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Next-Generation Intervention Cardiology Market - A Global and Regional Analysis: Focus on Product Type, Indication Type, End User, and Regional Analysis - Analysis and Forecast, 2025-2035

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Abstracts

Introduction of Next-generation Intervention Cardiology

Next-generation intervention cardiology applies advanced, precision-guided, minimally invasive techniques to treat complex cardiovascular conditions, including coronary artery disease, structural heart defects, and valvular disorders. This innovative field represents a paradigm shift in cardiac care, moving beyond traditional open-heart surgeries toward safer, more targeted, and patient-specific catheter-based interventions. By combining robotics, AI-driven imaging, and cutting-edge device technologies, next-generation intervention cardiology enables clinicians to deliver tailored therapies with enhanced accuracy, efficiency, and safety. This approach improves clinical outcomes, reduces complications and recovery time, and optimizes healthcare resources.

Market Introduction

The global next-generation intervention cardiology market is expected to witness significant expansion, projected to reach $46,821.0 million by 2035, driven by the escalating burden of cardiovascular diseases- including coronary artery disease, structural heart defects, and valvular disorders—that demand safer, more precise alternatives to open-heart surgery. This market is anchored in minimally invasive, catheter-based solutions that integrate advanced robotics, and AI-guided imaging to deliver superior procedural accuracy, faster recovery, and expanded patient access.

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Next-generation intervention cardiology represents a paradigm shift, combining automation, data-driven precision, and operator ergonomics to improve outcomes while reducing occupational hazards. Key milestones, such as the commercial launch and adoption of robotic-assisted PCI systems like Robocath's R-One—currently the only commercially available R-PCI platform—have validated these disruptive approaches and and the CE Mark for transcatheter mitral valve replacement (TMVR) platforms, underscored the shift toward standardization and scalability of catheter-based therapies.

Market expansion is further bolstered by supportive reimbursement and regulatory pathways in the U.S., EU, and Japan, alongside investments by public and private sectors in cath lab modernization, operator training, and digital integration. Countries across North America, Europe, and Asia-Pacific are scaling infrastructure and fostering innovation hubs, with emerging economies such as India and Brazil offering significant untapped potential for next-generation intervention cardiology market.

Technological convergence is accelerating growth, with innovations such as AI-enabled OCT/IVUS imaging, remote robotic PCI platforms, and bioresorbable scaffolds enhancing both procedural quality and long-term outcomes. While robotic-assisted PCI and intravascular imaging remain dominant segments of next-generation intervention cardiology, newer applications in structural interventions, peripheral artery disease, and congenital heart repairs are expanding the scope of next-generation intervention cardiology beyond coronary disease.

Despite this momentum, challenges such as high capital costs, fragmented training standards, and uneven access to technology persist in the global next-generation intervention cardiology landscape. However, growing payer support, and industry-academic collaborations are steadily addressing these barriers, enabling wider adoption of of next-generation intervention cardiology solutions.

Leading players such as Abbott., Medtronic plc, Boston Scientific Corporation, and Terumo Corporation are shaping the competitive landscape, advancing first-in-class devices, expanding portfolios, and investing in clinical validation and commercialization to strengthen their foothold in next-generation intervention cardiology.

As healthcare increasingly prioritizes precision medicine, patient-centric care, and minimally invasive solutions, next-generation intervention cardiology stands at the forefront of cardiovascular innovation, poised to redefine care paradigms and improve outcomes for diverse patient populations worldwide.

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Industrial Impact

Next-generation intervention cardiology is transforming cardiovascular care by delivering minimally invasive, precision-guided treatments that improve outcomes and reduce recovery times across a wide spectrum of heart diseases. For example, robotic-assisted percutaneous coronary intervention (R-PCI) platforms, such as CorPath GRX, have redefined procedural accuracy and operator safety in coronary artery disease management, enabling enhanced stent placement and reduced radiation exposure compared to conventional PCI. This technology-driven, patient-centric approach is improving long-term cardiovascular health while minimizing procedural risks and hospital stays.

Beyond individual interventions, next-generation intervention cardiology is fostering innovation in procedural ecosystems and clinical workflows. The integration of AI-guided imaging, remote tele-intervention platforms, and advanced bioresorbable devices is streamlining diagnostics, enabling real-time procedural optimization, and expanding access to cutting-edge therapies in underserved regions. Companies like SS Innovations in India and global leaders such as Abbott and Medtronic are advancing late-stage programs in structural and valvular heart disease interventions, supported by growing reimbursement and regulatory recognition of robotic and AI-assisted technologies.

Simultaneously, public-private collaborations and investments in digital health infrastructure are strengthening healthcare delivery networks, building capacity for remote expertise, and improving system-wide resilience against cardiovascular disease burdens. These advancements are not only elevating individual patient care but also reducing procedural variability, improving resource utilization, and driving equitable access to advanced cardiovascular therapies.

Global Next-Generation Intervention Cardiology Market (Segmentation)

Segmentation 1: By Product Type

- Robotics
  - Robotic-Assisted Percutaneous Coronary Intervention (R-PCI)
  - Robotic-Assisted Coronary Artery Bypass Grafting (RA-CABG)

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Robotic Assisted Mitral Valve-Replacement (RMVR)

Robotic Assisted Aortic Valve Replacement

Non-Robotics

IVUS

OCT

Other Interventions

Stents

Catheters

Guidewires

PTCA Balloons

Others

Non-robotics remains the leading segment by product type in the global next-generation intervention cardiology market, holding an 84.41% market share in 2024, with a projected CAGR of 6.98% during the forecast period 2025–2035. Among its key subsegments—IVUS, OCT, stents, catheters, guidewires, PTCA balloons, and others drive the largest contributions, owing to their widespread clinical adoption, proven efficacy, and lower procedural complexity compared to robotic platforms. Non-robotic solutions dominated the market due to their cost-effectiveness, ease of integration into existing cath labs, and extensive use in both elective and emergency procedures.

Segmentation 2: By Indication Type

Structural Heart Disease

Coronary Heart Diseases

Valvular Heart Diseases

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Peripheral Artery Diseases

Congenital Heart Diseases

Based on indication type, the global next-generation intervention cardiology market was led by the structural heart disease segment, which accounted for a 45.67% market share in 2024. Structural heart disease interventions are projected to maintain dominance due to the growing global burden of aortic stenosis, mitral regurgitation, and left atrial appendage-related stroke risk, particularly among aging populations. The simpler, catheter-based, and minimally invasive nature of structural heart procedures compared to open-heart surgery—such as TAVR and LAA occlusion—has driven widespread adoption by clinicians and patients alike. Their established efficacy, favorable safety profiles, and expanding clinical indications continue to support consistent demand, while ongoing advancements in device design and long-term outcomes are further enhancing their therapeutic potential across diverse patient groups.

Segmentation 3: By End User

Hospitals and Clinics

Cardiac Centers

Ambulatory Surgical Centers

Based on end user, the global next-generation intervention cardiology market was led by the Hospitals and Clinics segment, which held a 70.47% share in 2024. Hospitals and clinics are expected to maintain their dominance as they remain the primary hubs for performing advanced, minimally invasive cardiovascular procedures. Their comprehensive access to catheterization labs, skilled interventional cardiologists, and state-of-the-art imaging and robotic platforms makes them best suited for complex interventions such as, robotic PCI, RA-CABG and Robotic mitral valve repair. The ability to manage high procedural volumes, ensure patient monitoring, and deliver multidisciplinary care supports the strong adoption of next-generation interventional technologies in these settings.

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Segmentation 4: By Region

- North America
  - U.S.
  - Canada
- Europe
  - Germany
  - U.K.
  - France
  - Italy
  - Spain
  - Rest-of-Europe
- Asia-Pacific
  - Japan
  - India
  - China
  - Australia
  - South Korea
  - Rest-of-Asia-Pacific
- Latin America
  - Brazil

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Mexico

Rest-of-Latin America

Middle East and Africa

K.S.A

South Africa

Rest-of-Middle East and Africa

The next-generation intervention cardiology market in the Asia-Pacific region is expanding rapidly, driven by rising cardiovascular disease prevalence, healthcare infrastructure development, and supportive policies, though the region remains heterogeneous in maturity and access. China leads in scale and growth, propelled by high disease burden, domestic innovation, and cath lab expansion despite regional and reimbursement disparities. Japan and South Korea are mature, innovation-led markets with strong insurance support and high uptake of advanced therapies in the next-generation intervention cardiology, though cost pressures and sustainability concerns persist. India's large, underpenetrated market is witnessing increasing demand alongside notable indigenous innovations in the next-generation intervention cardiology. Notably, SS Innovations has developed the SSi Mantra surgical robotic system, India's first homegrown surgical robot. Australia benefits from strong reimbursement and private adoption of next-generation intervention cardiology technologies. Smaller APAC markets, including Singapore, Hong Kong, and Malaysia, offer premium, urban-focused opportunities. whereas Indonesia, Vietnam, and the Philippines face infrastructure and funding challenges. Overall, APAC's growth potential hinges on balancing innovation, affordability, and equitable access, with country-specific strategies and indigenous innovation playing a key role in unlocking sustainable development.

Recent Developments in the Next-Generation Intervention Cardiology Market

In May 2025, Koninklijke Philips N.V. launched VeriSight Pro 3D ICE catheter in Europe, delivering real-time 3D intracardiac imaging to expand access to minimally invasive heart procedures. Technology enhances procedural guidance for structural heart interventions without requiring general anesthesia, improving

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efficiency and patient comfort in minimally invasive cardiac care.

In May 2025, Cordis launched the SELUTION Global Coronary Registry, a real-world, prospective study enrolling up to 10,000 patients to track long-term outcomes of SELUTION SLR drug-eluting balloon over five years.

In April 2025, Edwards Lifesciences Corporation received CE Mark approval for the SAPIEN M3 Transcatheter Mitral Valve System, the first TMVR device for transcatheter treatment of patients with symptomatic (moderate-to-severe mitral regurgitation) who are ineligible for surgery or transcatheter edge-to-edge (TEER) therapy.

In March 2025, Abbott launched an FDA IDE-approved TECTONIC trial to evaluate its Coronary Intravascular Lithotripsy (IVL) System for treating severely calcified coronary arteries prior to stenting, enrolling up to 335 patients across 47 U.S. sites.

In March 2025, Terumo Corporation received EU MDR approval for Ultimaster Nagomi and Ultimaster Tansei sirolimus-eluting stents, indicated for high bleeding risk (HBR) patients, including those eligible for dual antiplatelet therapy (DAPT) as short as one month.

Demand –Drivers, Challenges, and Opportunities

Market Demand Drivers:

Rising Elderly Population, Driving Demand for Advanced Cardiac Interventions

A major driver of the next-generation intervention cardiology market is the rapid growth of the global aging population, which faces a significantly higher risk of cardiovascular diseases. Older adults, particularly those aged 65 and above, are more likely to suffer from conditions like aortic stenosis, coronary artery disease, heart failure, and atrial fibrillation. As this age group continues to expand, there is a growing demand for advanced cardiac interventions that offer less invasive, safer, and longer-lasting treatment options tailored to high-risk patients. Conditions such as aortic stenosis (AS), mitral regurgitation (MR), and atrial fibrillation (AF) are increasingly prevalent and often coexist in aging individuals, elevating the clinical need for advanced, minimally invasive

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cardiac interventions.

Cardiovascular Disease Burden in the Elderly

According to the World Health Organization (2024), cardiovascular diseases kill over 10,000 people daily in the WHO European Region, making CVD the leading cause of death across Europe, accounting for nearly 4 million deaths annually. In the U.S., the CDC reports that heart disease causes over 695,000 deaths each year, equal to 1 in every five deaths, with one person dying every 33 seconds due to cardiovascular causes. The risk is especially high in individuals aged 65 and older, who account for the majority of these cases. Aortic stenosis affects approximately 2% of people aged 65 years and older, rising to 7% among individuals above 80, making it one of the most common and deadly forms of valvular heart disease in the elderly. Mitral regurgitation, another highly prevalent valve disorder, affects over 2% of the general population and has a prevalence that increases with age. Meanwhile, atrial fibrillation impacts approximately 3.5% of adults in developed countries, rising to 14% in people over 80 years old, and is present in 15% of patients with severe AS. These figures highlight the aging population as a critical market driver, reinforcing the need for innovative, minimally invasive cardiac interventions that can effectively address the complex cardiovascular conditions prevalent in elderly patients and support the growing demand for safer, durable, and patient-centric treatment solutions.

Furthermore, interventions such as Transcatheter Aortic Valve Replacement (TAVR), Left Atrial Appendage Closure (LAAC), and Mitral Clip are increasingly used in elderly populations who are not ideal candidates for traditional open-heart surgery. These minimally invasive techniques improve survival outcomes and quality of life with fewer procedural risks and faster recovery.Some of the other driving factors include:

Emergence of Robotic-Assisted Interventions-Enhancing Procedural Accuracy and Operator Control

Market Challenges:

Data Standardization and Clinical Validation Gaps in AI-Driven Cardiology

While artificial intelligence (AI) and machine learning (ML) have been driving advances in precision cardiology, their clinical implementation faces significant challenges due to

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inconsistent data quality, lack of standardization, and limited external validation. Many AI models are developed using siloed, single-center datasets that fail to capture the diversity of patient demographics, comorbidities, and procedural complexities encountered in real-world practice. This raises concerns about algorithmic bias, particularly when applied to underserved or ethnically diverse populations. Furthermore, unlike traditional medical devices that undergo rigorous multicenter clinical trials, there is no universally accepted framework for validating AI tools in intervention cardiology.

For example, a 2023 scoping review of AI in cardiology reported that only 17.2% of studies were randomized clinical trials, with just 11 of 64 demonstrating prospective, RCT-level human validation. Similarly, a preprint review of AI risk models for cardiovascular disease found that only about 20% of models had been externally validated, with none having assessed their clinical impact in real-world workflows. These gaps highlight the need for more robust, standardized validation processes before widespread clinical adoption.

Some of the other factors challenging the market growth include:

Safety and Clinical Validation Barriers for Next-Generation Vascular Implants

Market Opportunities:

Stent and Balloon Innovation Unlocking Next-Generation Use Cases

Stents and balloons have long been foundational in treating coronary artery disease (CAD) and peripheral arterial disease (PAD). Recent advancements in materials, drug coatings, and structural designs have been expanding their clinical applications, improving patient outcomes, and driving growth in next-generation intervention cardiology.

Advancements in Drug-Coated Balloon Technologies

One notable innovation is the growing use of drug-coated balloons (DCBs) for treating in-stent restenosis (ISR). By delivering antiproliferative drugs directly to the vessel wall without leaving a permanent implant, DCBs preserve future treatment options and reduce risks associated with additional stenting. In March 2024, the FDA approved Boston Scientific's AGENT paclitaxel-coated balloon, the first coronary DCB approved

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in the U.S. for ISR. Data from the AGENT IDE trial demonstrated reduced rates of repeat narrowing and no increase in major adverse cardiac events compared to standard balloon angioplasty.

Some of the other factors creating an opportunity for market growth include:

Remote and Robotic-Enabled Expansion into Emerging Markets

Market Trends:

Shift Towards Minimally Invasive and Percutaneous Procedures Transforming Treatment Paradigms

The field of cardiac care is increasingly shifting toward minimally invasive, catheter-based interventions that offer shorter recovery times, reduced procedural risks, and lower healthcare costs—particularly beneficial for elderly and high-risk patients. Techniques such as Transcatheter Aortic Valve Replacement (TAVR), Left Atrial Appendage Closure (LAAC), MitraClip, and robotic Percutaneous Coronary Intervention (PCI) are progressively replacing traditional open-heart surgeries, establishing themselves as standard-of-care treatments for various cardiac conditions. The use of MitraClip has expanded significantly in recent years, supported by broader regulatory approvals and reimbursement policies.

Current Trends Driving the Field:

. Integration of AI, Predictive Intelligence in Interventional Cardiology

How can this report add value to an organization?

Product/Innovation Strategy: The report offers in-depth insights into the latest technological advancements in next-generation intervention cardiology, enabling organizations to drive innovation and develop cutting-edge products tailored to market needs.

Growth/Marketing Strategy: By providing comprehensive market analysis and identifying key growth opportunities, the report equips organizations with the knowledge to craft

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targeted marketing strategies and expand their market presence effectively.

Competitive Strategy: The report includes a thorough competitive landscape analysis, helping organizations understand their competitors' strengths and weaknesses in next-generation intervention cardiology and allowing them to strategize effectively to gain a competitive edge in the market.

Regulatory and Compliance Strategy: It provides updates on evolving regulatory frameworks, approvals, and industry guidelines specific to next-generation intervention cardiology, ensuring organizations stay compliant and accelerate market entry for new next-generation intervention cardiology

Investment and Business Expansion Strategy: By analyzing market trends, funding patterns, and partnership opportunities, the report assists organizations in making informed investment decisions and identifying potential M&A opportunities for business growth.

Methodology

Key Considerations and Assumptions in Market Engineering and Validation

> The base year considered for the calculation of the market size is 2024. A historical year analysis has been done for the period FY2023. The market size has been estimated for FY2024 and projected for the period FY2025-FY2035.
>
> The scope of this report has been carefully derived based on extensive interactions with experts and stakeholders across leading companies and research institutions worldwide. This report provides a comprehensive market analysis of robotics and non-robotics within the next-generation intervention cardiology market.
>
> Revenues of the companies have been referenced from their annual reports for FY2023 and FY2024. For private companies, revenues have been estimated based on factors such as inputs obtained from primary research, funding history, market collaborations, and operational history.
>
> The market has been mapped based on the available next-generation intervention cardiology products. All the key companies with significant offerings in this field have been considered and profiled in this report.

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Primary Research:

The primary sources involve industry experts in next-generation intervention cardiology, including the market players offering products and services. Resources such as CEOs, vice presidents, marketing directors, and technology and innovation directors have been interviewed to obtain and verify both qualitative and quantitative aspects of this research study.

The key data points taken from the primary sources include:

- Validation and triangulation of all the numbers and graphs
- Validation of the report's segmentation and key qualitative findings
- Understanding the competitive landscape and business model
- Current and proposed production values of a product by market players
- Validation of the numbers of the different segments of the market in focus
- Percentage split of individual markets for regional analysis

Secondary Research

Open Sources

- Certified publications, articles from recognized authors, white papers, directories, and major databases, among others
- Annual reports, SEC filings, and investor presentations of the leading market players
- Company websites and detailed study of their product portfolio
- Gold standard magazines, journals, white papers, press releases, and news articles

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Paid databases

The key data points taken from the secondary sources include:

Segmentations and percentage shares

Data for market value

Key industry trends of the top players of the market

Qualitative insights into various aspects of the market, key trends, and emerging areas of innovation

Quantitative data for mathematical and statistical calculations

Key Market Players and Competition Synopsis

Profiled companies have been selected based on inputs gathered from primary experts, as well as analyzing company coverage, product portfolio, and market penetration.

Key players in this market include leading global medical device companies offering a comprehensive range of advanced interventional solutions, such as robotic-assisted PCI systems, intravascular imaging platforms, and next-generation stents and scaffolds. Established firms like Abbott, Medtronic, and Boston Scientific dominate with extensive portfolios spanning coronary, structural, and peripheral interventions.

Innovators are also developing AI-driven imaging modalities, such as advanced OCT and IVUS systems, to improve procedural planning and outcomes. Biotech-inspired medtech firms are pioneering bioresorbable scaffolds, drug-coated balloons, and novel vascular implants that enhance vessel healing and reduce restenosis. Start-ups and regional players are entering with disruptive solutions, such as cost-effective robotic systems, portable imaging tools, and tele-interventional platforms targeting underserved and emerging markets. Together, these companies are driving technological progress, expanding access to advanced care, and addressing unmet needs in precision-guided, minimally invasive cardiovascular interventions.

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Some prominent names established in this market are:

Medtronic plc

Boston Scientific Corporation

Abbott.

Terumo Corporation

Edwards Lifesciences

Koninklijke Philips N.V.

Siemens Healthineers

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Contents

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3 NEXT-GENERATION INTERVENTION CARDIOLOGY MARKET (PRODUCT TYPE), VALUE ($MILLION), 2024-2035

4 NEXT-GENERATION INTERVENTION CARDIOLOGY MARKET (INDICATION TYPE), VALUE ($MILLION), 2024-2035

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7 COMPETITIVE LANDSCAPE AND COMPANY PROFILES

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List Of Figures

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List Of Tables

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