Get Early Visibility into Manufacturability & Product Cost

Deliver High Quality Designs Faster at Lower Costs

Today organizations spend millions of dollars on Engineering Change orders (ECOs). A single ECO can cost up to $30,000.

HCL DFMPro, an easy-to-use CAD integrated Design-for-Manufacturing (DFM) software identifies & provides recommendations to resolve potential downstream manufacturing issues. HCL DFMPro helps reduce time consuming design iterations resulting into faster development of high-quality products.
Select and configure organization specific guidelines as design rules

Bring in standardization in design review process

**Product Design Challenges**

- Overwhelming engineering change orders (ECO / ECN)
- Product cost escalations and depleting margins
- Product launch delays
- Dispersed organization knowledge

**HCL DFMPro Benefits**

- Capture design issues early and reduce engineering rework
- Understand opportunities for cost reduction right at design stage and save cost
- Avoid late stage engineering changes and time-consuming rework
- Capture best practices and bring in standardization in design review process

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**Easy and Powerful DFM Software to Drive Measurable Results Fast**

### Automates the DFM Review Process

- DFMPro automates and formalizes the design review process
- Seamlessly integrated inside PTC CREO Parametric™, Siemens NX™ and SOLIDWORKS®

### Rule Manager

- Select and configure organization specific guidelines as design rules
- Bring in standardization in design review process

### Industry Best Practices

- Engineering best practices
- Supplier capabilities
- Standardization requirements

### Organization Specific Best Practices

- Sourcing
- Manufacturing
- Service

**Enables Best Practice Knowledge Capture and Dissemination**

- Customizable framework to capture in-house best practices, tribal knowledge and industry standards
- Facilitates continuous design improvements and knowledge retention of retiring workforce

### Enterprise Systems

**PLM**
**ERP**
**Integration**
- **Others**
  - Product Engineering

**DFMPRo Solution**

- Input
- 3D model
- Best Practices
- Output
- DFMPRo recommendations

**Easily Integrates Into Existing Enterprise Infrastructure**

- Integrates easily with PLM, ERP, and MES systems
- Scalable framework for capturing and disseminating manufacturing knowledge upstream
HCL DFMPro Supports all Manufacturing Processes

DFX Platform

A scalable, extensible and flexible DFX framework that has collection of application, processes and technologies that are coupled with customization and support services based on customer needs.

Design Engineer | Program Manager | Management | Quality Engineer | Manufacturing Engineer
---|---|---|---|---
Rule Manager | DFMPro UI Inside CAD | Reports Publisher | Cost Admin Vault (CAV)* | Analytics Dashboard*

HCL DFMPro

Integration with CAD | Cost add-on* | Analytics Dashboard*

DFX Enterprise Platform

DFX Enterprise platform to drive design quality, reduce product cost, bring in traceability and improve time to market.
DFMPro Cost Add on

Typical Industry Challenges

- Design engineers do not have tools available with them which can provide early visibility to manufacturing and cost consequences for their design decisions
- Downstream manufacturing changes or cost issues are very expensive to handle
- 70% cost reduction opportunities are in design phase

Cost Effective Designs

- Design validation
- Cost Trend Indicators

- Evaluate design choices based on material, features, geometry & manufacturing regions.
- Applying standardization and component re-use
- Identify expensive design features impacting cost due to manufacturability and get recommendations for cost reduction
- Track the cost as designs are getting created

DFMPro cost add-on provides early cost visibility to design engineers right from when designs are getting created.

DFX Analytics

Enabling organizations to develop more collaborative and data driven culture

Capture the data generated by designers

Visualize the data with predefined plots

Analyze and take action

Plan effectively with supporting data

Monitor the process with live data

Identify and reduce waste

1. Improve effectiveness of DFX reviews
   - Track DFMPro reviewed designs
   - Improve rule configurations
   - Quickly identify critical design issues
   - Track supplier reported issues

2. Ensuring DFX best practices
   - Learn from other design engineers
   - Track design performance

3. Track DFX issues for program success
   - Make sure that the identified DFX issues are resolved in the earlier phases of the design cycle.

4. Ensure success of DFX initiatives
   - Enable a continuously learning and improving DFX organization
   - Empower users to measure and improve DFX performance
HCL DFX Server Solution is an extended capability of HCL DFMPro for customers who face challenges related to rework, cost, and quality for large assemblies. With DFX Server Solution, designers can check the impact of part and sub-assembly level changes on higher modules and assemblies prior to submitting their designs in an offline mode on the server. As a result, large assemblies that would have been excluded from an automated DFMPro analysis earlier are now included right at the design stage. DFX Server Solution benefits include:

- Run multiple analysis requests simultaneously
- Timely design validation for downstream issues
- Uninterrupted workflow for designers
- Access to dashboard in DFMPro add-in

DFX Server Solution Workflow

Note: *One or more execution servers can be deployed in the local enterprise network
*Multiple requests can be executed on one execution server (Creo Parametric is a pre-requisite)
In our organization, time to market is of utmost importance besides other factors. HCL DFMPro product enabled us to digitize the design rules for a quick & timely feedback.

Apart from sets of standard design guidelines in the DFMPro, we partnered with HCL to add Cisco specific design rules that caters to our organization. DFMPro is the only automated tool for Design for Manufacturability (DFM) analysis besides input from manufacturer or analyzing parts manually. We have DFMPro configured for Sheet Metal, Plastic & Die-cast parts to ensure that the parts are designed for manufacturability.

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