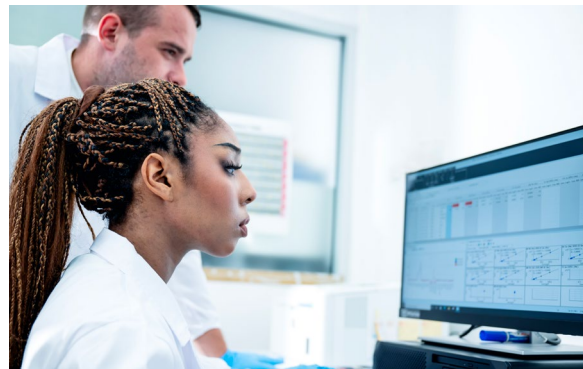# Embracing predictive maintenance for life sciences manufacturers

How IoT and AI can minimize
unplanned downtime

Generative artificial intelligence (GenAI) is driving a technological transformation in the pharmaceutical industry. Beyond the positive impact on drug discovery, GenAI can play a pivotal role in equipping organizations to boost innovation, increase operational agility, and gain new visibility into manufacturing processes.

Top reasons for pharmaceutical companies to adopt GenAI

1 **Accelerated drug discovery:** GenAI models can analyze vast molecular datasets to identify promising compounds in days rather than months, dramatically shortening time-to-market while reducing R&D costs.

2 **Enhanced manufacturing intelligence:** Real-time process monitoring through GenAI enables predictive maintenance, reduces downtime, and ensures consistent quality across production facilities.

3 **Regulatory compliance automation:** AI-powered systems can continuously monitor changing regulations, automatically flagging potential compliance issues and suggesting appropriate documentation adjustments.

4 **Personalized medicine advancement:** GenAI facilitates analysis of genetic, clinical, and lifestyle data to develop targeted therapies tailored to specific patient populations, improving treatment efficacy.

5 **Supply chain resilience:** Predictive GenAI models identify potential disruptions before they occur, allowing pharmaceutical companies to implement contingency plans and maintain reliable product supply.

6 **Clinical trial optimization:** AI algorithms can identify ideal patient candidates, predict trial outcomes, and detect safety signals earlier, reducing development timelines and costs.

7 **Knowledge management enhancement:** GenAI systems transform unstructured data across research papers, internal documents, and clinical notes into actionable insights, democratizing expertise across organizations.

[OpenText AI for life sciences ›](#)

"In the environment of Industry 4.0, maintenance should do much more than merely preventing downtime of individual assets. Predicting failures via advanced analytics can increase equipment uptime by 20%."[1]

Deloitte

"IoT-enabled predictive maintenance has become a preferred pilot initiative for technology-led digital business transformations among different industries."[2]

Gartner

1 Deloitte, Predictive Maintenance: Taking pro-active measures based on advanced data analytics to predict and avoid machine failure, 2017

2 Gartner, Competitive Landscape: IoT-Enabled Predictive Maintenance Solution Vendors, 2021