SIEMENS

DIGITAL INDUSTRIES

Smart manufacturing for pharmaceuticals

Maximize operational readiness and efficiency without compromising quality

What are the urgent challenges the pharma industry is facing?

Patients: growing and aging population, patient-centric healthcare, patient data

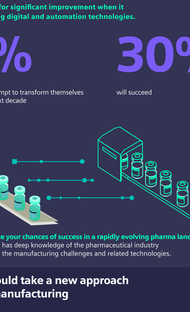
Products: diverse product portfolios, new manufacturing techniques, drug affordability

Pace of change: technology development, supply chain complexity, uncertainty in success

Performance: cost pressure, glocalization, outsourcing, energy/resource efficiency

Traditional manufacturing processes are not able to meet varying global, local and patient needs quickly

What factors make it difficult for pharmaceutical companies to keep up with demand?



Digital transformation is key

There is still room for significant improvement when it comes to leveraging digital and automation technologies.

70%

of businesses will attempt to transform themselves digitally within the next decade

30%

will succeed

Source: CXS

How can you increase your chances of success in a rapidly evolving pharma landscape?
Choose a partner that has deep knowledge of the pharmaceutical industry and who understands the manufacturing challenges and related technologies.

Why you should take a new approach to pharma manufacturing

55%

of drug shortages in 2021 were attributed to production delays and quality-related issues

Source: PharmTech

$15m

is the average cost of launch delay per drug, per day

Source: BusinessWire

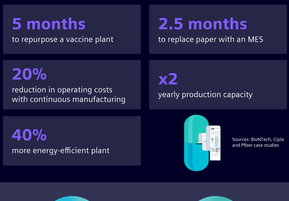
10-20%

of baseline cost reduction with a smart manufacturing strategy

Source: McKinsey

How to maximize operational readiness and efficiency without compromising quality

It's imperative to adopt an end-to-end approach to operations by integrating automation systems with a digital twin of the entire pharmaceutical manufacturing process, production lines and equipment. This enhances the flexibility of your plants and helps you produce faster and at scale while maintaining quality. The insights from operational data will help increase agility, build a proactive, long-term manufacturing strategy and continuously improve operations from development to performance.



1 Accelerate your process and plant engineering with a collaborative approach

Collaborative design of primary and secondary manufacturing processes
Streamline collaboration across engineering teams

Comprehensive production digital twin
Scale up, validate and optimize processes using a digital copy of your plant

Plant and equipment lifecycle management
Ensure data integrity across the plant lifecycle

Modular production setup
Minimize start-up time by seamlessly plugging in pre-validated equipment

2 Ensure operational agility and efficiency with flexible and paperless manufacturing

Automated and flexible manufacturing execution
Facilitate automated and manual data recording for review by exception

Integrated shop floor production systems
Harmonize data and achieve end-to-end visibility of your entire production process

Personalized manufacturing
Apply the latest digital and automation technologies to individualized production

Continuous manufacturing
Enable continuous processing and real-time product release

Training and maintenance with VR/AR
Ensure safety and efficiency using immersive operator trainings

3 Meet production targets and continuously optimize with intelligent, lean and sustainable operations

Production availability and reliability
Gain insight into performance, quality and sustainability to initiate corrective actions, when necessary

Production performance and quality assurance
Improve efficiency and ensure quality by enabling transparency

Pharma companies that apply Siemens smart manufacturing approach can expect to achieve:

5 months
to repurpose a vaccine plant

2.5 months
to replace paper with an MES

20%
reduction in operating costs with continuous manufacturing

x2
yearly production capacity

40%
more energy-efficient plant

Sources: BioNTech, Cipla and Pfizer case studies

5 results

Siemens Smart Manufacturing Solution for Pharmaceuticals helps you achieve

1. Accelerate process and plant engineering to reduce time-to-market and maximize revenues
2. Boost productivity by moving from a classic batch process to continuous manufacturing
3. Increase flexibility and agility to produce diverse product portfolios at various scales
4. Ensure right-first-time manufacturing within required specifications
5. Meet production and sustainability targets to drive continuous improvement

What's next?

Discover how the Siemens Smart Manufacturing Solution for Pharmaceuticals can help you manufacture life-saving products faster and at scale.

Learn more

For more information, visit: siemens.com/pharma