TRANSJOVAN CAPITAL

STRATEGY | M&A | ADVISORY

Global Medical Devices Industry

Market Landscape and Strategic Competencies

April 2024

Executive Summary

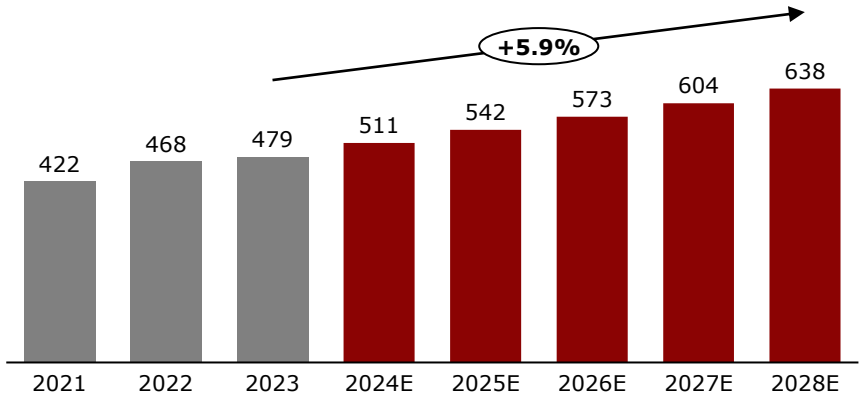
Market Overview	• The Global Medical Devices market is valued at **~$480B** and is expected to reach **~$640B** by 2028 at a CAGR of ~6% • With **14%** share, **Cardiology** accounts for the highest market share followed by **Diagnostic Imaging (10%)** • Key demand drivers include rising prevalence of **cardiovascular diseases**, focus on **early detection**, and **miniaturization** of medical devices
Key Trends	• The market is positively affected by **tailwinds** such as increased demand for surgical devices, focus on health in emerging economies, and increased M&A and partnerships in the sector • Growth is impeded by key **headwinds** such as complex regulatory frameworks and stringent design & standard requirements
Value Chain Analysis	• Medical device companies are broadening focus from traditional manufacturing & sales role to a **wider presence** across the value chain through **M&As and partnerships** • Integration of **data intelligence** and **strategic sourcing** have become the key focus areas to maintain streamlined and continuous operations
Competitive Landscape	• The competitive landscape is led by key players such as **Medtronic** (8%), **Johnson & Johnson** (6%), and **Siemens Healthineers** (4%) • Players are increasingly looking to incorporate **AI, analytics, and tech capabilities** via M&As and partnerships to gain **competitive edge** and **market share** • Competitive advantages in the Medical Devices sector can be achieved by reducing **delivery lead times** for critical devices, establishing **brand equity** to command better pricing, and **innovation**
Barriers to Entry	• Stringent regulatory requirements, customer stickiness, and the need for design expertise serve as **key entry barriers** for new entrants in the medical devices industry • **Moderate** barriers to entry include complexity in supply chain and high capital requirements for equipments, facilities, and R&D

Market Overview

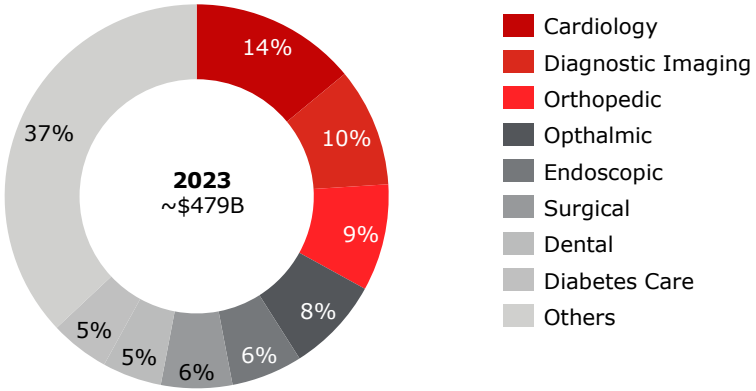
The global medical devices market is expected to reach ~$640B by 2028 driven by rise in cardiovascular diseases, emphasis on early detection and technological advancements

Global Medical Device Market

Global Medical Device Market Size (US$ B)[1]



Market Split by Practice Area (PA)



Key Drivers

High Prevalence of Cardiovascular Diseases

- Cardiovascular diseases like coronary artery disease, hypertension, heart failure, and arrhythmias are increasing globally and led to ~20M deaths in 2021
- This drives demand for medical devices used in their diagnosis, treatment, and management[2]

Emphasis on early detection and prevention

- There is a growing emphasis on early detection and prevention of diseases, particularly cancer and cardiovascular diseases
- Diagnostic imaging plays a crucial role in early detection, screening, and surveillance programs aimed at identifying and managing diseases at an early stage

Miniaturization of medical imaging devices

- Miniature, portable imaging devices are witnessing an increase in demand as they allow for greater flexibility in patient care by enabling imaging procedures in remote or resource-limited environments

Rapid technological advancement

- Fast-paced technology development has led to the development of innovative medical devices that improve patient outcomes, enhance diagnostic accuracy, and enable minimally invasive treatment options.
- Examples include implantable cardiac devices (e.g., pacemakers, defibrillators), transcatheter interventions (e.g., stents, heart valves), and remote monitoring systems

Source: 1. Statista 2. World Health Federation 3. Transjovan Analysis

Market Segmentation (1/2)

The cardiovascular devices segment constitutes the highest share in the medical devices market and is poised for high growth, trailed by diagnostic imaging and orthopedic segments

Medical Devices

PA	Cardiology	Diagnostic Imaging	Orthopedic	Opthalmic	Endoscopic
Illustrative Medical Devices	Catheters Pacemakers Stents Cannulae	X-ray machines Scanners Ultrasound systems	Joint implants Spinal implants Braces & supports	Phoropter Tonometers Fundus cameras	Endoscopes Suction pumps
Market Size (2023)	$68B	$46B	$44B	$40B	$28B
Key Takeaways	• The market is expected to grow to $96B at a CAGR of 7% from 2023-28[1] • Increasing demand for early diagnosis & advancements in compact monitoring devices drive growth	• The market is expected to grow to $58B at a CAGR of 5% from 2023-28[1] • Rising prevalence of chronic diseases is driving demand for sophisticated diagnostic imaging technologies	• The market is expected to grow to $53B at a CAGR of 4% from 2023-28[1] • Growth drivers include a rise in aging population, obesity and spinal disorders	• The market is expected to grow to $53B at a CAGR of 6% from 2023-28[1] • Increasing eye disorders, contact lens adoption, and ophthalmic device advancements drive growth	• The market is expected to grow to $37B at a CAGR of 6% from 2023-28[1] • Growing adoption of flexible endoscopes & preference for minimally invasive surgeries drive market growth

Source: 1. Statista 2. Secondary Research 3. Transjovan Analysis

Market Segmentation (2/2)

The cardiovascular devices segment constitutes the highest share in the medical devices market and is poised for high growth, trailed by diagnostic imaging and orthopedic segments

Medical Devices

PA	Surgical	Dental	Diabetes Care	Others
Illustrative Medical Devices	Powered surgical instruments Forceps and Spatulas Lancets	Instrument delivery systems Diode lasers Vacuums & Compressors	Insulin pens Glucose monitoring systems Insulin pumps	Neurostimulation devices In-vitro diagnostic devices Dialysis machines Others
Market Size (2023)	$27B	$22B	$26B	$179B
Key Takeaways	• The market is expected to grow to $34B at a CAGR of 5% from 2023-28[1] • Advancements in materials, design, and manufacturing are expanding possibilities for precise, minimally invasive surgical procedures	• The market is expected to grow to $33B at a CAGR of 9% from 2023-28[1] • Rising demand for cosmetic dental procedures & dental tourism in developing nations are driving growth	• The market is expected to grow to $44B at a CAGR of 11% from 2023-28[1] • Growing diabetic population, treatment awareness, and favorable national health strategies are expected to drive market growth	• Key market segments in this category include neurovascular, hearing health, IVD diagnostic, urology devices, etc.

Source: 1. Statista 2. Secondary Research 3. Transjovan Analysis

Tailwinds and Headwinds

The rising demand for medical devices, driven by demographic and competitive factors, might face restrictions due to regulatory hurdles and stringent design standards

Theme	Description	Impact
Increased demand for devices used in surgical procedures	• Aging populations and increase in lifestyle-related diseases are leading to a higher prevalence of health conditions that necessitate surgical intervention • Technological innovations, improved surgical techniques, and greater access to healthcare services are driving both patient demand and healthcare provider capability, contributing to the rise in surgical procedures globally	
Increased focus on health in emerging economies	• Heightened prioritization and increased budget for health in emerging economies is significantly driving the demand for medical devices • For e.g., India has expanded its healthcare infrastructure through 'Ayushman Bharat' program, which aims to establish 150K Health Centers[1]	
Increased strategic partnerships & acquisitions	• OEMs are establishing strategic partnerships and engaging in acquisitions with Contract Development and Manufacturing Organizations to meet requirements for quality, scalability, competitive pricing, and technological advancement • For e.g., Stratec, a German OEM, acquired Natech Plastics for its engineering, custom injection molding services[2]	
Regulatory hurdles	• The medical devices industry faces global complexity due to fragmented regulatory frameworks across regions, posing challenges for international market expansion as well as adding time and cost burdens for companies • For example, regulatory guidance by the FDA delayed Class III orthopedic and surgical device approvals, necessitating extensive studies and documentation[3]	
Stringent customer design and standard requirements	• Component production for medical devices has very specific requirements and stringent standards • Design flaws could lead to improper dosing, inaccurate readings, UI issues, and may lead to customer loss and negative market perception[4]	

Source: 1. NCBI 2. Capstone Partners 3. Global Market Insights 4. MedTech Dive 5. Transjovan Analysis

Value Chain

The medical devices industry value chain integrates various stages from research and development to manufacturing, marketing and post sales services

Process

Research and Product Development	Components Manufacturing	Product Integration	Distribution	Marketing, Sales and Post Sales Services
Prototype	Precision Metal Works	Assembly	**Finished Products**	Training
Process Development	Electrical Components	Packaging	Capital Medical Equipment and Disposables	Consulting
Regulatory Approvals	Plastics Extrusion & Molding	Sterilization	Therapeutic Devices	Maintenance & Repair
Process Development			Surgical and Medical Instruments	Product Promotion

Material Suppliers

Chemicals | Textiles | Metals | Others | Resin

Processing into medical grade material

End Customers

Wholesale Distributors | Hospitals | Others | Clinics | Patients

Key Insights

- Medical device firms typically prioritize production and sales, yet healthcare system demands are leading to a comprehensive value chain reevaluation
- The changing landscape necessitates strategic alignment across the value chain, blending B2B and B2C approaches through M&As and partnerships
- Strategic sourcing emphasizes identifying reliable suppliers and building strong partnerships to ensure consistent delivery of high-quality products
- Companies aim to expand their role in the value chain, connecting closely with customers, patients, and consumers to generate new revenue streams and provide better healthcare facilities

Source: 1. Secondary Research 2. Transjovan Analysis

Competitive Landscape (1/2)

Partnerships and acquisitions serve as primary growth catalysts for industry leaders, with a strong emphasis on augmenting AI, analytics, and technological capabilities

	Market Share	Partnerships	Recent activities
Medtronic	8%	• **IBM Watson Health**: To leverage AI & data analytics to develop personalized diabetes management solutions • **Novo Nordisk:** To integrate insulin dosing data into Continuous Glucose Monitoring devices for better diabetes management • **Philips Healthcare:** To co-develop innovative solutions for the management of respiratory and other chronic diseases	In July 2023, the FDA approved Abbott's AVEIR dual-chamber leadless pacemaker system, the world's first, two-chamber pacing system that treats individuals with irregular or slow heart rhythms
Johnson&Johnson	6%	• **Microsoft:** To serve as J&J's cloud provider for digital surgery solutions and build its digital surgery platform • **Google Health:** To bring together capabilities, IP and expertise for the creation of an innovative robotic-assisted surgical platform capable of integrating advanced technologies	In November 2023, acquired Laminar, a medical device company focused on eliminating left atrial appendage in patients with non-valvular atrial fibrillation
SIEMENS Healthineers	4%	• **Bayer:** To develop and commercialize new molecular imaging agents for PET imaging in oncology and other therapeutic areas • **Biogen:** To develop new MRI biomarkers for multiple sclerosis research	In September 2023, acquired Aspekt Solutions, a radiology and radiation oncology services provider to radiology departments and imaging centers
stryker	4%	• **Carmeda:** To develop flow diverters with Carmeda's active heparin coating for advancing the treatment of brain aneurysms • **Microsoft:** To establish a unified global network that links Stryker's medical devices worldwide, facilitating improved gathering, storage, analysis, and sharing of real-time performance and usage data	In December 2023, announced intent to acquire Serf SAS, a French manufacturer of joint replacement products, to enhance its footprint in France and Europe, and complement its orthopedics portfolio

PET - Positron Emission Therapy

Source: 1. Statista 2. Secondary Research 3. Transjovan Analysis

Competitive Landscape (2/2)

Partnerships and acquisitions serve as primary growth catalysts for industry leaders, with a strong emphasis on augmenting AI, analytics, and technological capabilities

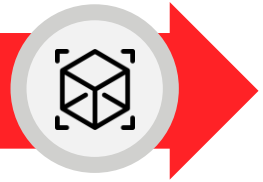
	Market Share	Partnerships	Recent activities
PHILIPS Healthcare	3%	• **Boston Scientific:** To enable seamless collaboration with Boston Scientific's 3D mapping systems in diagnosing and treating complex arrhythmias during EP ablation procedures • **Cognizant:** To develop comprehensive digital health solutions on the Philips Health Suite Platform focusing on proactive health management and patient engagement	In February 2024, Philips launched Smart Quant Neuro 3D, utilizing AI and quantitative tissue assessment to improve brain disorder diagnosis and therapy evaluation
Boston Scientific	3%	• **Accenture:** To develop a data-driven digital health solution aimed at improving patient outcomes and reducing costs for chronic cardiovascular conditions • **Brainlab:** To offer a complete range of DBS therapy solutions, wherein Boston Scientific will distribute Brainlab's DBS surgical planning portfolio in conjunction with its own DBS Systems	In January 2024, Boston Scientific agreed to acquire Axonics, enhancing its urology portfolio and venturing into sacral neuromodulation therapy
BD	3%	• **Babson Diagnostics:** To facilitate blood sample collection in new care settings, such as at-home self-collection, with the goal of improving the accessibility and precision of blood testing • **Accelerate Diagnostics:** To offer rapid antibiotic resistance testing, aiming to expedite patient treatment decisions and combat antimicrobial resistance	In December 2023, Becton Dickinson secured an exclusive global license for Bactiguard coated Foley catheters, boosting their partnership with Bactiguard Holding AB and improving patient care
Abbott	2%	• **Philips Healthcare:** To facilitate workflow enhancement in electrophysiology, supporting the treatment of diseases such as heart failure and atrial fibrillation • **WW International:** To provide diabetic individuals valuable information and insights for making healthier dietary choices, optimizing glucose levels, and achieving greater control over their health through a seamless mobile experience	In April 2023, Abbott acquired Cardiovascular Systems, Inc., integrating its atherectomy system into Abbott's vascular portfolio, improving offerings for complex cardiovascular conditions

Source: 1. Statista 2. Secondary Research 3. Transjovan Analysis

Disruptive Technologies

The medical devices industry is undergoing a transformative shift with innovations such as 3-D printing and smart prosthetics, bringing about unprecedented disruptions

3-D Printing in Medical Devices



3D printing is transforming the industry, allowing for the creation of tailored medical devices and implants to cater to individual healthcare needs, including surgical instruments, cardiac components, prosthetic limbs, etc.

Smart Balloon Catheter Systems

Advanced balloon catheter systems have evolved to incorporate sophisticated electronics and sensors, providing instant feedback on blood flow, pressure, and temperature, all while administering ablative treatment

Laser Tech

Integration of laser technology and cutting-edge materials in medical device manufacturing facilitates the production of highly precise and personalized devices

Advancement in In-Vitro Diagnostics

Innovations in in vitro diagnostics (IVD) for precision medicine, centered on genetic testing and next-generation sequencing, are facilitating customized treatments tailored to unique genetic profiles

Smart Prosthetics Manufacturing

Incorporation of advanced materials and technology in creating prosthetic devices results in superior functionality, comfort, and a more natural patient experience

Source: 1. Secondary Research 2. Transjovan Analysis

Barriers to Entry

Stringent regulatory requirements, customer stickiness and the need for design expertise serve as key entry barriers in the medical devices industry

HIGH

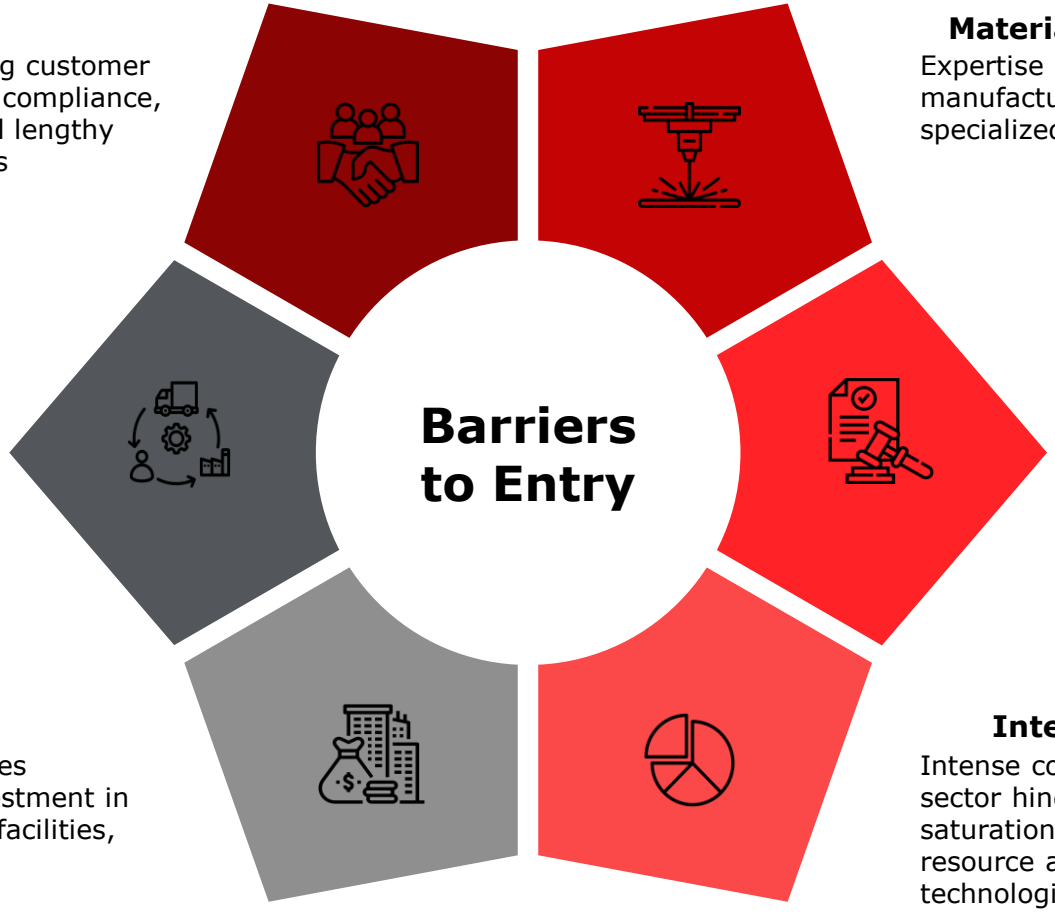
Customer Stickiness

In the medical devices sector, strong customer loyalty stems from strict regulatory compliance, product efficacy, customization, and lengthy design and manufacturing processes

HIGH

Material Design Expertise

Expertise in materials science and manufacturing techniques requires specialized knowledge and skills



MEDIUM

Complex Supply Chains

Medical device manufacturing involves complex supply chains and sourcing of diverse components and materials globally, presenting challenges for newcomers lacking established supplier relationships

HIGH

Strict Regulatory Compliance

The medical device industry faces stringent regulations, requiring significant time and resources to obtain approvals and adhere to international standards, often leading to lengthy approval processes and administrative complexities

MEDIUM

Capital Intensive

The manufacturing of medical devices necessitates substantial capital investment in cutting-edge equipment, advanced facilities, and intensive R&D efforts

HIGH

Intense Market Rivalry

Intense competition in the medical devices sector hinders new entrants due to market saturation, established brand recognition, resource advantages, customer loyalty, and the technological expertise of established players

Source: 1. Secondary Research 2. Transjovan Analysis

Key Capabilities for Building a '*Sustainable Competitive Advantage*'

Production capacity and regulatory compliance are crucial for market participation while advanced technologies and swift lead times form crucial competitive advantages

Foundational (*Right to Play*)

Production Capacity

- Original equipment manufacturers (OEMs) need to have scalable infrastructure and machinery to ensure the production of high-quality goods
- They also need the ability to independently source raw materials to accommodate unpredictable fluctuations in demand

Regulatory Compliance

- Proficiency in understanding intricate global and local regulations is essential
- Involves staying updated on evolving regulations, strategizing approval processes, and ensuring ongoing compliance across diverse regions

Quality Management

- Strong QMS ensures that all medical devices meet the stringent regulatory requirements set by authorities
- Helps maintain consistency in the quality of medical devices, reducing variability and minimizing the risk of defects or non-conformities

Differentiated (*Right to Win*)

Delivery Lead Time

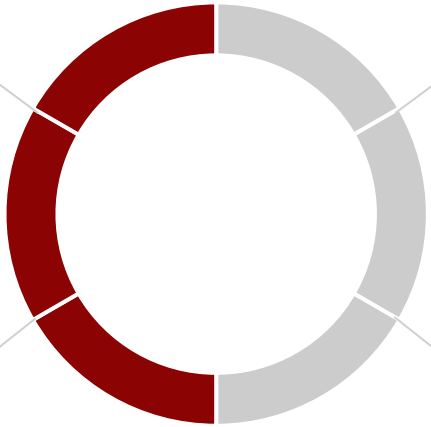
- Customers prefer OEMs that demonstrate the capacity to minimize lead times for critical products
- This ensures that customers' needs are met efficiently, and highlights the OEM's ability to adjust to fluctuating market demands

Brand Equity

- Strong brand equity fosters trust, ensuring reliability and reducing risks for healthcare providers and patients
- Enables higher pricing, larger market share, and acts as a barrier to entry for new entrants

Technological Advancements

- Technological development provides OEMs a competitive edge through innovation, efficiency improvements, cost reductions, and increased customer retention
- Ensures higher product quality and helps OEMs stay compliant with regulatory standards



Source: 1. Secondary Research 2. Transjovan Analysis

Conclusion

In the evolving medical devices market, companies must innovate, enhance presence across the value chain and prioritize scalability, compliance, and quality to remain competitive

- The Medical devices industry is poised for rapid growth
  - The industry is projected to reach a market value of $640 billion by 2028
  - This growth will be primarily fueled by advancements across all segments, particularly in cardiology and diagnostic imaging devices
- Companies should increasingly look to enhance presence across the value chain to:
  - Maintain product quality
  - Achieve faster time-to-market
  - Enhance customer retention and acquisition
- **How to win:** Certain capabilities are essential for market participation, while others are necessary to achieve differentiation
  - Focusing on scalable production, regulatory compliance, and stringent quality management isn't optional—it's imperative for companies to establish credibility, navigate regulatory hurdles, and remain relevant
  - By prioritizing delivery lead times, strong brand equity, and technological innovations, companies can secure a competitive advantage, aiding customer trust, higher market share, and sustainable growth

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Important Sources

- Statista
- Company Websites
- Market Reports
- World Health Federation
- MedTech Drive

About Transjovan Capital

Transjovan Capital is an upstream strategy and M&A consulting firm with hubs in New Delhi, Los Angeles, Dubai, and Sydney. We partner with our clients to create exponential value with high-quality analysis and robust recommendations. Our clients span across industries and feature in top Fortune 50 companies of the world.

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