

The Opportunity for Sustainability

Life Sciences Sector – Pharma, BioPharma, Medical Devices









The Opportunity for Sustainability



Tom McCarty

Global Program Manager
Schneider Electric – Digital Energy

Biotech the fastest growing sub-segment at ~10% CAGR

	Sub-segment	Description & Key Characteristics	Market Concentration	Mfcr. critical to segment	Key Market Characteristic ¹	CAGR '22-26 (%)
<div style="writing-mode: vertical-rl; transform: rotate(180deg);">Process</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Discrete</div>	 Pharma Manufacturing	<ul style="list-style-type: none"> Drugs produced from the chemical synthesis of different compounds Can be further segmented into active ingredient (API), oral solid dosage (OSD), fill & finish (for generics) 	 <i>Consolidated by big-pharma</i>	HIGH	640 €B 2022 Global Revenue	6%
	 Biotech	<ul style="list-style-type: none"> Products derived using biologics / living organisms (bacteria, enzymes, cells) also called biopharma Players overlap with pharma but greater range in company size, scale, maturity 	 <i>Fragmented but consolidation increasing</i>	HIGH	320 €B 2022 Global Revenue	10%
	 Medical Devices	<ul style="list-style-type: none"> Devices used for diagnosis & treatment of medical conditions (e.g., stent, syringe) Different from medical equipment (e.g., MRI) 	 <i>Fragmented with specialists</i>	HIGH	500 €B 2022 Global Revenue	5%
	 Research Labs ² <i>Containment & Clean Rooms</i>	<ul style="list-style-type: none"> Research facilities for drug discovery, development, and testing Investment spread across government funded, private establishments, hospitals, and academic institutions 	 <i>More diffuse / more stakeholders</i>	MED	30 €B 2021 Global VC Funding	-

Sources: Statista, Evaluate Pharma, Evaluate MedTech

(1) Estimated

(2) Excludes Clinical

(3) SE Traditional PAM; excludes AVEVA

Public



There is increasing pressure and pull
from your stakeholders for **sustainability**

Why **sustainability** matters



3 of the most profitable Pharmaceutical companies have some of the lowest greenhouse gas emissions ²⁰

52 Mt CO₂e missions are produced by Pharma industry globally ⁶

Emissions from across your value chain account for **4.4% of global emissions** ²⁰

+158.6% Pharma industry overall emission reduction pledge from 2015 levels by 2025 ⁶

+13% CO₂e is produced by Pharma industry more than automotive industry globally ⁶



There is an opportunity for pharmaceutical companies to anticipate future impacts of both **water quality and quantity**, and develop new approaches **to protect this essential resource**

23%

Of the world's water supplies are used by pharma and biotech manufacturing ²¹

100%

Removal of pharmaceuticals in wastewater might be achieved with new low-carbon technologies ¹

70%

of the world's freshwater use and pollution caused by companies in seven major sectors ²⁷

+80%

of the top 30 global pharmaceutical companies list water as one of their top sustainability focus areas ²³

Only 17%

of 5,273 pharmaceutical sites reported having set formal quality-related targets ²³

+20pts

very high-water quality risks – rising from 55% of all sites to 75% of all sites ²³

Life Is On

Schneider
Electric

Challenges to address along the drug lifecycle

Drug discovery, development and scaling

- Optimize lab infrastructure and equipment
- Adapt research design and clinical trials processes
- Scale with embedded green chemistry principles and reduce waste

Drug use optimization and disposal

- Digital information and environmental impact data transparency
- Reducing medicine waste with correct dose packaging
- Recyclable-by-design packaging

Manufacturing and supply chain

- E2E visibility of supply chain scope 1, 2, 3 emissions
- Resource Utilization with Automation and energy efficiency, water and wastewater optimization
- Waste minimization, storage, disposal and compliance

Packaging, transport and cold chain logistics

- Sustainable packaging
- Reduce emissions from transportation and track logistics
- Minimize cold-chain emissions with active systems to minimize risks

Data collection and reporting

- Make decisions before launch of the product
- Prepare for new global standards



Our Solutions can help you achieve **your Sustainability goals**

Our solutions	How we deliver value
1 Energy Strategy	Energy and carbon strategy advisory services to reduce emissions
2 Energy management solutions	Reduce the energy consumption of your plant and facilities
3 Renewables	Transition to low-carbon sources of power
4 Water and waste management	Reduce water usage and carbon impact from water and wastewater treatment
5 Utilities management	Reduce environmental impact by de-carbonization of on-site heat utilities
6 Integrated power and process (UOC)	Design process-related technology upgrades with EcoStruxure
7 Low environmental impact products	Increase the longevity of the equipment and modernize
8 Digital platform and analytics	Make the most of your data with our data management platform and analytics



15% energy savings from 2019 to 2025
Reduced energy cost by 1.3M USD



11K suppliers risk assessed
Energize Program



10% reduction in energy cost
25% reduction in carbon emission



GHG reduction the equivalent of 113,000
passenger vehicles

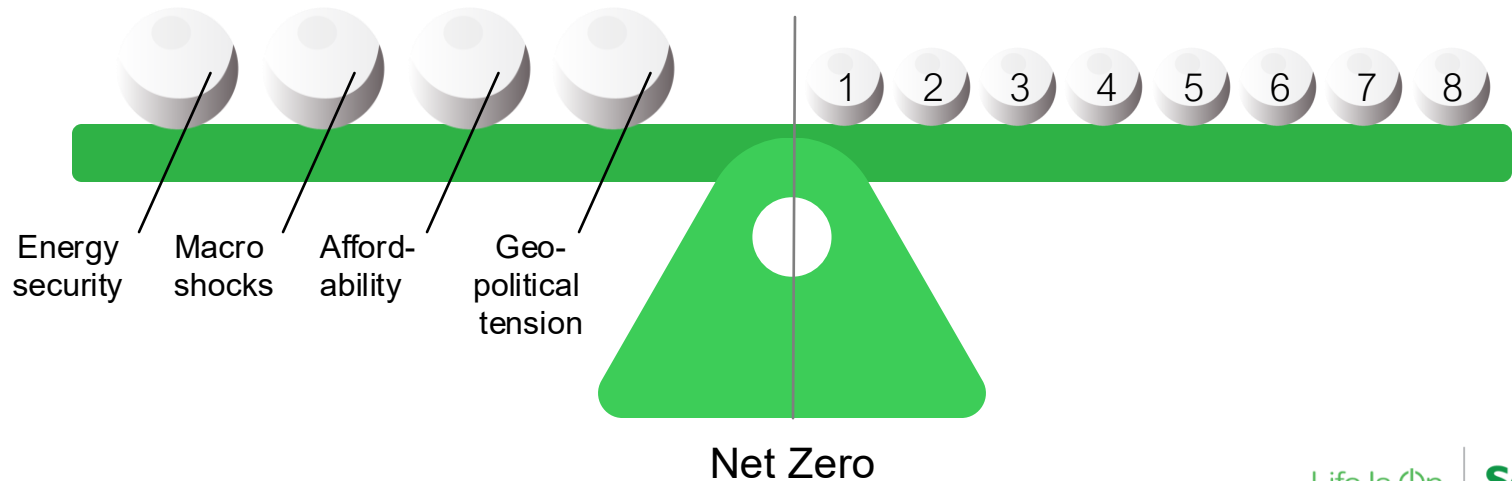
Life Is On



No one can become **energy resilient and net zero** alone

We offer a complete portfolio of proven, digitally-enabled solutions to help in your decarbonization roadmap

- 1 Energy Strategy
- 2 Energy management solutions
- 3 Renewables
- 4 Water and waste management
- 5 Utilities management
- 6 Integrated power & process
- 7 Low environmental impact products
- 8 Digital platform



Levers

	Our solutions	Carbon Emissions Scope 1&2	Carbon Emissions Scope 3	Electrification of production & utility processes	Green Energy/ Sourcing	Water Conservation	Circularity	Sustainability by Design
1	Energy Strategy	✓		✓	✓			✓
2	Energy management solutions	✓		✓		✓		✓
3	Renewables	✓	✓		✓	✓	✓	✓
4	Water and waste management		✓			✓		✓
5	Utilities management	✓		✓	✓	✓	✓	
6	Integrated power & process (UOC)	✓		✓	✓			
7	Low environmental impact products	✓	✓				✓	✓
8	Digital platform and analytics	← Enabler →						

Drive sustainable performance for Life Science manufacturers



Digital Transformation

- ✓ **Software-defined Automation:** maximize supply chain flexibility, faster time-to-market and cost reduction
- ✓ **Digital Data:** easier compliance and efficient operations via centralized data management
- ✓ **People:** Bridging the skills gap with full visibility and integrated AI-based analytics
- ✓ **OT-IT convergence** at all levels



Industrial Sustainability

- ✓ **Emissions:** Electrification, Energy + Automation, Digitization and Supply Chain decarbonization scope 3
- ✓ **Circularity:** waste reduction
- ✓ **Water conservation and quality:** Ensuring community supplies through stewardship for water neutrality
- ✓ **Resources usage (SbD):** Putting sustainability at the heart of all systems design



Resilience and Flexibility

- ✓ **Facilities:** Intelligent facility design, with real-time visibility of services performance
- ✓ **Power and grid:** Fully connected infrastructure for zero system downtime, off grid capability with Microgrids
- ✓ **IT Infrastructure:** Cyber-secure technology protecting people, processes and IP
- ✓ **Supply Chain:** Help strategic and operational decisions for efficiency and profitability

Unlock new productivity opportunities via digitalization



DATA TRANSPARENCY

Real-time information aggregation across the value chain driving efficiency and agility.



QUALITY and COMPLIANCE

Holistic approach across product life cycle and organization silos to improve yield through QbD principles.



POWER SAFETY & AVAILABILITY

Increase uptime and secure your production environment to ensure faster time to market.



DIGITAL TWIN and ENGINEERING

Improve lead time with efficiency in engineering, operations and maintenance.



SUSTAINABLE PERFORMANCE

Ensuring operations comply with requirements and regulations while contributing to sustainability goals.



FACILITY FLEXIBILITY

Bring silos together and get end-to-end visualization to maximize production capacity, improve flexibility and agility.



ASSET PERFORMANCE

Maximize operational excellence and asset performance and reliability by monitoring conditions in real-time.



EMPOWERED WORKFORCE

Automate decision making and work processes for personnel.



SECURE IT ENVIRONMENT

Provide self-contained and cyber secure IT/OT environment for your on-premise applications.

Growth Levers for Pharmaceutical & Medical Devices Sub-segments

1

Greenfield for Country Manufacturers

Differentiation: Total sustainability for all facilities, with native integration to AVEVA PI

Lead Offer:

EcoStruxure Building Operation, *single pane of glass that is open, scalable, and cybersecure*

integrated with

- EcoStruxure Power Monitoring Expert
- Microgrid
- EcoStruxure Building Advisor
- BMS Services

2

Brownfield Schneider Electric Installed Base

Differentiation: Reduced risk with transitions tools and phased approach.

Lead Offer:

EcoStruxure Building Operation for modernization, *single pane of glass that is open, scalable, cybersecure*

Adds on for Opex:

- EcoStruxure Power Monitoring Expert
- EcoStruxure Building Advisor

3

Brownfield Competition Installed Base

Differentiation: Improve sustainability no matter what the installed system.

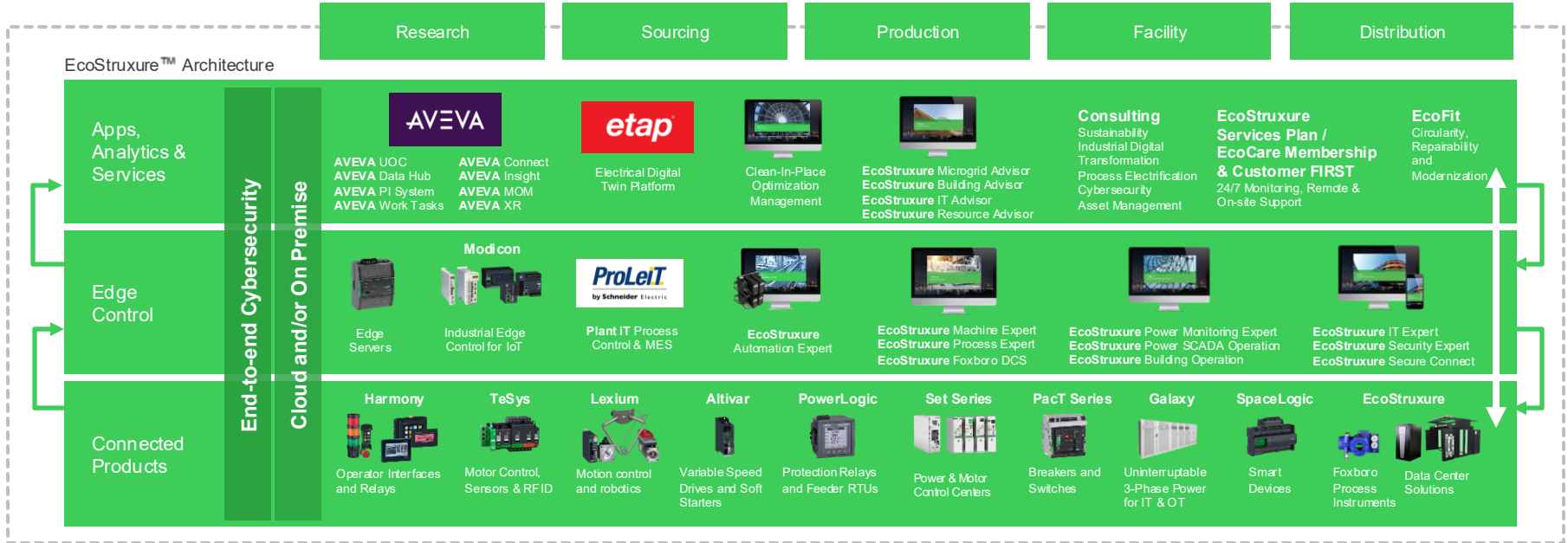
Lead Offer:

EcoStruxure Building Operation, *single pane of glass that is open, scalable, and cybersecure*

Add on to drive technology refresh:

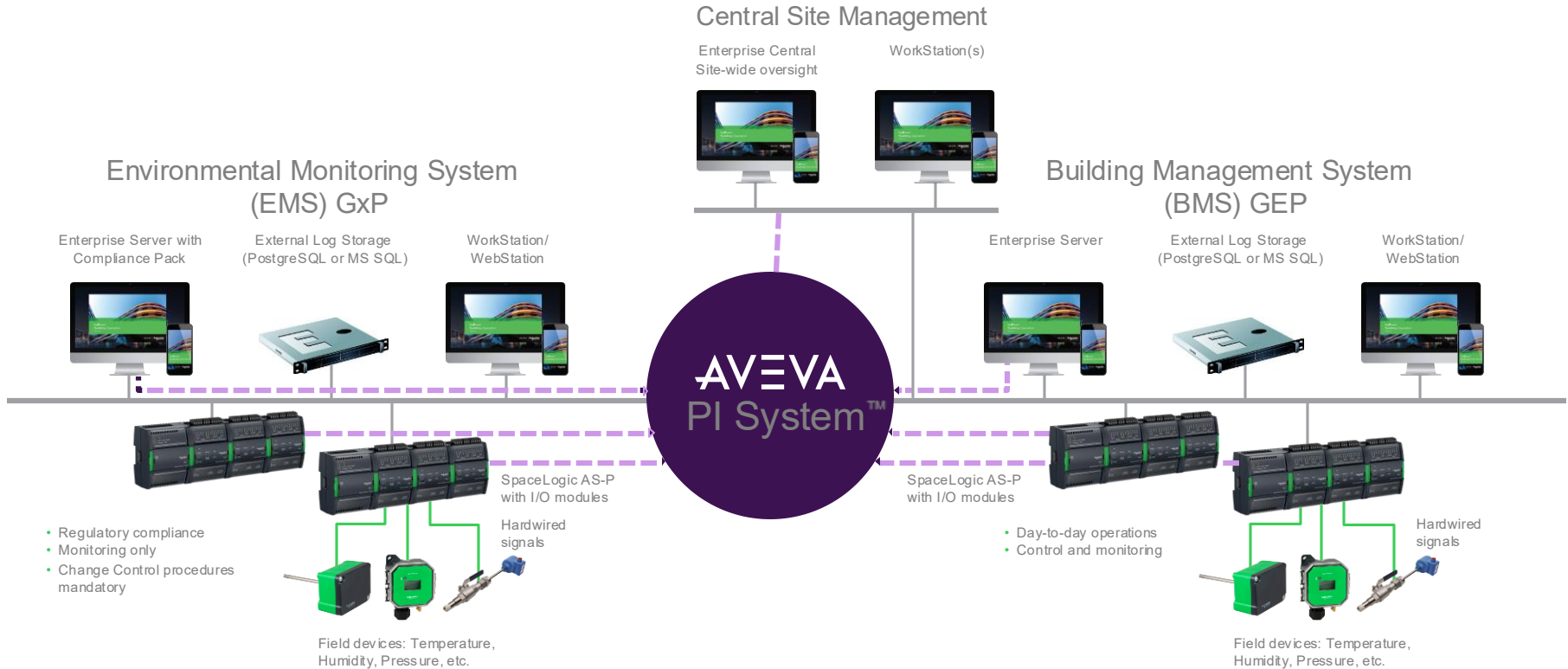
- EcoStruxure Building Advisor
- BMS Services

EcoStruxure™ for Life Sciences

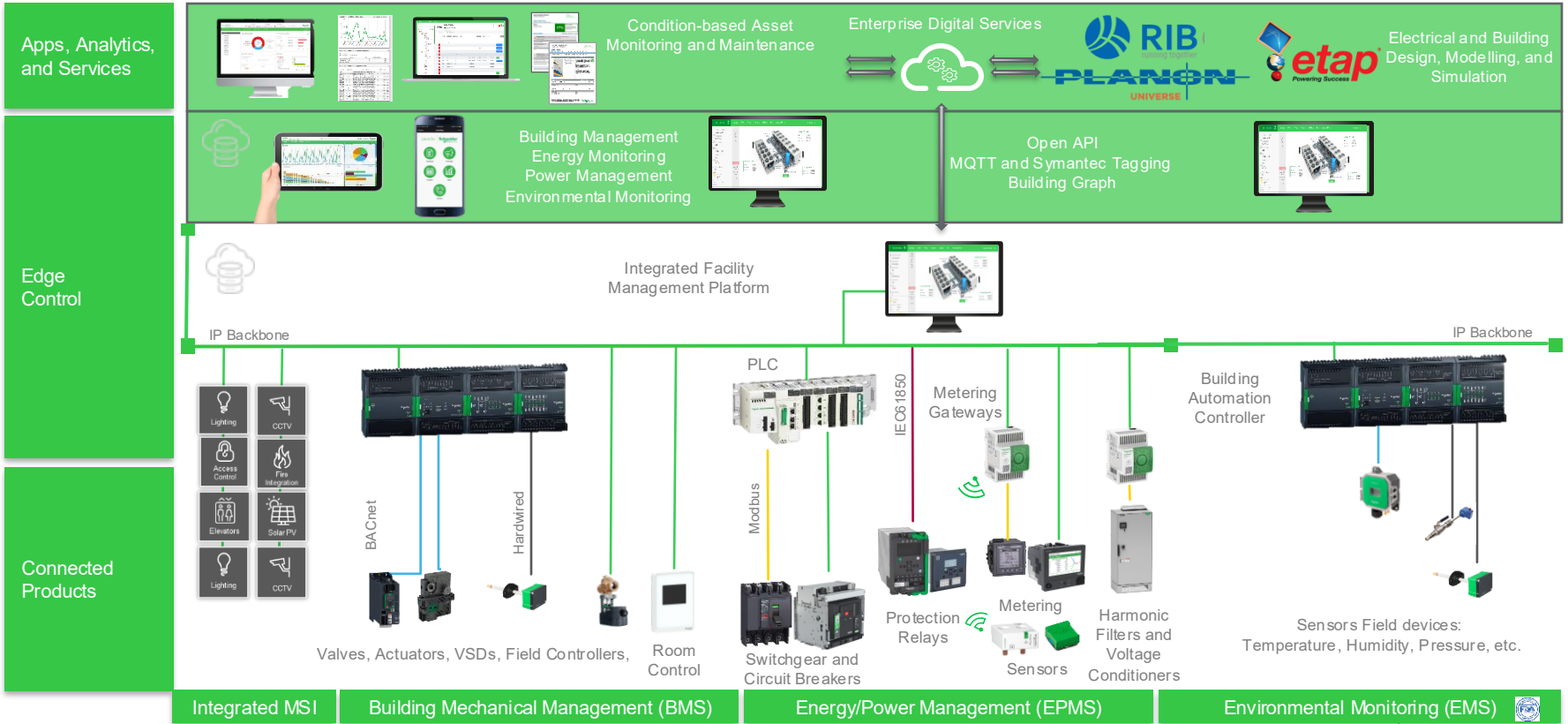


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Segregated BMS and EMS Architecture with AVEVA Pi



Integrated Architecture Platform for Facilities



Cybersecurity Application Platform

Life Sciences Specialization for EcoXpert

Overview

- **Life Sciences Specialization** comes in addition to EcoXpert Certifications (badges)
- **Complements** your expertise, based on segment specifics :
- Mainly Labs & Cleanrooms for:
 - Pharmaceutical & Biotechnology Manufacturing
 - Medical device facilities
- Training is dedicated around **EcoStruxure™ for Life Sciences value proposition and solutions**
- Segment-specific **marketing assets**



Value Proposition

- **Increase your hit rate** with a better knowledge of Life Sciences:
 - Life Sciences market trends and regulations
 - Specific pain points and personas needs
 - Highly differentiated Life Sciences value proposition and solutions through our Technology Partners
- **Preference for projects** where we have done the end user or design firm selling
- **Up-sell / cross-sell** the full scope of Life Sciences solutions to existing customers
- **Access a wider numbers of solutions** and a global network of Life Sciences experts to help win projects
- **Marketing Assets** – Access specific marketing assets to promote products/services and awareness.
- **Co-Marketing** – Use success stories to promote your organization along with SE via social media

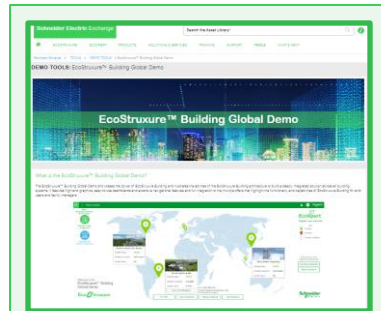
Life Sciences focused content

Access training materials, TVDAs, our Global Demo, white papers, brochures, and more.

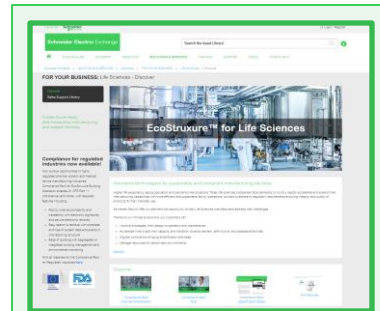
Visit our community to ask questions, share knowledge, and meet EcoXpert specialists, developers, and technology partners.



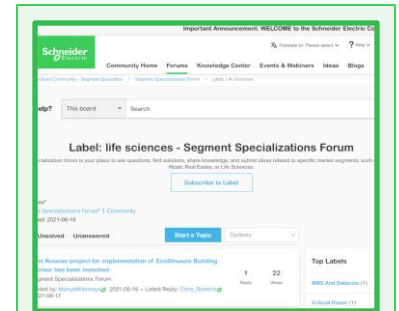
Trainings and TVDAs



Global Demo



Marketing Materials



Community Forums

Global biopharmaceutical
company, Singapore

Upgrade BMS/EMS

Customer Challenge

- Building automation in accordance with FDA compliance requirement
- High scalability of system and long-life cycle support
- Short execution period, tight project schedule
- Need qualification/validation expert

Solutions

- EcoStruxure™ Building Operation 3.2 with compliance pack meeting 21CFR requirement
- Segregated system architecture for EMS and BMS
- EcoStruxure™ Power Monitoring Expert
- EcoStruxure™ Building Advisor
- EcoStruxure™ Power Advisor
- Altivar Drives
- PowerLogic energy meter

Customer Benefits

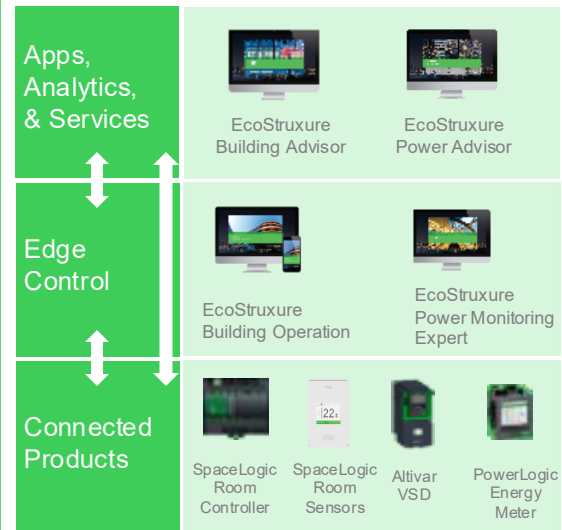
- Improved system performance
- Ability to tie other sites to the EcoStruxure Building Operation platform
- Effortless execution with minimal risk
- 24x7 continuous monitoring
- Customized reporting for business decision making

Life Sciences

The Results: Life Is On with...A GMP compliant building automation

Production facility for vaccines (including the packaging line) for cancer treatment

EcoStruxure™ Life Science



Biopharma, USA



Customer Challenge

- First cGMP fit-out
- Core & Shell BMS system not validated, BMS & cGMP EMS to be independent systems
- Customer inexperience with EMS
- Property Management inexperience & backlogged with other projects
- Integration with 3rd party particle monitoring system (Lighthouse), fridges, freezers, incubators, etc.
- Customer required information from base building equipment

Solutions

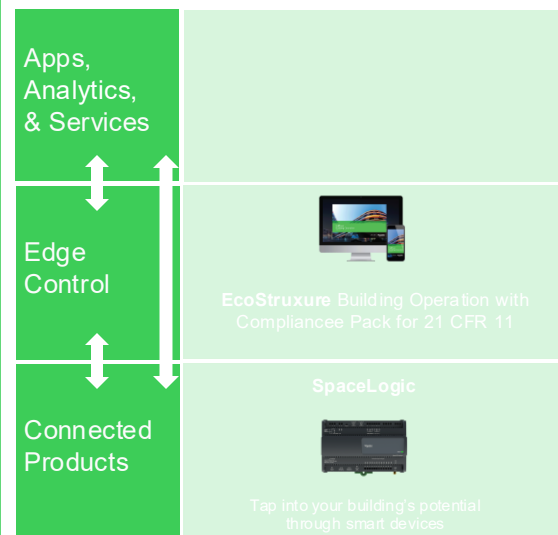
- EcoStruxure™ Building Operation
- EcoStruxure™ Building Operation 21 CFR 11 Compliance Pack
- EcoStruxure™ Timescale
- SpaceLogic™ Automation Servers/ IO

Customer Benefits

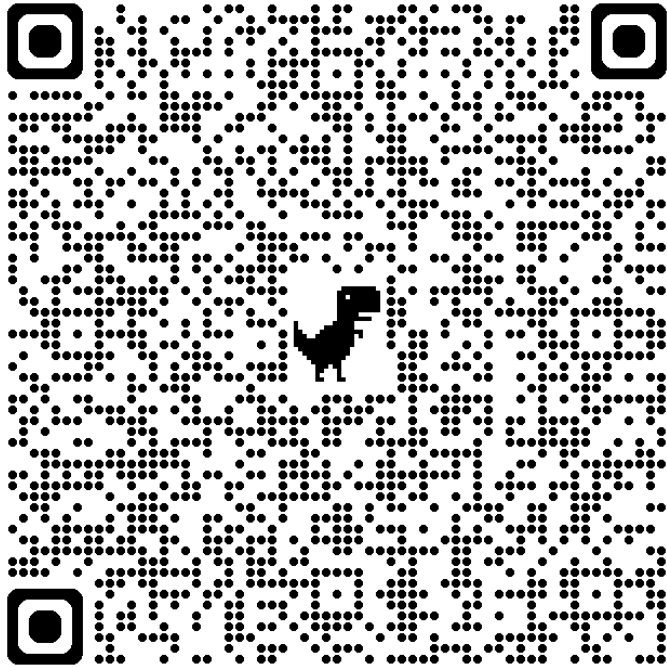
- Compliance with 21 CFR Part 11
- Experienced EcoXpert (BCM) with validated spaces
- Document generation
- Asset Tagging
- EcoXpert (BCM) coordination w/ customer IT Dept
- 3rd Party Vendor coordination
- Future expansion planning

Life Sciences

Clinical-stage cell and genome engineering company that aims to change the standard of care for patients with blood cancers by engineering hematopoietic stem cells to enable targeted therapies post-transplant



Open Discussion



Tom McCarty

Global Program Manager
Schneider Electric – Digital Energy
Thomas.McCarty@SE.com

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