aPriori

Manufacturing Process Models

Simulate Real-world Manufacturing Processes with Physics-based Process Models and Deterministic Routings Based on 3D CAD Models

Overview

aPriori's Manufacturing Process Models simulate manufacturing processes and deterministic routings to optimize production based on cost, sustainability, and manufacturability requirements. Our physics-based manufacturing process models allow engineering, manufacturing, and purchasing professionals to explore production alternatives down to the machine level. Use aPriori to unlock insights during early design stages to accelerate time-to-market and address market needs rapidly.

Manufacturing Process Groups

Enhanced with Sustainability Insights

Enhanced with Design for Manufacturing (DFM) Capabilities

Additive Manufacturing

- Direct Metal Laser Sintering
- Material Jetting
- Powder Metal
- Selective Laser Sintering
- Stereolithography

Assembly

- Adhesive Bonding
- Mechanical Fastening
- Sealing
- Threaded Insert
- Welding

Casting & Forging

- Closed Die Forging
- Die Casting
- Investment Casting
- Ring Rolled Forging
- Sand Casting

Composites

- Automated Fiber Placement
- Automated Tape Layup
- Hand Layup

Electronics

- PCB Fabrication
- PCB Assembly
- Wire Harness Assembly

Heat & Surface Treatment

- Aging, Stress Relief
- Anodize, Black Oxide
- Degreasing
- Electroplating
- Painting
- Powder Coat Cart
- Surface Hardening
- Through Hardening

Machining

- Machining of Casting, Forging, Additive, and Fabricated parts
- Milling, Turning, Grinding, Gear Making
- Multi-Spindle Machining
- Stock Machining

Metal Fabrication

- Bar & Tube
- Extrusions
- Hard & Soft Tooled
- Stamping & Die Stamping
- Sheetmetal Hydroforming
- Sheetmetal Roll Forming
- Sheetmetal Stretch Forming
- Sheetmetal Transfer Die

Plastics

- Injection Molding
  - » Assembly Molding
  - » Assembly Plastic Molding
- Reaction Injection Molding
- Roto and Blow Molding
- Structural Foam Molding
- SMC Compression Molding
- Sheet Plastic
- Thermoforming

*Not all models are illustrated above

**Design guidance and sustainability insights not available for all processes yet

Unlock value in your digital twins with automated manufacturing insights that include:

Product Cost Management

- Should cost
- Make vs. buy

Manufacturing Optimization

- Machine selection
- Process routing

Sustainability

- CO_2e footprint
- Design for Sustainability

Design Guidance

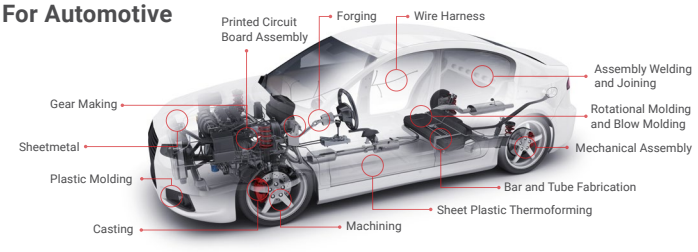
- Design for Manufacturability (DFM)
- Design to Cost (DTC)

Process Models for Selected Industries

Reduce Engineering Change Orders

Aluminum extrusion fabrication, roto, and blow molding manufacturing process models assist cross-functional teams in reaching success with pre-production vehicle builds early, reducing engineering change orders. Learn More

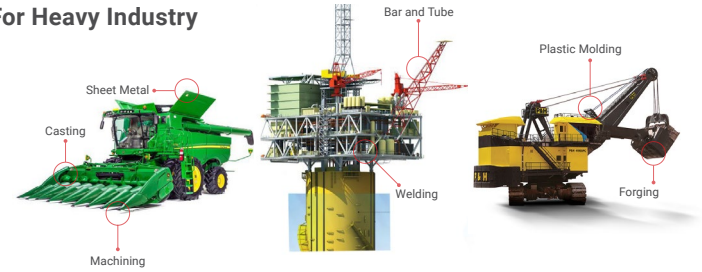
For Automotive



Achieve Target With Ease

Adapt to large project scope and streamline product development process by quickly locating parts that could be made more cost-effectively through different manufacturing processes. Automatically analyze and identify cost drivers for large sheet metal parts. Learn More

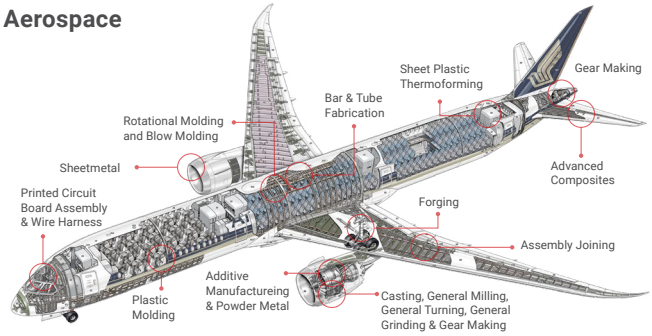
For Heavy Industry



Manufacture Next-generation Aircraft

Design advanced airframe, engine, and interior components with accurate manufacturing process models. Optimized for the aerospace industry, the process models help improve manufacturing calculation, optimizing performance/weight ratio to reduce fuel consumption and lower total cost of ownership. Learn More

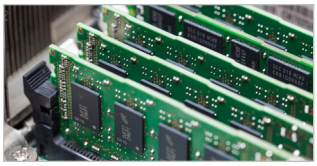
For Aerospace



Accelerate Design-to-Market

Gain early visibility into the cost impact of design decisions with dedicated manufacturing process models in PCB, PCBA, and wire harness. Achieve faster aggregation and analysis of data across product lines and business units. Learn More

For Consumer Electronics



PCB Assemblies

Wire Harness

WANT TO LEARN MORE?

CLICK HERE to schedule a demo of the aPriori Manufacturing Insights Platform.

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