Codex IoT Services

Process Digital Twin for Pharma

Services and engagement model

With the Process Digital Twin for Pharma optimize operations and quality; bringing product to market faster.

Find out how we deliver a service that provides value directly to your business.

Accelerate time to market, reduce costs and improve product quality with optimized processes in R&D and manufacturing.

Thanks to new digital capabilities, such as Internet of Things (IoT), big data, Artificial Intelligence (AI), and advanced analytics, it is now possible to build advanced digital twins to unlock new business value.

A digital twin is a virtual and connected model of a process, product or service. This pairing of the virtual and physical worlds allows analysis of data and control of systems to head off problems before they occur, prevent downtime, develop new opportunities and plan using simulations.

Atos and Siemens have developed a pre-integrated process digital twin for pharmaceutical customers based on a pragmatic and modular implementation approach that will provide feedback and insights in to your operations that will allow you to continuously improve your processes.

Applications for R&D and manufacturing

Increase situation awareness and make better business decisions with a process digital twin that provides insights and analysis of near real-time data and can trigger appropriate actions within core OT/IT* applications.

Through the implementation of a process digital twin and a platform to host the reusable framework architecture, your R&D department will be able to experiment in-silico with multiple use-cases and your manufacturing teams will be able to focus on increasing the quality, profitability, and sustainability of their processes.

Research & Development / R&D	Manufacturing
Faster time to market	Operational excellence
• Accelerate time-to-market for new pharmaceutical products through the simulation of essential sub-processes and conducting fewer physical experiments. • Save time and effort with virtual training capabilities using digital twin simulation instead of the productive environment. • Data-driven process design and optimization.	• Reduce overall batch waste through enhanced in-line monitoring and advanced control strategies for manufacturing processes. • Improve critical quality attributes (CQA) and process reliability through continuous verification. • Ensure higher yield through cost optimized manufacturing processes with preventive maintenance, for example.

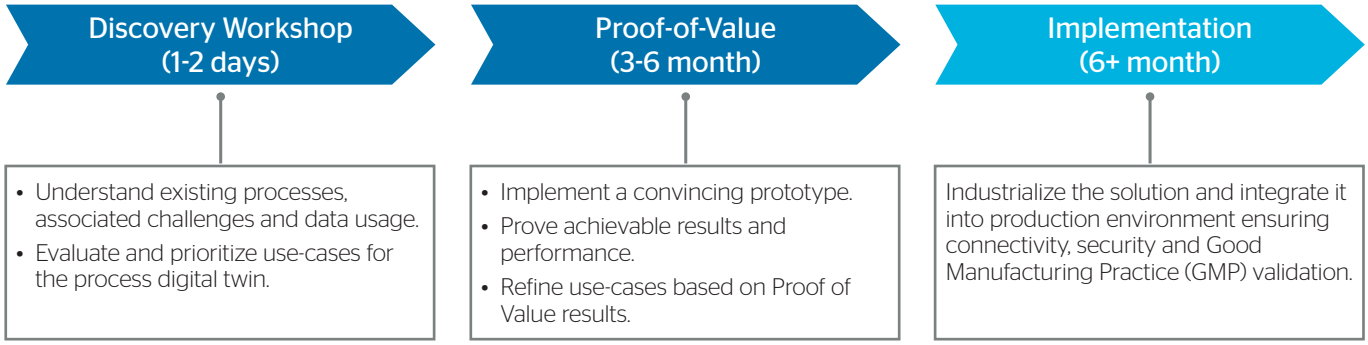
* Operational Technology / Information Technology

SIEMENS Ingenuity for life | Atos

A complete approach: from idea to implementation

To kick-start the development of your digital twin, Atos offers a business-focused and agile project approach leveraging ready-made applications and solution building blocks.

This approach is pragmatic and modular: from the discovery of new opportunities to implementation, we propose the IoT & Analytics solutions and services that are most relevant to the stage of your digital transformation journey.



To ensure an end-to-end consistency, Atos will provide all consulting, data-science, integration, infrastructure and security services necessary to build and run digital twin applications on the IoT platform.

Discovery Workshop

To kick off your digital twin journey, a team of 4-5 industry and digitalization experts from Atos and our partners together with 5-6 of your experts will understand existing processes, associated challenges and data usage in a one/two day digital twin discovery workshop. On-site and virtual workshop formats are available.

Together, we will identify how the process digital twin can optimize your production process by:

- Understanding the benefits for your R&D and manufacturing operations.
- Exploring existing processes, associated challenges and data available.
- Evaluating and prioritizing use-cases.
- Defining a roadmap and scope for the proof of value phase.

Proof-of-Value

In order to prove the value to your business rapidly, we will develop a digital twin for selected processes in a limited timeframe. Based on agile methodologies we will validate the core business impact hypotheses. This will provide a comprehensive basis to ensure you quickly benefit from a full-scale application implementation. Our analysis focuses on the following aspects:

- **Prove technical feasibility** of the solution for selected processes by defining, prototyping and testing and ensuring your requirements, such as user experience, data and connectivity, and systems maturity and integration are fulfilled.
- **Deliver a convincing prototype** that can be used as a case-study for further digitization of equipment and processes.
- **Prove financial viability** for selected processes through profitability calculations that establish a concrete business case based on the impact of the digital twin applications.
- **Establish a recommended road map** for the implementation phase.

Implementation

In order to take the benefits of a successful proof-of-value phase to the rest of your business, we industrialize the solution, integrate it into your production environment and ensure Good Manufacturing Practice (GMP) validation.

To provide you with a complete and accurate picture of your environment, the digital twin solution includes secure connectivity to your devices and integrates production data with those from various management systems such as Management Execution Systems (MES), Laboratory Information Management Systems (LIMS) and Enterprise Resource Planning (ERP).

You benefit from a rapid time to value thanks to Atos' pre-integrated IoT eco-system which enables fast implementation of use cases from pilot to roll-out and an agile innovation approach that ensures we stay closely focused on the value that's added to your manufacturing processes.

To ensure the solution delivers business value at scale to pharmaceutical operations, Atos can also deliver a comprehensive managed service with clear service levels based on business-oriented and jointly agreed KPIs. Details can be provided on request.

To learn more about the solution or contact an expert, visit atos.net/iot or email dialogue@atos.net