

Engineering

From *Concept* to *Product*



eta

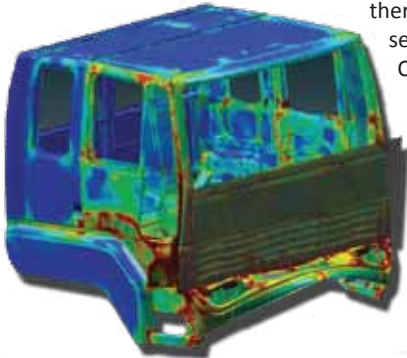


CAE | Product Design | Product Development

From *Concept* to Product

ETA is an engineering solutions & consulting company, offering services from *Concept to Product*. The firm is a leading provider of product design and development solutions along with FEA software tools, serving the automotive, aerospace, energy & power, oil & gas, electronic packaging, biomedical and civil engineering industries.

The ETA engineering team specializes in linear & non-linear stress analysis, crash, NVH, durability, safety, thermal analysis, seismic analysis, CFD,



electromagnetic, composite material analysis and civil-structure analysis & design.

Core engineering services:

- 1 CAE/FEA Analysis
- 2 Product Design
- 3 Product Development

An integral tool employed by the ETA engineering team is its proprietary, Accelerated Concept to Product (ACP) Process™. The method was developed to reduce product development cost and reduce product mass while improving product performance.

ACP is a performance-driven, holistic product design development method, which incorporates the use of multiple CAE tools to generate an optimal design solution.

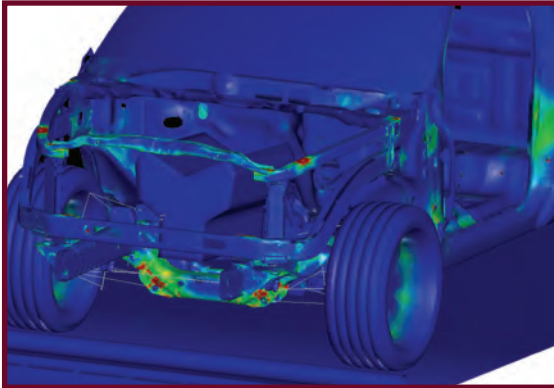
Streamline the **PD** *Cycle*

A leading full service CAE/FEA services supplier to the global automotive industry, ETA offers extraordinary capabilities in CAE to support structural product development.

The engineering group has extensive experience in durability, vehicle dynamics, crash & safety, NVH, metal stamping, CAE process development & manufacturing process improvement.

The team is skilled at using event-based simulations of dynamic non-linear systems to analyze performance for a wide range of products in a multitude of industries.

Using CAE, clients are able to streamline the product development cycle and improve manufacturing efficiency. The results are higher performing, safer products met with lower product development costs.



- 1 Full vehicle, Sub-system & Component Analysis
- 2 Crash & Occupant Safety Simulations
- 3 Durability & NVH
- 4 Concept & Development
- 5 Design verification
- 6 Design Optimization
- 7 Metalforming Analysis
- 8 Stamping Effects
- 9 Manufacturing Process Simulation & Analysis

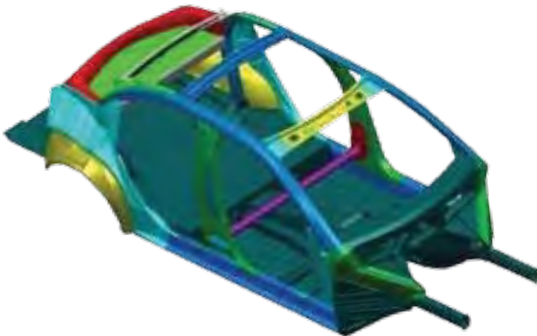
Unique Styling & Production Efficiency

Whether beginning with rough design ideas, detailed concepts, or the need to optimize an existing product, ETA's staff of creative and advanced analysis engineers can create high quality CAD designs that will translate into high performing, efficient & high quality products.

With over 30 years of CAD/CAE expertise, the team excels at creating product

designs with unique styling, which also meet performance requirements. Using a CAE centered design approach, the engineers take manufacturing & cost constraints into consideration very early in the product development cycle. This reduces product development time & cost while improving manufacturing efficiency.

To achieve these results, the ETA engineering team employs the newest technologies, including the best engineering design tools and technologies combined with its proprietary product development methodology.



*Future Generation Passenger Compartment
Courtesy of Auto/Steel Partnership*

From
*Start to
Finish*
On-time &
On-budget

Acting as a complete project integrator from start to finish, ETA can take a product from *Concept to Product*. By employing its ACP Process™, ETA can deliver the highest performing product, in the least amount of time, at the lowest possible cost.

ETA offers the innovation and adaptability of a smaller company combined with the experience and aptitude gained while working with the world's largest automotive manufacturers.

Working with key industry leaders as strategic partners, ETA can efficiently manage every detail to create success for the client's product lines. By hedging product development risk by using a CAE centered approach, there are less surprises down the road in manufacturing or warranty issues.



FutureSteelVehicle, Courtesy of WorldAutoSteel



Accelerated Concept to Product Process™

The Accelerated Concept to Product (ACP) Process™ is a performance-driven, proprietary product development method based on CAE. It incorporates multiple CAE & optimization tools to generate an optimal design solution.

With the ACP Process™ hundreds of design concepts under multiple load conditions are evaluated simultaneously. Only those concepts that meet all of the design

targets and manufacturing constraints are initiated.

The resulting concept(s) is designed, analyzed and optimized using loading, manufacturing, material and cost constraints. This ensures that the final product meets all performance, mass and cost constraints.

Applied at the component, sub-system or full- system level, significant efficiencies and product improvements are achievable using ACP.

Courtesy of WorldAutoSteel



ACP Results:

- ① Reduce Development Cost by 35-40%
- ② Improve Manufacturing Efficiency
- ③ Reduce Mass by ~ 20%
- ④ Improve Product Performance
- ⑤ Improve Fuel Efficiency

From *Concept* to *Product*

For three decades, ETA has been a leading engineering services supplier to the global automotive industry. Now serving a variety of industries, ETA offers unique expertise in the areas of durability, NVH, metalforming, crashworthiness, occupant safety, product design and product development. Proactive in the creation and implementation of new analysis methods and software, ETA is also the developer of the Inventium Suite. For more information, visit www.eta.com.



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