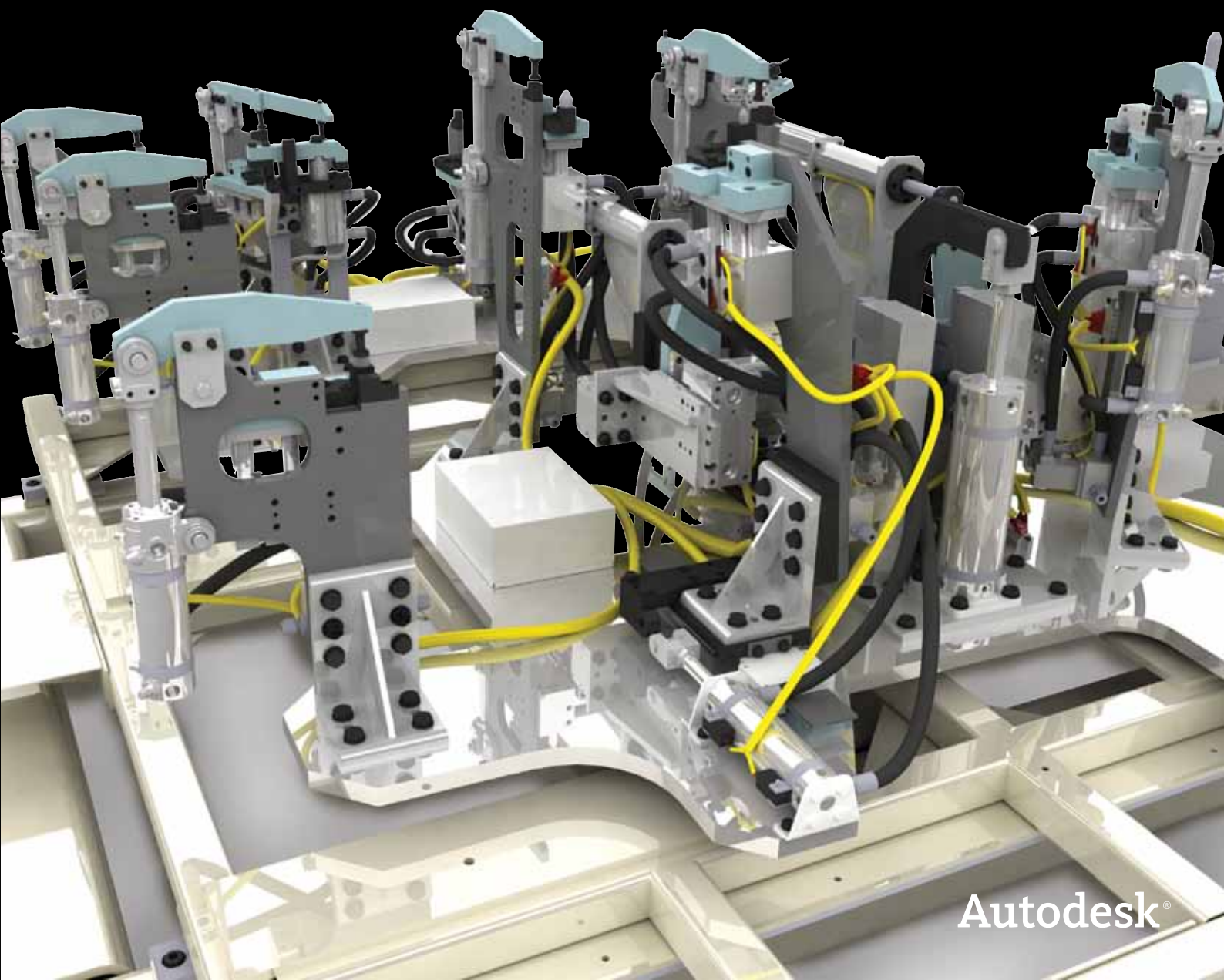


Autodesk Solutions for
Automotive Equipment Manufacturers

BRIDGING THE GAPS IN YOUR
DESIGN AND MANUFACTURING
WORKFLOWS



Autodesk®

Introduce Interoperability into Your Workflows for Greater Productivity.

Automotive manufacturers are facing numerous challenges across all phases of the product development process – shorten development times, managing global supply chains, fierce competition, and increasingly complex products. They are in need of solutions that can help them get to market faster, cheaper and better. Digital Prototyping is the way forward for them.

Facing these issues?

- Need to work together with various CAD format data.
- Require advanced tool to work with complex surfacing.
- Integration of mechanical and electrical design data.
- Work concurrently with 2D and 3D data.
- Need to optimise product performance and make accurate design decisions without building physical prototypes.
- Late design changes that affects the overall design configuration.
- Streamline communication with supply chain partners including fabricator, supplier, purchasing and customers.

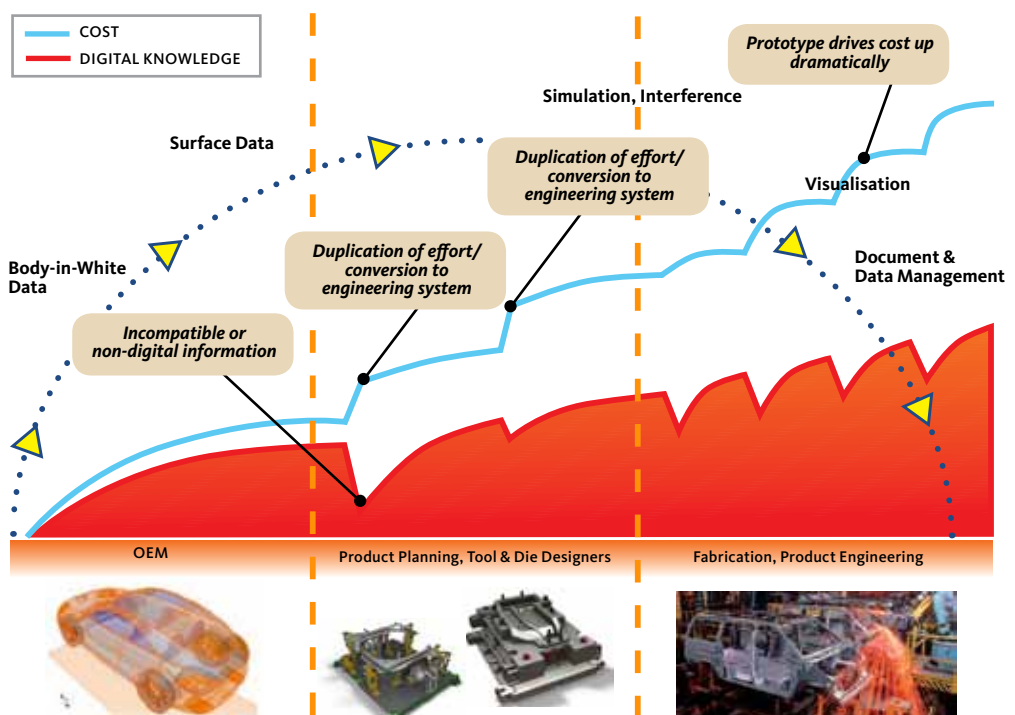
Industry Trends & Challenges

Compared to a few years back, the automotive industry is fast changing the nature it operates. Development periods for new models have since being shortened by half. And such short turnaround time means it is no longer possible for one car manufacturer to solely produce on its own efforts.

Car manufacturers now outsource to equipment manufacturers and manage the supply chain efficiency. One of their key challenges is to continuously improve the supply chain, in particular production efficiency and assembling processes. The industry also has to cope with increased product complexities, manufacturing inefficiencies and comply with safety and environmental regulatory standards.

The Broken Digital Pipeline

In the design and manufacturing process for automotive equipment, clear communication and coordination between the OEM and equipment manufacturing company is of utmost importance. But most equipment manufacturers traditionally design in 2D whilst product shape and data is delivered in 3D by the OEM. Precious time is wasted as the designers need to engage in tedious data conversion and cross-sectional shape creation before they can even start their designing. The likelihood of missing design review feedback implementation and discovery of errors only at the installation and adjustment process increases when designs have to be converted to 3D format for design reviews. The result – a costly broken digital pipeline with no constant flow of digital knowledge.



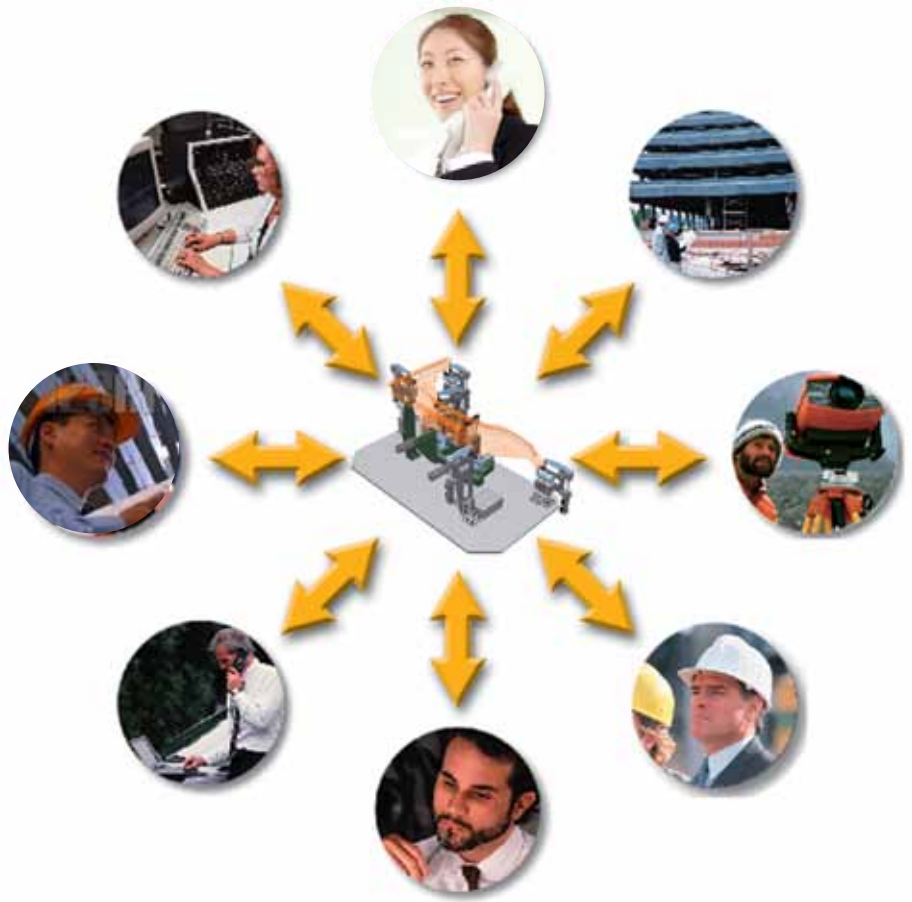
In the mechanical, electrical and pneumatic systems process, heavy cost are incurred and critical digital knowledge is lost when there is a broken digital pipeline.

Make Digital Prototyping Your Competitive Advantage

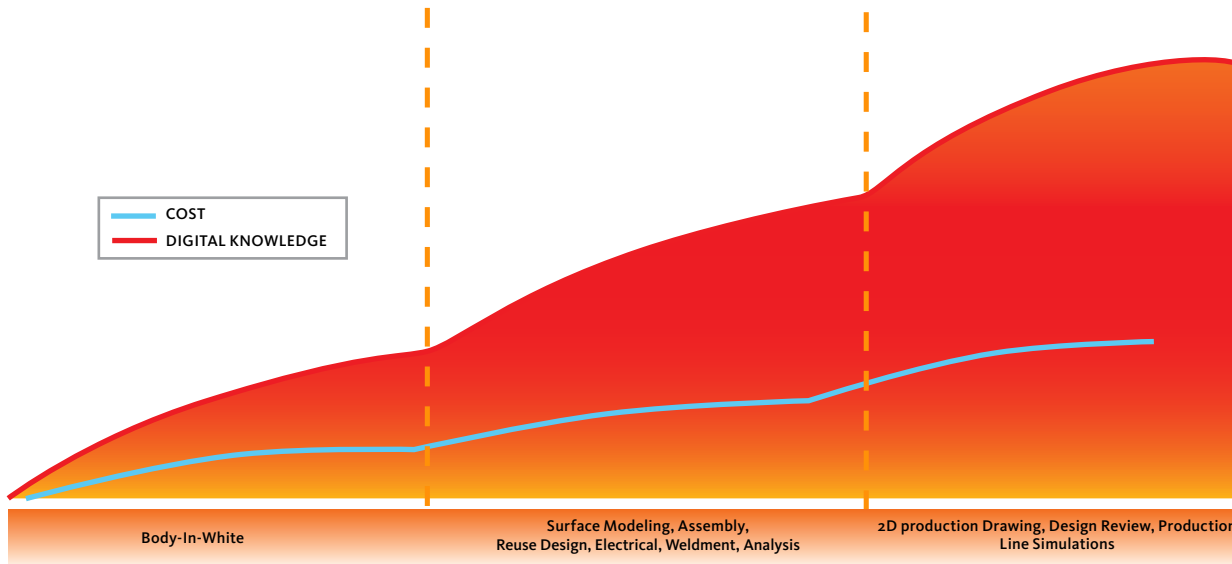
Getting Ahead with Digital Prototyping

The Autodesk solution for Digital Prototyping enables manufacturing workgroups to create a single digital model that can be used in every stage of production, bridging the gaps that usually exist between conceptual design, engineering, and manufacturing teams. This single digital model simulates the complete product and gives engineers the ability to better visualise, optimise and manage their designs before producing a physical prototype, in turn allowing you to get to market faster with better product innovation.

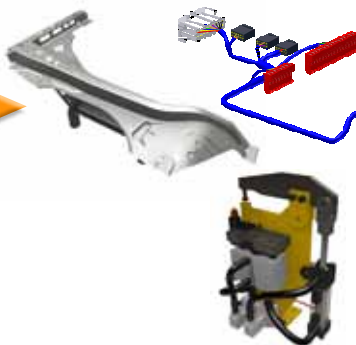
And the Autodesk approach to Digital Prototyping is unique in that it is attainable, cost-effective and scalable, allows manufacturers to realise benefits with minimal disruption to existing workflows, and provides the most straightforward path to creating and maintaining a single digital model in a multidisciplinary engineering environment.



Design review is a critical process as errors are detected and designs are validated before actual production starts. The reviews take place between designers and engineers from both OEM and equipment manufacturers, who often operate on different types of software.



Streamlining OEM, production planning, tool & die designers, fabricators and production engineering in a single digital model with Autodesk's Digital Prototyping solution allows you to lower cost and increase digital knowledge.



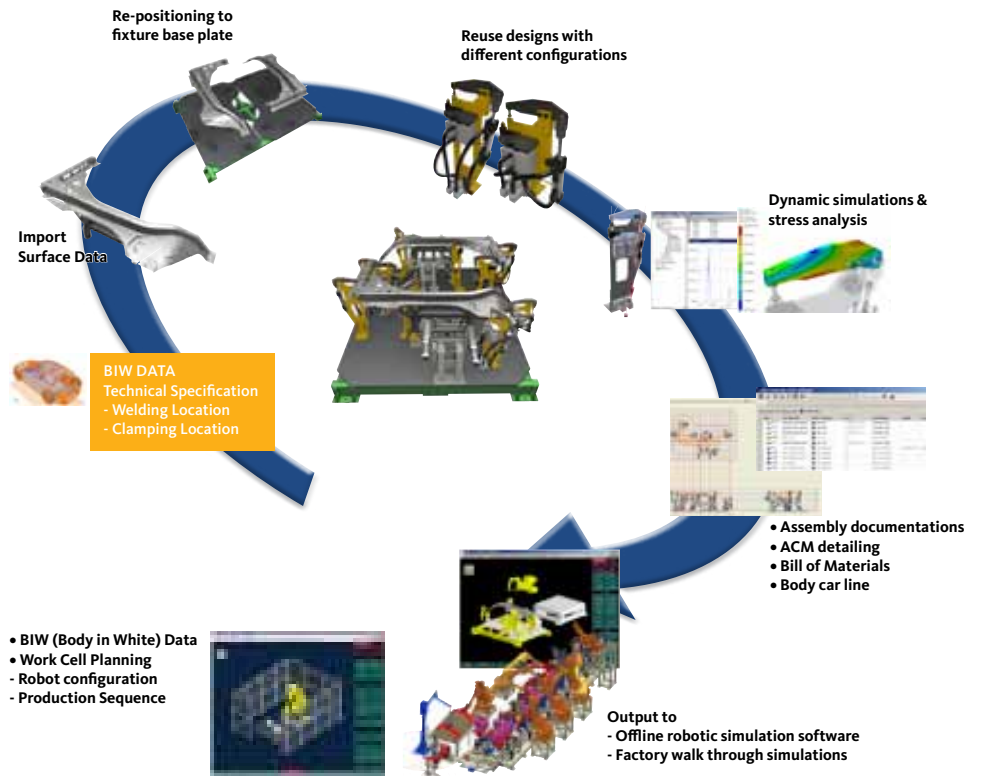
By engaging in 3D design and modeling, design issues can be identified more accurately and resolved during design reviews and design quality can be greatly improved.

Overview of Industry Workflow

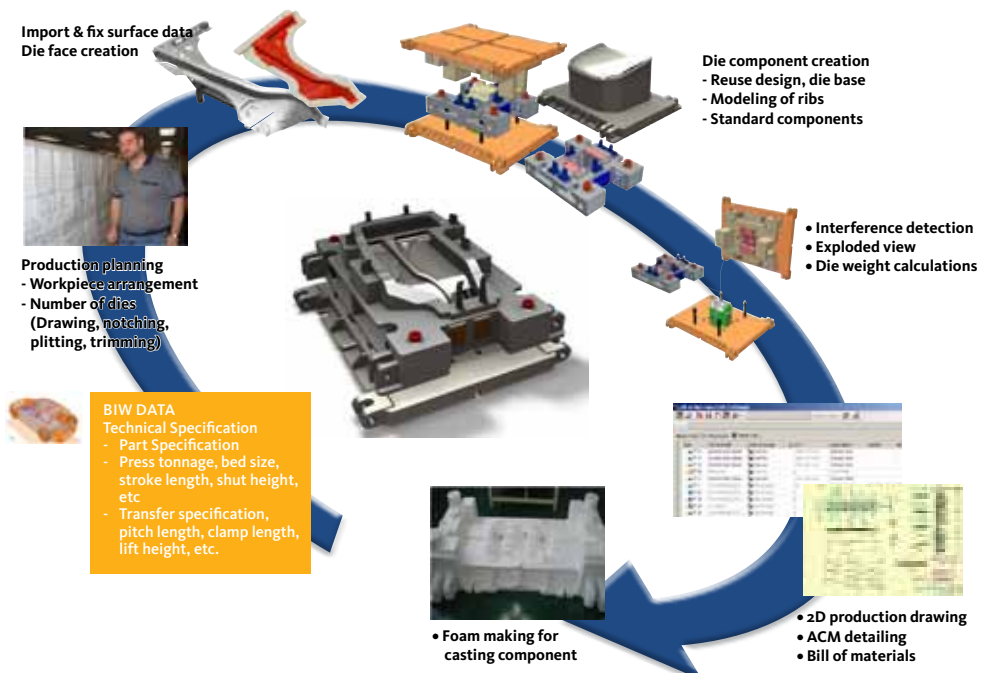
Equipment manufacturers do not necessarily have to use the same software tools as the OEMs. As long as data compatibility with the OEM is maintained, the collaborative supply chain workflow can be established.

If equipment manufacturers start engaging in 3D design and modeling, design issues can be identified more accurately and resolved during design reviews and design quality can be greatly improved. This significantly increases productivity and reduces time-to-market.

TOOL DESIGN WORKFLOW



DIE DESIGN WORKFLOW



Visualise, Simulate, Analyse - apply Autodesk Expertise

Developing Your Competitive Advantage

All manufacturers have the ability to differentiate themselves and become more competitive by the following.

New & Innovation Productions

Creating innovative products with the understanding on the importance of sharing knowledge among engineers and processes

Get to Market Faster

Possess efficient design & development processes that shorten development periods and turnaround time

Better Product Quality

Reuse of data and simulation analysis to produce higher quality products

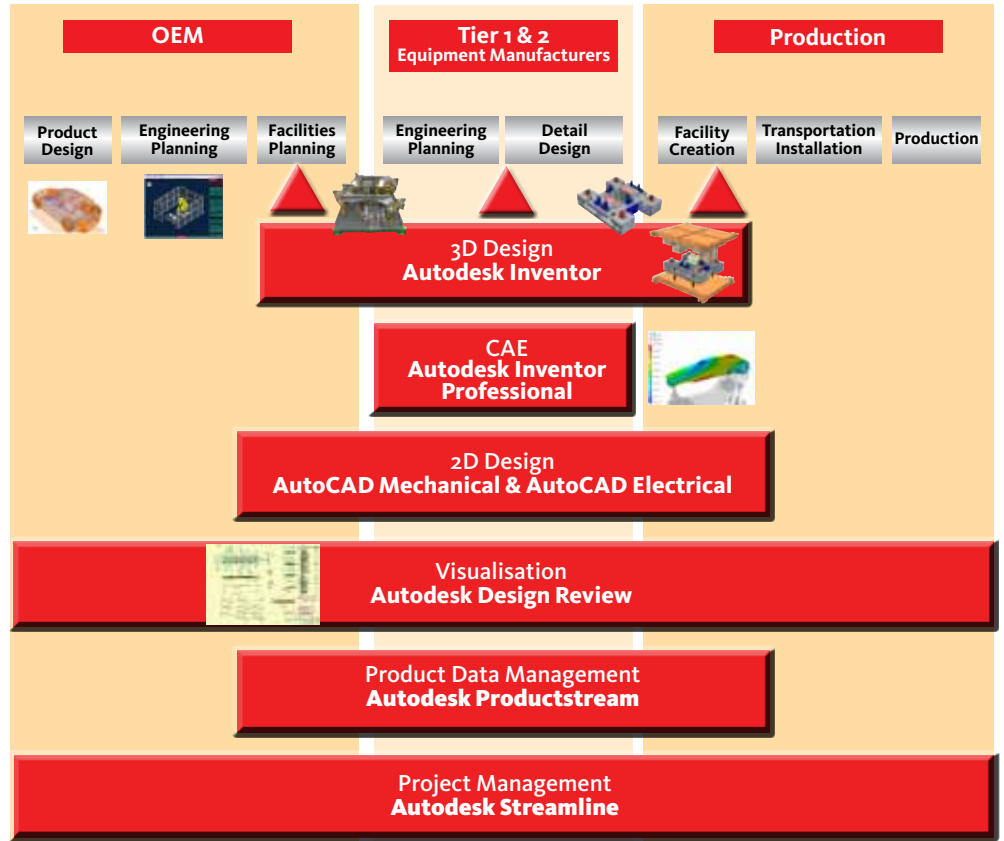
Low Cost

Use of digital models for analysis, visualisation and simulation greatly reduces the cost incurred for creating physical prototypes

And successes in the automotive equipment industry can be achieved with shorten equipment development periods, reduced development costs, and quick implementation of product design changes and design review feedback. With Autodesk solution for Digital prototyping, you are able to do so.

Autodesk Manufacturing Solutions for Your Design Needs

Autodesk solutions for Digital Prototyping is able to cater to each stage of the design and manufacturing process in the automotive industry, be it requirements for 3D or 2D design, visualisation, product data and project management .



Autodesk solutions for Digital Prototyping caters to each stage of the design and manufacturing process in the automotive industry.



Autodesk® Inventor™ software is the foundation for Digital Prototyping, providing a comprehensive and integrated set of design tools for producing and documenting complete digital prototypes that enable users to simulate how the design will work under real conditions before the product is ever built.



AutoCAD® Electrical is AutoCAD® software for controls designers, purpose-built to create and modify electrical control systems. Automated tasks and comprehensive symbol libraries help to increase productivity, reduce errors, and provide accurate information to manufacturing. AutoCAD Electrical delivers the tools needed to help design control systems quickly and accurately with significant cost savings.



Autodesk® Mechanical is the AutoCAD® software for manufacturing, purpose-built to accelerate the mechanical design process, while preserving the AutoCAD user experience. With comprehensive libraries of standards-based parts and tools for automating common design tasks, it offers significant productivity gains over basic AutoCAD software and saves countless hours of design time.



Autodesk® Productstream® software securely stores and manages engineering information, design data, and documents-shortening the design-to-manufacturing process. It creates a digital pipeline that connects all the workgroups involved in the manufacturing process, enabling collaboration between ideation, engineering, and manufacturing workgroups in the Digital Prototyping process.

Autodesk® Design Review software is free*, all-digital way to share, review, mark up , and track changes to digital prototypes, all without the original creation software.

Autodesk® solutions for Digital Prototyping provide scalable, attainable, cost-effective software for addressing automotive supplier issues in each phase of the automotive development process—conceptual design, engineering, manufacturing, and marketing development. Visualise, simulate & analyse real-world performance of your design with less reliance on costly physical prototypes, reducing design and production costs while driving greater innovation.

“With Autodesk Inventor, we are able to make decisions in the earlier stage of product development process which puts us on the right track.”

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Department Head, Production Engineering,
Toyota Assembly Services

Learn More or Purchase

Access specialists worldwide who can provide product expertise, a deep understanding of your industry, and value that extends beyond your software purchase. To locate the reseller nearest you, visit

<http://asean.autodesk.com/resellers>.

Learn more about the Autodesk Digital Prototyping Solution and Autodesk solutions for Automotive Equipment Manufacturers at

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