ITC INFOTECH

Business-friendly Solutions

3D interface with PLM Solutions is transforming methods **in the Product Development Process**

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Market Scenario

The world is shrinking, and it is creating a buyer's market. The multitude of messages and the global media, in this interactive age, is contributing to a fragmented market. New product launches and innovations are just a city away, or maybe less. It is one universe.

Higher consumer awareness is elevating customer expectations. Quality, utility, fashion, aesthetic and brand value are hygiene. Customer is focused on value - latest technology, fashion, features, customized products and services. The consumer today is moving towards more discrete products. And due to fast changing world these products have increasingly shorter product life cycles.

Manufacturers struggle to keep up with this dynamic consumer pattern, and it is putting tremendous pressure on them. Unable to keep up with the pace, many manufacturers are spending more time, replicating others' product, instead of innovating their own. This has diminished the time lag between an innovation and the challenger. Price drops are more rapid.

As customers aspirations grow, they are also becoming more discrete in their spending. They are choosing lower end of a brand spectrum. Customers are turning to big retailers for deeper discounts. Many shoppers wait for end of season discount sale.

Trade Dynamics

To survive in today's marketplace, retailers are under pressure to be better, faster, and cheaper than their competitors. As described in figure-1, manufacturers are squeezed for pricing and markdowns from retailers. Hence, are increasingly subject to intense pressures to lower cost and increase efficiency. This has driven manufacturers to the developing world in search of lower cost, labor and facilities.

Owing to the emergence of internet, affordable global transport, business is now global and multilingual. Over the last two decades, outsourcing has come of age. Now many companies simply choose to market products under their brand name. They outsource manufacturing, product design, development and other business functions. This opens up the company to capabilities and capacities of a large number of suppliers. It enabled them to go beyond their existing expertise.

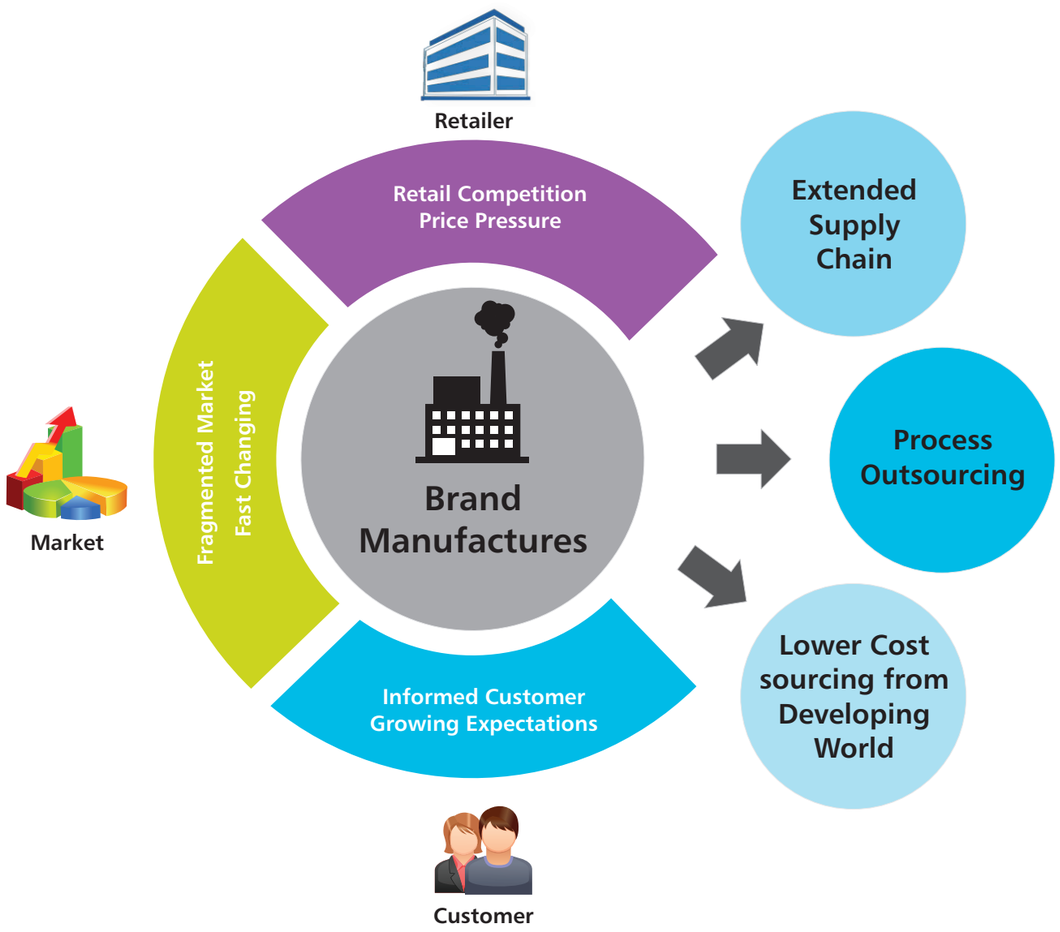


Fig. 1: Trade Dynamics

As many suppliers design & develop products and actively manage inventories for brands, business systems must allow a free flow of data beyond organizational boundaries. Retailers and brand manufacturers are launching supplier portals, which provide a means of collaboration between retailers, vendors, factories and agents. It coordinates processes and provides transparency through the sourcing, production and shipment process - improving productivity. But, most of them, do not allow vendor level collaboration on design & development. In effect, brands heavily dependent on global outsourcing hence could face major inefficiencies in cost & time.

Better information closer to the season, empowers the company to develop & source more accurate product assortment and quantities. Hence, they are delaying their decisions nearer to the start of the season, resulting in shorter turnaround time.

Global outsourcing, smaller product life cycles and an extended supply chain are the paradigms of a new market order.

Cost reduction, shorter design turnaround time and a well orchestrated supply chain are critical in this new market reality.

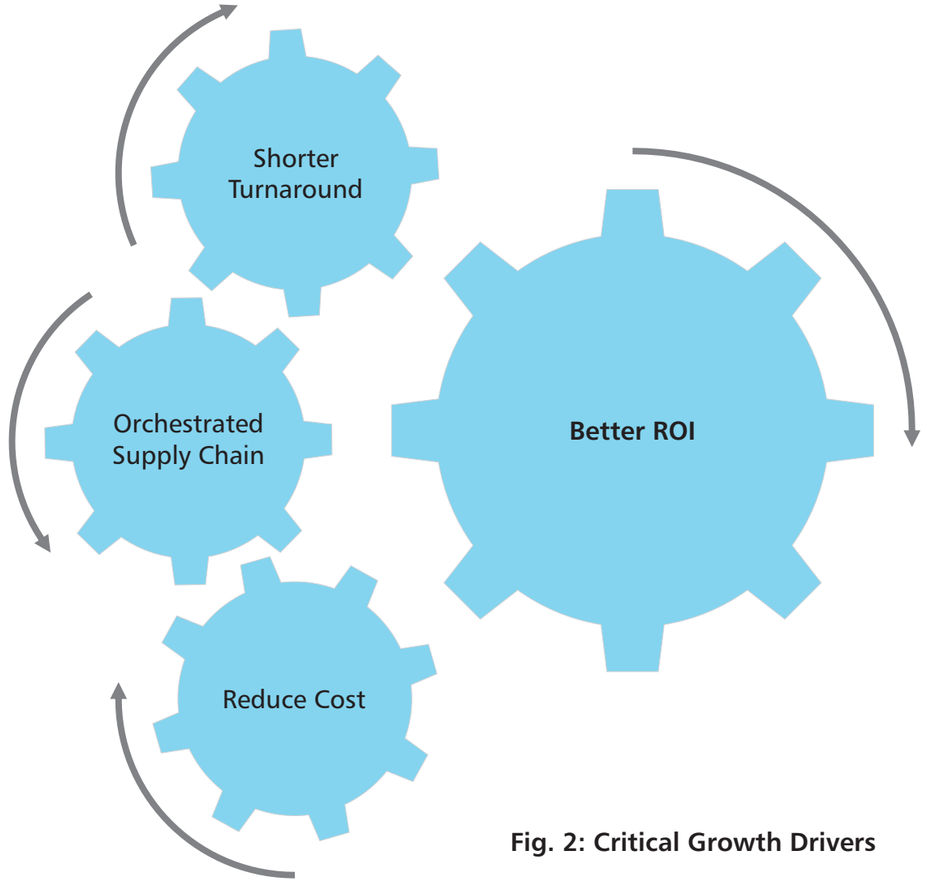


Fig. 2: Critical Growth Drivers

PLM driving faster product innovation

To meet these critical challenges and maintain their competitive advantage, increasing brands and retailers are implementing business process transformation and product life cycle management (PLM) solution.

PLM is a scalable enterprise solution which takes the product from concept to production.

It provides product managers the ability to define multiple seasonal plans, merchandise classification, product lines, design & development. It helps designers to create new designs, reuse popular existing ones from database.

It enables product design and development teams to work together and simultaneously to collaborate on design and development areas such as bill of materials, construction, artwork, product variants, care instructions and sample management.

PLM leverages supply chain capabilities by giving vendors, suppliers and partners real-time access to relevant product information, making them an integral part of the early design collaboration, quality management and supplier execution processes.

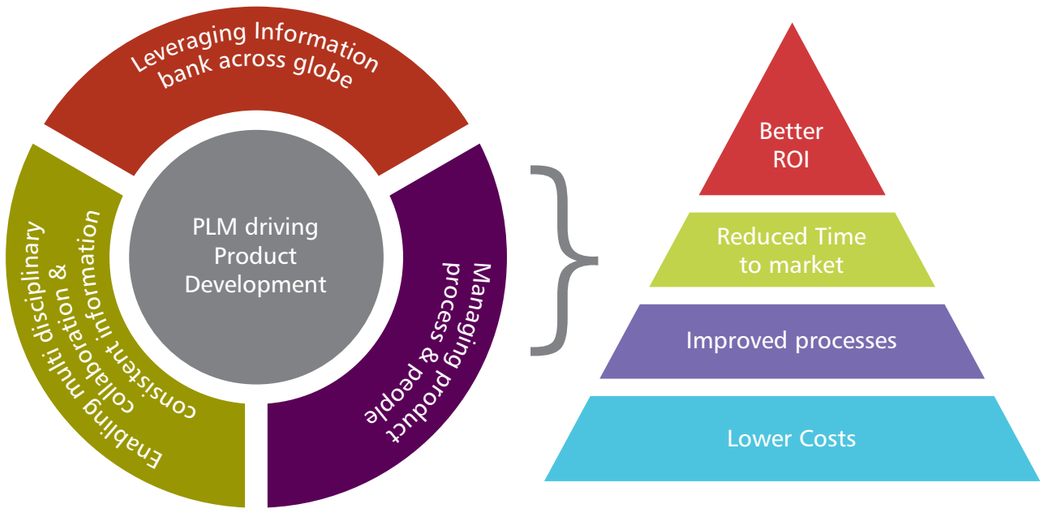
It enables process control, and risk management by connecting global sourcing and production offices to brand and retail headquarters.

Summarily, PLM software provides business a solution

- To create, access, leverage and manage it's enormous information bank and intellectual property across the globe.
- Ensures latest, accurate, comprehensive and timely information in standardized templates, enabling multidisciplinary collaboration beyond geographical and company boundaries.
- It manages product, process & people i.e.. Product development, monitors and triggers processes & workflows, and manages availability and access of information to relevant people.

Resulting in reduced time to market, improved processes, reduced costs and improved business Return On Investment (RoI)

Developments in 3 dimension (3D) design, imaging and printing has opened up further possibilities and improved solutions for business. Increasingly, PLM companies and vendors are creating 3D interfaces or embedded solutions to create bigger value for the businesses.



PLM interfacing with 3D to provide enhanced business solutions in product development

Inspires imaginative collaboration

The ability of 3D to visualize products as 3 dimensional realistic images allows the product design team to better capture, review and collaborate the concepts in real time on a global scale. These digital images captured, through controlled workflows can be easily shared on the PLM platform, ensuring collaboration across global boundaries.

Enhances design & development efficiencies

The first 20% of the product development affects about 80% of the product's total cost. Current PLM systems for consumer products majorly use 2D drawings for designs.

Though it is possible to edit 2D images to some extent, a 3D image can be easily rotated to give different perspective. The virtual camera viewing position and viewing angle can be customized.

Creating a 3D image may be time-consuming but, It is highly editable and is easy to make substantial modifications. This makes it

1. easily reusable

2. easy to make changes in a shorter amount of time.

This further reduces design changes, improves product designs, lowers production cost and shortens time to get the product to market.

Enables Virtual Sampling

Sample is one of the largest cost contributors in the product development process. Substantial amount of time and expense is devoted to product material sampling, color sampling and product proto to sales samples. Leading brands and retailers request several millions of samples each year. Though, PLM has through accurate, standardized, up-to-date data sharing, reduced number of errors, it has not been able to obviate the design and fitting iterations.

Today, 3D solutions offer high definition, detailed and realistic images of products. Designing a product in 3D lets one experience and analyzes the product virtually. Virtual dressing has enabled one to analyze the fitment of a garment, fall of the material. Through virtual imaging one can analyze the aesthetics and dimensions of a product, with color and hue intonations.

Raw materials like hardware, fabric, trims like buttons, labels, zippers etc. can be digitalized to enable the sampling process via images. This, to a large extent, can obviate physical samples, resulting in fewer deliveries and reduction in time to market.

Product Mock ups via 3D Printing

One cannot create product mock ups with 2D images, currently used in PLM. A 3D printer can do that with a 3D image within hours. This helps to catch design flaws and make the appropriate adjustments early. It's an efficient, cost-effective way to create, improve and iterate products & designs by collaborating with product developers, merchants, factories & buyers. This enables delivery of an accurate product, eliminating multiple rounds of prototypes needed to find errors. 3D printing allows one to test form, fit and function.

More than 50% of sample requirements between concept and pre-production can be eliminated through the introduction of 3D virtual samples and 3D printing.

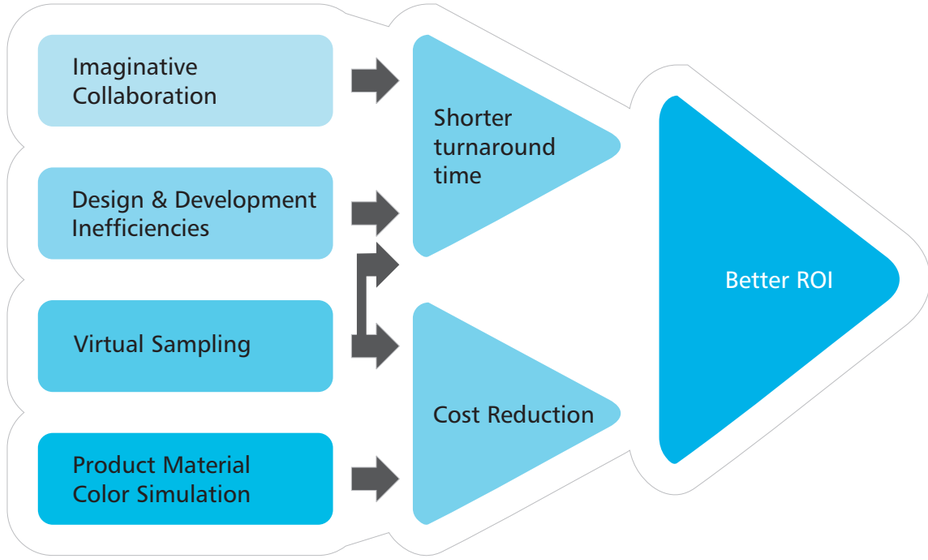


Fig. 3: 3D Value Realization Chain

3D is effectively being used to create realistic simulation for digital product testing. It allows digital testing of the exact behavior of products in the real world e.g. stress test. This can contribute significantly to reducing time to market & result in dollar savings for the business.

Speed and Cost critical factors

The foremost question that comes to mind while considering a solution is it's cost. And considering the need for speed, and PLM being a speed vehicle, it is important to analyze how it operates within the given constraints. Whether it hampers the speed of the process, and eclipses it's own value proposition.

3D requires a multitude of dimensions to be defined to visualize a product or item. This would be cumbersome and unpractical, simply from the effort standpoint, let alone cost and time.

But, one can take physical objects and use 3D scanning equipment to capture these dimensions and transform them into 3D digital models. This data can be reused and modified to create new product models.

Laser scanning and digitizing are two most common methods of collecting 3D data. In **laser scanning,** a laser line, patch or sphere is passed over the surface of an object to record 3-dimensional information. The same is captured by a camera sensor, mounted in a laser scanner. **Digitizing** is done by touching a probe to various points on the surface of the object to capture 3D information. This method is more apt for geometric and free form shapes.

The 3D rendering will depend upon the nature of the task, and the structure of the information to be displayed.

But, beyond the realms of the professional world today, a simple, raw 3D image can be made even at home, with a pair of red-blue 3D glasses, a digital camera, and some photo editing software. This image can portray optimum depth with accuracy for some products.

So, whether the benefits of 3D displays outweigh their costs depends upon the particular 3D rendering chosen, the nature of the task, and the structure of the information to be displayed.

3D's interface with PLM is already transforming the product development process into a more efficient, faster, fluid orchestrated state.

About ITC Infotech

ITC Infotech is a fully owned subsidiary of ITC Ltd, a diversified business conglomerate. ITC is one of India's foremost private sector companies, and runs market-leading businesses in multiple segments. ITC completed 100 years of leadership in 2010.

ITC Infotech is a global IT services and solutions company. The company focuses on developing industry specific solutions aimed at the client's unique business requirements, challenges in critical performance areas, and regulatory compliance. ITC Infotech has also established technology Centers of Excellence (CoEs) to deepen capabilities and incubate cutting-edge technical competencies.

A robust outsourcing model, comprehensive suite of differentiated solutions, and focus on excellence in execution, have provided ITC Infotech a leadership position in its chosen domains. The company is working with a bevy of Fortune listed global customers, and its service delivery footprint spans five continents, spread across 140 countries..