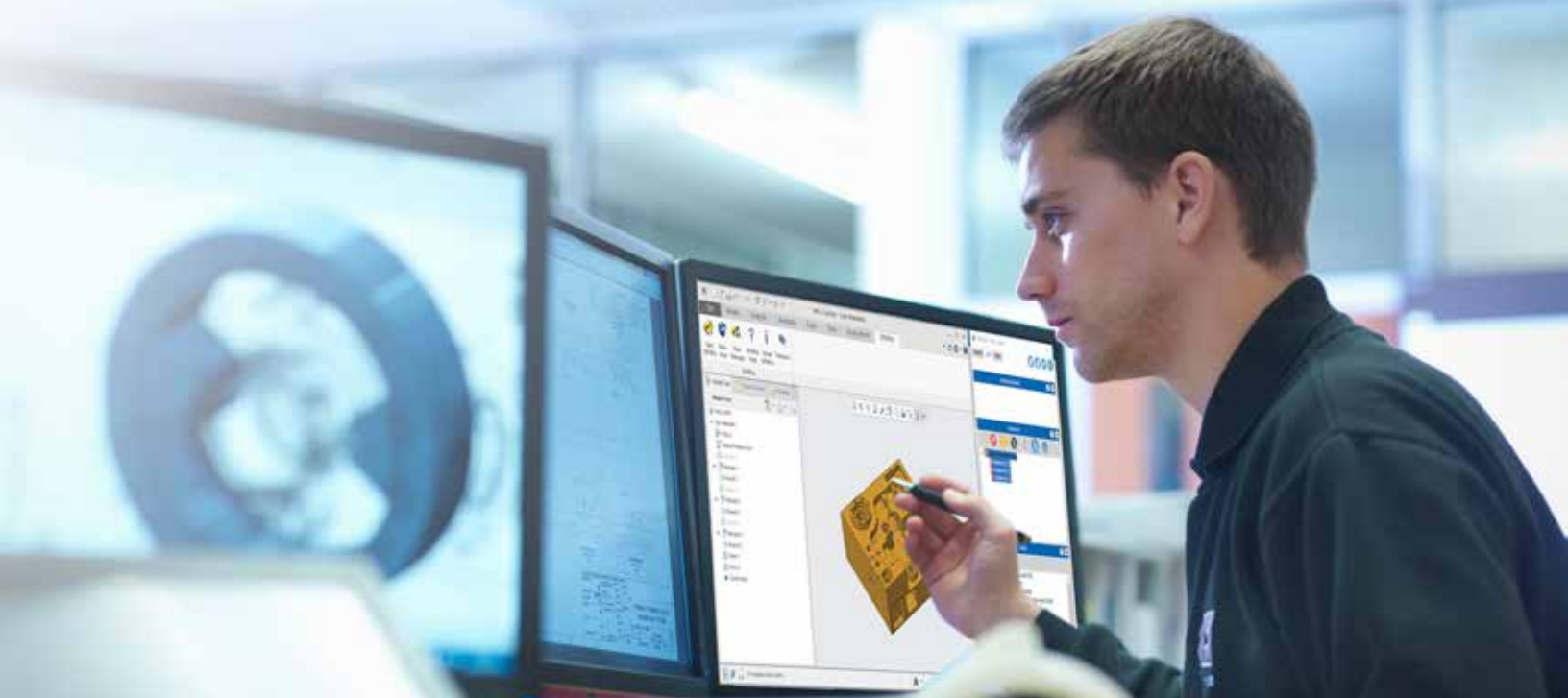


# Get Early Visibility into Manufacturability & Product Cost



Today organizations spend millions of dollars over engineering change orders (ECO). A single ECO can cost upto \$30,000.

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

Helps reduce expensive and time-consuming design iterations resulting into faster development of high-quality products.



## Typical Business Challenges

Overwhelming engineering change orders (ECO / ECN)

Product cost escalations and depleting margins

Product launch delays

Dispersed organization knowledge



## DFMPro

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

# ➤ Easy and Powerful DFM Software to Drive Measurable Results Fast

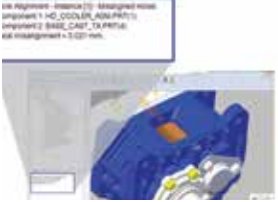
### Automates the DFM/DFX Review Process

- 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



### 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

#### Industry Best Practices

  
 Engineering Best Practices

  
 Supplier Capabilities

  
 Standardization Requirements

#### Organization Specific Best Practices

  
 Sourcing

  
 Manufacturing

  
 Service

### Easily Integrates Into Existing Enterprise Infrastructure


- Integrates easily with PLM, ERP, and MES systems
- Scalable framework for capturing and disseminating manufacturing knowledge upstream

#### Enterprise Systems


PLM	ERP	MES	Others
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Integration


#### Product Engineering

  
 3D Model

>> Input

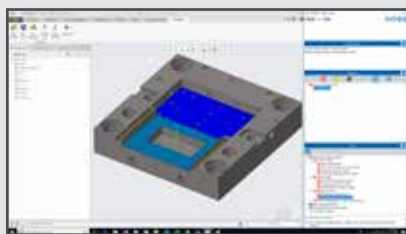
  
 Output

>>

  
 DFMPro Recommendations

Best Practices

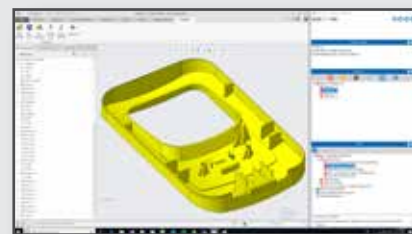
## ➤ DFMPro modules support common manufacturing processes



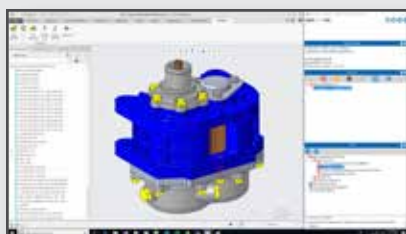
Machining



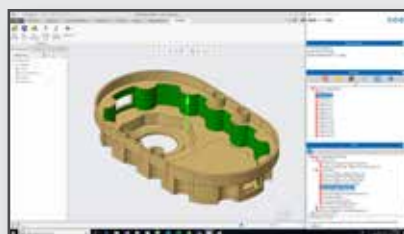
Sheet Metal



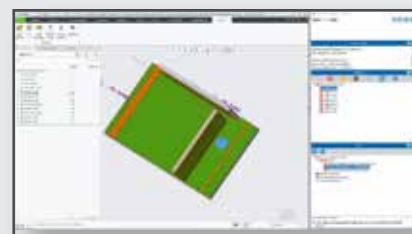
Injection Molding



Assembly



Die casting

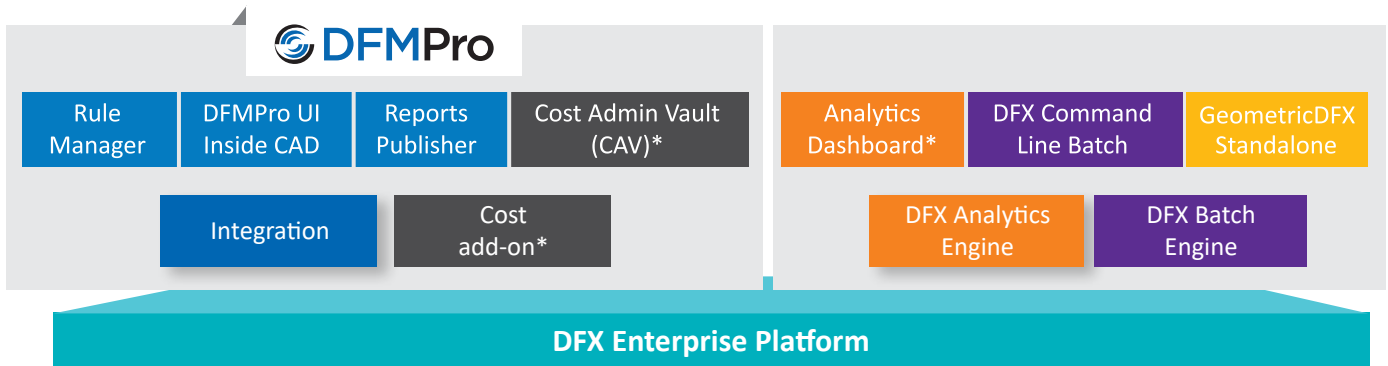
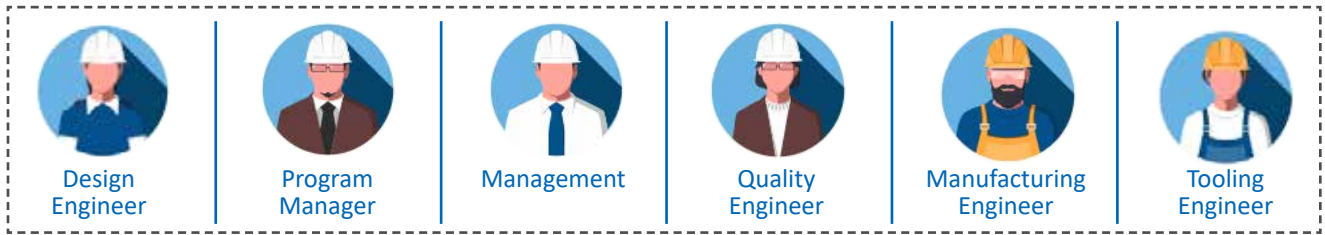


Welding

And More...

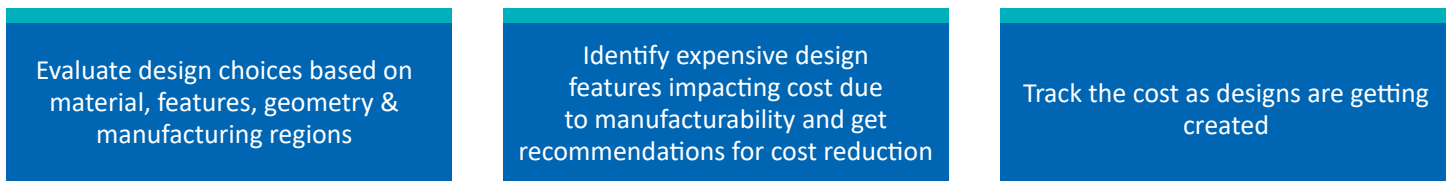
## DFX Platform

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.



DFX Enterprise platform to drive design quality, reduce product cost, bring in traceability and improve time to market

## Cost Add on



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



### DFX Analytics Provides Value Across the Enterprise

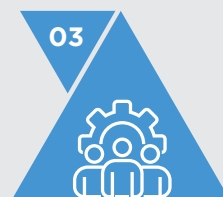
Ensuring DFX Best Practices



Improves Effectiveness of DFX Reviews



Track DFX Issues for Program Success



Ensure Success of DFX Initiatives



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Celestica expertise is in design and engineering, electronics manufacturing and supply chain management services. Our suite of solutions spans the entire product lifecycle- from design, through to delivery and after market support. Geometric DFX (rights reserved logo) solution helped us to improve productivity by almost 12% and helped us to identify quality issues earlier right during design phase.

**Frank Huang**  
ME Director, Celestica

DFMPro helps our designers quickly identify the issues which are otherwise difficult to capture at the design stage. These issues include things like mold wall thickness and undercuts in plastic parts, incorrect bends in sheet metal parts which cause problems downstream. This tool helps our design teams understand the processes involved in manufacturing. In other words, helps them understand how to Design for Manufacturing. This leads to a significant reduction in design iterations due to issues with manufacturability and a reduction in design checking time. Our aim is to get designs right the first time and this tool helps us achieve this goal.

**SK Pradeep Kumar**  
Director, E&T Capabilities

**George Angelov**  
Director, Global Prototyping & Planning,  
Whirpool

Now 3D design data of our products are checked by the DFMPro in the design process. Our conventional checking process by designers was highly time-consuming. In contrast, the DFMPro checking is truly fast and reliable in searching the parts to be redesigned or corrected, and the checking criteria can be customized for the appropriate checking of our own products. As a result, we successfully reduced 75% of the checking time of the wall thickness to enhance the efficiency and effectiveness of our design improvement before the release of drawings.”

**Kaoru Mizoroki**  
Group Manager, Toshiba Corporation

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Hello, I'm from HCL's Engineering and R&D Services. We enable technology led organizations to go to market with innovative products and solutions. We partner with our customers in building world class products and creating associated solution delivery ecosystems to help bring market leadership. We develop engineering products, solutions and platforms across Aerospace and Defense, Automotive, Consumer Electronics, Software, Online, Industrial Manufacturing, Medical Devices, Networking & Telecom, Office Automation, Semiconductor and Servers & Storage for our customers.

For more details contact: [dfmpro.marketing@hcl.com](mailto:dfmpro.marketing@hcl.com)  
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