Design and Supply chain Collaboration in Global Enterprises

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“Lightning-swift advances in technology and communications put people all over the globe in touch as never before-creating an explosion of wealth in certain geography”
Thomas L Friedman

Summary

Market share and cost pressures are pushing Corporations to increasingly look at various strategies like low cost country sourcing, outsourcing, in-sourcing etc. Emergence of China as a manufacturing hub and India as IT Hub has increased the complexities of managing global supply chains. This paper examines the effectiveness of design and supply chain collaboration in High Tech electronic manufacturing industry to introduce new product and effective management of product life cycle.

Introduction

Increasing rates of new technology introduction, increased competition and constant cost pressures are forcing electronic manufacturing organizations to take reactive and sometimes proactive measures in defending the profitability of their products in rapidly declining product life cycles.

With the increased outsourcing of manufacturing to low cost countries, organizations are struggling with visibility of their extended design and supply chains. Manufacturers have realized effective collaboration as one of the key areas to address the issue of visibility in their extended design and supply chains.

To achieve desired collaboration various aspects of organizations design and supply chains need to be integrated. A new set of tools and technology is also required for this new collaborative environment. The collaboration also needs to address the issues of culture and language.

Areas of Collaboration & Issues

- Design chain Management

In a typical product life cycle 80% of the spend decisions are made when a product is designed. In fact, designers are solely responsible for determining 80% of the spend of the product. However while making component or part selections the designers may not be considering the overall supply chain impacts of their decisions like procurability, serviceability, reliability, and manufacturability or compliance issues like recent RoHS etc.
As designers are time pressured to prepare a perfect design s/he would tend to use off the shelf components, or leverage his/her experience on the components that s/he has used for the last product or just use components that s/he could search faster, or through references or a vendor who is in close proximity. For example if a designer uses a component which is at the end of its lifecycle, the resultant product would have to be redesigned with a replacement options. Such selections would lead to high product manufacturing cost.

Still, designers are not to be blamed for it, as it’s not their core competency and at the same time they do not have sufficient information, experience, adequate training, or tools to handle supply chain issues.

• **Supply Chain Management**

Managing supply chain in today’s competitive world is increasingly challenging due to greater uncertainties in demand and supply, market globalization, shorter and shorter product and technology life cycles, and increased use of outsourced manufacturing/distribution and logistics.

Managing external uncertainties might be difficult but internal uncertainties should be minimized because it really shakes up the confidence of supply chain and generates additional pressure on supply chain.

Effective Part and supplier management addresses major parts of supply chain uncertainty:

**Part Management**

An effective part management system enables organizations to increase the effectiveness and profitability. The parts management team should provide the R&D engineer with parts information (parametric, end of life, change information etc.) needed to make the best possible choice for their new product.

A strong part management system helps designers and the supply chain in many other operational areas. For example

• Better price control
• Part standardization
• Reducing inventory carrying cost

Pointing the designer to the best parts has a direct impact on profit margin.

**Supplier Management**

To gain long term wealth and consistently meet customer expectations, supplier selection is important. Suppliers who understand your business, your product, meets design
requirement, pricing and is willing to work closely, should be considered as business partner.

Another aspect in supplier selection is the focus on developing them as a global business partner. This also helps to minimize the risk.

Several times enterprise wide commodity teams focus on managing supply base to meet just the local requirements without understanding the global picture. Sometimes this leads to sudden break down in supply chain. For example if a designer selected an local supplier for strategic components, these component may pass all the quality criteria and may meet designer expectation in the local context.

However, as per current market scenario designing and manufacturing may not be in same geography. To meet regular supply chain requirements this local vendor is not meeting your supply chain expectation. In such cases supply chain cost increases due higher inventory with high risk.

To avoid such cases, organization needs to have a very strong supply qualification process to meet their long term global requirements.

As supplier emerges as an important business partner in your success, Organization should develop a long term partnership with supplier and adopt a common philosophy; shared responsibility and high level of collaboration.

• **Tools and Technology**

To manage global operation most of the organizations have already implemented ERP packages but it’s not sufficient to meet current challenges.

To meet expectations in new environment, an integrated workflow is required focusing on design chain information, supply chain information (including part information, and supplier information) for better integration and decision making.

**Conclusion**

In current competitive environment with squeezing part and product life cycles, an effective real time collaboration of design and supply chain is critical for success.

Only through such collaboration, organizations can address functional, geographical issues and provide “safe collaborative design environment” for new product introductions and continue to be profitable in market.