

Simulation Software - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

Market Report | 2024-02-17 | 120 pages | Mordor Intelligence

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Report description:

The Simulation Software Market size is estimated at USD 12.12 billion in 2024, and is expected to reach USD 21.43 billion by 2029, growing at a CAGR of 12.06% during the forecast period (2024-2029).

Key Highlights

- Initially, simulation software was only used to tweak production lines. However, in the current market scenario, it is being used to test new concepts, accelerate product developments, and demonstrate regulatory compliance.
- Often, manufacturers invest in simulation software when there is uncertainty about making changes to a production line or when building a new line is too expensive. This is mainly due to the high cost of downtime in terms of operational efficiencies and a manufacturer's reputation on the line if customer orders are delayed. However, new use cases have proven that manufacturers can identify and solve issues in advance by investing in simulation software. Simulation software can also simulate how components work together to create new products and affect process flows to demonstrate compliance.
- A few use cases for simulation software include Siemens modeling Electrolux's factories to identify operational efficiencies and anylogic helping General Dynamic (NASCO) improve its handling of the thousands of parts flowing through their shipyards. Dassault Systemes is assisting Global Trailers in fastening the processes for bringing new trailers to the market. Similarly, Fluor, an engineering and construction firm, aspentech, developed a solution to demonstrate that its sulfur tracking technologies help gas plants meet environmental requirements.
- Notably, owing to its superior characteristics, it is widely used in education and the research segment, which may propel the industry growth over the forecast period. Moreover, creating real-time simulation scenarios saves a lot of money and poses less time to execute, which encourages and enhances the core business competencies. Therefore, this is expected to have a positive impact on market growth.
- Furthermore, the upcoming trend of designing toolsets with machine learning capabilities significantly contributes to the market's

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growth. Also, significant investments were made to empower designers to reduce the number of errors, thereby saving considerable time, which is expected to produce future results.

-Due to the growing demand for advanced manufacturing with intricate designs and the need to reduce the size while improving the performance of automotive compels, automotive manufacturers should increase their R&D investments and adopt simulation software.

-The outbreak of COVID-19 pushed organizations to act quickly to protect employees, address critical challenges, and help fight to minimize losses. Simulation modeling can help organizations to develop strategies to respond quickly, safely, and effectively. For instance, according to Ansys Inc., simulation can be used to design UV light treatment systems for various environments and ensure that sufficient doses of UV light are delivered to deactivate viruses, triggering market growth.

Simulation Software Market Trends

Automotive Segment is expected grow at a faster pace.

- The automotive industry is witnessing a paradigm shift in adopting multiple technologies in its value chain. Macro trends, such as the development of autonomous vehicles and the drive toward more efficient and electric vehicles, influence the increased demand for simulation in the automotive sector. In contrast, traditional demand in vehicle simulation continues to gain general acceptance.

- Once used by automakers for limited use cases in vehicle design, high-performance computer (HPC) simulation, using computer-aided engineering (CAE) applications, has come a long way in improving and optimizing all aspects of product development, including the manufacturing process.

- The most efficient and cost-effective manufacturing processes are now determined by the same CAE simulation tools used in the vehicle design process. Simulation has become exceptionally valuable as new materials, such as aluminum and plastics, are introduced and enables manufacturers to avoid expensive inefficiencies of the traditional trial-and-error approach to establishing the production process of a new vehicle.

- With the aid of simulation software, multiple vehicle variants in all possible driving situations are played through with immense effort, even before the car's prototype. Presently, BMW is building a massive facility for such simulations in its Munich headquarters.

- With the new system, which is expected to be fully operational, BMW intends to strengthen its development expertise in autonomous driving. Using highly dynamic simulations of real driving situations, the engineers want to carry out virtual tests of future HMI concepts, displays, driver assistance, and driving automation systems.

North America Occupies the Largest Market Share

- With the growing number of SME units in the region and the increasing focus on research and development activities in North America, the market is expected to witness significant growth over the forecast period.

- In addition, the governments in the North American region are constantly focusing on innovation and investment for a greener work environment. The regulations associated with the eco-friendly work environment are becoming stringent in the region, and as a result, companies are adopting simulators to test product viability before manufacturing it.

- Also, the innovative city initiatives taken by the government in this region have positively impacted the adoption trend of simulation and analysis technology to enhance monitoring and improve surveillance.

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Simulation Software Industry Overview

The simulation software market is highly competitive, with many domestic and international players. The key strategies adopted by the major players in the market are product innovation, mergers, acquisitions, and partnerships.

In November 2023, Ansys, the global player in engineering simulation software, and Materialise, a global player in 3D printing software and service solutions, are joining forces to deliver integrated digital solutions to help overcome workflow challenges in the AM industry. The partnership will seamlessly integrate Ansys Additive Suite into Materialise's data and build preparation tool, Magics. An initial solution, to be previewed at Formnext 2023 and arriving in Q2 2024, will provide a best-in-class workflow for managing AM industrial projects across industries, including the medical and aerospace sectors.

Additional Benefits:

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

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