

AI-Driven Drug Delivery Market - Strategic Insights and Forecasts (2026-2031)

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Abstracts

The AI-Driven Drug Delivery Market market is forecast to grow at a CAGR of 35.4%, reaching USD 15.0 billion in 2031 from USD 3.3 billion in 2026.

The AI-driven drug delivery market is positioned at the intersection of digital health and advanced therapeutics. It benefits from strong macro drivers such as rising chronic disease burden, demand for precision medicine, and growing adoption of artificial intelligence across healthcare systems. Pharmaceutical and biotechnology companies are integrating AI to improve formulation design, dosing accuracy, and patient adherence. Healthcare providers are also seeking smarter delivery platforms that can reduce adverse effects and optimize therapeutic outcomes. These factors support sustained market expansion over the forecast period.

Market Drivers

Key growth drivers include the increasing complexity of modern drug molecules and the need for targeted delivery systems. AI enables predictive modeling of drug behavior and patient response, which improves treatment efficiency. Expansion of personalized medicine programs is accelerating demand for adaptive delivery platforms. Growth in digital therapeutics and connected medical devices further strengthens adoption. Investment in research and development remains high as firms pursue faster drug development cycles and improved clinical success rates. Supportive regulatory initiatives for digital health tools also encourage integration of AI-based delivery technologies into mainstream healthcare.

Market Restraints

Despite strong momentum, the market faces notable challenges. High development and implementation costs limit adoption among smaller healthcare providers and emerging market players. Data privacy and cybersecurity concerns create barriers to large-scale deployment of AI systems. Regulatory uncertainty around algorithm-driven clinical decisions slows product approvals in some regions. Limited availability of high-quality clinical datasets restricts the performance of machine learning models. Integration with legacy healthcare infrastructure also remains complex and time-consuming, which can delay commercialization.

Technology and Segment Insights

From a technology perspective, the market is segmented into machine learning-based platforms, predictive analytics systems, and smart sensor-enabled delivery devices. Machine learning dominates due to its role in dose optimization and patient monitoring. By application, oncology and chronic disease management represent the largest segments, driven by the need for precision dosing and long-term therapy management. Hospitals and specialty clinics form the primary end-user base, followed by pharmaceutical companies using AI to enhance formulation and delivery strategies. Regionally, North America leads the market due to strong research infrastructure and early adoption of digital health tools, while Asia Pacific shows rapid growth supported by expanding healthcare investment and technology uptake.

Competitive and Strategic Outlook

Competition in the market is shaped by collaborations between technology providers and pharmaceutical manufacturers. Companies are focusing on strategic partnerships to combine AI expertise with drug development capabilities. Product innovation centers on smart delivery devices and software platforms that integrate real-time patient data. Mergers and acquisitions are used to expand technology portfolios and geographic presence. Firms also invest in clinical validation and regulatory compliance to strengthen market credibility. Long-term strategies emphasize scalability, data integration, and interoperability with healthcare systems.

The AI-driven drug delivery market demonstrates strong growth potential supported by technological progress and healthcare digitization. While cost and regulatory challenges remain, continuous innovation and strategic alliances are expected to improve adoption. The market is set to play a critical role in advancing personalized and efficient drug delivery solutions over the forecast period.

Key Benefits of this Report

Insightful Analysis: Gain detailed market insights across regions, customer segments, policies, socio-economic factors, consumer preferences, and industry verticals.

Competitive Landscape: Understand strategic moves by key players to identify optimal market entry approaches.

Market Drivers and Future Trends: Assess major growth forces and emerging developments shaping the market.

Actionable Recommendations: Support strategic decisions to unlock new revenue streams.

Caters to a Wide Audience: Suitable for startups, research institutions, consultants, SMEs, and large enterprises.

What Businesses Use Our Reports For

Industry and market insights, opportunity assessment, product demand forecasting, market entry strategy, geographical expansion, capital investment decisions, regulatory analysis, new product development, and competitive intelligence.

Report Coverage

Historical data from 2021 to 2024, Base Year 2025, Forecast Years 2026-2031

Growth opportunities, challenges, supply chain outlook, regulatory framework, and trend analysis

Competitive positioning, strategies, and market share evaluation

Revenue growth and forecast assessment across segments and regions

Company profiling including strategies, products, financials, and key developments

Contents

1. INTRODUCTION

- 1.1. Market Overview
- 1.2. Market Definition
- 1.3. Scope of the Study
- 1.4. Market Segmentation
- 1.5. Currency
- 1.6. Assumptions
- 1.7. Base, and Forecast Years Timeline

2. RESEARCH METHODOLOGY

- 2.1. Research Data
- 2.2. Sources
- 2.3. Research Design

3. EXECUTIVE SUMMARY

- 3.1. Research Highlights

4. MARKET DYNAMICS

- 4.1. Market Drivers
- 4.2. Market Restraints
- 4.3. Porters Five Forces Analysis
 - 4.3.1. Bargaining Power of Suppliers
 - 4.3.2. Bargaining Power of Buyers
 - 4.3.3. Threat of New Entrants
 - 4.3.4. Threat of Substitutes
 - 4.3.5. Competitive Rivalry in the Industry
- 4.4. Industry Value Chain Analysis

5. AI-DRIVEN DRUG DELIVERY MARKET, BY TECHNOLOGY

- 5.1. Introduction
- 5.2. MACHINE LEARNING
- 5.3. DEEP LEARNING

- 5.4. NATURAL LANGUAGE PROCESSING (NLP)
- 5.5. COMPUTER VISION
- 5.6. OTHERS

6. AI-DRIVEN DRUG DELIVERY MARKET, BY TYPE OF DRUG DELIVERY

- 6.1. Introduction
- 6.2. ORAL DRUG DELIVERY
- 6.3. INJECTABLE DRUG DELIVERY
- 6.4. TRANSDERMAL DRUG DELIVERY
- 6.5. INHALATION DRUG DELIVERY
- 6.6. IMPLANTABLE DRUG DELIVERY
- 6.7. OTHERS

7. AI-DRIVEN DRUG DELIVERY MARKET, BY APPLICATION

- 7.1. Introduction
- 7.2. ONCOLOGY
- 7.3. DIABETES
- 7.4. CARDIOVASCULAR DISEASES
- 7.5. RESPIRATORY DISORDERS
- 7.6. NEUROLOGICAL DISORDERS
- 7.7. AUTOIMMUNE DISEASES
- 7.8. OTHERS

8. AI-DRIVEN DRUG DELIVERY MARKET, BY END-USER

- 8.1. Introduction
- 8.2. HOSPITALS AND CLINICS
- 8.3. PHARMACEUTICAL COMPANIES
- 8.4. RESEARCH INSTITUTES AND ACADEMIC CENTERS
- 8.5. HOME CARE SETTINGS
- 8.6. OTHERS
- 8.7. AI-DRIVEN DRUG DELIVERY MARKET, BY GEOGRAPHY
- 8.8. Introduction
- 8.9. North America
 - 8.9.1. United States
 - 8.9.2. Canada
 - 8.9.3. Mexico

8.10. South America

- 8.10.1. Brazil
- 8.10.2. Argentina
- 8.10.3. Others

8.11. Europe

- 8.11.1. United Kingdom
- 8.11.2. Germany
- 8.11.3. France
- 8.11.4. Italy
- 8.11.5. Spain
- 8.11.6. Others

8.12. Middle East and Africa

- 8.12.1. Saudi Arabia
- 8.12.2. UAE
- 8.12.3. Others

8.13. Asia Pacific

- 8.13.1. Japan
- 8.13.2. China
- 8.13.3. India
- 8.13.4. South Korea
- 8.13.5. Indonesia
- 8.13.6. Taiwan
- 8.13.7. Others

9. COMPETITIVE ENVIRONMENT AND ANALYSIS

- 9.1. Major Players and Strategy Analysis
- 9.2. Emerging Players and Market Lucrativeness
- 9.3. Mergers, Acquisitions, Agreements, and Collaborations
- 9.4. Vendor Competitiveness Matrix

10. COMPANY PROFILES

- 10.1. MEDTRONIC PLC
- 10.2. F. HOFFMANN-LA ROCHE AG
- 10.3. GLAXOSMITHKLINE PLC
- 10.4. NOVARTIS AG
- 10.5. ELI LILLY AND COMPANY
- 10.6. ASTRAZENECA PLC

10.7. MERCK & CO., INC.

10.8. PFIZER INC.

10.9. SANOFI S.A.

10.10. JOHNSON & JOHNSON

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