

Detroit Engineered Products (DEP) is an Engineering Solutions and Product Development company. Since its inception in 1998 in Troy, Michigan, USA, DEP is now a global company with footprints in Europe, China, Korea, Japan, and India. DEP uses an accelerated and transformed product development process, accomplished by utilizing our proprietary platform, DEP MeshWorks, which rapidly reduces the development time of products for all segments.

In the current economic landscape, manufacturers in the Industrial Machinery and Heavy Equipment (IM&E) sector are actively pursuing modernization strategies to enhance revenue growth in a more streamlined and cost-efficient manner. DEP comprehends the distinct requirements of heavy industries and offers flexible, efficient, and tailor-made engineering solutions to address competition and minimize lead time. We have established a strong reputation as a dependable collaborator for complete product engineering solutions and support services, earning the trust of diverse companies involved in Production and Industrial Machinery Manufacturing. Our cutting-edge CAE platform, DEP MeshWorks, employs advanced modeling and simulation techniques to enhance productivity and reduce turnaround time. This is particularly valuable in scenarios demanding extended lifetimes for welder and fabricated structures operating under high-duty conditions. MeshWorks facilitates swift assessment and MDO studies, aiding engineers in accelerating design iterations. Given the time-sensitive nature of engineering in this domain, MeshWorks not only offers process automation but also concurrently bolsters efficiency, dependability, and durability.



DEP's proficiency spans various machinery categories, encompassing Construction Equipment, Mining Equipment, Agricultural and Forestry Equipment, Bulk Material Handling Equipment, Commercial Equipment, Production Machinery, and Specialized Equipment. The adept team of product engineering specialists at DEP excels across multiple domains, including Engineering Design, Product Design and development, Engineering Analysis, Re-engineering, and Automation Services. Backed by a proven track record of contributions to notable projects and a dedicated cohort of skilled professionals, DEP remains the preferred partner for enterprises seeking comprehensive product engineering solutions and support services. Our unwavering commitment to excellence and specialized prowess in diverse engineering facets distinguishes us as a dependable and reputable choice within the industry.



HEAVY ENGINEERING SOLUTIONS

Cabin & Boom Structures

- Morphing, Parameterization & Optimization
- CAE Morphing
- Rollover Protection
- NVH
- Durability
- Light weight
- Material Property
- Studies & Selection

Powertrain & Driveline

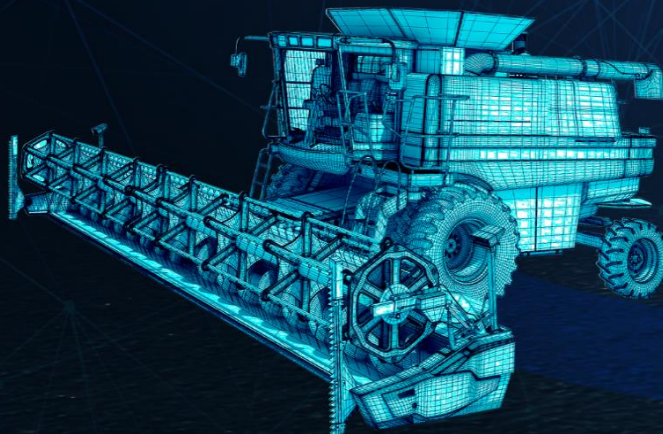
- Performance Optimization
- More Efficiency
- In-cylinder Sensing
- NVH & Durability
- CFD & Thermal Analysis
- Topology & Shape Optimization
- MDO Studies
- Modeling & Analysis of PT & its Components

Frame Structure

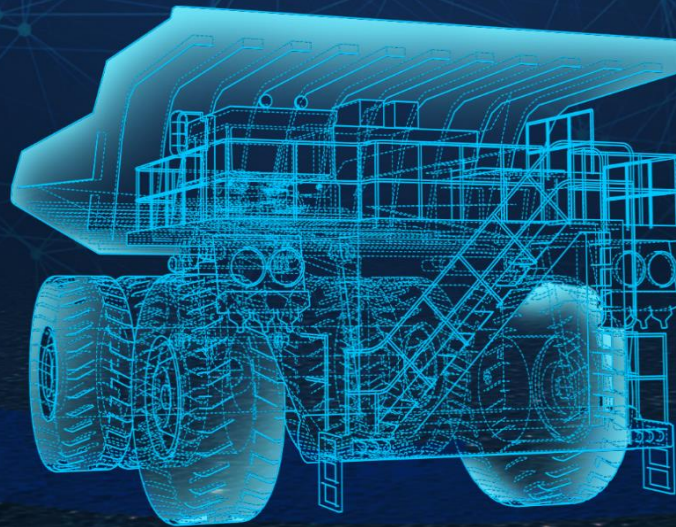
- NVH
- Durability
- Optimization
- Welds Optimization

Transmission System

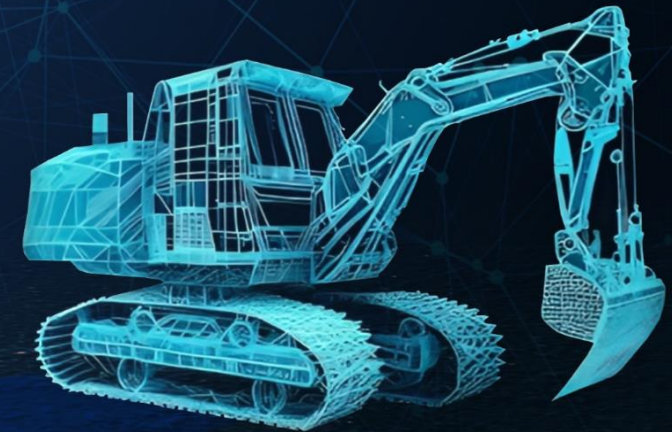
- Stress Analysis & optimization
- Gear Train Modeling
- Transmission Seal Ability
- NVH & Durability



DESIGN



ENGINEERING

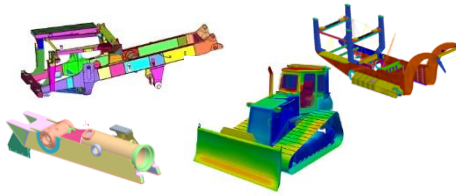


SIMULATION

Modeling, Morphing, Parameterization & Optimization Using MeshWorks

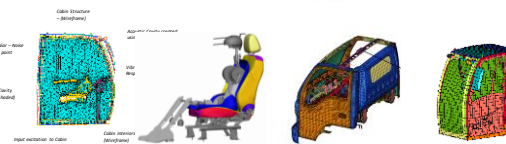
Body & Chassis Frames

- Frame Morphing – Length Modifications, Height of the Spindle, Rail height and Mounts relocations.
- Size Optimization, Parameters – Gauge Parameters Creations, Material Parameters Creations & Correlation, etc.
- Suspension System design & Brake System Optimization
- Value Engineering



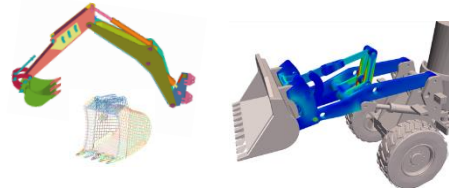
Cabin & Interiors Design

- Parametric increase in the height window & Windshield angle to create family of cabins using Morphing techniques.
- Ergonomic enhancement the Acoustic clarity creation.
- Instrumentation & Controls design, Seat comfort analysis, Aerodynamic Study.



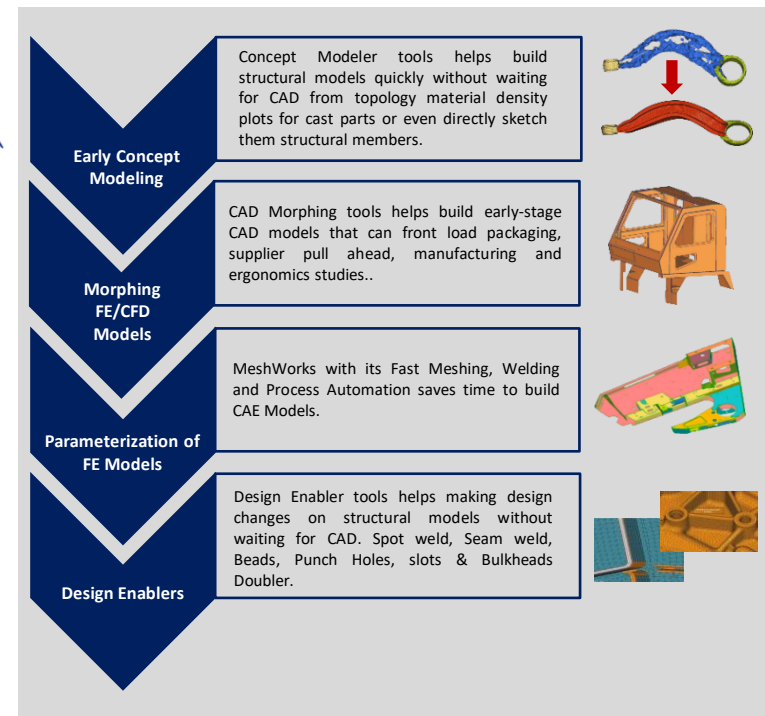
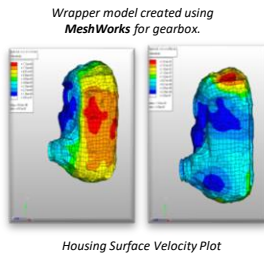
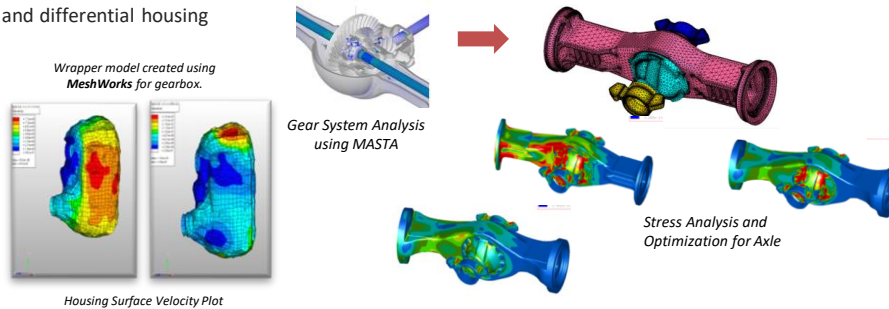
Bucket & Boom Structure

- Improving Structural Efficient, Optimize material process, Cost reductions without performance degradation.
- Volume scaling, Weight reduction, Reduces material cost.
- Shape Changes for top plates, bottom plates, side plates, Angle Change, Reinforcement location modification

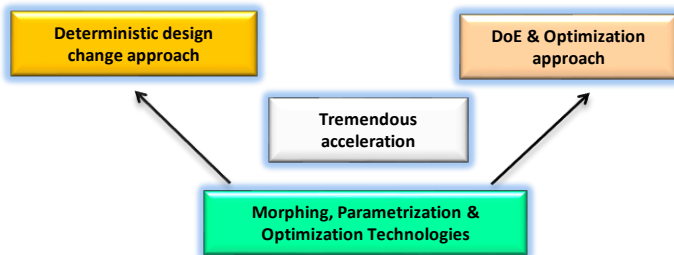
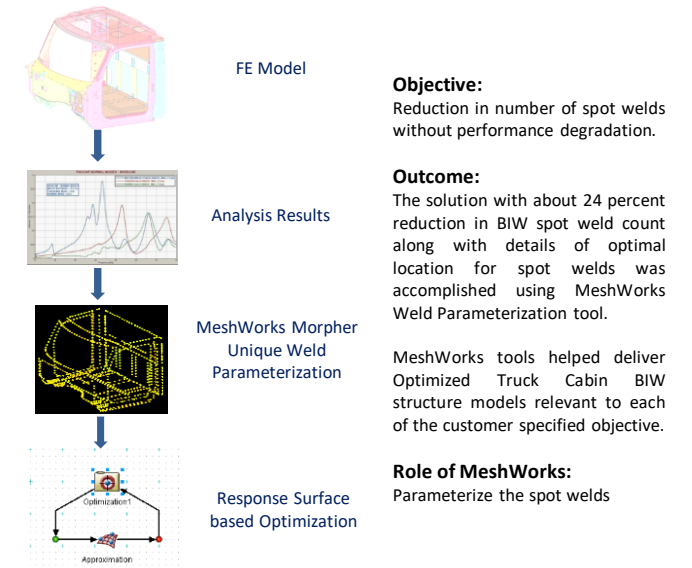


Powertrain, Transmission & Axles

- Shape parameter-based optimization for axle and differential housing
- Gear system analysis for NVH
- Gear System Analysis using MASTA
- Axle welds optimization
 - Number of welds
 - Weld length
 - Weld dimensions, etc
- Transmission sector
 - Tetra Rib creation
 - Fillet Radius Morphing
- Housing optimization through morphing.



Success Story - Weld Optimization For Truck Cab



MeshWorks Design Acceleration process

MeshWorks is a Unique Preprocessor

