

# Demonstrating *The Playbook*: Digital Healthcare With **theator**

## THE OPPORTUNITY

- » As described in [The Playbook: Digital Healthcare Edition](#), Artificial Intelligence/Machine, Learning (AI/ML), software applications using advanced statistical methodologies, are being deployed throughout the continuum of care delivery for use cases such as processing pathology images, deriving decision support tools, and more.
- » AI/ML tools offer the opportunity to accelerate, personalize, and lead efficient clinical delivery, but come with challenges such as bias, uncertainty, data transparency, and regulatory complexity.

*The Playbook highlights innovation in the healthcare space to continually improve patient care. In surgery today, video data is not captured, analyzed, or connected to patient outcomes. To identify best practices and be able to disseminate them in real-time, surgeons and hospital need to leverage Surgical Intelligence.*

— **Theator**

## THE SOLUTION IN ACTION

- » [Theator](#) developed novel AI technology and pioneered Surgical Intelligence, which surfaces data in real-time to standardize the way surgery is performed.
- » Theator's routine analysis of surgical data generates unbiased, meaningful, and actionable insights to eliminate variability and disparity in patient care and improve outcomes.
- » To address bias, a main risk associated with AI/ML, Theator developed novel AI that:
  1. Ensures data privacy
  2. Generalizes data between hospitals and procedure types to enable scale
  3. Offers clinical significance and accuracy
  4. Minimizes the volume and variability of data needed
  5. Allows AI to be both fast and accurate to work in real-time
- » These challenges were crucial to overcome for Theator to deliver meaningful AI for minimally invasive and robotic surgical videos in real-time and work towards offering clinical decision support.

Continue to the next page to learn more.

### ***The Playbook* Resource to Use**

Theator exemplifies how to harness the opportunities and mitigate the risks and challenges outlined in The Playbook's AI/ML micro-playbook. Use the micro-playbook to learn more about AI/ML solutions, as well as case studies and evidence about using XR solutions. Continue to the next page to for a case study on Theator.

## IDENTIFYING THE OPPORTUNITY TO LEVERAGE AI/ML

- » Although outcomes and other proxy metrics are reviewed by surgical departments, there are gaps in knowledge, such as why there is variability in operative time, intraoperative complications, or postoperative outcomes, in departments performing similar operations.
- » Incorporating an artificial intelligence (AI)-powered platform that automates such data collection, analysis, and integration to patient outcomes offers a novel approach to understanding variability in operative performance within a surgical department.

### Case Study: Harnessing AI Using **theator**

## IMPLEMENTING THEATOR

- » The gynecology department of a medical center in Israel adopted Theator's **Surgical Intelligence Platform**, which utilizes computer vision technology and AI to capture, de-identify, and upload surgical video data to a secure cloud infrastructure.
- » The platform automatically annotates procedures with all surgical steps, intraoperative events, and critical safety milestones, providing a deeper understanding of the surgical process and insights into individual and department-wide surgical data.
- » The Platform generates data, which includes operative time, the number of intraoperative events, achievement of a safety milestone, and identified variability among surgeons within the department and is shared with gynecology surgical leadership regularly.
- » A comparison of surgical performance for laparoscopic hysterectomies was conducted four months before (n=40 procedures) and four months after (n=42 procedures) a regular review of the Surgical Intelligence Platform was implemented.

## SEEING THE RESULTS

- » The department showed a 56% increase in average safety milestone achievement (43% to 67%,  $p=0.03$ ), a 13% reduction in the median surgical procedure duration (100 minutes to 87 minutes), and a 53% reduction in the average number of intraoperative events (0.45 to 0.21).
- » Using the Surgical Intelligence Platform allowed surgeons - for the first time - to leverage analytics to improve continuously by highlighting what happens and why.

## REALIZING THE IMPACT

- » After becoming aware of variability, the medical center routinely reviewed procedure videos and analytics, resulting in improved safety milestone achievement, reduced median procedure time, and reduced average number of intraoperative events.
- » In all, reviewing data using the platform led to an increased focus on quality and improved patient care.