

AI Water Purity Analytics Market Forecasts to 2032 – Global Analysis By Component (Software, Hardware and Services), Deployment Mode (On-Premises, Cloud-Based and Hybrid), Technology Type, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global AI Water Purity Analytics Market is accounted for \$2.41 billion in 2025 and is expected to reach \$13.49 billion by 2032 growing at a CAGR of 27.85% during the forecast period. AI-driven water purity analytics is transforming water quality assessment through automation and predictive intelligence. Using machine learning and sensor-based data, these systems identify impurities, anticipate contamination threats, and maintain regulatory compliance. The technology evaluates vital indicators like acidity, cloudiness, mineral content, and microbial activity with precision. Traditional testing methods, often slow and labor-intensive, are being replaced by AI solutions that deliver rapid, reliable results for decision-makers. This proactive approach ensures safer drinking water, promotes environmental sustainability, and strengthens resource management. As global demand for clean water rises, AI-powered analytics emerge as an essential innovation for preserving human health and ensuring long-term water security.

According to the U.S. Environmental Protection Agency (EPA), in its Water Audits and Water Loss Control for Public Water Systems factsheet, the U.S. Environmental Protection Agency reports that average water loss in U.S. public water systems is about 16%.

Market Dynamics:

Driver:

Rising demand for clean and safe water

The escalating need for safe and clean water globally is fueling growth in the AI water purity analytics market. Expanding populations, urban development, and industrial activities have placed enormous strain on freshwater sources, heightening the risk of pollution and waterborne illnesses. AI-driven solutions are increasingly adopted as they enable continuous tracking and accurate detection of water impurities. Governments and private entities are prioritizing advanced technologies to secure public health and conserve resources. By forecasting contamination events, enhancing treatment efficiency, and ensuring compliance with safety standards, AI water purity analytics plays a vital role in addressing the world's growing clean water demand.

Restraint:

High implementation and maintenance costs

The growth of AI water purity analytics is restricted by substantial costs associated with implementation and upkeep. Establishing AI-driven solutions requires heavy spending on infrastructure, IoT sensors, cloud storage, and trained professionals. For smaller water utilities or organizations in emerging economies, these expenses often act as barriers to adoption. In addition to initial investments, recurring costs for system maintenance, upgrades, and cybersecurity protection further increase the financial load. This economic challenge limits widespread accessibility, particularly in resource-constrained markets. As a result, despite the proven efficiency of AI in managing water safety, affordability issues hinder its broader deployment across the industry.

Opportunity:

Integration with smart city initiatives

Expanding smart city initiatives present vast opportunities for AI water purity analytics. Municipalities are adopting digital technologies to strengthen sustainability and improve urban infrastructure. Ensuring clean and safe water forms a core aspect of these projects, making AI-driven monitoring highly valuable. By combining with IoT devices and cloud-based solutions, AI systems deliver real-time data, contamination alerts, and predictive maintenance capabilities. This integration not only safeguards public health but also reduces operational inefficiencies. With urban populations rising, smart cities increasingly depend on intelligent water solutions, enabling AI water purity analytics to

play a central role in shaping healthier, eco-friendly, and technologically advanced communities.

Threat:

Limited awareness and adoption in developing regions

Restricted adoption in developing economies is a considerable threat to the AI water purity analytics industry. Many water utilities in these regions continue using manual testing due to affordability issues, limited infrastructure, and lack of skilled professionals. Awareness of AI's benefits in predicting contamination and enhancing treatment efficiency is often low, delaying modernization efforts. This reliance on conventional methods reinforces technological inequality, with advanced nations moving ahead while poorer regions remain stagnant. As a result, global adoption progresses unevenly, constraining market expansion. Bridging this gap is essential to ensure the widespread use of AI solutions for safer, more sustainable water systems.

Covid-19 Impact:

The outbreak of COVID-19 reshaped the AI water purity analytics market by introducing hurdles and growth opportunities. Early in the pandemic, supply chain disruptions, halted projects, and reduced funding slowed adoption of new technologies. At the same time, the crisis emphasized the critical role of clean water in safeguarding health, encouraging governments and enterprises to prioritize advanced monitoring systems. AI-powered solutions offering automated, real-time water quality tracking became increasingly attractive for minimizing risks and ensuring safety. As recovery efforts continue, demand has expanded further, solidifying AI water purity analytics as a key innovation for maintaining reliable, safe, and sustainable water resources.

The hardware segment is expected to be the largest during the forecast period

The hardware segment is expected to account for the largest market share during the forecast period. In 2024, physical components such as quality sensors, meters, and connected devices took up the largest slice—38.1%—owing to their critical function in capturing accurate, real-time water data and facilitating effective network communication. Even though service offerings, including system deployment, consulting, and upkeep, are expected to grow rapidly, and software solutions remain essential for data integration and analytics, it's the indispensable role of hardware infrastructure that sustains its leadership in market share among the three segments.

The hybrid segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the hybrid segment is predicted to witness the highest growth rate. Hybrid deployment combines the benefits of cloud and on-premises environments, enabling organizations to retain sensitive workloads securely on-site while leveraging cloud infrastructure for scalable analytics and storage. This approach is increasingly adopted by businesses seeking both control and flexibility. In the wider AI/cloud analytics market, hybrid solutions are experiencing a growth rate of over 20% growth rate, surpassing the growth of standalone cloud or on-premises systems. This growing preference highlights hybrid deployment as the leading growth trajectory in the AI water purity analytics domain.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share. By 2024, it generated about USD 590 million, representing more than one-third of global revenues. The region's dominance stems from its mature digital infrastructure, major investments in intelligent water management, stable regulatory environment, and a robust ecosystem of tech providers. Strategic advancements—such as modernizing water utilities and fortifying them against climate-related hazards—supported by government and private sector collaboration, underpin North America's market leadership. As a result, it remains the strongest regional force in the development and deployment of AI-powered water purity analytics solutions.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. Propelled by surging urbanization, pressing water stress, and robust policy backing in countries such as China, India, Japan, and Australia, this region is forecasted to achieve a remarkable 21.5% growth rate until 2033. Governments are advancing smart water infrastructure, deploying cost-efficient sensor networks, and scaling AI-driven water analysis tools to address contamination, conserve resources, and support public health. These proactive measures position Asia Pacific as the primary engine of expansion in the AI-enabled water quality monitoring industry.

Key players in the market

Some of the key players in AI Water Purity Analytics Market include Honeywell

International Inc, Schneider Electric, IBM Corporation, ABB Ltd., TATA Consultancy Services Limited, Oracle, SUEZ, American Water Works Company, Inc., Siemens AG, Badger Meter, Xylem Inc., Veolia Environnement, Itron, Waterson and Emerson Electric Co.

Key Developments:

In August 2025, Schneider Electric has signed a long-term framework agreement with E.ON, one of Europe's largest energy companies, to accelerate the deployment of SF₆-free medium-voltage switchgear across E.ON's network. The deal marks a pivotal step in modernizing Europe's energy infrastructure with sustainable and digital-ready technologies.

In June 2025, Honeywell announced a significant expansion of its licensing agreement with AFG Combustion and its subsidiary, Greens Combustion Ltd., to include Callidus flares. This expanded agreement not only doubles the range of greenhouse gas-reducing Callidus Ultra Blue Hydrogen process burners but also enhances global customer support.

In April 2025, IBM and Tokyo Electron (TEL) announced an extension of their agreement for the joint research and development of advanced semiconductor technologies. The new 5-year agreement will focus on the continued advancement of technology for next-generation semiconductor nodes and architectures to power the age of generative AI.

Components Covered:

Software

Hardware

Services

Deployment Modes Covered:

On-Premises

Cloud-Based

Hybrid

Technology Types Covered:

Machine Learning Algorithms

Computer Vision Systems

Expert Systems

Neural Networks

Natural Language Processing (NLP)

Applications Covered:

Drinking Water Monitoring

Wastewater Treatment

Industrial Process Water

Aquaculture & Surface Water Monitoring

Flood Prediction & Early Warning

Leak Detection & Infrastructure Health

End Users Covered:

Municipalities & Utilities

Industrial Facilities

Commercial Buildings

Residential Users

Agricultural Sector

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends

- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

Contents

1 EXECUTIVE SUMMARY

2 PREFACE

- 2.1 Abstract
- 2.2 Stake Holders
- 2.3 Research Scope
- 2.4 Research Methodology
 - 2.4.1 Data Mining
 - 2.4.2 Data Analysis
 - 2.4.3 Data Validation
 - 2.4.4 Research Approach
- 2.5 Research Sources
 - 2.5.1 Primary Research Sources
 - 2.5.2 Secondary Research Sources
 - 2.5.3 Assumptions

3 MARKET TREND ANALYSIS

- 3.1 Introduction
- 3.2 Drivers
- 3.3 Restraints
- 3.4 Opportunities
- 3.5 Threats
- 3.6 Technology Analysis
- 3.7 Application Analysis
- 3.8 End User Analysis
- 3.9 Emerging Markets
- 3.10 Impact of Covid-19

4 PORTERS FIVE FORCE ANALYSIS

- 4.1 Bargaining power of suppliers
- 4.2 Bargaining power of buyers
- 4.3 Threat of substitutes
- 4.4 Threat of new entrants
- 4.5 Competitive rivalry

5 GLOBAL AI WATER PURITY ANALYTICS MARKET, BY COMPONENT

- 5.1 Introduction
- 5.2 Software
- 5.3 Hardware
- 5.4 Services

6 GLOBAL AI WATER PURITY ANALYTICS MARKET, BY DEPLOYMENT MODE

- 6.1 Introduction
- 6.2 On-Premises
- 6.3 Cloud-Based
- 6.4 Hybrid

7 GLOBAL AI WATER PURITY ANALYTICS MARKET, BY TECHNOLOGY TYPE

- 7.1 Introduction
- 7.2 Machine Learning Algorithms
- 7.3 Computer Vision Systems
- 7.4 Expert Systems
- 7.5 Neural Networks
- 7.6 Natural Language Processing (NLP)

8 GLOBAL AI WATER PURITY ANALYTICS MARKET, BY APPLICATION

- 8.1 Introduction
- 8.2 Drinking Water Monitoring
- 8.3 Wastewater Treatment
- 8.4 Industrial Process Water
- 8.5 Aquaculture & Surface Water Monitoring
- 8.6 Flood Prediction & Early Warning
- 8.7 Leak Detection & Infrastructure Health

9 GLOBAL AI WATER PURITY ANALYTICS MARKET, BY END USER

- 9.1 Introduction
- 9.2 Municipalities & Utilities
- 9.3 Industrial Facilities

9.4 Commercial Buildings

9.5 Residential Users

9.6 Agricultural Sector

10 GLOBAL AI WATER PURITY ANALYTICS MARKET, BY GEOGRAPHY

10.1 Introduction

10.2 North America

10.2.1 US

10.2.2 Canada

10.2.3 Mexico

10.3 Europe

10.3.1 Germany

10.3.2 UK

10.3.3 Italy

10.3.4 France

10.3.5 Spain

10.3.6 Rest of Europe

10.4 Asia Pacific

10.4.1 Japan

10.4.2 China

10.4.3 India

10.4.4 Australia

10.4.5 New Zealand

10.4.6 South Korea

10.4.7 Rest of Asia Pacific

10.5 South America

10.5.1 Argentina

10.5.2 Brazil

10.5.3 Chile

10.5.4 Rest of South America

10.6 Middle East & Africa

10.6.1 Saudi Arabia

10.6.2 UAE

10.6.3 Qatar

10.6.4 South Africa

10.6.5 Rest of Middle East & Africa

11 KEY DEVELOPMENTS

- 11.1 Agreements, Partnerships, Collaborations and Joint Ventures
- 11.2 Acquisitions & Mergers
- 11.3 New Product Launch
- 11.4 Expansions
- 11.5 Other Key Strategies

12 COMPANY PROFILING

- 12.1 Honeywell International Inc
- 12.2 Schneider Electric
- 12.3 IBM Corporation
- 12.4 ABB Ltd.
- 12.5 TATA Consultancy Services Limited
- 12.6 Oracle
- 12.7 SUEZ
- 12.8 American Water Works Company, Inc.
- 12.9 Siemens AG
- 12.10 Badger Meter
- 12.11 Xylem Inc.
- 12.12 Veolia Environnement
- 12.13 Itron
- 12.14 Waterson
- 12.15 Emerson Electric Co.

List Of Tables

LIST OF TABLES

Table 1 Global AI Water Purity Analytics Market Outlook, By Region (2024-2032) (\$MN)

Table 2 Global AI Water Purity Analytics Market Outlook, By Component (2024-2032) (\$MN)

Table 3 Global AI Water Purity Analytics Market Outlook, By Software (2024-2032) (\$MN)

Table 4 Global AI Water Purity Analytics Market Outlook, By Hardware (2024-2032) (\$MN)

Table 5 Global AI Water Purity Analytics Market Outlook, By Services (2024-2032) (\$MN)

Table 6 Global AI Water Purity Analytics Market Outlook, By Deployment Mode (2024-2032) (\$MN)

Table 7 Global AI Water Purity Analytics Market Outlook, By On-Premises (2024-2032) (\$MN)

Table 8 Global AI Water Purity Analytics Market Outlook, By Cloud-Based (2024-2032) (\$MN)

Table 9 Global AI Water Purity Analytics Market Outlook, By Hybrid (2024-2032) (\$MN)

Table 10 Global AI Water Purity Analytics Market Outlook, By Technology Type (2024-2032) (\$MN)

Table 11 Global AI Water Purity Analytics Market Outlook, By Machine Learning Algorithms (2024-2032) (\$MN)

Table 12 Global AI Water Purity Analytics Market Outlook, By Computer Vision Systems (2024-2032) (\$MN)

Table 13 Global AI Water Purity Analytics Market Outlook, By Expert Systems (2024-2032) (\$MN)

Table 14 Global AI Water Purity Analytics Market Outlook, By Neural Networks (2024-2032) (\$MN)

Table 15 Global AI Water Purity Analytics Market Outlook, By Natural Language Processing (NLP) (2024-2032) (\$MN)

Table 16 Global AI Water Purity Analytics Market Outlook, By Application (2024-2032) (\$MN)

Table 17 Global AI Water Purity Analytics Market Outlook, By Drinking Water Monitoring (2024-2032) (\$MN)

Table 18 Global AI Water Purity Analytics Market Outlook, By Wastewater Treatment (2024-2032) (\$MN)

Table 19 Global AI Water Purity Analytics Market Outlook, By Industrial Process Water

(2024-2032) (\$MN)

Table 20 Global AI Water Purity Analytics Market Outlook, By Aquaculture & Surface Water Monitoring (2024-2032) (\$MN)

Table 21 Global AI Water Purity Analytics Market Outlook, By Flood Prediction & Early Warning (2024-2032) (\$MN)

Table 22 Global AI Water Purity Analytics Market Outlook, By Leak Detection & Infrastructure Health (2024-2032) (\$MN)

Table 23 Global AI Water Purity Analytics Market Outlook, By End User (2024-2032) (\$MN)

Table 24 Global AI Water Purity Analytics Market Outlook, By Municipalities & Utilities (2024-2032) (\$MN)

Table 25 Global AI Water Purity Analytics Market Outlook, By Industrial Facilities (2024-2032) (\$MN)

Table 26 Global AI Water Purity Analytics Market Outlook, By Commercial Buildings (2024-2032) (\$MN)

Table 27 Global AI Water Purity Analytics Market Outlook, By Residential Users (2024-2032) (\$MN)

Table 28 Global AI Water Purity Analytics Market Outlook, By Agricultural Sector (2024-2032) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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