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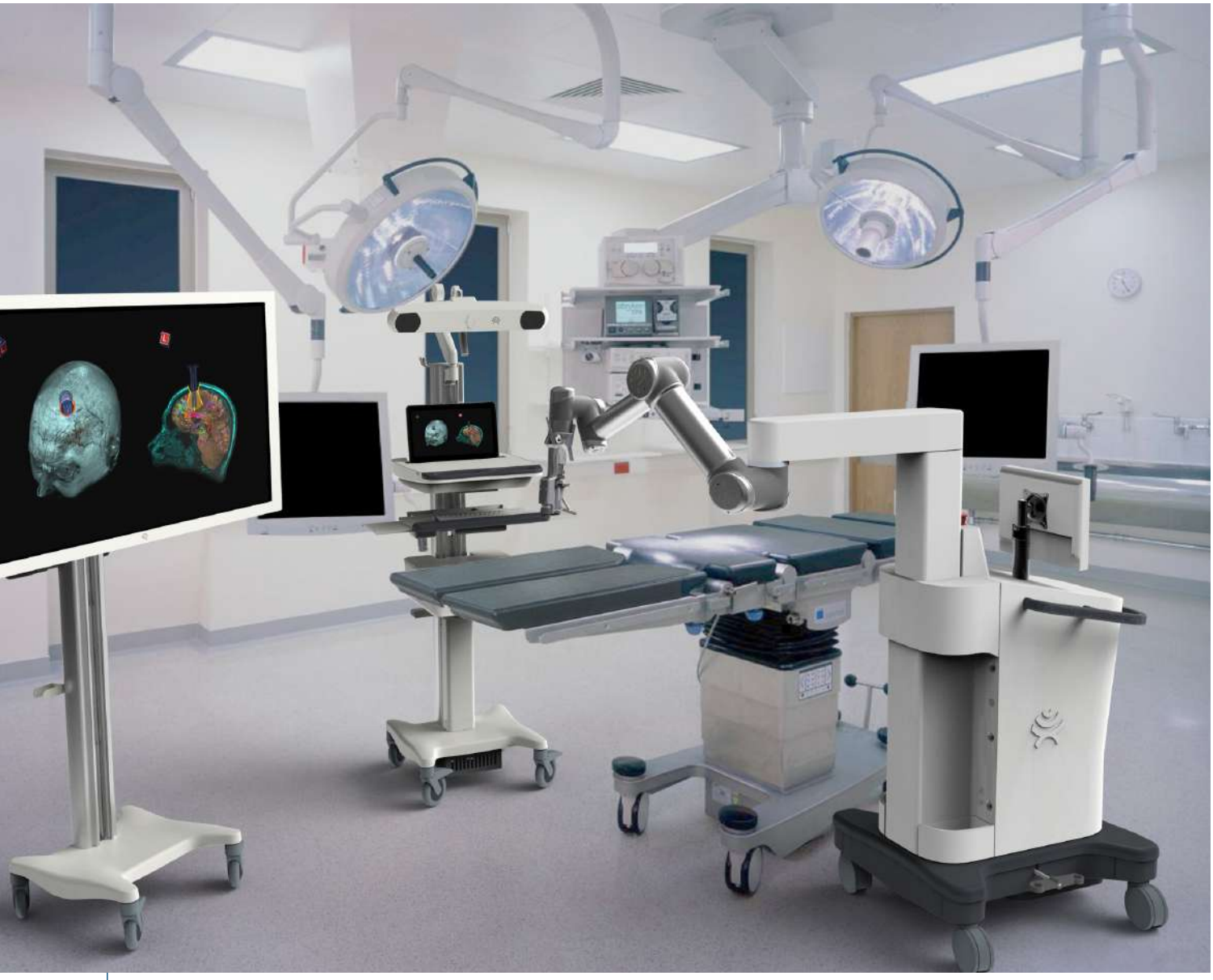
SYNAPTIVE MEDICAL INC.

ADVANCING NEUROSURGICAL SYSTEMS DEVELOPMENT WITH SOLIDWORKS SOLUTIONS



Using SOLIDWORKS design, simulation, product data management (PDM), and technical communication software solutions, Synaptive Medical developed and introduced its BrightMatter suite of neurosurgical solutions—products and systems that help neurosurgeons operate more precisely and effectively—in just four years.

synaptive

Challenge:
Establish and quickly grow a medical device and technology company focused on providing a complete set of surgical solutions that improve patient care and outcomes.

Solution:
Implement SOLIDWORKS Professional design, SOLIDWORKS Premium design and analysis, SOLIDWORKS Simulation Professional analysis, SOLIDWORKS PDM Professional product data management, and SOLIDWORKS Composer technical communication software solutions.

Benefits:
- Developed comprehensive neurosurgical product set in four years
- Grew engineering staff from one to 100
- Enhanced recruitment of trained designers and engineers
- Supported rapid company expansion

In only four years, Synaptive Medical Inc. has introduced a range of products and systems that help neurosurgeons operate more precisely and effectively, introducing technology that could potentially lead to improved outcomes for brain surgery patients. With a talented team of scientists, engineers, business leaders, and customer care specialists, the Toronto-based medical device and technology company strives to ensure the best possible patient outcomes, inspiring the innovations and advancements that the complex discipline of neurosurgery demands.

The company's BrightMatter™ neurosurgery products and solutions suite offers state-of-the-art equipment, advanced surgical visualization, and cohesive informatics, including the first hands-free surgical scope, enabling neurosurgeons to better prepare for and perform brain surgeries. In addition to recruiting a talented, dedicated team of scientists and engineers—with expertise in optics, robotics, and image-guided technology—Synaptive Medical collaboratively works with top neurosurgeons, radiologists, and healthcare facilities to develop and integrate innovative neurosurgical technologies in ways that are cost-effective, clinically relevant, and centered on improving patient care. The company is also expanding their surgical capabilities to other surgical specialties, such as upper and lower spine procedures.

When the founders launched Synaptive Medical in 2012, they realized the company would need a 3D product development platform that not only provided extensive, integrated capabilities, but also was established enough to enhance recruitment efforts and support rapid growth, according to Director of Engineering Josh Richmond. "It was important that our 3D design environment included integrated tools, as well as a wide pool of trained users who could quickly help us achieve our growth objectives," Richmond explains. "Our first designer was familiar with SOLIDWORKS® software, and it was easier to find talented people with SOLIDWORKS experience."

Synaptive Medical chose SOLIDWORKS solutions to support its ambitious product development goals because the software is easy to use, provides a wide range of integrated capabilities, and is the preferred design tool of a large number of designers and engineers. The company implemented SOLIDWORKS Professional design, SOLIDWORKS Premium design and analysis, SOLIDWORKS Simulation Professional analysis, SOLIDWORKS PDM Professional product data management, and SOLIDWORKS Composer™ technical communication software solutions.

"SOLIDWORKS has helped us to quickly develop several products and expand our engineering and design staff from one to 100 engineers in just four years."

— Mark Morreale, Mechanical Engineer

QUICKLY DEVELOPING NEUROSURGICAL PRODUCT LINE

Using SOLIDWORKS solutions, Synaptive Medical quickly developed and introduced its BrightMatter suite of neurosurgical solutions. These include Plan, a trajectorycentric surgical planning system that uses anatomical imagery; Guide, a tractographic neurosurgical approach that leverages the preoperative surgical plan; Vision, a high-resolution surgical imaging system; Drive, a hands-free, automated surgical camera alignment and positioning system; and Simulate, a lifelike replica of the human brain for neurosurgical practice and training.

"SOLIDWORKS has helped us to quickly develop several products and expand our engineering and design staff from one to 100 engineers in just four years," notes Mechanical Engineer Mark Morreale. "For example, we tapped SOLIDWORKS surfacing and design for manufacturability tools to develop our simulated brain, which uses a specialized, proprietary material to emulate the texture, consistency, and other physical properties of the human brain. The mold tooling for this product, which captures all of the fissures and folds of a real brain, is incredibly complex, and we heavily leveraged SOLIDWORKS capabilities to make it a reality."

"With SOLIDWORKS, we have the integrated functionality to quickly develop and support products, enabling our company to grow."

— Josh Richmond, Director of Engineering

SAVING TIME AND MONEY VIA SIMULATION

Synaptive Medical utilizes SOLIDWORKS Simulation Professional software to optimize and validate design performance, which minimizes prototyping cycles, saving time and reducing costs. "Our BrightMatter Drive product features a cantilevered robotic arm that is suspended over the patient," Morreale explains. "We used SOLIDWORKS Simulation Professional software to ensure that our design satisfied the safety factors for stress and strength required by the IEC [International Electrotechnical Commission] 60601 standard for all medical electrical equipment.

"We're still required to test everything, but SOLIDWORKS simulation tools help us to reduce testing cycles and mitigate risk," Morreale stresses. "We also use SOLIDWORKS Simulation Professional software to conduct fatigue and drop test studies, and design testing apparatus with SOLIDWORKS."

MANAGING DESIGN DATA, AUTOMATING DOCUMENTATION

In addition to relying on SOLIDWORKS design and analysis tools, Synaptive Medical uses SOLIDWORKS PDM Professional to customize its development workflows and support growth. The company also leverages SOLIDWORKS Composer technical communication software to automate and accelerate the creation of product documentation.

"As a medical device and technology company, document, model, and revision control are critical," Richmond says. "SOLIDWORKS PDM is a very important system for managing our design data and quickly scaling our operations to support the rapid growth of our company. SOLIDWORKS Composer software allows us to directly leverage SOLIDWORKS design models to automate the production of user and service manuals. With SOLIDWORKS, we have the integrated functionality to quickly develop and support products, enabling our company to grow."

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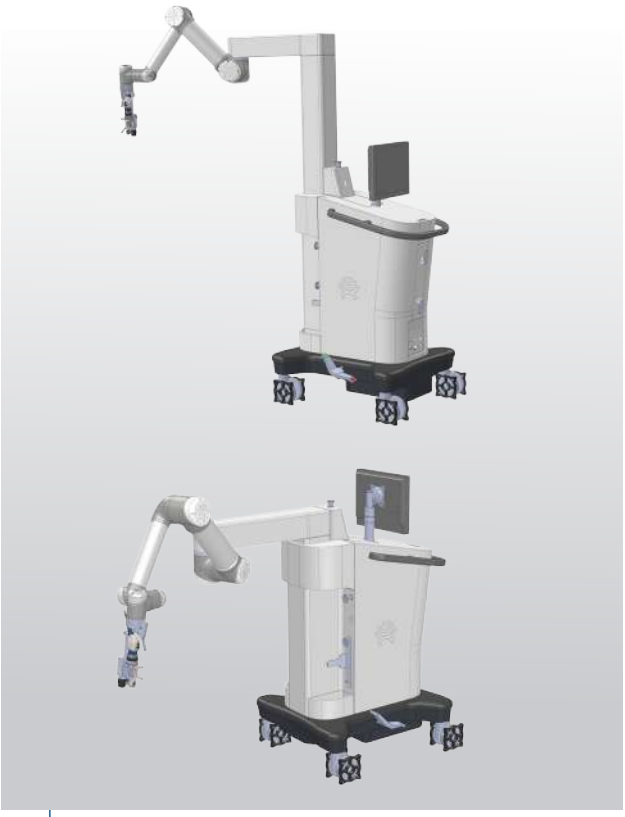

Synaptive Medical leveraged integrated SOLIDWORKS solutions to support its rapid growth rate; reducing prototyping and saving time and money with SOLIDWORKS Simulation Professional capabilities; managing design workflows and data with the SOLIDWORKS PDM system; and automating documentation creation with SOLIDWORKS Composer technical communication tools.

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