

Robotic Surgery

Sector overview



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The Medical Robotics and Computer-Assisted Surgery (MRCAS) sector is rapidly evolving, driven by innovation to enhance precision, efficiency, and safety in healthcare. MRCAS technologies encompass various categories, including medical robots for precise surgeries, surgical navigation systems, and assistive robots. The market is growing due to increasing demand for minimally invasive procedures, collaborations with healthcare institutions, personalized surgical planning, with USA and Asia-Pacific region presented as a significant growth area. In 2021, medical robots held a dominant market share, with the MRCAS market projected to reach \$11.6 billion by 2025.

The report covers various sectors within the industry, regulatory aspects, major players, large venture deals, promising early-stage projects, and specialized funds supporting the sector's growth.



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Technology Overview

The Medical Robotics and Computer-Assisted Surgery (MRCAS) landscape is characterized by its dynamic evolution, marked by continuous innovations and diverse applications. Its primary objective is to bolster precision, efficiency, and safety within the healthcare domain. Despite its relative youth, this sector exhibits significant growth potential, driven by advanced technological breakthroughs and an upsurge in healthcare demands.

The MRCAS technologies are classified into [several diverse categories](#). [Medical robots](#) serve as a cornerstone, facilitating complex surgeries with unparalleled precision and control. **Noninvasive radio surgery robots** epitomize the integration of robotics and radiology, offering non-intrusive treatment options. **Rehabilitation robots** focus on enhancing the quality of life for patients recovering from various ailments, while disinfection robots ensure sterility standards in healthcare environment. **Laboratory robots**, coupled with hospital and pharmacy automation systems, contribute to the optimization of operational efficiencies, elevating service delivery, accuracy, and safety. **Assistive robots** are instrumental in providing vital aid and support to elderly and physically challenged individuals, enhancing their independence and overall safety. **Telemedicine robots** effectively bridge geographical gaps, empowering remote consultations and treatment dissemination.

[Computer-Assisted Surgery \(CAS\)](#) domain is another pivotal component within MRCAS. This encompasses **surgical navigation systems** that enhance surgical accuracy and predictability. Intelligent operating rooms effectively amalgamate cutting-edge technology with human expertise, fostering an environment characterized by heightened safety and efficiency. **Surgical simulators and planners**, on the other hand, aid in skills enhancement and meticulous procedure planning, thus reducing associated risks and improving overall surgical outcomes.

The applications of MRCAS technology are diverse, spanning across various medical domains, including orthopedics, neurosurgery, otolaryngology, cardiology, prosthetics, gastroenterology, and urology. The versatility and efficacy of these technologies play a pivotal role in addressing complex medical challenges, paving the way for a paradigm shift in healthcare treatment methodologies.



Major trends

The MRCAS market is on an [upward trajectory, fueled by increasing demands for laparoscopic and cardiac surgeries](#). A burgeoning geriatric population across Asia-Pacific, North America, and Europe amplifies this trend, with MRCAS being favored for its minimally invasive approach, reduced pain, minimal blood loss, and expedited patient recovery.

Growth drivers in the MRCAS segment include the proliferation of laparoscopic surgeries and a surge in healthcare expenditures. Geographically, North America, Asia-Pacific, and Europe are at the forefront of adopting these technologies, spurred by an amalgamation of technological ingenuity, regulatory support, and evolving healthcare needs. The Asia-Pacific region, in particular, is anticipated to exhibit substantial growth, bolstered by increasing disposable incomes and an aging population.

Other healthcare trends that impact the growth of MRCAS include:

- 1** [Versatile robotic systems](#): The development of smaller, more adaptable robotic systems broadens their utility across a spectrum of surgical specialties, thereby augmenting their accessibility and value to healthcare institutions.
- 2** [Collaborations with healthcare providers and institutions](#): The proliferation of strategic collaborations and partnerships between robotics companies and healthcare institutions fosters innovation, broadens product offerings, and elevates surgeon training programs, thereby advancing the versatility of MRCAS technologies.
- 3** [Telemedicine and telesurgery](#): The increasing adoption of telemedicine and telesurgery opens avenues for remote consultations and surgical procedures, significantly improving access to specialized surgical care, especially in underserved regions. This promising area for robotic development, however, is [a subject for developing tight regulation which significantly varies across the globe](#).

- 4 [Customized surgical solutions](#): The prevalence of personalized surgical planning and the utilization of 3D-printed, patient-specific tools is on the rise, underscoring the improvement in surgical precision and, consequently, patient outcomes.
- 5 [AI and machine learning integration](#): The integration of AI and machine learning into robotic systems bolsters decision-making capabilities, facilitating more precise and autonomous surgical procedures, ultimately leading to enhanced patient outcomes.

The MRCAS technology is poised for significant growth, characterized by continuous innovation, diversification, and global adoption. Its integration into the medical landscape is not just transforming surgical procedures and treatment options but is also redefining patient care, promising a future of enhanced medical precision, safety, and efficiency. The vendor landscape is robust, with major companies contributing to the technological advancements that underpin this dynamic market.



Major players

North America

[Aesculap](#)

Leading medical equipment manufacturer specializing in surgical instruments and implants, with a capitalization of \$200 million. Their extensive range of crafted products includes a wide array of surgical instruments and specialized implants, tailored to various medical disciplines. These products play a vital role in enabling healthcare professionals to perform procedures with enhanced accuracy, ultimately improving patient care and outcomes.

[CAE Healthcare](#)

Pioneering in medical simulation and training technologies, with a capitalization of \$150 million, revolutionizing healthcare education. The company offers technology and training solutions to enhance medical education and improve patient safety.

[Zimmer Biomet Holding](#)

A global leader in the orthopedic and musculoskeletal healthcare industry with a capitalization exceeding \$30 billion. With a rich legacy of innovation, the company offers a diverse portfolio of products and solutions, including orthopedic implants, surgical technologies, and biologics.

[Intuitive Surgical](#)

A global leader in robotic surgery systems, with a capitalization exceeding \$10 billion, advancing minimally invasive procedures. These innovative platforms empower surgeons with enhanced precision and capabilities across various medical specialties.

[Hansen Medical](#)

Robotics company dedicated to medical applications, with a capitalization of \$100 million, pushing the boundaries of robotic-assisted surgery. The company designs and manufactures robotic platforms that empower healthcare professionals to perform complex procedures with greater accuracy and control.

[Think Surgical](#)

A dynamic player in the medical technology field, specializing in the development of advanced robotic systems for orthopedic surgeries. With a focus on improving patient care and surgical practices, the company has a capitalization of \$120 million.

Europe

[Medtronic](#)

Global leader in medical technology, focusing on devices and therapies for chronic diseases. Their products cover a diverse spectrum of medical fields, such as cardiology, neurology, diabetes, and more. Company capitalization exceeds \$150 billion.

[Swisslog Holding](#)

Automation and robotics solutions provider, including those for healthcare logistics, with a capitalization of \$1 billion. The company specializes in creating cutting-edge systems that optimize processes and enhance efficiency in material transport, warehousing, and healthcare settings.

[Voxel-Man](#)

Provides 3D visualization and simulation solutions for medical training, with a capitalization of \$10 million, improving medical education. The company provides 3D visualization and virtual reality tools for medical education, clinical practice, and research, offering immersive and precise anatomical models to empower healthcare professionals and educators while advancing medical knowledge and training.

[Virtamed](#)

Develops medical training simulators, with a capitalization of \$15 million, enhancing surgical education. The company specializes in developing advanced simulators and training solutions for medical professionals. Virtamed's technology allows healthcare practitioners to enhance their skills through immersive and realistic training scenarios. These solutions cover a wide range of medical disciplines, enabling professionals to practice and refine their techniques in a safe and controlled environment.

[Karl Storz GmbH & Co](#)

A global leader in endoscopy and minimally invasive medical technology with a capitalization of \$500 million. The company specializes in the design and manufacturing of high-precision endoscopic instruments and visualisation systems. Their cutting-edge equipment enables healthcare professionals to perform diagnostics and surgical procedures with precision, reduced invasiveness, and enhanced patient outcomes.

Asia-Pacific

Biobot Surgical

A global leader in minimally-invasive robotic healthcare solutions, focused on improving diagnostic accuracy and patient outcomes. Overall, Biobot Surgical and its competitors have raised over \$5.67B in funding across 286 funding rounds involving 502 investors.

Honda Motor Co

Renowned automotive manufacturer known for cars, motorcycles, and power equipment, with a capitalization exceeding \$45 billion. Honda's robotics division developed the ASIMO (Advanced Step in Innovative Mobility) humanoid robot, which, although originally designed for tasks like mobility assistance and customer service, has garnered interest for potential applications in healthcare. ASIMO's capabilities in mobility and dexterity have sparked discussions about its potential role in assisting with patient care and rehabilitation.

Panasonic Corp

A global electronics corporation offering a wide range of products, including consumer electronics, appliances, and healthcare technology. Panasonic's robotic surgical products include robotic systems that enable surgeons to perform complex procedures with enhanced accuracy and control, providing real-time data, precise navigation, and minimally invasive capabilities. Its capitalization exceeds \$20 billion.

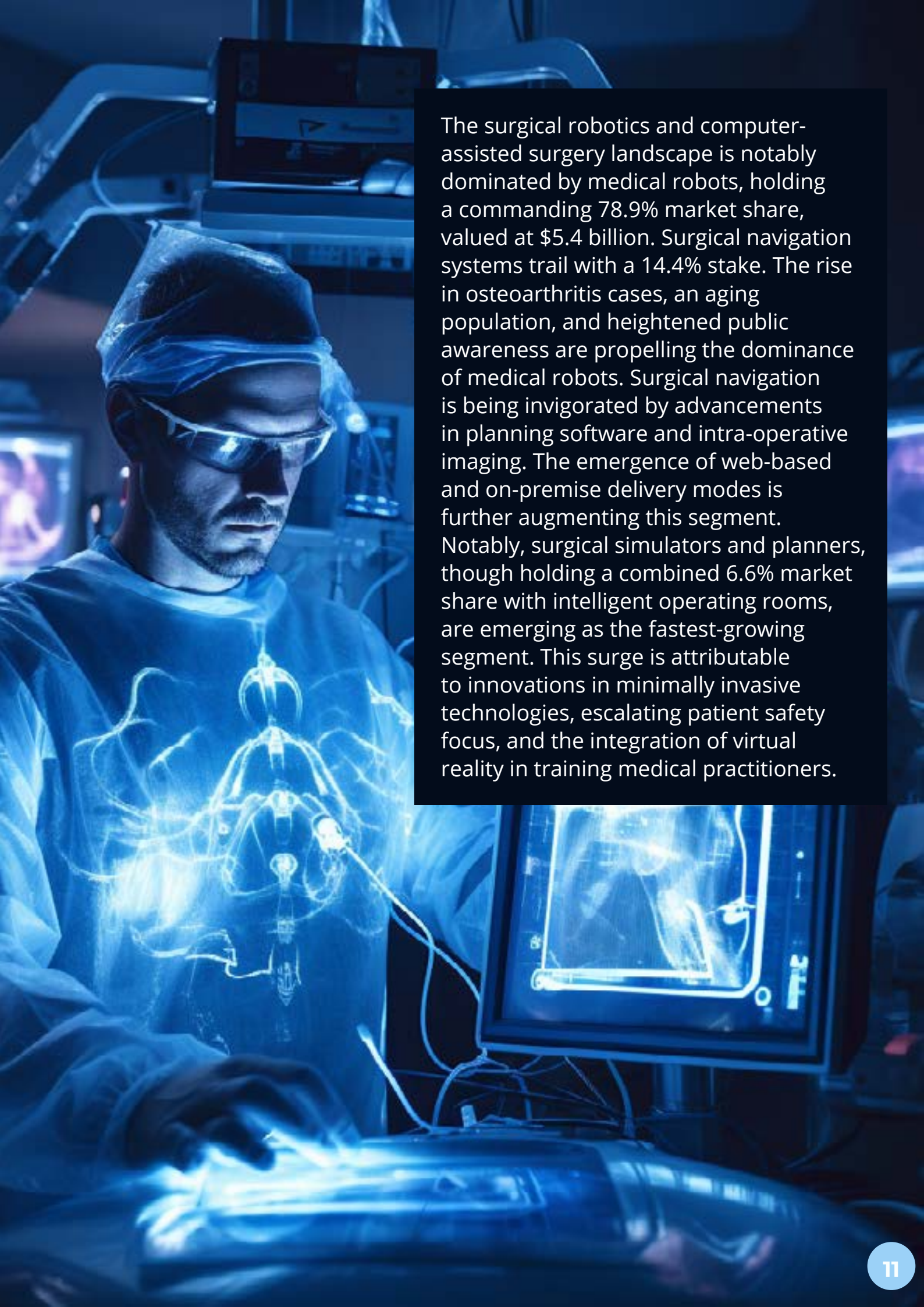


Sectors within the industry where tech start-ups are growing

In 2021, medical robots dominated the sector, accounting for 67.8% of the global medical robotics market. A robust CAGR of 13.5% is anticipated, projecting the MRCAS market to soar from \$6.1 billion in 2020 to \$11.6 billion by 2025, underscoring the escalating integration of these technologies in diverse medical applications.

Global surgical robotics and computer-assisted surgery by market type

Type	2019	2020	2021	2022	2023	2024	2025	CAGR% -2019 2025
Surgical robots	4,348.30	4,843.00	5,402.80	6,048.30	6,787.20	7,622.60	9,144.40	13.6
Surgical navigation systems	806.8	892	987.3	1,092.20	1,207.70	1,334.80	1,668.50	13.3
Intelligent operating rooms	245	274	298	324.1	352.4	383.1	516.1	13.5
Surgical simulators and planners	123.8	140.2	154.8	170.6	188.6	209.1	269	13.9
Total	5,523.90	6,149.20	6,842.90	7,635.20	8,535.90	9,549.60	Type	11,598.00



The surgical robotics and computer-assisted surgery landscape is notably dominated by medical robots, holding a commanding 78.9% market share, valued at \$5.4 billion. Surgical navigation systems trail with a 14.4% stake. The rise in osteoarthritis cases, an aging population, and heightened public awareness are propelling the dominance of medical robots. Surgical navigation is being invigorated by advancements in planning software and intra-operative imaging. The emergence of web-based and on-premise delivery modes is further augmenting this segment. Notably, surgical simulators and planners, though holding a combined 6.6% market share with intelligent operating rooms, are emerging as the fastest-growing segment. This surge is attributable to innovations in minimally invasive technologies, escalating patient safety focus, and the integration of virtual reality in training medical practitioners.

Regulatory Landscape in Robotic Surgery

Robotic surgery is governed by a myriad of regulations that are as complex as the systems they oversee. The regulatory frameworks across North America, Israel, Western Europe, and the Asia-Pacific region encompass safety, efficacy, and ethical considerations to ensure that the deployment of these advanced technologies is in the best interest of patients and healthcare providers. The swift advancement of robotic surgery technology is met with challenges in establishing a universally accepted regulatory framework. Harmonizing the diverse and complex regulations remains a task for international cooperation.

North America

In the United States, the Food and Drug Administration (FDA) is the pivotal regulatory body that oversees the development, marketing, and use of robotic surgical devices. The devices must undergo [rigorous premarket approval \(PMA\)](#) or 510(k) clearance processes, entailing an in-depth review of their safety and efficacy. Manufacturers must demonstrate that their devices are as safe and effective as existing legally marketed devices or undergo rigorous testing and clinical trials to prove their safety and effectiveness. Additionally, adherence to quality system regulations that encompass design controls, good manufacturing practices, and post-market surveillance is mandatory.

In Canada, Health Canada oversees the regulation, requiring devices to meet the safety and effectiveness standards stipulated under the [Medical Devices Regulations of the Food and Drugs Act](#). Similar to the U.S., Canada requires that the robotic surgical devices undergo stringent testing and clinical evaluation.

Israel

Israel's Ministry of Health (MOH) is responsible for regulating medical devices, including robotic surgery systems. The [Medical Device Division \(AMAR\)](#) within the MOH ensures that these devices comply with the standards and regulations for safety and performance. Manufacturers and distributors are required to obtain AMAR registration, demonstrating conformity with international standards such as ISO 13485 for quality management systems.

Western Europe

In the European Union, the European Medicines Agency (EMA) and national regulatory agencies oversee medical devices' regulatory approval. Robotic surgery devices fall under the [Regulation \(EU\) 2017/745 on medical devices](#), which requires a conformity assessment to ensure they meet the essential safety and performance requirements. CE marking is mandatory for market authorization, signifying adherence to EU safety, health, and environmental protection requirements.

Countries like the United Kingdom, although no longer part of the EU, still align with the EU's regulatory standards with some localized modifications overseen by the [Medicines and Healthcare Products Regulatory Agency \(MHRA\)](#).

Asia-Pacific

The regulatory environment in the Asia-Pacific region is diverse. In Japan, the [Pharmaceuticals and Medical Devices Agency \(PMDA\)](#) governs the approval and regulation of robotic surgical devices, ensuring they meet stringent safety and efficacy standards.

[China's National Medical Products Administration \(NMPA\)](#) similarly requires a comprehensive review of the device's safety and efficacy. The devices must adhere to the standards outlined in the Regulations for the Supervision and Administration of Medical Devices.

[Australia's Therapeutic Goods Administration \(TGA\)](#) ensures that all medical devices, including robotic surgical systems, comply with the essential principles for safety and performance before entering the market.

Large venture deals in 2021-2023

On September 23, 2021, GE Healthcare completed a \$1.45 billion acquisition of BK Medical, expanding its ultrasound portfolio into the operating room (OR).

GE has completed its acquisition of BK Medical, a leader in advanced surgical visualization, for a cash purchase price of \$1.45 billion. This acquisition expands GE Healthcare's ultrasound business, enabling the company to provide an end-to-end offering in the continuum of care, from diagnosis to therapy and beyond. BK Medical's expertise in intraoperative ultrasound and surgical visualization will now be complemented by GE's technology and commercial scale, allowing for growth in new markets and reaching a broader customer base. BK Medical will continue to serve its customers in the intraoperative ultrasound space under the leadership of CEO Brooks West. This acquisition strengthens GE Healthcare's commitment to innovation in the healthcare sector.

CMR Surgical Secures Record \$600 Million in Series D Funding Led by SoftBank Vision Fund 2 for Global Expansion of Versius® Surgical Robotics on June 28, 2021 .

CMR Surgical, a global surgical robotics company, has successfully raised \$600 million in a Series D financing round led by SoftBank Vision Fund 2 and co-led by Ally Bridge Group. This funding marks the largest ever private financing round in the MedTech sector, with a mission to make keyhole surgery accessible to a broader global audience. CMR Surgical's Versius robotic system, known for its size, portability, and versatility, has gained popularity with hospitals and surgeons worldwide. The funds from this round will be instrumental in expanding the global commercialization of Versius and further enhancing its digital ecosystem, with the development of technologies like Versius Connect, an app for surgeons using the system. The financing will also support CMR Surgical's international expansion and technological advancements, positioning the company to reach more hospitals and patients globally.

Accelus Announces Transformational \$482M SPAC Merger with CHP Merger Corp. to Bring Minimally Invasive Spinal Surgery Innovations to the Public Market on November 16 2021.

Accelus, a surgical robotics company resulting from the merger of Integrity Implants and Fusion Robotics, is poised to enter the public market through a reverse merger with CHP Merger Corp, a special purpose acquisition company. The deal is set to be finalized in early 2024, with the combined company having an estimated enterprise value of \$482 million. Accelus specializes in minimally invasive spinal surgeries and intends to use the funds to further its global expansion and enhance its digital ecosystem, including the Versius Connect app.

Vicarious Surgical, Pioneering Miniaturized Robotics and VR in Surgery, Set for \$1.1 Billion SPAC Debut with BD and High-Profile Backers on April 15 2021.

Vicarious Surgical, a company focused on combining virtual reality and miniaturized robotics for surgical procedures, is set to go public with a \$1.1 billion valuation through a merger with special purpose acquisition company D8 Holdings. This deal includes a \$115 million private investment round featuring medtech giant BD and previous investors like Bill Gates and Khosla Ventures. Vicarious Surgical's system, which has received a breakthrough designation from the FDA, enables surgeons to operate within the body using a VR headset and disposable robotic arms via a single 1.5-centimeter incision. The company aims to address ventral hernias initially, with a late 2023 commercial launch in sight.

Caresyntax Secures \$100 Million Series C Funding to Revolutionize Surgical Safety and Intelligence on April 28 2021.

Caresyntax, a digital surgery platform, has successfully closed a \$100 million Series C funding round, led by PFM Health Sciences LP, and involving Optum Ventures, Intel Capital, and other participants.

Caresyntax's platform utilizes AI to analyze surgical data to improve patient outcomes and surgical efficiency. The funding will be used to support its expansion into key markets, further R&D in AI analytics, platform development, and employee growth. The company aims to address the surgical backlog caused by COVID-19, which has significantly impacted the healthcare industry, causing more than \$200 billion in revenue losses.

Procept Biorobotics Secures \$85 Million Funding to Revolutionize BPH Treatment with AquaBeam Robotic System on 30 June 2021.

Procept Biorobotics, a California-based medical device company, has successfully raised \$85 million in a funding round to support its AquaBeam Robotic System. This innovative system utilizes a heat-free jet of water, known as Aquablation, to treat benign prostatic hyperplasia (BPH). The funding, led by Fidelity Management & Research Company, aims to further commercialize the AquaBeam system for BPH treatment. Procept's technology offers a safer and more effective solution for the millions of men dealing with BPH, which causes urinary difficulties. The use of water jet technology minimizes complications and side effects often associated with traditional heat-based methods.

Augmedics Secures \$82.5 Million to Enhance Spinal Surgery with AR and AI, Bringing Total Funding to \$148 Million June 27, 2023.

Augmedics, a medical technology startup, has raised \$82.5 million in a Series D funding round to expand its augmented reality-based navigation platform for spinal surgeries. The platform provides surgeons with "x-ray vision" by using AR and CT scans of a patient's spine to help improve the accuracy and outcomes of spinal surgeries. Augmedics' system offers a more comprehensive view of the spine in real-time, replacing fluoroscopy in non-invasive procedures, and has already seen traction with over 4,000 procedures performed using its technology. The latest funding brings Augmedics' total raised to \$148 million and will be used to develop the next generation of its platform and for commercial expansion.



Promising Early Stage Projects



Surgical Robots

[CMR Surgical \(UK\)](#)

Based in the UK and founded in 2014, the company has secured an impressive \$984M in funding. They are leading the way in the field of minimal access surgery with their Versius robotic system, aiming to provide surgeons with a next-generation universal robotic platform, revolutionizing surgical procedures worldwide.

[Auris Health \(USA\)](#)

Headquartered in the USA and established in 2007, Auris Health has raised an impressive \$733.3M in funding. Specializing in developing robotic microsurgical devices primarily for ophthalmic procedures and cancer diagnosis, Auris Health's cutting-edge technology offers precision and innovation to enhance patient care

[Medrobotics \(USA\)](#)

Established in the USA in 2005, the company has garnered \$206.5M in funding. Their Flex Robotic System empowers physicians to access anatomical locations previously challenging to reach minimally invasively, improving patient outcomes.

[Neocis \(USA\)](#)

Founded in the USA in 2009, specializes in developing robotic technologies for applications in the healthcare industry, aiming to provide innovative solutions for improved patient care. They have raised \$163.1M.

[Memic \(Israel\)](#)

Based in Israel and founded in 2012, has raised \$128M in funding. Their Hominis surgical platform features miniature humanoid-shaped robotic arms with unparalleled dexterity, offering transformative potential in robotic-assisted surgery.

Medical Micro Instruments (Italy)

Based in Italy and founded in 2015, has raised \$99.8M in funding. MMI specializes in developing novel robotic solutions aimed at addressing unmet medical needs, contributing to advancements in medical technology and patient care.

EndoMaster (Singapore)

Situated in Singapore and funded with SGD20.5M, has developed a robotic-assisted surgical system for endoscopy that advances minimally invasive procedures. Their innovative technology enables surgeons to perform incision-less surgeries, improving patient outcomes and expanding the possibilities of minimally invasive surgery.

Galen Robotics (USA)

Based in the USA and with \$15M in funding, is in the process of developing a single-platform solution designed to aid surgeons across multiple disciplines. Their focus on minimal workflow disruption highlights their commitment to providing innovative tools that enhance surgical procedures.

Intelligent Operating Room

Sarcos Robotics (USA)

A US-based company founded in 1983, focuses on industrial robotics that improve safety and productivity. With \$316.1M in funding, Sarcos is at the forefront of developing wearable and teleoperated robotic systems for industrial applications.

Neura Robotics (Germany)

Headquartered in Germany and founded in 2016, has secured \$148.9M in funding. Neura Robotics focuses on cognitive robots that find applications in both industrial and daily settings, contributing to increased efficiency and innovation.



Surgical Simulators and Planners

[HistoSonics \(USA\)](#)

Based in the USA and founded in 2009, has raised \$226.8M in funding. They are pioneering a non-invasive robotic platform capable of destroying tissue at a sub-cellular level, offering a potential breakthrough in medical treatments.

[Activ Surgical \(USA\)](#)

Founded in the USA in 2017, is building a hardware-agnostic platform for autonomous and collaborative surgery. With \$100.4M in funding, they integrate computer vision, artificial intelligence, and robotics to enhance surgical procedures, revolutionizing patient care.

[Intuition Robotics \(Israel\)](#)

Headquartered in Israel, has secured \$83M in funding. They are dedicated to providing care companion technologies for older adults, harnessing the power of robotics and artificial intelligence to improve the quality of life and support the well-being of elderly individuals.

[Embodied \(USA\)](#)

Based in the USA and founded in 2016, the company has raised \$77.4M in funding. Embodied is at the forefront of developing state-of-the-art companion robots designed to enhance care and wellness. Their innovative robotic solutions aim to revolutionize the way individuals and families experience support and assistance.

[Forsight Robotics \(Israel\)](#)

Located in Israel and backed by \$67M in funding, focuses on creating robotic platforms tailored for precision ophthalmological surgeries. Their expertise in robotics contributes to improved outcomes in eye surgeries, demonstrating their commitment to medical innovation.

Mauna Kea Technologies (France)

Headquartered in France, has secured \$60.5M in funding. The company specializes in designing, developing, and selling optical biopsy devices and tools. Mauna Kea's cutting-edge technology plays a vital role in enhancing the accuracy and efficiency of diagnostic procedures.

Diligent Robotics (USA)

Based in the USA and founded in 2016, has raised \$46.6M in funding. Diligent Robotics specializes in building AI-powered robot assistants, including Moxi, which are designed to assist with routine tasks, particularly in healthcare settings, to support healthcare professionals and improve patient care.

IMRIS (USA)

Located in the USA and funded with \$36.8M, provides intraoperative imaging solutions that significantly improve surgical outcomes. Their innovative technology allows surgeons access to diagnostic-quality scans within operating room suites, making a positive impact on neurosurgical, spinal, interventional, and orthopedic procedures.

Mendaera (USA)

Based in the USA and backed by \$24M in funding, is dedicated to developing robotic systems that merge real-time imaging, AI, and precise interventions. Their technology is aimed at making precise and consistent medical interventions more accessible, benefiting both patients and healthcare providers.



Specialized funds that invest in the sector

HealthTech Capital

Based in Los Altos Hills, California, is an Angel Group dedicated to funding and mentoring new HealthTech startups at the intersection of healthcare, computer, and mobility technologies. With a portfolio that spans Early Stage Venture and Seed investments, HealthTech Capital has been a catalyst for innovation in the healthcare sector. Their portfolio companies have collectively raised over \$1 billion in follow-on rounds from leading venture and corporate investors.

Thrive Capital

Based in New York, is a venture capital firm founded by Joshua Kushner in 2009. Managing a massive \$3 billion fund, with \$500 million earmarked for early-stage startups and \$2.5 billion for later-stage companies, they have a strong track record in the tech investment landscape. Thrive Capital has invested in a diverse range of companies, including Medivis, a medical technology firm leveraging augmented reality and artificial intelligence to advance surgical care. With 327 investments and 66 successful exits, Thrive Capital continues to shape the future of technology.

Casdin Capital

Located in New York, specializes in fundamental research investments within the life sciences and healthcare sector. Founded by Eli Casdin in 2012, the firm manages a long-short equity fund and invests across various stages, from early to late-stage private ventures. With a portfolio of 218 investments and 67 successful exits, they have made a significant impact in the healthcare industry. Casdin Capital's commitment to innovation is exemplified through their investment in Apella Technology, an AI startup focused on enhancing surgery with a \$21 million Series A investment in December 2021. Managing \$5.20 billion in assets, they continue to drive progress in healthcare and life sciences.

Vivo Capital

Based in Palo Alto, California, is a global healthcare-focused investment firm with approximately \$5.8 billion in assets. Their extensive portfolio spans over 290 public and private healthcare companies worldwide, focusing on biotechnology, pharmaceuticals, medical devices, and healthcare services across various fund strategies. Notable investments include Ronovo Surgical, advancing minimally invasive and digital surgery with a Series B funding of CN¥200,000,000 in August 2023, and Neocis, revolutionizing dental surgery with advanced robotics, securing \$40,000,000 in Series D funding in October 2022. With 93 successful exits, Vivo Capital continues to shape the future of healthcare investment.

Sofinnova Partners

Based in Paris, specializes in life sciences investments from seed to later-stage, managing over €2 billion in dedicated assets. Actively partnering with entrepreneurs, they lead investments in transformative innovations. Their portfolio spans startups, early-stage companies, corporate spin-offs, and turnaround situations within the Life Sciences sector. Sofinnova Partners recently invested \$55.4 million in Moon Surgical, a pioneer in collaborative and adaptive robotics for surgery, during a Series B funding round in May 2023. With 65 successful exits, they continue to shape the future of healthcare innovation.

Medtronic Foundation

Headquartered in Minneapolis, Minnesota, is a charitable organization committed to enhancing access to quality chronic disease care and addressing unmet health needs globally. While specific fund details are not available, its parent company, Medtronic, is a prominent player in healthcare technology, offering therapies for over 30 chronic diseases. Notably, Medtronic Foundation has invested in Surgerii Technology, a developer of minimally invasive surgical robots, during a Series C/B funding round on November 2, 2021, and in Titan Medical, which designs the SPORT single-port robotic surgical system for minimally invasive surgery, securing \$10.6 million in Post-IPO Debt on January 26, 2022. Their contributions drive advancements in healthcare technology and access to quality care.

RA Capital Management

Headquartered in Boston, specializes in life sciences and drug development investments. Founded in 2001, the firm's team comprises professionals with backgrounds in biology, chemistry, medicine, and business development. They invest in companies with promising technologies and products, shaping the healthcare landscape. RA Capital Management recently invested \$75 million in MMI, a developer of innovative robotic solutions for unmet medical needs, during a Series B funding round on July 20, 2022. With a portfolio boasting 159 exits and a fund size of \$9.65 billion as of March 2023, RA Capital Management continues to drive innovation in the life sciences and healthcare sectors.

Ally Bridge Group

Headquartered in Hong Kong, is a global healthcare investment management firm specializing in high-impact life science innovation. Founded by Frank Yu in 2013, the firm has invested in a total of 78 companies, including CMR Surgical and Quantum Surgical, as of September 2023. While the size of their fund in 2023 is not explicitly stated, Ally Bridge Group had assets under management (AUM) of \$146,724,487 as of March 31, 2023, according to WhaleWisdom. They are dedicated to venture and growth capital, buyout, and hedge fund investing in the healthcare sector.

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