Digital Twin Nuclear Decommissioning Market to Grow at 18.3% CAGR from 2025-2029

The Business Research Company's Digital Twin Nuclear Decommissioning Global Market Report 2025 – Market Size, Trends, And Global Forecast 2025-2034

Digital Twin Nuclear Decommissioning Global Market Report 2025

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What Is The Digital Twin Nuclear Decommissioning Market Size And Growth?
The advancement in the field of digital twin technology for nuclear decommissioning has resulted in a substantial increase in its market size in the previous years. The market is projected to expand from $1.41 billion in 2024 to $1.61 billion in 2025, at a Compound Annual Growth Rate (CAGR) of 18.6%. The past growth is a combined result of several factors such as greater decommissioning obligations for aged nuclear facilities, heightened environmental consciousness, governmental encouragement for improved surveillance, amplified knowledge about radiation hazards among the public, and an increase in nuclear energy capacity in the past several decades.

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In the upcoming years, the digital twin nuclear decommissioning market is slated to experience significant expansion. Forecasts predict its value will reach $3.27 billion in 2029, with a compound annual growth rate (CAGR) of 18.3%. This predicted hike during the forecast period is attributable to factors such as increased funding in nuclear decommissioning projects, a stronger embrace of predictive maintenance and simulation technologies, a heightened goal to cut down decommissioning costs, wider international partnerships in nuclear safety, and evolution of data interoperability standards. Crucial future trends include the fusion of artificial intelligence and machine learning for predictive analytics, the utilization of Internet of Things-

enabled sensors for real-time data acquisition, progressive developments in virtual and augmented reality for operational training, usage of cloud-based platforms for data consolidation, and the enhancement of cybersecurity measures for critical infrastructure.

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What Are The Current Leading Growth Drivers For Digital Twin Nuclear Decommissioning Market?
The digital twin nuclear decommissioning market's advancement is fueled by the expanding nuclear capacity. When speaking of nuclear capacity, it represents the maximum energy potential a nuclear facility or group of reactors can produce under optimal circumstances, which is an indication of the size of the nuclear reactors installed and their operational competency. Innovative elements like strengthened safety systems, improved fuel efficiency, and modular construction allow for the construction of larger or more skilful reactors, lower operational hazards, and thus help in reliable augmentation of energy output; these are factors contributing to the rise in nuclear capacity. The process of digital twin nuclear decommissioning is beneficial to such capacity by expediting the safe deconstruction of aged reactors, thereby freeing up assets and locations for construction of novel, proficient nuclear plants. For example, the World Nuclear Association, a UK headquartered global nuclear industry body, reported that in August 2025, nuclear reactors in the US generated 779 terawatt-hours, accounting for 19% of the total electricity produced, with Vogtle unit 3 being deployed in April 2023 and unit 4 in March 2024. Consequently, the escalating nuclear capacity fuels the development of the digital twin nuclear decommissioning market.

Which Companies Are Currently Leading In The Digital Twin Nuclear Decommissioning Market?
Major players in the Digital Twin Nuclear Decommissioning Global Market Report 2025 include:
• Bechtel Corporation
• AECOM
• Jacobs Solutions Inc.
• Amentum Services Inc.
• Hexagon AB
• Orano SA
• Framatome SA
• AFRY AB
• ATS Corporation
• Costain Group plc

What Are The Key Trends And Market Opportunities In The Digital Twin Nuclear Decommissioning Sector?
Major businesses involved in the digital twin Nuclear Decommissioning market are concentrating their efforts on developing ground-breaking advancements, such as digital twin collaboration platforms. These platforms are designed to improve operational efficiency, encourage the

transfer of knowledge, and aid in data-driven decision making. A digital twin collaboration platform produces an accurate digital duplicate of a physical facility, offering multiple stakeholders the opportunity to interact, evaluate, and make operations, maintenance, and project planning decisions based on data. An example of this is the Metaverse Platform for Nuclear Power Plants, launched by Hitachi Ltd., a tech and industrial solutions company based in Japan, in July 2025. The platform takes precision point cloud data and three-dimensional computer-aided design models, creating a virtual representation of nuclear facilities. This virtual representation enables accurate site condition verification and points out any differences between design and actual constructions. It also facilitates multi-user collaboration, AI-driven document searches, and engineering tools for measurements, annotations, and asset management, improving coordination, productivity, and decision-making for stakeholders located in different geographical locations.

How Is The Digital Twin Nuclear Decommissioning Market Segmented?
The digital twin nuclear decommissioning market covered in this report is segmented
1) By Component: Software, Hardware, Services
2) By Deployment Mode: On-Premises, Cloud
3) By Application: Planning And Simulation, Monitoring And Control, Safety And Risk Assessment, Asset Management, Other Applications
4) By End-Users: Nuclear Power Plants, Research Reactors, Waste Management Facilities, Other End-Users

Subsegments:
1) By Software: Digital Modeling Platforms, Data Analytics Tools, Visualization Interfaces, Predictive Simulation Engines
2) By Hardware: Sensors And Detectors, Data Acquisition Systems, Communication Devices, Processing Units
3) By Services: Consulting And Advisory, Implementation And Integration, Training And Support, Maintenance And Upgrades

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Which Is The Dominating Region For The Digital Twin Nuclear Decommissioning Market?
In 2024, Europe dominated the global market for digital twin nuclear decommissioning. However, it is predicted that the most rapid expansion in the sector is expected to occur in the Asia-Pacific region over the forecast period. The report on the digital twin nuclear decommissioning investigates the regions of Asia-Pacific, Western Europe, Eastern Europe, North America, South America, the Middle East, and Africa.

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