SOLUTION BRIEF

Advanced simulation and modeling for manufacturing in healthcare

Optimize production and accelerate time to market

KEY BENEFITS

- Accelerate development and time to market
- Optimize production and maintain manufacturing continuity
- Reduce risk with fewer design cycles
- Mitigate costs and reduce waste
- Communicate engineering concepts clearly with visualization
- Assess and interact in virtual environments to demonstrate early functionality
- Refine manufacturing with advanced simulation and modeling techniques
- Gain real-time production insights and make future predictions with AI- and ML -driven digital twins

Deliver healthcare innovations faster, reduce risk and deploy at scale

From aging populations to the adoption of wearables, the factors driving growth in the $542 billion medical device market are many and varied.[1] As demand increases, digitization and the integration of advanced technologies are revolutionizing manufacturing in healthcare. Powerful tools for visualization, simulation, and digital twin environments enable companies to increase efficiency, improve quality, and enhance sustainability, transforming manufacturing into a competitive advantage.

VISUALIZATION

Communicate ideas effectively with visualization tools that bring your engineering concepts to life.

- Go beyond 2D CAD drawings to explore the user experience, assess manufacturability, and engage your team in simulated workflows to identify design improvements prior to production.
- Gain a better understanding of real-world settings, ergonomics, and usability.
- Unlock valuable insights from clinicians and healthcare providers by leveraging prototyping to enhance patient safety and inform regulatory and compliance preparation.

SIMULATION

Answer critical questions affecting each stage of the manufacturing process with advanced simulation and analysis tools for system development, forecasting, and optimization.

- Use proof of concept simulations to better understand whether an idea will work or not.
- Layer in the details with proof of engineering simulations that allow you to iterate quickly in collaboration with multidisciplinary teams.
- Conduct optimization simulations to improve outcomes over time.

Once a simulation is built, you can test many alternatives, and test each alternative many times, to better understand relationships, averages, outliers, and outcomes. Simulations are also exceptional for diagnostic and operational forensics, or as part of Human Factors design studies.

ABOUT FLEX

Flex provides advanced manufacturing capabilities and specialized end-to-end services that enable healthcare companies to deliver products at scale with increased quality, productivity, and speed, in every major region of the world.

DIGITAL TWIN

Use real-time data and relevant historical data from an array of connected systems in digital twin models that enable you to create alerts, make predictions, and proactively test hundreds of "what if…" scenarios to accelerate time to market, improve yields, and reduce cost and waste.

Visualization

Communication
Sales
Marketing

Simulation

Engineering and design iteration
Proof of concept
Proof of engineering
Diagnostic and operational forensics
Analysis and optimization

INCREASING INTELLIGENCE →

Digital Twin

LEVEL 1
Descriptive twin: Visual replica of a built asset with descriptive information

LEVEL 2
Informative twin: Displays live real-time operational and sensory data

LEVEL 3
Predictive twin: Uses operational data to gain insights and make suggestions

LEVEL 4
Comprehensive twin: Simulates future scenarios and considers "what-if" questions

LEVEL 5
Autonomous twin (Future): Has the ability to learn (AI) and act on behalf of users

INCREASING CONNECTIVITY →

The Flex advantage

Whether you're ramping up, optimizing production, anticipating demand, or transitioning to what's next, Flex can help every step of the way. Discover the best path forward using powerful visualization, simulation, and digital twin technologies that help you anticipate and resolve even the most complicated manufacturing challenges. Advanced technologies from Flex transform manufacturing in healthcare while reducing risk and accelerating time to market.

Bring your products to market faster with advanced manufacturing tools from Flex.

Learn more
Healthcare | Advanced Manufacturing Technologies

1. https://www.fortunebusinessinsights.com/industry-reports/medical-devices-market-100085

For more information, visit **flex.com/connect**

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