organization with the variety of constantly changing regulations both in scope and reporting frequency, especially around material composition, when dealing with thousands of suppliers and hundreds of products is a complex and daunting task.

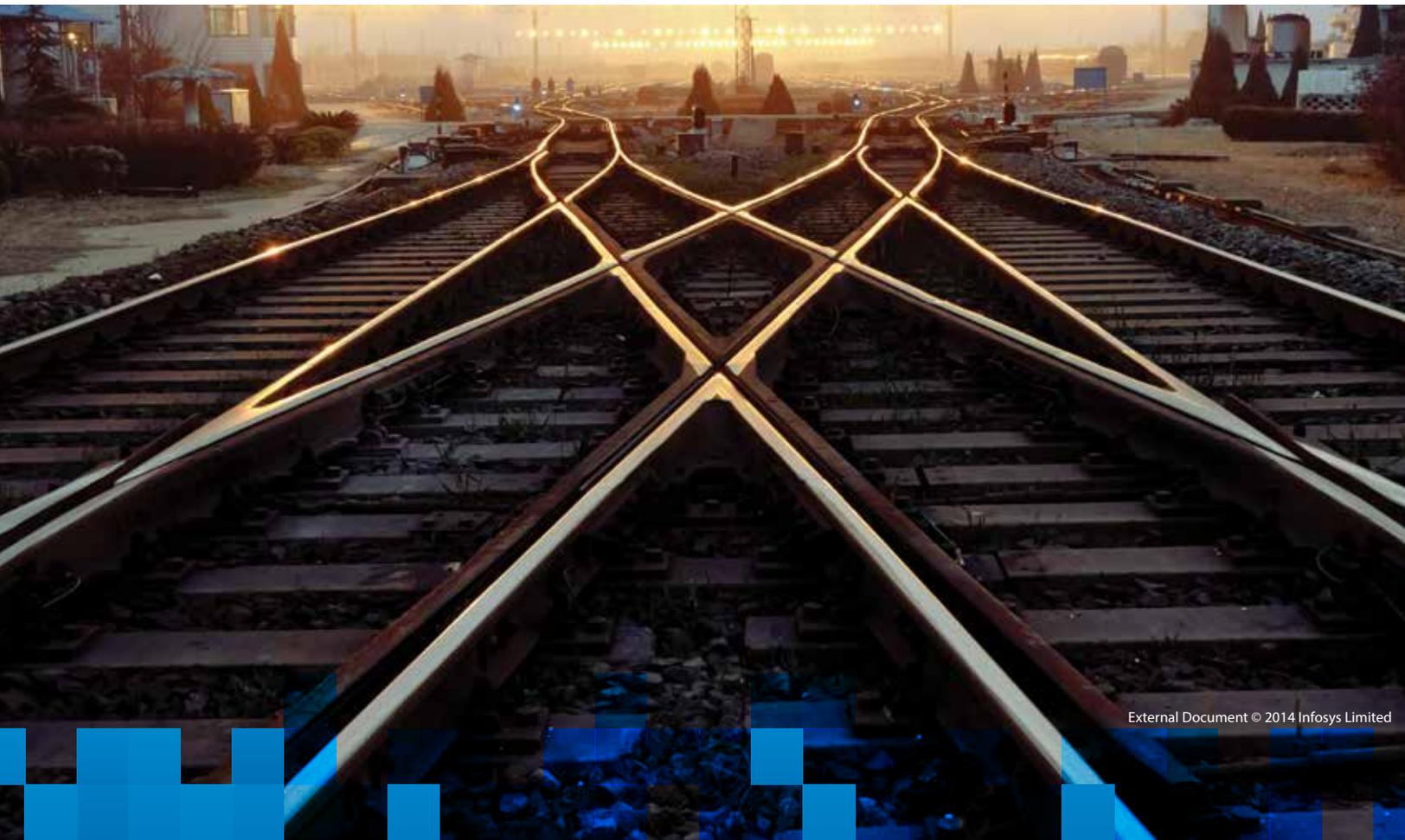
All these contribute towards the manufacturer's bottom and top line in not breaching regulations; avoid costly product recalls; launching products on time and globally; reduce cycle time with suppliers to collect data; and improved brand image with its stakeholders. The benefits seem to clearly outweigh the

perceived complexities associated in implementing an initiative to improve one's supplier transparency. Besides the automotive, hi-tech manufacturing and medical device sectors, food & beverage is next in line in demanding full ingredient disclosure from its suppliers and processors.

The industry is trending towards standardization of associated processes to affect better data collection; supplier enablement through industry specific coalitions and groups; solutions that have suppliers report once as opposed to all of their buyers multiple times. The technology landscape is addressing the need by solutions through existing vendors catering to CAD, CAE, PLM, manufacturing ERP systems and increasingly LCA tools.

Supplier enablement through collaborative portals to affect better communication and feedback, data

collection, training and education and a host of other supplier related activities will become a dominant enabler in the market. Such portals will unify and standardize processes underlying many independent systems that have a touch point with suppliers. The deployment of these portals on virtual clouds naturally lend the separation much desired and need to outsource associated support functions to a BPO supplier enablement service provider. Such providers will be able to address a myriad issues related to supplier volatility; niche supplier sourcing in specific geographies and markets; third party verification and validation services; laboratory testing services; supplier training, education and onboarding; data collection and consistency; and driving sustainability initiatives among suppliers to a buying organization's preferred standards.



About the Author



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Anand Vasudevan is a principal consultant with the Infosys Sustainability Consulting practice. He has worked on sustainability initiatives in Hi-Tech Manufacturing, Retail & CPG, Healthcare, and the Banking sector. Besides designing enterprise sustainability strategies for large organizations, he has worked on a number of carbon liability quantification initiatives and offsets. He specializes in bringing clean technologies to build a renewable energy strategy to meet energy procurement and security goals for enterprises. He has led a number of investments in renewable energy development as an Investment banker and worked on environmental compliance and rehabilitation as an environmental engineer. He has experience in supply chain and materials management in the Hi-Tech Manufacturing sector and related compliance issues and regulations.

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