

HEAVY METAL, BIG CHALLENGES IN INDUSTRIAL EQUIPMENT

Discover how digital twins and virtual factory simulation help industrial manufacturers make smarter, lower-risk decisions before changing anything on the shop floor.



THE BIG CHALLENGES FACING INDUSTRIAL MANUFACTURERS



Skilled labor shortages

- Retirements are outpacing new talent
- Existing workers lose time on inefficient layouts and manual processes



Rising costs and capital pressure

- Materials, energy, labor, and equipment investments are all getting more expensive
- SMBs have less room for error when making facility or automation decisions



Supply chain disruptions

- Shortages, delays, and price swings make planning harder
- Overstocking protects production but hurts cash flow and space utilization



Sustainability and compliance demands

- Manufacturers must reduce waste, improve efficiency, and stay compliant
- They need to do this without sacrificing profitability

THE COST OF BAD PLANNING

70%

Why these problems are so costly

Up to 70% of operational costs are locked in once a facility layout is finalized

Poor planning can create:

- Bottlenecks
- Wasted labor
- Underused automation
- Excess inventory
- Lower ROI for years

THE SOLUTION: MOVE FROM TRIAL- AND-ERROR TO DIGITAL CERTAINTY

SOLIDWORKS Manufacturing Solutions on the 3DEXPERIENCE platform help Industrial Manufacturers create digital twins of their facilities and workflows.

This allows teams to:

SIMULATE layouts before making physical changes	TEST automation strategies virtually
IDENTIFY bottlenecks early	FORECAST ROI before investing
OPTIMIZE labor, material flow, and throughput	VALIDATE decisions with data instead of guesswork

WHAT DIGITAL TWINS HELP IMPROVE



LABOR EFFICIENCY

- ▶ Identify wasted motion and non-value-added tasks
- ▶ Reallocate skilled workers to higher-value work
- ▶ Maintain output despite labor shortages



AUTOMATION ROI

- ▶ Test new machines and robotics before installation
- ▶ Avoid buying equipment that creates new bottlenecks
- ▶ Ensure automation fits the full workflow



SUPPLY CHAIN RESILIENCE

- ▶ Model material flow and disruption scenarios
- ▶ Right-size inventory levels
- ▶ Reduce working capital tied up in stock



SUSTAINABILITY AND COMPLIANCE

- ▶ Test waste reduction and greener processes virtually
- ▶ Reduce scrap and energy use
- ▶ Verify compliance before implementation



BETTER DECISION-MAKING

- ▶ Turn complex operational data into visual simulations
- ▶ Help teams and leadership align faster
- ▶ Build stronger business cases for investment

KEY PROOF POINTS



Up to 25% improvement in new equipment efficiency



Up to 70% of operational costs determined at layout finalization



Better inventory turnover and lower working capital needs



Faster buy-in through visual, data-based planning

FEATURED CAPABILITIES OF SOLIDWORKS MANUFACTURING SOLUTIONS



**FACTORY
SIMULATION**



**DIGITAL FACILITY
PLANNING**



**THROUGHPUT
OPTIMIZATION**



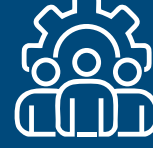
**WHAT-IF SCENARIO
MODELING**



**ROBOT
PROGRAMMING**



**CNC AND ADDITIVE
WORKFLOW
VALIDATION**



**OPERATIONAL
VISUALIZATION
FOR LEADERSHIP
DECISIONS**



**CROSS-
DEPARTMENTAL
COLLABORATION**

FINAL TAKEAWAY

Industrial SMBs can no longer rely on instinct and physical trial-and-error. By using digital twins and virtual simulation, they can reduce risk, improve efficiency, justify investments, and build more resilient operations.

To learn more, download

[Heavy Metal, Big Challenges: Surviving and Thriving as an Industrial SMB](#)