

XYLEM **RECEIVES THE 2023** NEW PRODUCT INNOVATION AWARD

*Identified as best in class in the North American
smart pharmaceutical water management industry*

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Xylem excels in many of the criteria in the smart pharmaceutical water management space.

AWARD CRITERIA	
<i>New Product Attributes</i>	<i>Customer Impact</i>
Match to Needs	Price/Performance Value
Reliability	Customer Purchase Experience
Quality	Customer Ownership Experience
Positioning	Customer Service Experience
Design	Brand Equity

Outcomes-as-a-Service Analytic Platforms Enable Digital Transformation of the Water Sector

As climate change (i.e., intensified droughts, floods, tropical monsoons, and melting glaciers) continues to impact the planet, a new era of water risk emerges. The deep connection between climate security and water security necessitates policymakers to implement new strategies to prioritize sustainable water management. However, the low pace of change and underfunded water services and infrastructure create concerns. Within this context, Frost & Sullivan’s independent research finds digital solutions are a key driver of short, medium, and long-term sustainability goals, jump-starting efficiency improvement and

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- Riana Barnard,
Best Practices Research Analyst

helping to optimize water infrastructure. Following the uptake of intelligent Internet of Things (IoT) sensors, pumps, valves, and smart water meters in the late 2010s and 2020s, the COVID-19 pandemic also accelerated the adoption of software coupled with artificial intelligence (AI) and machine learning (ML)-based data analytics solutions to improve workforce efficiencies, typically in the smart operations and maintenance segment.

In addition, digital solutions substitute a dwindling workforce and provide actionable insights to determine the replacement or rehabilitation of aging infrastructure. Digital twin solutions, for example, are significant

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*- Fredrick Royan,
Global Lead: Sustainability and Circular*

disruptors that support the optimization of treatment facilities, helping operators to prepare for disruptive events and ensure they meet performance criteria. Companies also use digital twin solutions to monitor performance, optimize asset use, and simulate varied conditions to enhance the operators' training.¹

Specifically, the pharmaceutical (pharma) industry is dependent on high-purity water, which is critical for its complex processes and operations. This sector requires different degrees of water purity for manufacturing processes but generates heavily polluted and toxic

wastewater that needs costly treatments to meet regulatory standards. Nevertheless, high-purity water is an all-important resource; therefore, pharma companies desperately demand solutions to increase water and energy efficiencies and eliminate waste during the product life cycle.

A Reputation for Intelligent Water Systems and On-demand Water Services

Xylem is a leading provider of mission-critical water and wastewater treatment solutions that support municipal, industrial, and recreational customers' complete water lifecycle needs. This award comes to Xylem through the recent addition of Evoqua Water Technologies to its portfolio in May of this year. Through the combination with Evoqua, Xylem is now a leader in mission-critical water treatment solutions and services that address the full water lifecycle needs of multiple verticals, including municipal, industrial, and recreational customers.

Sophis™ Digital Services Set New Standards

Xylem connects deep-seated domain and operational knowledge with engineering expertise to offer comprehensive, cost-effective, and proven treatment solutions that help customers reduce freshwater demand, ensure optimal water quality, and enable regulatory and environmental compliance. Xylem supports customers across key vertical end-markets that utilize and treat water as a critical part of their operations or production processes.

Underpinned by a market-led innovation strategy, the company proactively focuses on the vertical markets with the most urgent needs, applying its resources skillfully to expand its customer base consistently. To this end, it closely tracks and evaluates the pharma industry, ensuring it accurately aligns its targeted solutions, services, and investments to meet pharma requirements for purified water, water for injection, non-compendial waters, laboratory water, utility water, and wastewater.

As the most widely used ingredient in this ever-evolving and dynamic sector, Xylem designs its systems to support various applications for areas such as drug manufacturing, medical devices, personal care products, cosmetics, and vision care.

Xylem invests heavily in research and development and extracts market insights based on more than 100 years of experience in water treatment to ensure its solutions address current issues. Spearheading digital

¹ *Global Digital Water Solutions and Services: Growth Opportunities* (Frost & Sullivan, February 2022)

water services in the industrial sector with its Water One® service, Xylem's groundbreaking solution provides reliable water on demand. It utilizes advanced technologies and equipment to create an IoT system with enhanced business logic and data analytics, which enables real-time, remote monitoring and managing of customers' water quality. Moreover, the intuitive digital platform notifies Xylem's certified service professionals of water usage and performance to enable a proactive service approach, differentiated by its capability to identify and solve potential system issues and concerns before they occur. Through this water on-demand offering, customers can seamlessly outsource their water treatment needs to Xylem. The company distinguishes itself against competitors in the water technology space through a high value-add service-based model, ideally suited to serve customer segments with stringent industry specifications for water.

In November 2022, Xylem launched a sophisticated Water One service solution, Sophis™ Digital Services. The solution combines innovative technology, data analytics, engineering expertise, and proactive service to manage the entire product lifecycle for peak performance, leveraging data insight, foresight, and hindsight. By operating in a continuous learning environment, this best-of-breed digital service ensures reliability, quality, and uptime while minimizing operational risk caused by unexpected problems, a shortage of skilled personnel, unpredictable costs, downtime, or non-compliance.

Unmatched Satisfaction through Predictive Data and Proactive Service

While Sophis Digital Services incorporates the Water One services solution for guaranteed water quality and quantity, it further leverages a team of subject matter experts with extensive water system knowledge, enabling customers to focus on key business objectives. In addition to the ongoing analysis of critical system operating parameters (e.g., feedwater, conductivity, membrane pressure, and permeate flow), which leverage 45 proprietary AI models to generate automated reports, Xylem's engineering and service team provides troubleshooting support. The company also delivers proactive, high-level interventions through local Xylem service branches. Notably, the company has the largest national service network in the United States and Canada.

Compared to the Water One® Service, Sophis™ Digital Services offer a unique value proposition. The Water One solution generates automated reports and visualizations with a known business value through automated data transformation, allowing businesses to implement proactive service strategies that deliver improved efficiencies. However, Sophis Digital Services bring next-level digital maturity by incorporating business rules and leveraging ML data modifications to provide cutting-edge prediction, automation, and optimization capabilities that create high-level business impact. Another benefit of the proactive service and response team is the simple, flat-rate billing structure with no emergency fees. Without upfront capital costs, Sophis Digital Services substantially increase productivity and reduce labor time. Moreover, the cost savings advantage achieved by minimizing production downtime is considerable. A 100% uptime could save hundreds of thousands of dollars a day in the pharma industry. In a specific use case, the Sophis solution lowered a customer's alarms from 500 events to only a couple over three months. In another instance, a customer requested a new VRx system consisting of high-quality steel tubing and a chlorinated break tank to minimize bacterial growth. Analyzing the data, Xylem's experts determined that the customer needed a bigger storage tank (as the current system was running at 20% capacity). With accurate data, the Xylem service team's recommendation resulted in a \$1 million cost

avoidance for this specific customer.² Overall, Sophis Digital Services delivers reduced lifecycle costs by optimizing system performance and maintenance. Fundamentally, Xylem uniquely leverages data to create (and quantify) business value.

A Foot in the Present and an Eye on the Future

For its next conquest, Xylem has set its sights on transitioning from a time-based service to a data-driven approach. The Sophis Digital Services team acts as a historian that records the business case, secures the knowledge base, and, ultimately, maintains the customer's resilience. It also allows Xylem to create business value by putting more AI-enabled tools into customers' hands, only involving technicians for high-value data-supported initiatives. By self-enabling customers through chat-based applications, tools, manuals, and historical logs, the cost of the service decreases while access to knowledge increases. Expansion into this new data-based service approach will promote further growth and cement Xylem's industry-leading position.

Conclusion

To create a new service, a company needs to understand the market's needs and deliver a solid solution designed and embedded with high-quality and reliable performance. Frost & Sullivan finds that Xylem embodies this concept. Sophis™ Digital Services combine innovative technology, data analytics, engineering expertise, and proactive service to manage the entire product lifecycle for peak performance efficiently, leveraging data insight, foresight, and hindsight. Leveraging 45 proprietary artificial intelligence-powered models to generate automated reports, Xylem's engineering and service team provides troubleshooting support and proactively delivers interventions that create high-level business impact through cutting-edge prediction, automation, and optimization capabilities. Ultimately, Sophis Digital Services utilize data to quantify business value, reducing the total cost of ownership by optimizing system performance and maintenance. Xylem's customer-centric approach continues to ensure that its digital service offering addresses the ever-evolving wants and needs of users.

For its strong overall performance, Xylem is recognized with Frost & Sullivan's 2023 North American New Product Innovation Leadership Award in the smart pharmaceutical water management market.

² Frost & Sullivan briefing (February 2023)

What You Need to Know about the New Product Innovation Recognition

Frost & Sullivan's New Product Innovation Award recognizes the company that offers a new product or solution that uniquely addresses key customer challenges.

Best Practices Award Analysis

For the New Product Innovation Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

New Product Attributes

Match to Needs: Customer needs directly influence and inspire product design and positioning

Reliability: Product consistently meets or exceeds customer performance expectations

Quality: Product offers best-in-class quality with a full complement of features and functionality

Positioning: Product serves a unique, unmet need that competitors cannot easily replicate

Design: Product features an innovative design that enhances both visual appeal and ease of use

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

