HCLSoftware

Get Early Visibility into Manufacturability & Product Cost

HCL **DFMPro**

Deliver High Quality Designs Faster at Lower Costs

In today's time organizations spend millions of dollars on Engineering Change Orders (ECOs). A single ECO can cost up to $30,000. A small investment using DFX at the design stage to address manufacturing and assembly requirements help save significant time to market.

HCL DFMPro is an easy-to-use CAD-integrated Design-for-Manufacturing (DFM) software. It identifies & provides recommendations to resolve potential downstream manufacturing issues.

It helps reduce time consuming design iterations resulting into faster development of high-quality products.

Product Design Challenges

Overwhelming engineering change orders (ECO / ECN)

Product cost escalations and depleting margins

Product launch delays

Dispersed organization knowledge

HCL DFMPro Benefits

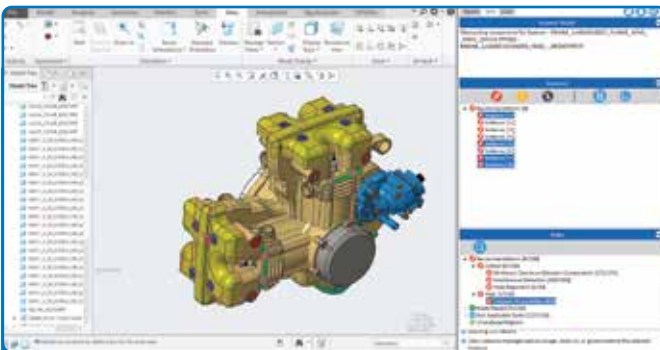Captures design issues early and reduce engineering rework

Understands opportunities for cost reduction right at design stage and save cost

Avoids late stage engineering changes and time-consuming rework

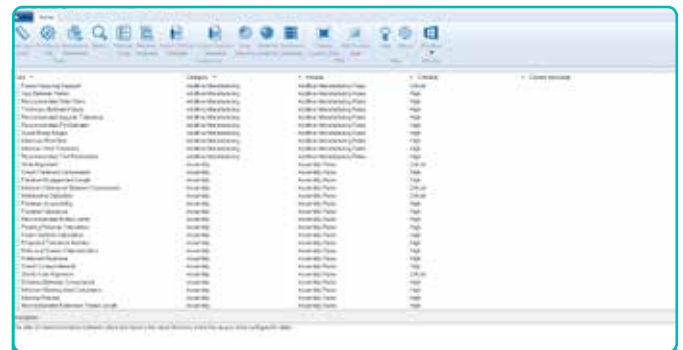Captures best practices and bring in standardization in design review process

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 DS CATIA V5, PTC CREO Parametric™, Siemens NX™, and SOLIDWORKS®

Rule Manager

- Selects and configures organization specific guidelines as design rules

- Brings 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
MES Others

◀ Integration ▶ Product Engineering

DFMPRo Solution

3D model ≫ Input Output ≫ DFMPro recommendations
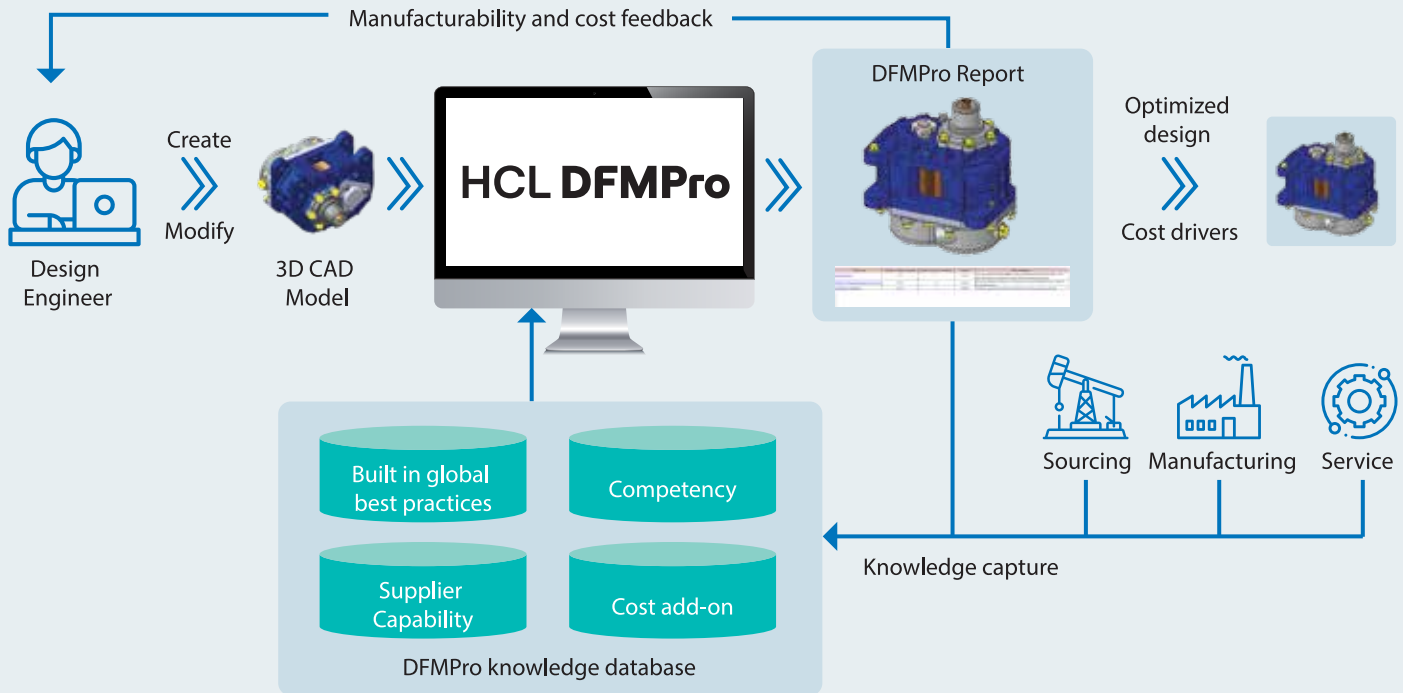Best Practices

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**

HCL DFMPro – A Digital Design Expert

Manufacturability and cost feedback

Design Engineer — Create / Modify → 3D CAD Model → HCL DFMPro → DFMPro Report → Optimized design / Cost drivers

DFMPro knowledge database:
- Built in global best practices
- Competency
- Supplier Capability
- Cost add-on

Knowledge capture — Sourcing, Manufacturing, Service

- CAD integrated easy to use digital design expert
- Automatically captures and highlight issues that leads to engineering rework
- Identifies opportunities for cost reduction for a component
- Digital collaboration between downstream stakeholders for design reviews

HCL DFMPro Supports various CAD platforms

DFMPro for CATIA V5

DFMPro for CREO

DFMPro for NX

SIEMENS
Ingenuity for life

DFMPro for SOLIDWORKS

ƷS SOLIDWORKS

DFMPro Cost Add on

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

- Evaluates design choices based on material, features, geometry & manufacturing regions
- Identifies expensive design features impacting cost due to manufacturability and get recommendations for cost reduction
- Tracks the cost as designs are getting created
- Applies standardization and component re-use

Cost Effective Designs

Design validation

Cost Trend Indicators

DFX Analytics

DFX platform offers DFX Analytics as one of the solution for customers to get visibility of various parameters to check overall product design efficiencies
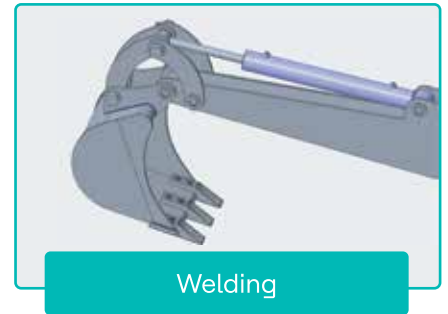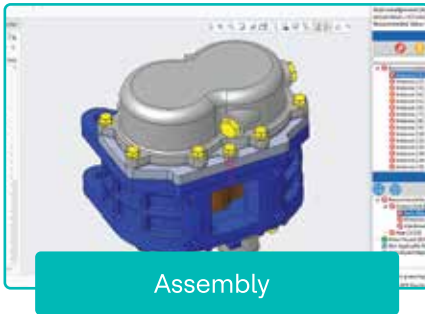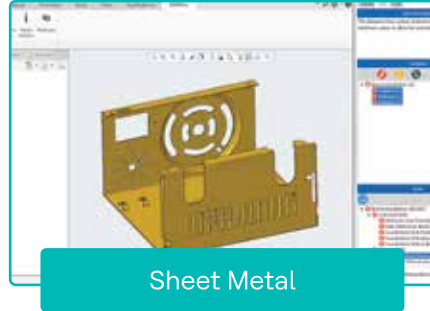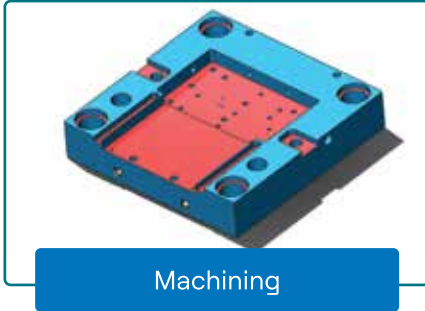
Improves effectiveness of DFX reviews

Tracks DFX issues for program success

Ensures DFX best practices

Ensures success of DFX initiatives

Captures the data generated by designers

Visualizes the data with predefined plots

Analyzes and takes action

Plans effectively with supporting data

Monitors the process with live data

Identifies and reduces waste

DFX Server Solution

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:

Runs multiple analysis requests simultaneously

Uninterrupted workflow for designers

Timely design validation for downstream issues

Access to dashboard in DFMPro add-in

HCL DFMPro

HCL DFMPro Supports all Manufacturing Processes

Machining

Sheet Metal

Injection Molding

Assembly

Die casting

Welding

+ many more

> *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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