Artificial Organs And Bionics - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-06-01 | 130 pages | Mordor Intelligence

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Report description:

Artificial Organs And Bionics Market Analysis

The artificial organs and bionics market is worth USD 31.99 billion in 2025 and is forecast to reach USD 45.29 billion in 2030, advancing at a 7.20% CAGR. Size expansion is being shaped by converging breakthroughs in biomaterials, miniaturized electronics, and 3-D bioprinting, all of which compress development timelines and lift clinical adoption of cardiovascular, renal, and neuro-prosthetic devices. Stretched transplant waiting lists and fast-track regulatory programs are spurring investment in total artificial hearts, wearable artificial kidneys, and next-generation brain-computer interfaces. Defense-funded limb-restoration programs have unlocked neural-interface know-how that is flowing into civilian solutions, while insurers' gradual acceptance of home-based bionic therapies broadens the treated population. Supply-chain fragilities surrounding rare-earth sensors and high-end chips remain a watchpoint, yet growing regional manufacturing footprints in Asia-Pacific are easing part of that exposure.

Global Artificial Organs And Bionics Market Trends and Insights

Rising Incidence of Chronic Organ Failure & Disabilities

Degenerative ailments are swelling the addressable pool for cardiac assist devices, renal replacements, and neuro-prosthetics. Cardiovascular disease affects 49 million people in the EU, energising demand for mechanical circulatory support systems. Japan's insulin-producing iPS-cell trials underscore momentum behind a bioartificial pancreas for 139,000 local type 1 diabetes patients.

Ageing populations translate into rising stroke-related motor deficits, setting the stage for brain-computer interfaces that restore communication and mobility. The U.S. Department of Veterans Affairs is backing 25 prosthetics-oriented projects in FY 2025, signalling continuing long-term demand.

Scarcity of Donor Organs

More than 103,000 Americans wait for transplants; in Japan, fewer than 3% of organ-failure patients receive brain-dead donations, reinforcing demand for alternatives. FDA-sanctioned pig-organ trials in 2025 are emblematic of the shift toward xenotransplantation. Bridge-to-transplant devices such as the Carmat Aeson artificial heart have kept 30 European patients alive for an average of 156 days. China's 45-gram pediatric artificial heart answers an acute need in children's cardiac support.

High Procedure & Device Cost

Robotic knees can reach USD 51,000, and private insurers often cap prosthetic reimbursement, leaving patients exposed to six-figure out-of-pocket bills. Colorado's Medicare-parity law illustrates patchy progress on coverage mandates. Total artificial heart therapy, including surgery and follow-up, can surpass USD 500,000 per person, restricting uptake to high-resource centers. The cost barrier is sharper in emerging markets, where reimbursement rates lag device prices.

Other drivers and restraints analyzed in the detailed report include:

Rapid Biomaterial, Micro-Electronics & 3-D Bio-Printing Advances / Defence-Funded Limb-Restoration Programmes (Post-2024) / Biocompatibility Issues & Device Malfunctions /

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Artificial organs commanded 70.26% of the artificial organs and bionics market in 2024 as transplant shortages sustained demand for ventricular assist devices and emerging bioartificial kidneys. Bionics is tracking an 8.25% CAGR to 2030, aided by miniaturised brain-computer interfaces that now facilitate speech and fine-motor control. The artificial organs and bionics market size for heart devices alone is projected to expand at 7.8% CAGR, supported by FDA breakthrough tags for titanium total artificial hearts.

Clinical momentum is evident in renal assist systems where Roivios obtained breakthrough designation and is preparing U.S. pivotal trials. Bio-printed liver constructs and gene-edited pig livers are progressing through early-phase studies, signalling pipeline depth. Neuro-bionics growth is amplified by AI-driven control algorithms that adapt in milliseconds to user intent. Collectively, these innovations anchor long-term revenue visibility across the artificial organs and bionics market.

The Artificial Organs and Bionics Market Report is Segmented by Device Type (Artificial Organs [Artificial Heart, Artificial Kidney, and More] and Bionics [Vision Bionics, Ear Bionics, and More]), Technology (Implantable Devices and Wearable Devices), End User (Hospitals & Surgical Centres, Home-Care and More), and Geography (North America, Europe, and More). The Market Forecasts are Provided in Terms of Value (USD).

Geography Analysis

North America retained 38.82% share of the artificial organs and bionics market in 2024 on the back of an established FDA fast-track framework and robust venture funding. Investors topped USD 2 billion in disclosed U.S. deals during 2024, half of which went to cardiac and neuro-prosthesis start-ups. The region's mature reimbursement infrastructure continues to favour early

adoption, yet price sensitivity is rising as payers scrutinise cost-effectiveness.

Asia-Pacific is the fastest-growing region with a 10.62% CAGR, catalysed by Japan's universal artificial blood that maintains two-year shelf life across all blood types. China's triple-integrated brain-spine interface enabled paraplegic patients to regain over-ground walking within weeks, positioning domestic players at the cutting edge of neuro-prosthetics. Pediatric device innovation is also notable: a 45-gram artificial heart designed for small children filled a vital niche, reinforcing regional clinical leadership.

Europe sustains a technology leadership role through companies such as Carmat, whose Aeson artificial heart received CE marking as a bridge-to-transplant therapy. German transplant centres reported the first fully implantable artificial-heart discharge to home care, broadening real-world validation. Parallel initiatives in organ-preservation perfusion systems further tighten the supply-demand gap for donor organs, keeping Europe firmly inside the high-innovation quadrant of the artificial organs and bionics market.

List of Companies Covered in this Report:

Abbott Laboratories / Abiomed / Asahi Kasei Medical / Baxter / Berlin Heart / Boston Scientific / Cochlear / CYBERDYNE / Ekso Bionics / Edward Lifesciences / Getinge / MED-EL / Medtronic / Ossur / Ottobock / Second Sight Medical Products / SynCardia Systems / Sonova / Zimmer Biomet /

Additional Benefits:

The market estimate (ME) sheet in Excel format /
3 months of analyst support /

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