AI In Life Sciences - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

AI In Life Sciences Market Analysis

The AI in life sciences market is valued at USD 3.61 billion in 2025 and is forecast to expand to USD 11.11 billion by 2030, registering a 25.23% CAGR. Adoption is accelerating because regulators now regard AI-derived biomarkers as legitimate evidence, and because federated data networks are making once-siloed clinical datasets available for model training. A 70% drop in compute cost per molecule achieved through hyperscaler-pharma alliances is widening access to large-scale simulation, while venture capital inflows into generative protein-design platforms have tripled since 2024. At the same time, only 6% of biopharma data meet FAIR standards, highlighting a parallel opportunity for data-quality solutions. Regionally, North America maintains scale advantages in talent and infrastructure, but Asian government programs are translating into the fastest growth outlook.

Global AI In Life Sciences Market Trends and Insights

FDA RTOR-Enabled AI Biomarker Approvals

The US FDA's Real-Time Oncology Review has shortened review cycles for AI-enabled biomarkers by up to 40%, allowing oncology programmes to reach market far sooner than under legacy pathways. Successful precedent in oncology broadened to neuro-degenerative and rare-disease indications in 2024, signalling regulator confidence in AI-generated endpoints. Each new approval creates knock-on value because the validated biomarker can be reused across separate pipelines, accelerating overall portfolio productivity. With the FDA establishing the global benchmark, other agencies are already evaluating similar expedited

tracks, effectively globalising the opportunity.

EU Health Data Space Unlocking Federated AI Model Training

Effective January 2025, the European Health Data Space (EHDS) is giving life-sciences developers API-based access to harmonised clinical, genomic and imaging datasets across 27 member states. Crucially, federated-learning rules permit model training without physical data transfer, preserving privacy but eliminating a historic barrier of fragmentation. Forecasts point to EUR 11 billion in ten-year efficiency savings via reduced duplication and faster evidence generation. Early adopters are re-architecting pipelines so that algorithms can learn on-site and update centrally-an approach that turns Europe's stringent privacy stance into a competitive differentiator for compliant vendors.

EU AI Act Delaying CE-Mark Timelines for Clinical AI Systems

Classifying most clinical algorithms as "high-risk," the EU AI Act, in force since August 2024, layers additional conformity-assessment audits onto the CE-mark process. Smaller innovators, often venture-backed, are hardest hit because they lack in-house regulatory teams, leading to launch delays estimated at 6-12 months for imaging and decision-support tools. Although large manufacturers can absorb the cost, the bottleneck is temporarily reducing the funnel of European AI devices, which in turn slows downstream data generation needed for algorithm refinement.

Other drivers and restraints analyzed in the detailed report include:

China's 17th Five-Year Bio-AI Plan Fueling above 200 Pilot Programs / Hyperscaler Partnerships Cutting Compute Cost per Molecule by 70% / Only 6% of Biopharma Data Are FAIR-Compliant /

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

Segment Analysis

The software component generated 55% of the 2024 revenue base, establishing code libraries and algorithm suites as the primary value driver within the AI in life sciences market. Leading platforms analyse omics data, suggest candidate molecules and predict trial enrolment feasibility, embedding directly into pharmaceutical pipelines. Vendors increasingly differentiate through explainability modules that document model lineage for auditors. Services, though representing a smaller slice, are expanding at a 23% CAGR across 2025-2030 as clients seek integration specialists who can align AI outputs with regulated workflows. Managed-service contracts that bundle software licences with validation protocols and post-market performance monitoring are gaining traction because they transfer compliance overhead from sponsors to vendors.

Hardware, while modest in revenue share, is strategically important. Specialised accelerator boards designed for stochastic differential-equation solvers and high-throughput docking address current GPU supply constraints. Enterprises are adopting mixed infrastructure strategies-on-premise clusters for sensitive data and burst-to-cloud capacity for large screening jobs-to hedge against supply volatility and enforce data-residency rules. The AI in life sciences market size attached to hardware segments is forecast to grow at a mid-teens rate as new semiconductor entrants release domain-specific architectures.

Cloud deployments captured 51% of spending in 2024, reflecting the sector's recognition that elastic computing and distributed collaboration outweigh initial security concerns. Hyperscalers now offer health-data-compliant environments with pre-configured audit logs, reducing validation cycles for 21 CFR Part 11 and GDPR. Multi-tenant sandboxing allows academic consortia and biotechs to share de-identified cohorts, accelerating external innovation. Hybrid architectures, however, are becoming the default. Organisations retain ultra-sensitive genomic archives on-premise but run federated analytic workloads in the cloud, improving

utilisation rates without sacrificing sovereignty. On-premise solutions, boosted by sovereign-cloud regulations and latency-critical use cases, are projected to deliver a 17% CAGR through the period.

Persistent data silos remain a barrier: 81% of surveyed firms cite difficulty reconciling EHR, imaging and omics data within a single environment. Consequently, platform vendors are packaging built-in extract-transform-load utilities and ontology mappers. This dynamic supports service-led revenue streams that complement subscription fees from software licences, anchoring long-run renewal rates within the AI in life sciences market.

The AI Life Sciences Market Report is Segmented by Offering (Software. Hardware, and More), Deployment Model (Cloud /And On-Premise), Analytics Type (Descriptive, Predictive, and More), Application (Drug Discovery, Clinical Trials Optimisation, and More), End User (Medical Device Manufacturers, Healthcare Providers and Payers, and More), Technology (Machine Learning, Computer Vision, and More), and Geography.

Geography Analysis

North America commanded 49% of 2024 global revenue, anchored by a deep venture capital base, favourable reimbursement codes for digital diagnostics and early regulator engagement. The AI in life sciences market size in the US alone is boosted by the FDA's RTOR programme, which validates AI-enabled biomarkers that become reusable across multiple development programmes. Multistate health-information exchanges enable richer training sets, although interstate privacy rules still complicate data portability. Cloud-service adoption outpaces other regions because HIPAA-aligned blueprints shorten compliance audits, letting mid-tier biotechs leverage hyperscale compute without building in-house clusters.

Europe remains the second-largest region, poised to accelerate once the EHDS federated networks scale. Industry consortia linking academic medical centres with pharmaceutical sponsors are piloting privacy-preserving cross-border training, likely to increase the AI in life sciences market share captured by European vendors as they leverage home-market regulatory familiarity. Counterbalancing this momentum, the AI Act's high-risk classification introduces extra documentation layers that can elongate product cycles. Companies are responding by integrating regulatory checkpoints into agile sprints, a practice that, while lengthening early iterations, reduces late-stage remediation costs.

Asia shows the highest growth trajectory at a 22% CAGR between 2025-2030. China exploits coordinated industrial policy to fund AI-enabled drug-discovery megaprojects; provincial biotech parks provide tax holidays and access to national-level supercomputing. Japan and South Korea specialise in robotics and automation, yet lingering IP ambiguity for AI-generated molecules creates a licensing risk premium. India's contract-research ecosystem leverages large English-language medical records, positioning the country as an outsourcing hub for algorithm training and validation. Divergent national rules dictate a country-by-country go-to-market, but the aggregate opportunity is compelling, with localised cloud regions and sovereign-AI initiatives unlocking new datasets previously inaccessible to global players.

South America and the Middle East and Africa are smaller today but constitute important frontier segments. Brazil's national genomics programmes and Saudi Arabia's genome project are generating population-specific datasets that draw AI developers seeking diversity in training inputs. Governments are allocating innovation grants to attract multinational partnerships, a trend that could raise the regions' combined market share over the next decade as infrastructure and skills mature.

List of Companies Covered in this Report:

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