

SCHNEIDER ELECTRIC, INC. **RECEIVES THE 2023** PRODUCT LEADERSHIP AWARD

*Identified as best in class in the global open
automation platforms 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. Schneider Electric excels in many of the criteria in the open automation platforms space.

AWARD CRITERIA	
<i>Product Portfolio Attributes</i>	<i>Business Impact</i>
Match to Needs	Financial Performance
Reliability and Quality	Customer Acquisition
Product/Service Value	Operational Efficiency
Positioning	Growth Potential
Design	Human Capital

Schneider Electric: Creating an Industry Transition to Open Automation

Schneider Electric has a rich legacy of digital innovation designed for increasing both industrial efficiency and sustainability. But the company did not stop there. As automation manufacturers worldwide embarked on the journey of digital transformation and intelligent manufacturing, Schneider Electric stepped up to the challenge with a groundbreaking concept: fully open automation and interoperable powered by its cutting-edge software-centric universal automation system, EcoStruxure™ Automation Expert.

EcoStruxure Automation Expert is a game-changer in the world of industrial automation. It is not just another automation solution; it is a paradigm shift. With its plug-and-produce architecture, it was the first and only software-centric automation solution that decoupled hardware and software, empowering end users to choose the appropriate open hardware for their unique requirements, regardless of vendor. It is flexible, interoperable, portable, and secure, setting a new benchmark for automation excellence.

Schneider Electric's commitment to openness does not end there. The company not only focuses on internal innovation but also actively participates in industry forums and works with organizations that promote open automation. As a silver member of the Open Process Automation Forum (OPAF) and a founding member of the Universal Automation Organization (UniversalAutomation.org), Schneider Electric is at the forefront of driving an industry-wide focus on open automation. Its vision of universal automation, where end users have the freedom to select from best-of-breed technologies without being tied to any specific brand, is reshaping the automation landscape.

Recognizing its pioneering efforts, Frost & Sullivan has honored Schneider Electric as a leader in openness for industrial automation. The company's unwavering commitment to be the digital partner for sustainability and efficiency, groundbreaking EcoStruxure Automation Expert solution, and industry-wide advocacy for open universal automation have set a new standard in the world of industrial automation.

The World's First Software-centric Universal Automation Solution

In the traditional automation industry, vendor lock-in has been a significant challenge, as proprietary hardware and software platforms restrict interoperability, resulting in reduced automation efficacy. However, Schneider Electric is revolutionizing the automation landscape with its EcoStruxure Automation Expert platform.

What sets EcoStruxure Automation Expert apart is its universal, next-generation, software-centric approach that decouples the control algorithm from the runtime hardware, providing unprecedented agility and simplicity for end users. This breakthrough enables seamless integration of various open

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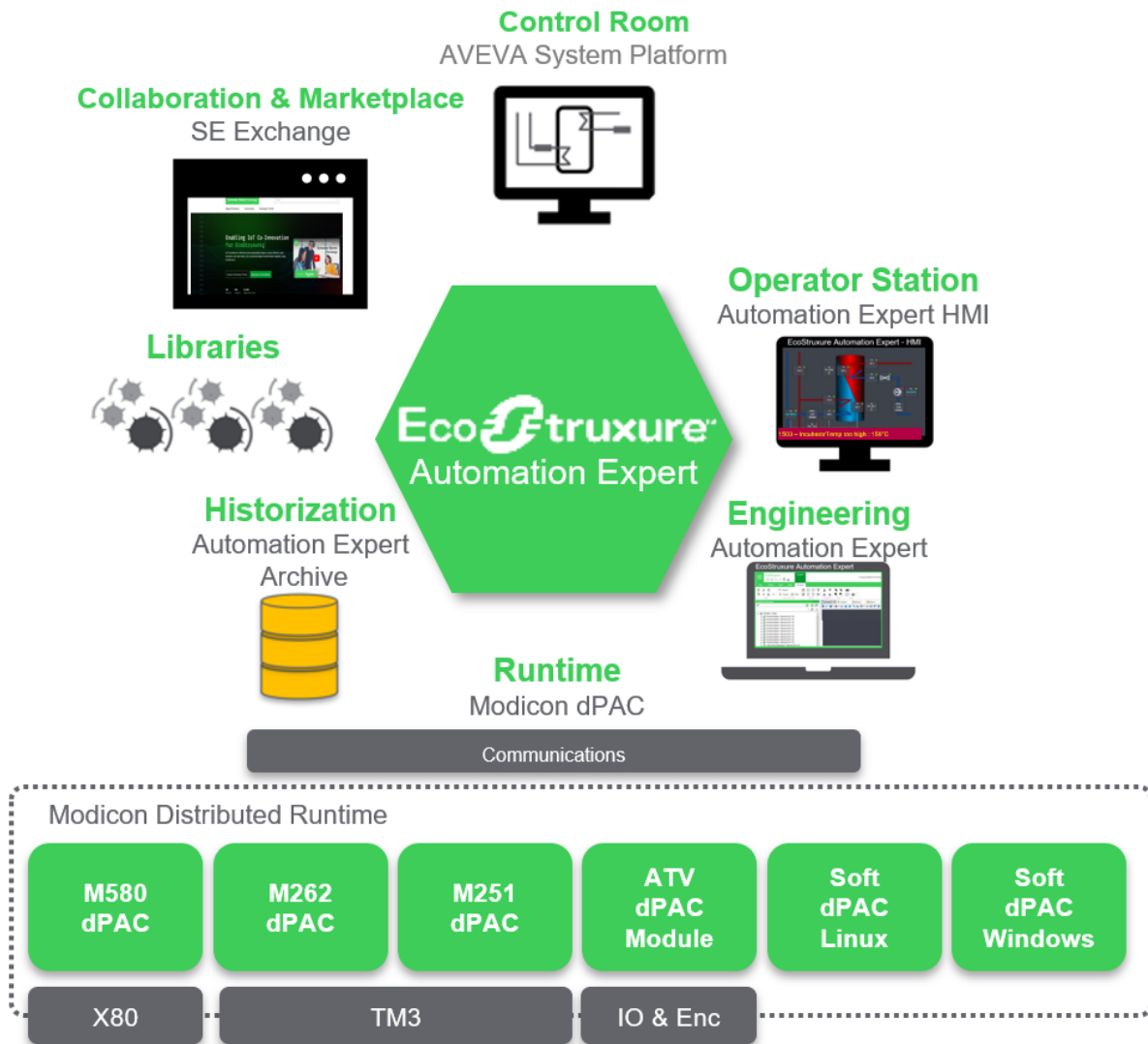
***- Michelle Funke,
Best Practices Research Analyst***

hardware solutions, unlocking new possibilities for automation efficiency.

At the core of EcoStruxure Automation Expert is a network-native, event-based, cross-platform runtime that enables rapid adaptation to changing business requirements without significant production downtime or capital cost. Moreover, EcoStruxure Automation Expert's Internet of Things (IoT) system architecture connects the entire enterprise, from sensors to the cloud, enabling the collection and analysis of critical data in real time. This empowers end users with meaningful insights to streamline workflows, increase efficiency, and reduce maintenance costs.

Some of the key features of EcoStruxure Automation Expert v22.1, the platform's current version, include an Integrated Development Environment with AVEVA System Platform to import symbols from existing applications or create new symbols. This provides a unified environment for programming and configuring Programmable Logic Controllers (PLC), Supervisory Control and Data Acquisition (SCADA) systems, and Human Machine Interface (HMI) applications, streamlining workflow and reducing development time. The platform also comes with rich libraries and templates for common automation tasks, allowing for customization and reuse, accelerating project development, and ensuring consistency across different projects.

EcoStruxure™ Automation Expert



Source: Schneider Electric

EcoStruxure Automation Expert also boasts extensive device integration capabilities, supporting a wide range of industrial protocols and communication standards, including Modbus, Ethernet/IP, OPC UA, and many others. This enables seamless interoperability and connectivity in multi-vendor environments, providing flexibility and scalability for diverse industrial applications. Additionally, EcoStruxure Automation Expert offers functionalities to quickly identify and resolve issues, minimizing downtime, and optimizing automation system performance.

As cybersecurity is a top priority, Schneider Electric has defined a reference secured architecture for EcoStruxure Automation Expert, which is complemented by security features including user authentication, role-based access control, and data encryption, among others. This ensures that critical automation systems are protected against cyber threats.

EcoStruxure Automation Expert v23.0 will be released later in 2023 to introduce the first software-based redundant automation solution on industrial PC platforms to minimize downtime and production loss

across plants with control and network systems that keep the process running even in case of a single fault. Some additional features include graphical editor for easy creation and modification of sequences for procedural automation based on S88 state model, EcoStruxure Automation Expert HMI compatible with Linux / Windows Operating Systems, and OPC UA high availability to eliminate single points of failure between the AVEVA System Platform and control. These new capabilities strengthen the position of EcoStruxure Automation Expert to become the single control software platform that brings convergence across machine, hybrid, and continuous process control.

Providing Unmatched Value

In 2022, the world experienced critical macroeconomic and geopolitical issues, including supply chain disruptions and staff shortages. The company's EcoStruxure Automation Expert empowers automation user to overcome these shortcomings, simplifying workflows and freeing automation engineers to focus on innovative operational enhancements. Schneider Electric based EcoStruxure Automation Expert on the IEC 61499 standard for interoperability that enables it to do event-driven programming using function blocks to empower the replication of ready-to-use asset models and different processes within programming.

IEC 61499, a cutting-edge system-level executable modeling language specification, changes the world of industrial automation. It introduces an application model that is independent of the underlying system equipment, encapsulating component-oriented control software into powerful software components known as function blocks. By standardizing the composition of function blocks, IEC 61499 achieves unparalleled reusability of software, effectively decoupling software, and hardware, and paving the way for open, interoperable automation. Any software or function block, along with its industry library, developed according to the IEC 61499 standard, can be effortlessly integrated into this platform.

Furthermore, IEC 61499 adopts an object-oriented approach to encapsulate function blocks, with an event-driven function block execution process, aligning with modern software engineering practices. This paradigm shift makes it easier for automation engineers to understand operational technology (OT) and reduces the application complexity of information technology (IT) in the field of automation, paving the way for seamless integration of IT and OT. Moreover, the design of IEC 61499 aligns with the OPC UA information model, allowing for seamless integration and interoperability between IEC 61499 and OPC UA.



As a result, the EcoStruxure Automation Expert architecture decreases engineering efforts since mundane models can be replicated during programming, reducing engineering time and allowing engineers to focus on high-value and complicated programming. This provides high value, as it empowers up to a 30% reduction in engineering time and costs. Furthermore, because of its design built on IEC 61499, EcoStruxure Automation Expert allows users to distribute the applications to any open hardware system and architecture of choice with minimal additional programming efforts.

Very few software control applications have the capability to seamlessly connect across third-party applications. EcoStruxure Automation Expert provides a digital backbone to empower IT/ OT convergence through its open interfaces. This allows for easy integration with IT applications and tools. For example, customers can integrate artificial intelligence applications to enhance their operations. This capability

empowers greater efficiency and higher product quality, thereby increasing revenue and sustainability.

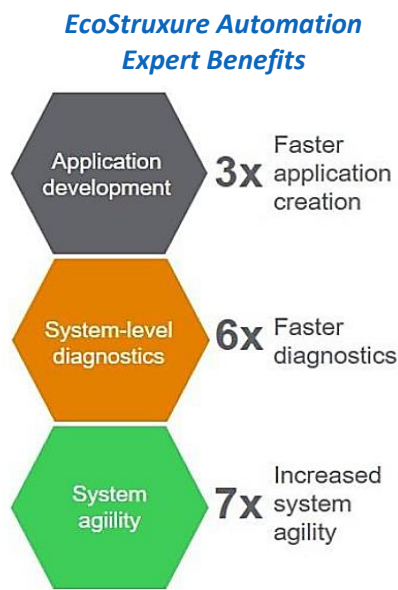
Finally, EcoStruxure Automation Expert uses standards-based protocols to enable connectivity. As a result, the platform allows users to build hybrid applications for monitoring and control, the likes of which have traditionally not been easily attained by non-expert users. In this context hybrid refers to providing the infrastructure to connect cloud-based services to the edge control delivering value-added digital services to optimize operations without compromising operational integrity.

Greater Speed, Agility, Flexibility, and Efficiency

Traditional Solution	EcoStruxure Automation Expert
	
<input type="checkbox"/> Execution cyclical fixed	<input type="checkbox"/> Event-related execution
<input type="checkbox"/> Code	<input type="checkbox"/> Object-oriented
<input type="checkbox"/> Programming controller	<input type="checkbox"/> System modeling IT
<input type="checkbox"/> Bridge IT/OT	<input type="checkbox"/> Integration/OT native open
<input type="checkbox"/> Dependent on hardware	<input type="checkbox"/> Interoperable distributed

Source: Schneider Electric

High Quality Empowering Customer-driven Innovation



Source: Schneider Electric

Schneider Electric maintains agile and purpose-driven thinking, continuously looking for ways to increase EcoStruxure Automation Expert’s capabilities, and thereby value, to customers. The company takes a ‘design thinking’ based approach when expanding EcoStruxure Automation Expert’s capabilities. The EcoStruxure Automation Expert team solicits internal and external feedback to design its mid and long-term innovation roadmaps to meet various industry verticals’ needs. As a result, the company maintains its strategic vision, safeguarding EcoStruxure Automation Expert’s leadership into the future.

In addition to empowering innovation roadmaps with various internal departments’ input, Schneider Electric recognizes the importance of meeting customer needs, and thereby forms partnerships with customers to gather honest and actionable feedback. The company solicits feedback before, during, and after functionality releases to validate features while continuing to identify areas for future innovation. As a result, Schneider Electric is intentional with its

innovation roadmap, ensuring capabilities integrated into EcoStruxure Automation Expert, improve product quality and performance to provide enhanced value and meet customers' high expectations. Schneider Electric showcases its commitment to quality, as customers tout EcoStruxure Automation Expert's performance as game-changing, as it enables previously unachievable efficiency. Finally, Schneider Electric believes that putting customer feedback at the core of its innovation roadmap safeguards industry adoption, thereby generating overall business and empowering the industrial shift to automation.

This innovation does not stop there and recognizes the customer driven innovations of other groups as well. This is exemplified by the incorporation of AVEVA technologies within the offering. This takes the form of natively incorporating AVEVA industrial graphics as part of the asset libraries provided by Schneider Electric. This allows users to fully leverage AVEVA Operations Management Interface (OMI) and AVEVA System Platform as part of their operational strategy. This includes supporting situational awareness concepts and content aggregation as part of an AVEVA Unified Operations center.

The combination of AVEVA Industrial Graphics AND EcoStruxure Automation Expert allows for the creation of composite libraries / templates that describe both HMI and control facets eliminating the need to link and test them once instantiated. This leads to engineering savings up to 50% compared to existing traditional solution.

This combined value culmination results in helping customers meet their strategic goals by providing enterprise-wide visibility, reducing energy consumption, and minimizing unplanned downtime, thereby increasing profitability and sustainability.

Poised for Explosive Growth

Schneider Electric foresees ambitious growth potential for EcoStruxure Automation Expert's broad adoption as it is the first-of-its-kind universal automation control platform that provides value across discrete machines, hybrid, and continuous processes. EcoStruxure Automation Expert is an innovative technology based on IEC 61499, helping customers better manage their software/hardware portfolio for various industries. As such, the hardware/software decoupling simplifies customers' workflows, empowering increased productivity, and efficiency. As a result, Schneider Electric believes EcoStruxure Automation Expert will have widespread adoption and is poised for ambitious market share growth.

Schneider Electric launched EcoStruxure Automation Expert in 2020, focusing on machinery and hybrid market segments such as consumer packaging and the food and beverage industry. Then it expanded into market segments such as wastewater and water treatment plants, in 2021 and 2022 while using customer feedback to include other key core functionalities, empowering further market expansion as the additional capabilities enable EcoStruxure Automation Expert to provide value to continuous process segments.

Leading a Market-wide Transition to Automation

The OPAF leads the charge to create a truly open, interoperable, and secure process control architecture. As a joint IT/OT venture, OPAF pushes to develop portable, commercially available software and interoperable components that serve multiple industry sectors and protect suppliers' intellectual property. By accomplishing this goal, OPAF will expand markets for products and services from suppliers

"The EcoStruxure Automation Expert architecture decreases engineering efforts since mundane models can be replicated during programming, reducing engineering time and allowing engineers to focus on high-value and complicated programming. This provides high value, as it empowers up to an 80% reduction in engineering time and costs."

**- Sebastián Trolli,
Senior Industry Analyst,
Industrial Technologies**

and system integrators, thereby empowering the transition to automated process control. With Schneider Electric as one of its founding members, OPAF has over 110 members, including end users, system integrators, suppliers, and IT companies, highlighting the recognition of the need for open automation in process industries.

Schneider Electric takes its commitment to empowering the transition to open and interoperable automation one step further by being one of the founding members of the non-profit and independent association UniversalAutomation.org in 2021. In line with OPAF's goals, UniversalAutomation.org focuses specifically on driving portability and reusability of hardware-

independent and vendor-agnostic software components that can be integrated to build applications distributed to the end user-defined hardware architecture. With over 35 global members, including users of automation (end users, system integrators, OEM, Process OEM...) and technology vendors, the association is driving the industry toward leveraging, sharing, and enhancing a shared-source IEC 61499 based runtime execution engine to empower interoperable automation and thereby decouple hardware and software solutions. Schneider Electric's EcoStruxure Automation Expert is the first offering on the market empowering universal automation, thereby highlighting the impact of automation on productivity and efficiency by overcoming staffing shortages and supply chain disruptions.

Conclusion

Schneider Electric is leading the future of industrial automation with EcoStruxure™ Automation Expert, the industry's first universal automation solution. EcoStruxure Automation Expert is Schneider Electric's open, portable, interoperable architecture that decouples hardware and software, empowering end users to select the open hardware that best fits their needs. It integrates enterprise-wide data to enable real-time decision-making to streamline workflows and enhance productivity. The system is designed with an interoperable, decentralized approach that future-proofs the platform as it enables the seamless integration of information technology tools. Finally, the architecture was designed based on the IEC 61499 standards using function blocks, allowing for replication of ready-to-use asset models, lessening engineering burden, and minimizing unexpected downtimes.

For its strong overall performance, Schneider Electric is recognized with Frost & Sullivan's 2023 Global Product Leadership Award in the open automation platforms industry.

What You Need to Know about the Product Leadership Recognition

Frost & Sullivan's Product Leadership Award recognizes the company that offers a product or solution with attributes that deliver the best quality, reliability, and performance in the industry.

Best Practices Award Analysis

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

Product Portfolio Attributes

Match to Needs: Customer needs directly influence and inspire the product portfolio's design and positioning

Reliability and Quality: Products consistently meet or exceed customer expectations for performance and length of service

Product/Service Value: Products or services offer the best value for the price compared to similar market offerings

Positioning: Products serve a unique, unmet need that competitors cannot easily replicate

Design: Products feature innovative designs, enhancing both visual appeal and ease of use

Business Impact

Financial Performance: Strong overall financial performance is achieved in terms of revenues, revenue growth, operating margin, and other key financial metrics

Customer Acquisition: Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

Operational Efficiency: Company staff performs assigned tasks productively, quickly, and to a high-quality standard

Growth Potential: Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

Human Capital: Commitment to quality and to customers characterize the company culture, which in turn enhances employee morale and retention

About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at <http://www.frost.com>.

The Growth Pipeline Engine™

Frost & Sullivan's proprietary model to systematically create ongoing growth opportunities and strategies for our clients is fuelled by the Innovation Generator™.

[Learn more.](#)

Key Impacts:

- **Growth Pipeline:** Continuous Flow of Growth Opportunities
- **Growth Strategies:** Proven Best Practices
- **Innovation Culture:** Optimized Customer Experience
- **ROI & Margin:** Implementation Excellence
- **Transformational Growth:** Industry Leadership



The Innovation Generator™

Our 6 analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

Analytical Perspectives:

- **Mega Trend (MT)**
- **Business Model (BM)**
- **Technology (TE)**
- **Industries (IN)**
- **Customer (CU)**
- **Geographies (GE)**

