

# Generative Mechanical Design Solution

*Integrated solution to increase productivity and profitability*



## Highlights

- **Use intelligent templates to incorporate standard parts, features, assembly and knowledge rules in order to reflect design practices for your products**
- **Incorporate manufacturing, purchasing and maintenance constraints in the design system to control designers' tasks**
- **Easily adapt your designs to fulfil changing customer requirements**
- **Improve product quality through automatic design creation based on specification driven inputs**
- **Focus designers on innovation by reducing repetitive basic design work.**

## Supporting an environment for innovation

Today customers expect to receive products built and delivered in the shortest possible time. Their requirements have become increasingly individual, putting considerable pressure on manufacturers of Industrial Products. Manufacturers need to be responsive and flexible enough to meet these demands, while providing a continuous flow of innovative goods to the market.

Multiple challenges in today's business environment:

### *Engineering processes:*

Products must often be designed from scratch, requiring cost estimates for each new design. Client-specific demands may require customised component creation and costly feasibility studies. Late design changes can be costly to implement, while the product validation process can take time and is often late.

### *Product complexity and international standards:*

Customers demand increasingly complex but easy to use products. At the same time manufacturers are forced to meet constantly changing international standards in order to compete in a global environment. To respond to these requirements, companies must be able to deliver increasingly innovative and high-quality products.

### *Supply-chain collaboration:*

In a more complex market environment, team collaboration is essential to enable efficient coordination between locations and integration across the supply chain. The challenge is how to ensure design consistency between those actors, and to be sure the same standards and quality rules are being applied.

### *Product maintenance:*

A manufacturer's involvement doesn't stop at the delivery of their product. They must also support and maintain that product in the field. The more commonality in their designs, the lower their maintenance costs will be. Often the experience gained during maintenance is not communicated back to the designers in order for them to improve future products.

## Generative Mechanical Design Solution

Generative Mechanical Design (GMD) is a strategic solution from IBM developed in partnership with Dassault Systèmes that enables companies to improve design productivity and facilitate innovation by using predefined templates (known as 'generative modules'). GMD is delivered through a new configuration consisting of CATIA V5 design and knowledgware applications, SMARTEAM for collaboration and secure access to product data and Generative Design Practices (GDP) Companion for practices training. Indeed, the GDP Companion includes the training materials and sample product templates used to learn and apply generative design best practices for a successful implementation of this new generative design approach.

The 'generative modules' can incorporate standard parts, intelligent features and assembly and knowledge rules. These reflect design practices and past experiences and can be adapted automatically to meet new product or customer requirements. With GMD, the designer is no longer redesigning parts for each order, but simply adapts to the revised customer specifications, while knowledge rules and checks prevent errors.

Each project can be capitalised and stored in an intelligent database for efficient data reuse. Designs can be modified rapidly, with easy mixing of parameters providing an unrestricted approach to design. Quality standards and maintenance information is fully integrated and incorporated in the design.

The solution enables companies to accelerate the entire product design process in the areas of:

- *Capture and reuse of design knowledge*
- *Automation of repetitive and tedious design tasks*
- *Incorporation of design rules in standard parts*
- *Increased creativity and innovation*
- *Efficient collaboration between design, simulation and manufacturing departments.*

### Grow with PLM:

At the core of the GMD solution is Collaborative Generative Design (CGD), a key component of the new integrated PLM Express Portfolio. This CGD configuration which includes SMARTEAM and CATIA V5 applications as well as Generative Design Practices Companion, provides Industrial Products manufacturers with a common platform priced and delivered as an attractive PLM Solution for medium-sized businesses. This base collaborative platform can then be customised and extended by adding dedicated products (delivered through Profile Packs) to address the particular requirements of individual users.

### Why choose IBM Product Lifecycle Management?

IBM has experience of more than 10,000 successful PLM implementations across all industries, and employs more than 150,000 services professionals in 160 countries – with over 1,000 professionals dedicated to PLM. IBM provides solutions which integrate hardware, middleware, software and services to meet the challenges of the Industrial Products Industries.



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