
"Going Green in PLM" More than a Hype - A Marketing Perspective"

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ABSTRACT

Green is slowly and progressively becoming the symbolic color of eco-consciousness in India. Today, middle- and upper-class citizens are the one's, who environmentally concerned segment of the Indian population. The lower class segment are still struggling to survive, and for them price and convenience, not eco friendliness, are their chief consideration.

Every single brand will have to become green to for the sake of survival otherwise there will be the risk of becoming irrelevant in a world where the response to climate change is critical to the survival of future generations. However, there are numerous ways of making your brand with the power of green thereby achieving greater relevance for environmentally conscious consumers. The very first step in this is to find the two most important aspects of out what you know and also what you don't know - about your products and your company's compliance efforts. Thereafter, to augment design productivity and lower costs, it is becoming increasingly important to ensure that some level of reuse or recycling is built into the design cycle, from initial conception through to production.

This paper emphasizes on how green PLM can be adopted as one such approach towards developing an environment friendly product and thus helps reduce the cost of going green. This paper also proposes a model for functions at the early stages in the new product designing process

KEY WORDS : Green, eco friendliness, environment friendly products, green PLM and green brands.

INTRODUCTION

The time to go green has come now. Whether one chooses to align the brand with a green initiative, support a green mandate, drive green innovation, or absolutely embrace the green imperative, the most important thing is to strike the market while it is still searching for green leadership. By the year 2030, India is expected to be the world's third largest economy of the world. The country's youth will be at the forerunner of the country's green movement. Aware, conscious, motivated, and knowledgeable about eco conscious trends in the rest of the world, they will be among the first to stand up and take notice of the green brands.

What is going green?

"Going green" is all about being aware of the environmental impact of a corporate product line. It is a broad topic that spans the entire product lifecycle of particular product.

- It starts with how the product line is planned: What percentage of the total product line will be 'green' or eco-friendly? And it ultimately concludes with how a finished product is manufactured.
- Does the product contain components that are

recyclable or not?

- There is a broad range of other key issues to be considered, including sustainability of product components, environmental compliance of the factory itself, and the 'green' impact of product packaging.

Green Manufacturing involves methods that minimize waste and pollution during entire process of product design and production. Going green is a complex topic, but PLM is poised to play a key role in making its sustainability sustainable.

Importance of Green Trend

- The green trend is gathering momentum mainly because of global societies. They want to ensure a safe, healthy environment for their density of citizens, as well as future generations. But for retailers and brands, this isn't just a fleeting consumer "trend"; but going green is fast becoming a mandate with sharp legal teeth.
- Large retailers are responding to the green mandate by making sustainability part of doing business. For example, Wal-Mart's green initiatives center on

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creating a more environmentally and socially aware global supply chain, as well as a more energy-efficient store design. In fact, by the end of 2012, Wal-Mart will require suppliers to source 95% of their production directly from factories receiving the highest ratings for environmental and social practices.

Green Product Lifecycle Management

PLM can be thought of as a customized diet plan for a business. Once the system is implemented and the company can trim the fat. The money-saving theory behind PLM is not that necessary elements of a business be scaled back or have limitations placed on them, but that unnecessary waste be eliminated, whether that waste be money, time, labor or supplies.

Green PLM can be summarized as:

"Green PLM is a product conception processes that help to minimize the product's impact on the environment throughout its entire lifecycle."

In this way, the specialized PLM system breaks a business down into its essential elements, thus compartmentalizing operations for the maximum ease of management helping all of these separate elements to work in tandem in order to create a seamless and streamlined business model. Every employee can have access to this single uniform database of information, facilitating and improving crucial interdepartmental communication and keeping everyone on the same page.

"Going green in PLM" is really about eliminating this incredible amount of waste that is not only harmful to the environment, but disadvantageous to business as well."

Green manufacturing requires changing entire process of business.

- The PLM supports green manufacturing strategic initiatives.
- PLM and green manufacturing both jointly work towards conserving time, money, and energy.

Information on product design and material make-up is vital for the recycle and disposal phase.

Processes that are impacted most by going Green

Merchandise Planning -

The slogan of "Going green" begins with the merchandise planning process thereby identifying what percentage of the line will be 'green'. PLM allows

creating a merchandise plan that captures the target environmental impact of the product. During the process of designing the line, the merchandiser and designer can look at what percentage of the line is meeting the 'green' targets that have already been set.

Creative Design aspect -

During the design process, the designer has visibility into the target green impact of the entire product, as recognized by Merchandising. This insight allows the designer to work with all green in mind, which might necessitate either selecting eco-friendly materials such as recycled or organic components, or designing products that can be fashioned in an eco-friendly manner.

During Material Development and Testing -

The most important aspects of green design lies in the usage of materials in the product. PLM makes it easy to use green materials as it captures key attributes on the materials that define how eco-friendly they really are. PLM enables designers to recognize all the materials used in the product by capturing the attributes in a Bill of Materials (BOM). Information derived from the BOM is one of the basic components for calculating the "green index" of the product. There are no written standards for the green index but many companies have created their own formula.

Packaging and Labeling -

In the Consumer Products oriented industry, the environmental impact of product and its packaging is under closer observation and scrutiny by consumers as well as regulators because non-recyclable boxes, plastic bags and filler materials all contribute to unnecessary waste and damage to society as whole. Many companies are examining necessary ways to either reduce the amount of product packaging or use recyclable materials. Green PLM allows corporate to identify the provision for product packaging and determining which packaging has the lowest negative impact on the environment.

Supplier Management -

Supply chain management is one of the most vital processes in managing the green impact of the product. While 'social compliance' within the supply chain is well established, environmental compliance is fast becoming a priority across the supply chain in areas such as tracking both the disposal of production waste and the energy efficiency of the factory.

Product Testing -

PLM technology has been managing regulations in numerous industries, such as electronics, high-tech and medical devices. The technology infrastructure required to manage collaboration between multiple levels of the supply chain (vendor, factory, material suppliers and chemical suppliers) is already proven. Management of materials—that is, defining the materials and identifying which products use the materials—is also a proven PLM functionality.

Green laws and regulations

Green laws and regulations by the government are making it obligatory for organization to design and produce eco-friendly products. Product life cycle Management has evolved into Green PLM, to help organizations develop eco-friendly products, incorporating and managing the green product development and lifecycle. In India, recently, the draft of E-waste (Management and Handling) Rules, 2010 was made public and put in the public domain as a part of the government process of rule making. These shall remain in the public domain with the view of receiving comments from the public and stakeholders for a period of two months. India is the first developing country who has made such law for management of e-waste which puts responsibility and liability on the electronic manufacturers for environmentally safe disposal and recycling of discarding electronic products.

The entire process for law making ways back to April-2008, when Greenpeace called for a meeting of all major electronic manufacturers including international and Indians at Bangalore. After completion of that meeting all the major electronic brands along with other stakeholders agreed on an e-waste law for ensuring level playing field in the sector for electronic production and take-back and recycling of end of the life electronic products.

After that Greenpeace corporate started framing the e-waste rule based on Individual Producer Responsibility (IPR) principle. Wide range of consultations was carried across the country to seek opinion and suggestions of all stakeholders. Finally, the draft e-waste rule (a joint recommendation of industry and civil society) was submitted to the government in June last year. The government accepted this draft rule on a positive note and formed an expert committee to review the draft. The expert committee came out with their recommendations and finally the government notified E-waste Rules on 28th April this year.

Benefits to pursue green manufacturing

Some of the biggest benefits for a company to pursue green manufacturing:

- They are energy saving, efficient, durable, and have low maintenance requirements;
- They integrate recycled content (post-consumer and/or post-industrial); or have been salvaged from existing or demolished products or buildings for reuse;
- For wood or bio-based products, they employ "Sustainable Harvesting" or
- "Sustainable Management" practices;
- They do not contain highly toxic compounds, and their production does not result in highly toxic by-products;
- They can be easily reused (either whole or through disassembly);
- They can be readily recycled (preferably in a closed-loop recycling system);
- They are biodegradable;
- They are made using natural and/or renewable resources;
- They do not contain ozone depleting substances;
- They are obtained from local resources and manufacturers.
- They are considered as cost saving substitutes.
- They help in increasing production.

Paradigm shift from conventional PLM to Green PLM

Green PLM can be elaborated as "a process-oriented, tool based approach to design and deliver environment friendly non- hazardous products using low energy processes through the product's lifecycle, leveraging PLM"

Green products cannot be just disposed off the moment they reach their end of the life-cycle stage. They have to be again de-materialized, de-manufactured, recycled, reused and the energy to be recovered before they are lastly identified for disposal. There have been a paradigm shift from conventional PLM to Green PLM and the way industry works

Figure 1- shows the evolved view of Green PLM as perceived and followed by organizations today

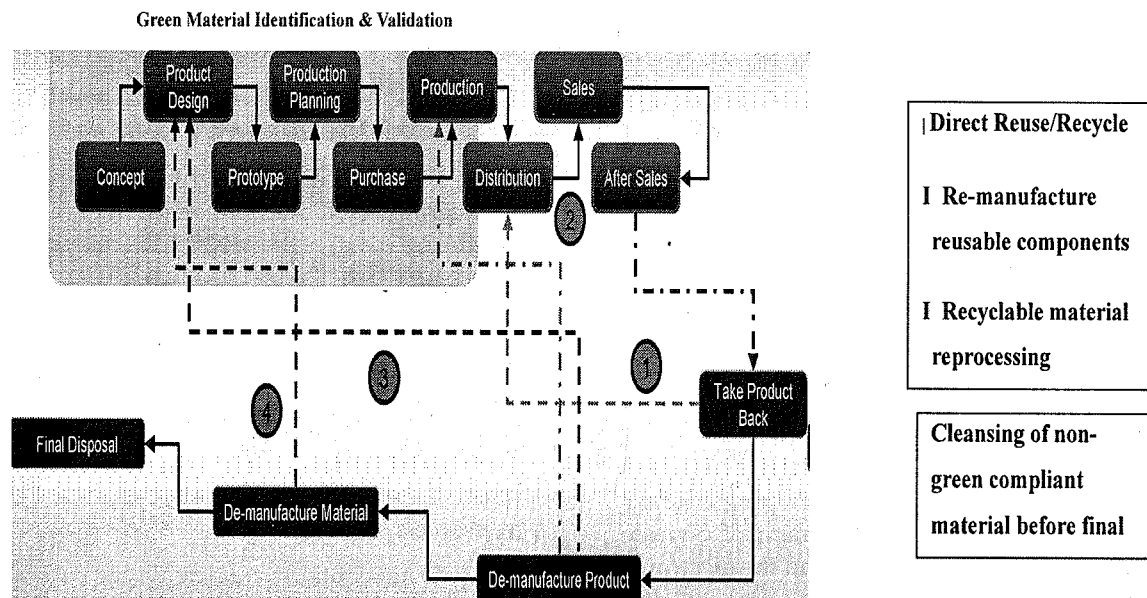
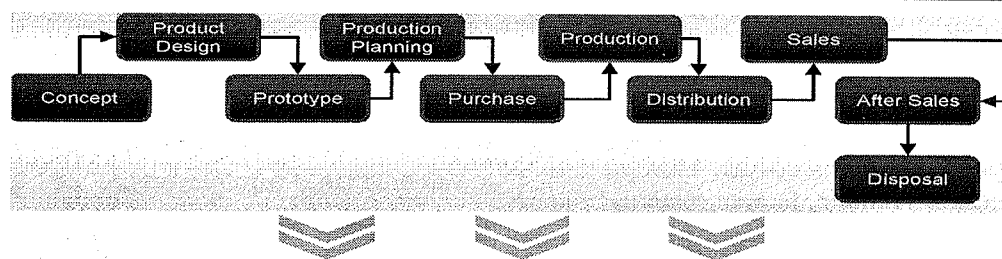


Exhibit 1: Shift from conventional to Green PLM

Examples of Green PLM

- Georgia Tech -Boeing PantomWorks Project - By 2012 at its global facilities, Boeing targets at least 25 percent improvement goals for solid waste recycling rates, energy efficiency and carbon dioxide emissions intensity; and a comparable goal for hazardous waste reduction.
- Innocent drinks, a juice manufacturing company in the U.K., have set up a foundation through which it shares 10 percent of its profits with the developing countries that produce the company's juices. The innocent foundation works with local communities to create a sustainable future and to support innovative projects that make the best use of natural resources. Every critical touch point from farm to fridge to the recycling bin is eco friendly. And of course, the raw juices are natural and healthy and the bottles are 100 percent recyclable.
- Wipro recently unveiled a fresh range of green PCs as part of its Green Ware initiative. Though the company had to incur additional costs in manufacturing these products, it willingly chose not to charge a premium to customers as a way of encouraging them to use the eco friendly products.
- GE has created a green laboratory, Ecomagination, within the organization to build solutions to today's environmental challenges. The company has doubled investment in cleaner, greener R&D and plans to raise revenue from products emerging from these solutions.
- In India-Karnataka government is giving subsidy for Solar water heater, Rain water harvesting & for Architects who promotes green building are given subsidy.

Proposed Model of Green PLM

The companies ought to perform these critical functions related to all components, parts and subassemblies found in new products in order to have an absolute understanding of the materials and substance used for the making of its products. Companies must perform these four functions at the early stages in the new product designing process so that costly product revisions, new design considerations or retrofits and time-to-market delays can be prevented. Traditionally this has been a manual, time-consuming process and one that was very rarely done. The best that some companies could hope for was to get feedback and materials/substance data from partners, suppliers, customers and the market only after products had been released and hopefully before incurring any compliance issues.

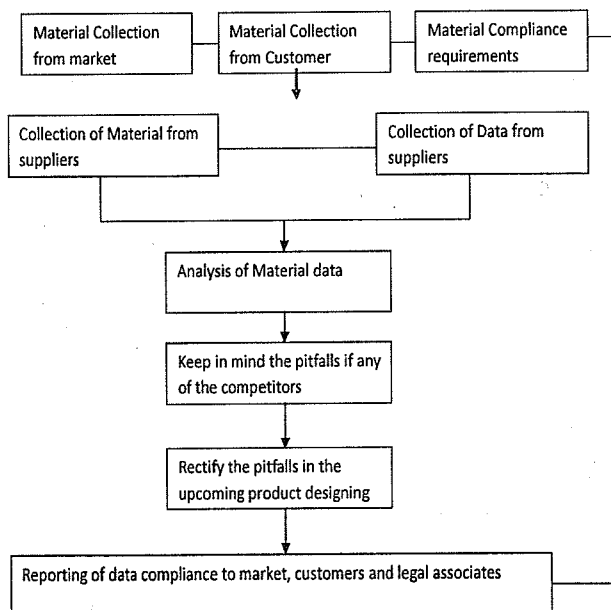


Exhibit 2: Functions at the early stages in the new product designing process

Concept of Triple Bottom Line Approach of ITC for going green

The triple bottom line (abbreviated as "TBL" or "3BL", and also known as "people, planet, profit" or "the three pillars") captures an expanded spectrum of values and criteria for measuring organizational (and societal) success: economic, ecological and social.

The ITC (previously called the Imperial Tobacco Company of India), whose product portfolio extends from faster moving consumer goods to hospitality, has adopted the social mantra, "Let's put India first." The

4.5-billion-dollar worth company's triple bottom-line approach in which economic, environmental, and societal performance are all taken into account, has achieved landmark tags, such as "carbon positive," "zero solid waste," and "water positive." The company has also earned international acclaim for its work with empowering 3.5 million farmers with agricultural knowledge through the concept of e-Choupal initiative. Ironically, these efforts have lent a green, ethical aura to the cigarette manufacturing company.

The challenge for Indian consumers

The level of consumer awareness about global warming is very low. The reason behind that is either they are ignorant or indifferent towards the same. Therefore the India's brands need to help elevate consumer consciousness level. Indian manufacturers have yet to find a market for green products, even as consumers have a low awareness of them because so few are available. By taking up the green imperative, investing in green initiatives and consumer education, Indian brands can always break this vicious cycle.

The way forward for India brand depends on how fast and how much you want to embrace the green imperative. Strategies to be considered by the corporate include alignment with a green initiative, supporting the green mandate, driving green innovation, and totally embracing the green imperative.

Once the organization has decided on the overall strategy, they need to make consumers aware of the green efforts and initiatives. This is especially true if your company does not produce a green product. Trying to market a green vision for the future can be much more difficult than it seems. The corporate has to be proactive, however, that just crying "green" Consumers are doubtful of corporations who generally claim a green promise but fail to deliver the same. If a brand makes green claims that it can't support, it is more likely to tarnish its image than strengthen it. So it's always best to get the initiatives off the ground with sound results backing them up before rolling out a PR campaign.

The simplest way to understand a green agenda is to contribute towards a green cause. India's one of the largest private bank, ICICI, in union with the Bombay Natural History Society, an NGO, has launched a "Go Green" tree-planting initiative in Mumbai. ICICI asks its customers to sign up for paperless bank statements, and the bank plants a tree for each complying customer.

IKEA has also committed itself to recycling. The

company's stores in March 2007 introduced a "bag the plastic bag" program and expected the program to reduce plastic bag consumption by 50 percent (from 70 million to 35 million bags) in the first year. IKEA also offered a reusable iconic blue bag for \$0.59. Customers can also bring their own reusable bags to the store. As still another option, IKEA makes plastic bags available for five cents, with all proceeds going to an international conservation organization that plants trees to restore forests and help reduce CO2 emissions.

Conclusion

Green manufacturing is important from the public-facing perspective, but not to be forgotten is that anything manufacturers can do to limit the environmental damage of the manufacturing process benefits us all in the end. Going green is all the rage today. Businesses love to add a green label to their products. Consumers feel better if they are told what they purchase is green. Green initiatives that trickle down from the top and then permeate the entire organization will strengthen the company's socially conscious stance. The companies must always keep in mind that consumers are unlikely to compromise on traditional product attributes, such as convenience, availability, price, quality and performance. It's even more important to realize, however, that there is no single green-marketing strategy that is right for every

company. Managers those who understand the strategies and the underlying reasoning behind going

Webography

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