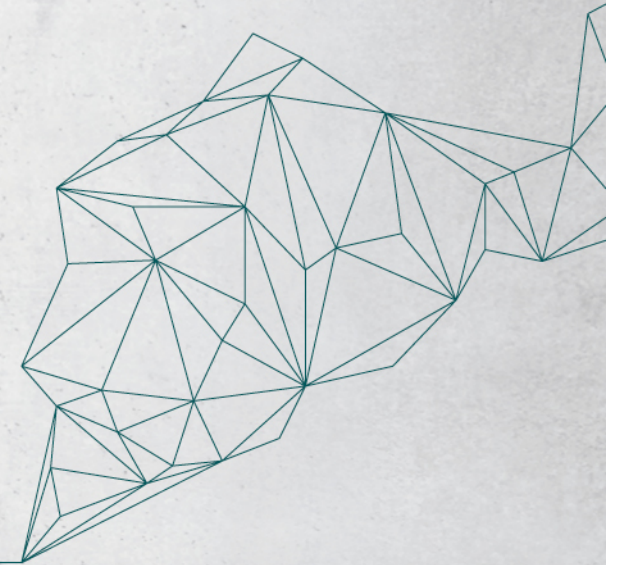# Servitization in HVAC-R Industry

What happens when digitization turns your products into services
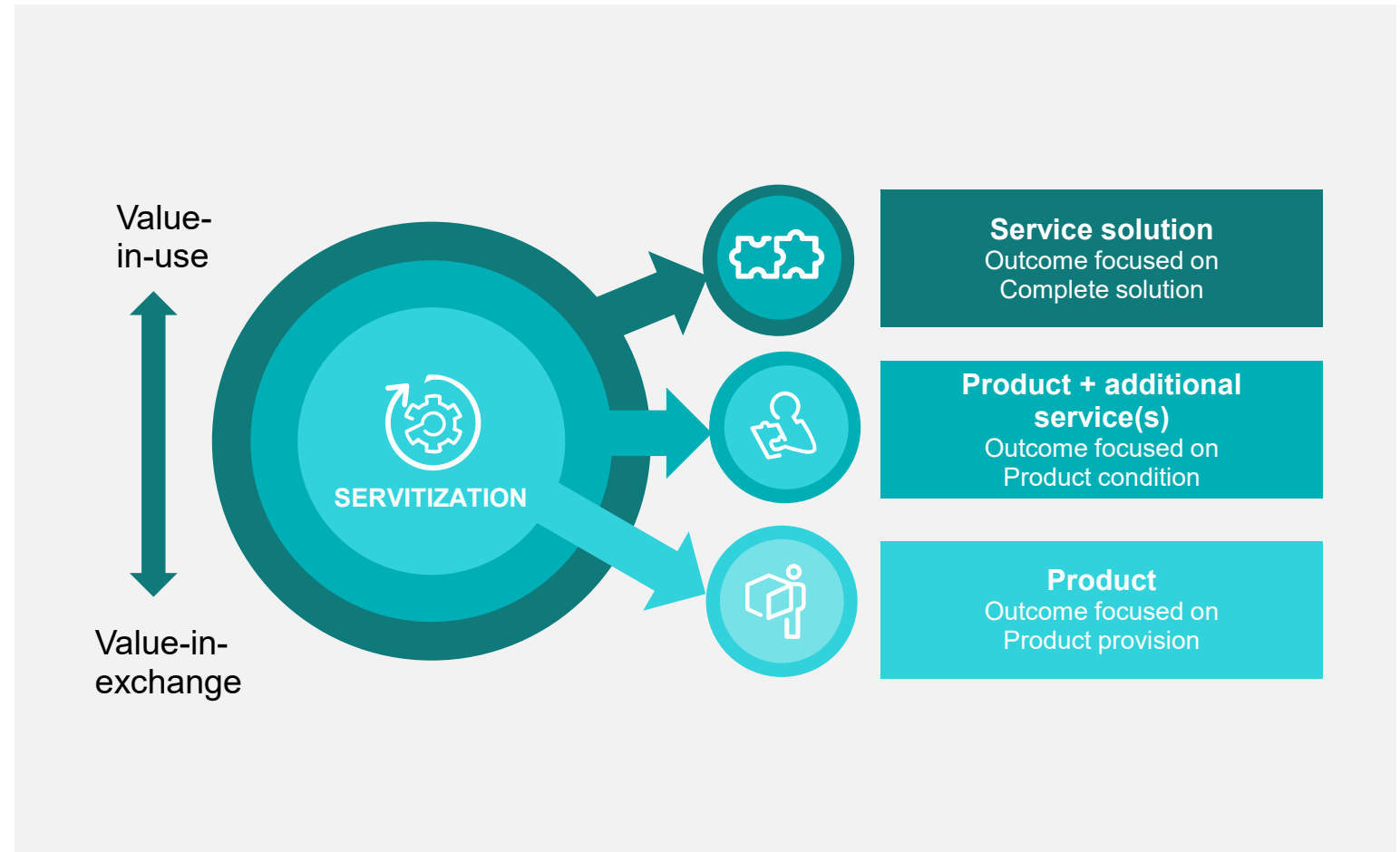
CONNECTING EXPERTS.

Servitization in HVAC-R Industry
What happens when digitization turns your products into services

From product sales to service

Servitization is the process whereby service is given **an increasingly important role** in the business model of manufacturing companies: in addition to – and sometimens at the expense of – traditional product and machine sales.

Service turns **from being a cost item into an opportunity** to provide better service for the customer and thereby generate additional revenue.

Value-in-use

Value-in-exchange

SERVITIZATION

Service solution
Outcome focused on Complete solution

Product + additional service(s)
Outcome focused on Product condition

Product
Outcome focused on Product provision

Servitization in HVAC-R Industry
Open-loop Systems: a common business model

Lost opportunities
in Open-Loop Systems

Distribution

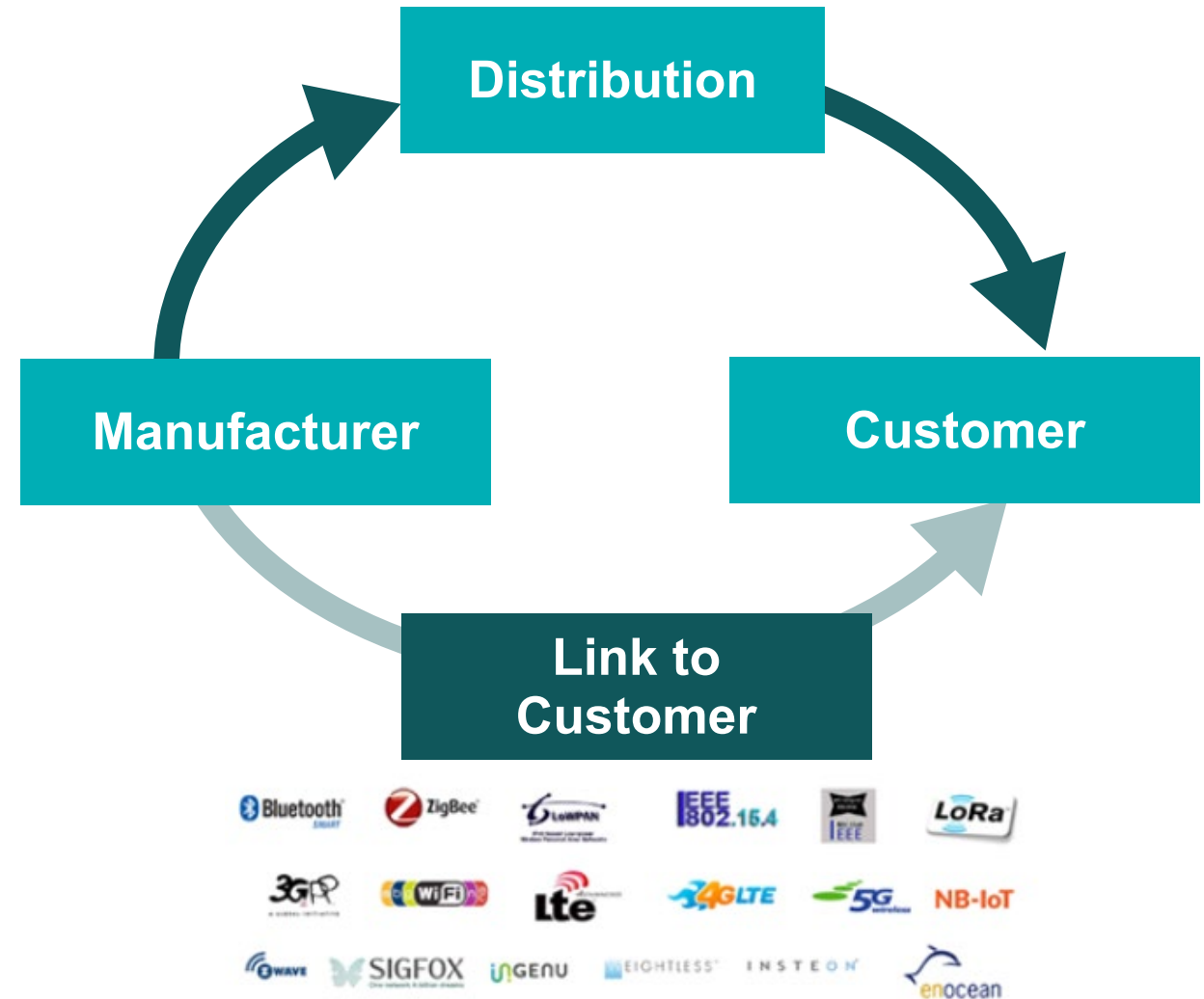**Manufacturer**
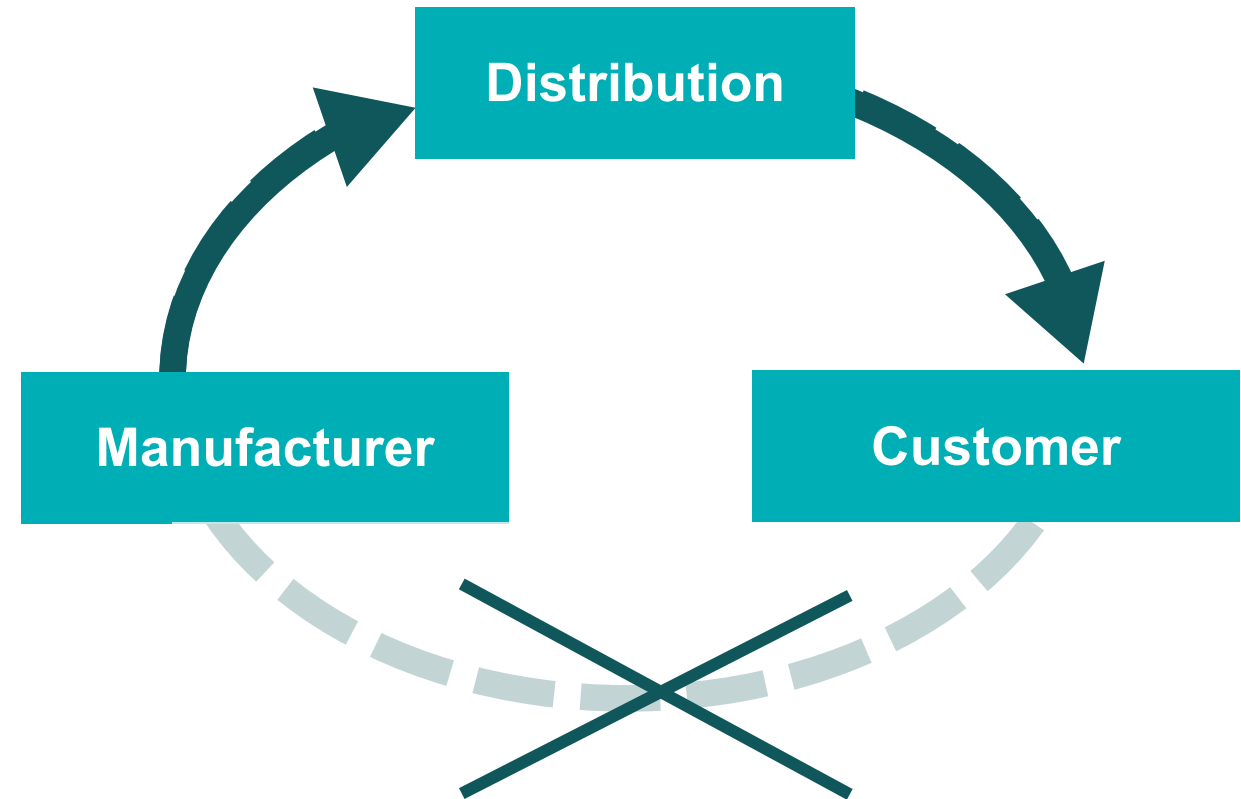
Customer

No Customer Data Sources
The open-loop system is a missed opportunity.
Limited contact with end customers
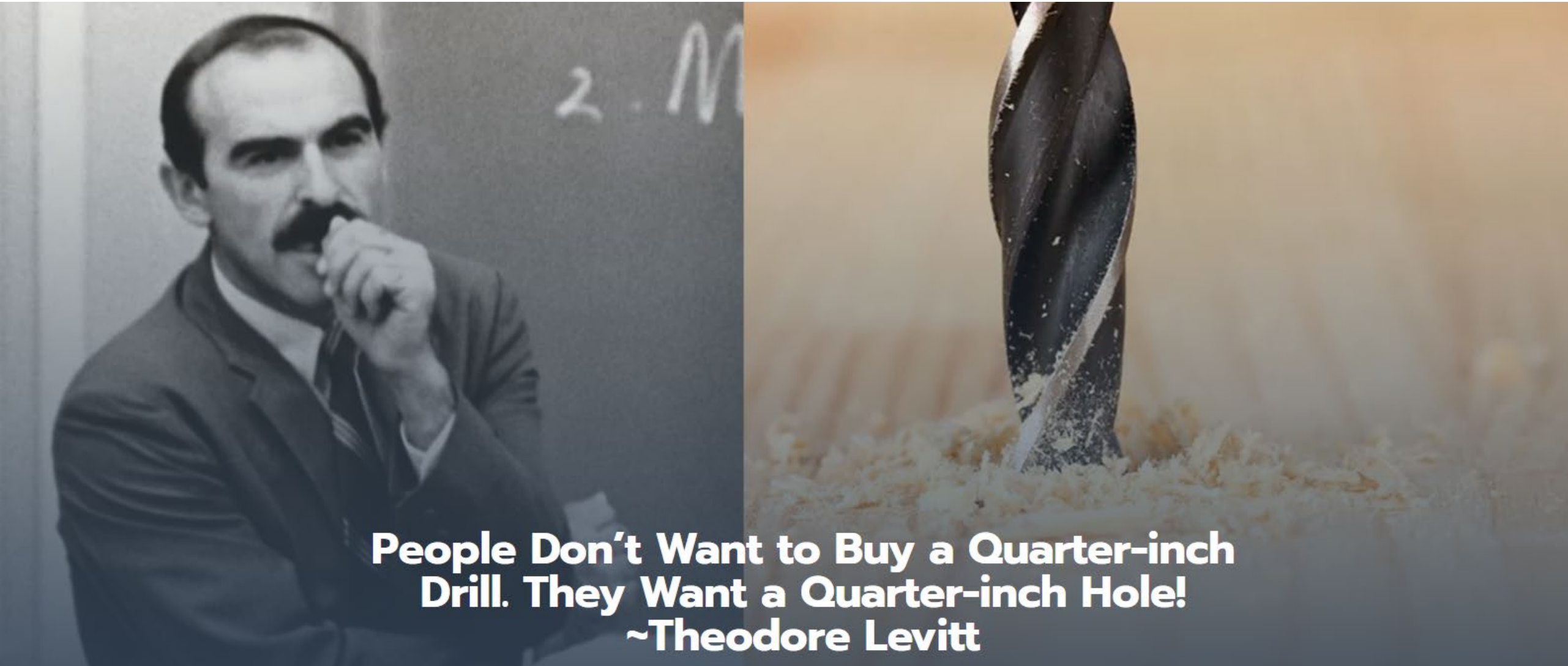is a major obstacle to growth

Servitization in HVAC-R Industry
Closed-loop Systems: a direct link to customers
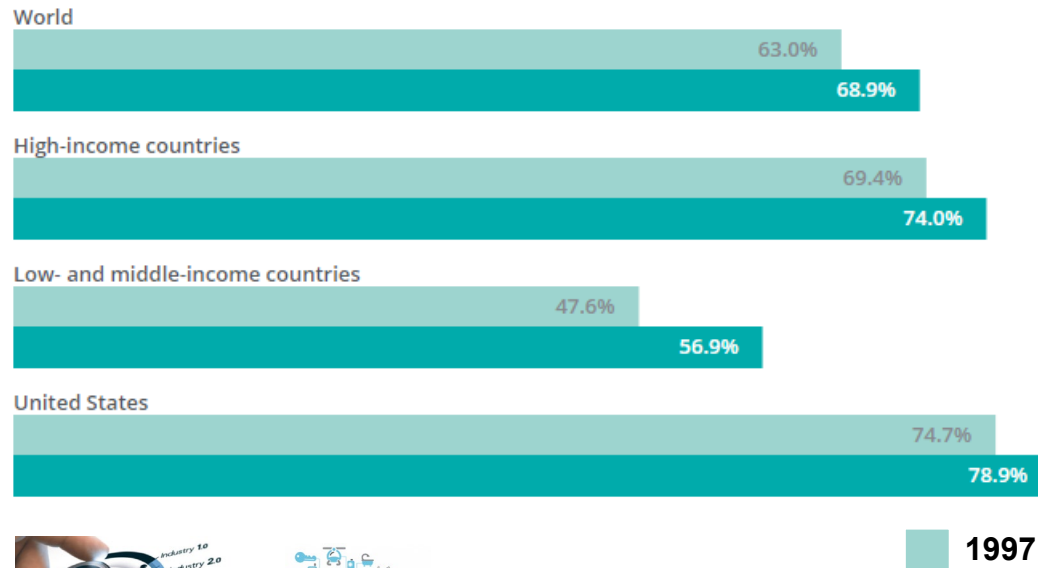
How Smart,
Connected Products
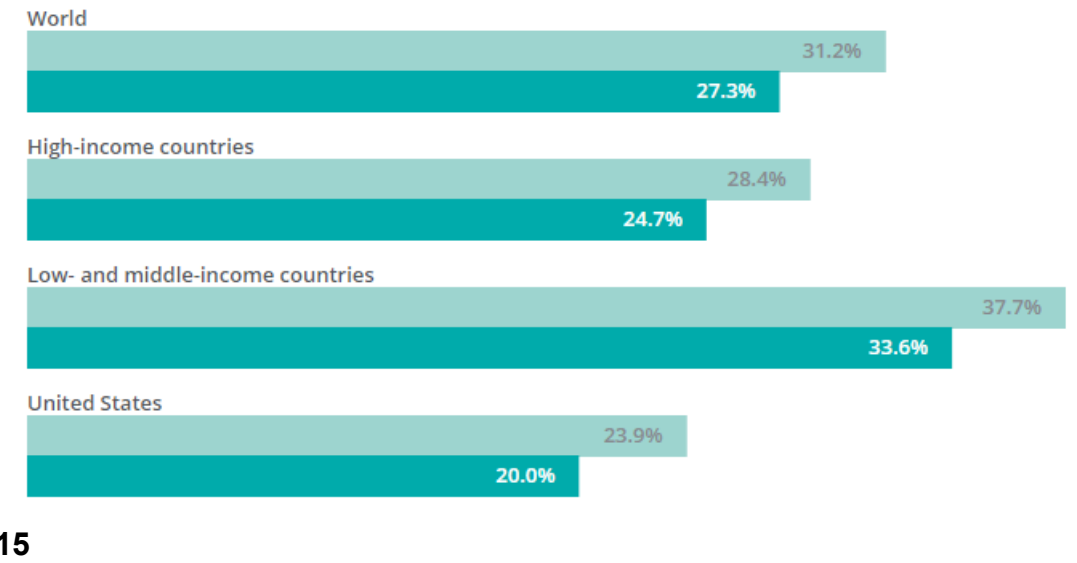Close the loop

Pursuing Servitization to Create Value

People Don't Want to Buy a Quarter-inch Drill. They Want a Quarter-inch Hole!
~Theodore Levitt

Servitization: Driving growth through services

Services' share of GDP has grown while industries has declined

Services

World
63.0%
68.9%

High-income countries
69.4%
74.0%

Low- and middle-income countries
47.6%
56.9%

United States
74.7%
78.9%

Industries

World
31.2%
27.3%

High-income countries
28.4%
24.7%

Low- and middle-income countries
37.7%
33.6%

United States
23.9%
20.0%

1997   2015

Focusing solely on selling products will not be sustainable for most companies

Source Deloitte: The services powerhouse: Increasingly vital to world economic growth Issues by the Numbers, July 2018
World Bank national accounts data, OECD national accounts data files, 2017, https://data.worldbank.org/indicator/

Servitization in HVAC-R Industry
Self contained coolers

How Servitization opportunities come:

– Enhancing **reliability and uptime**
– Selling **new product capabilities**
– New **revenue-generating businesses**
– Customer **operational improvement**

Servitization in HVAC-R Industry
Supermarkets

How
Servitization
opportunities come:

– Enhancing **reliability and uptime**
– Selling **new product capabilities**
– New **revenue-generating businesses**
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Servitization in HVAC-R Industry
HVAC machines

How Servitization opportunities come:

– Enhancing **reliability and uptime**
– Selling **new product capabilities**
– New **revenue-generating businesses**
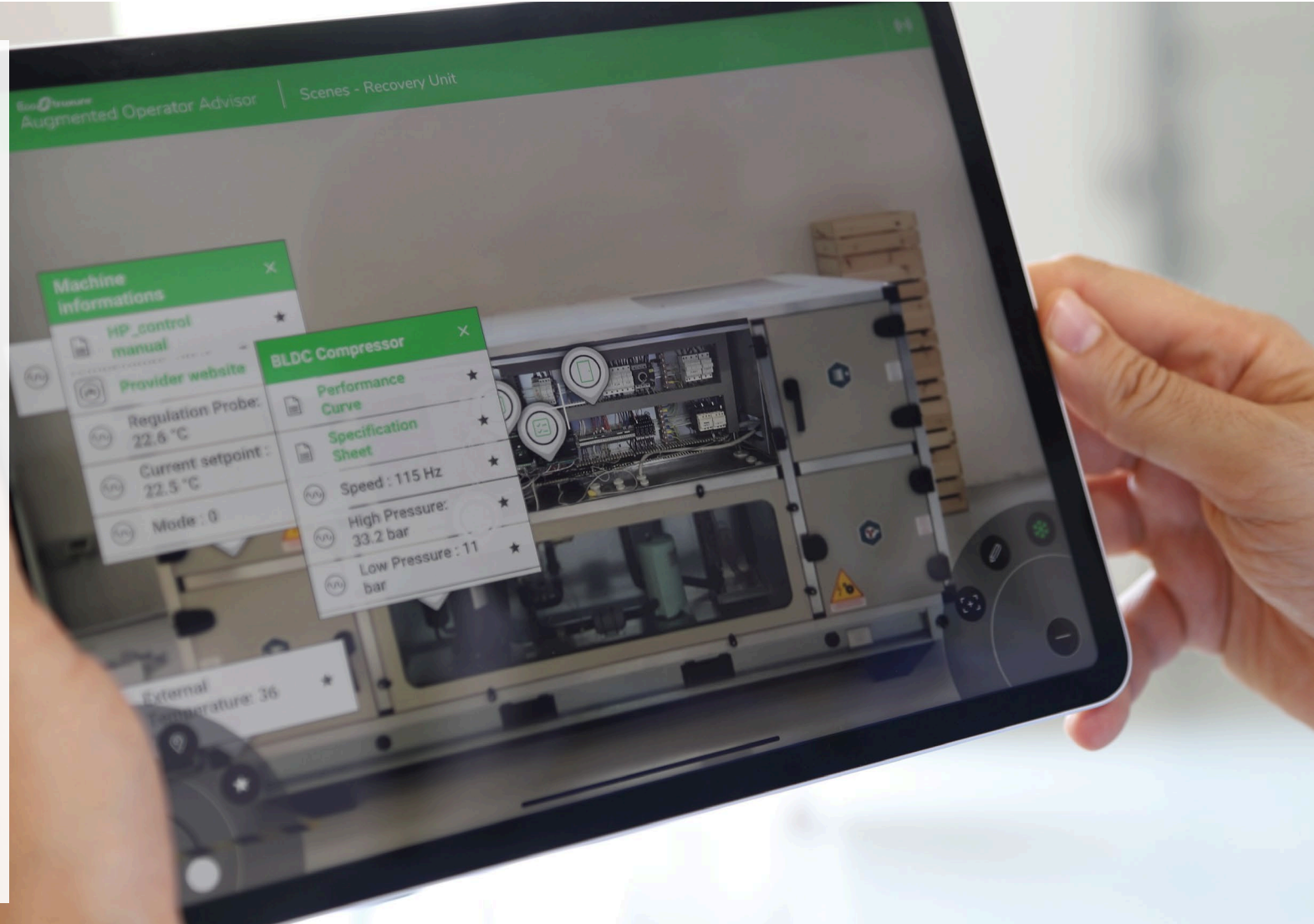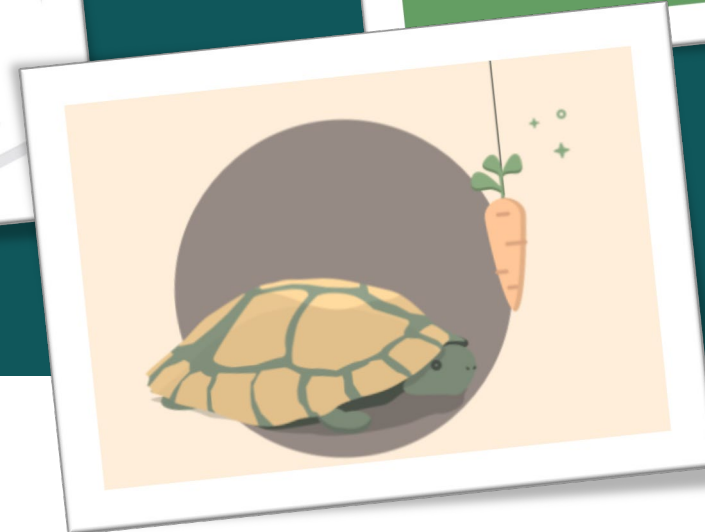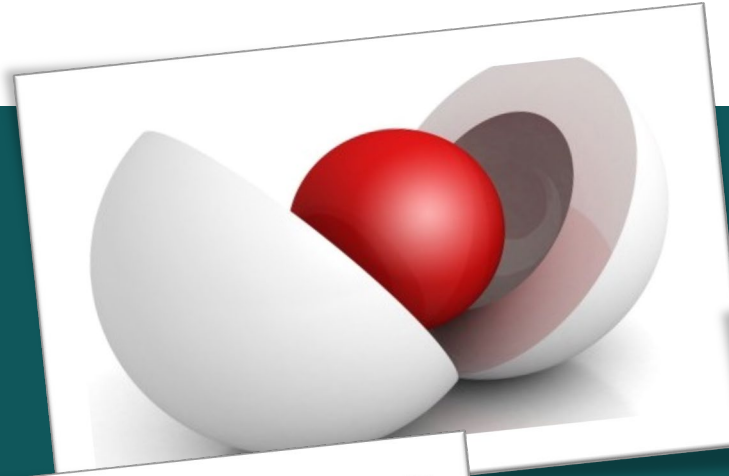– Customer **operational improvement**

Challenges for Servitization Beginners
Related to ALL services

– Core business dominance

– The silo trap

– Channel resistance

– Customer inertia

Challenges for Servitization Beginners
Related to DIGITAL services

Design Connectable Products

Connected products

A comprehensive portfolio of solutions dedicated to OEMs, Wholesalers and Installers

Refrigeration installers portfolio — EWRC series, IDNext, D Controls

Food retail solutions — DOMINO ZERO Solution, L4D, EWSense

Refrigeration OEMs — IC0T, EWNext, RTN

Refrigerated transport — Dedicated control solution

HVAC OEMs — Modicon M171/172 range

eliwell by Schneider Electric — Schneider Electric

Eliwell, together with Schneider, is a global partner providing complete solutions and services for the preservation and supply of food and for environmental comfort systems, ensuring efficiency, sustainability and total control of the assets.
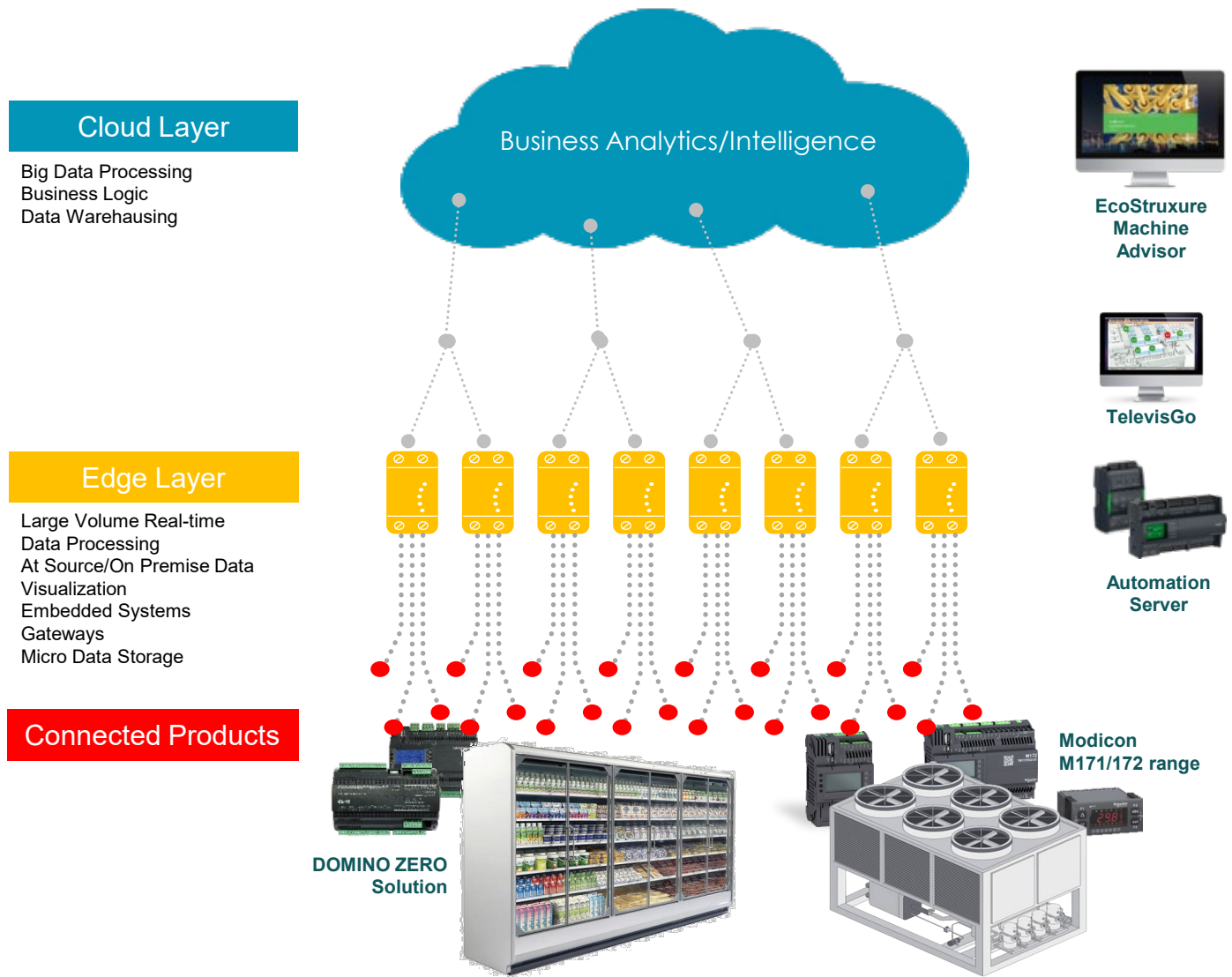
Confidential Property of Schneider Electric | Page 27

Life Is On | Schneider Electric

Challenges for Servitization Beginners
Related to DIGITAL services

Cloud Layer

Big Data Processing
Business Logic
Data Warehausing

Business Analytics/Intelligence

EcoStruxure
Machine
Advisor

TelevisGo

Extract and manage data

Edge Layer

Large Volume Real-time
Data Processing
At Source/On Premise Data
Visualization
Embedded Systems
Gateways
Micro Data Storage

Automation
Server

Connected Products

DOMINO ZERO
Solution

Modicon
M171/172 range

Challenges for Servitization Beginners
Related to DIGITAL services

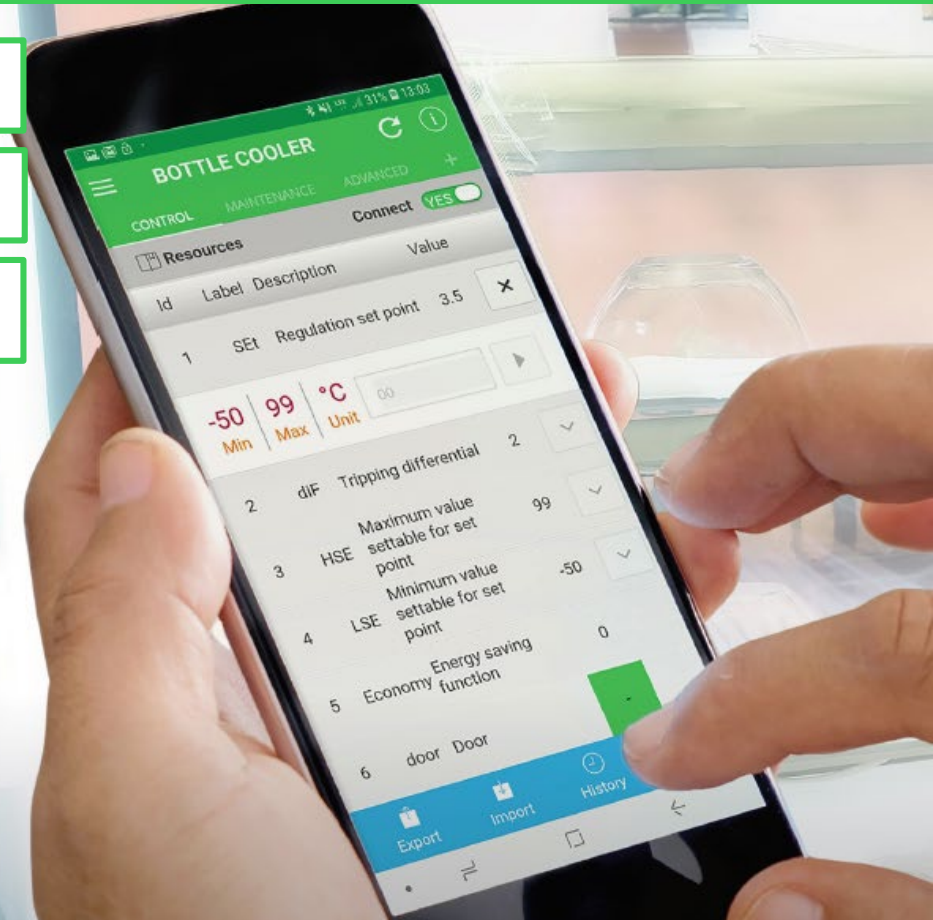| TelevisAir	Asset tracking	Data storage	Alarm notification

Develop Apps, Analytics & Services

Smart user interface

Easy settings and support

Local datalogging management

Eliwell solution for connected coolers	Bottle cooler	Drink dispenser	Display cabinet	Ice cream freezer

Challenges for Servitization Beginners
Related to DIGITAL services

EcoStruxure Machine Advisor	Machine Tracking	Machine Monitoring
	Design and engineering	Commissioning and operation	Maintenance and services
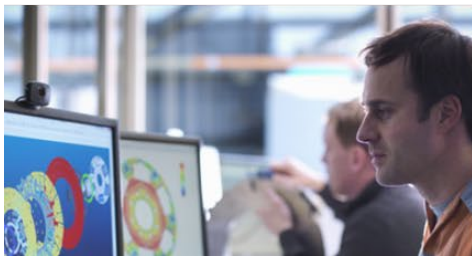
Develop Apps, Analytics & Services

Track — Monitor — Fix

Schneider Electric: Connect your machine   Rooftop Units   Split Systems   Packaged Units   Data Centers

Challenges for Servitization Beginners
Related to DIGITAL services

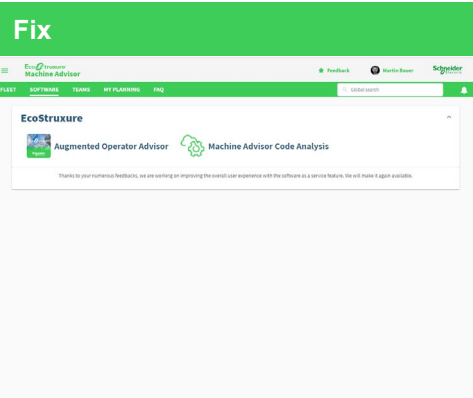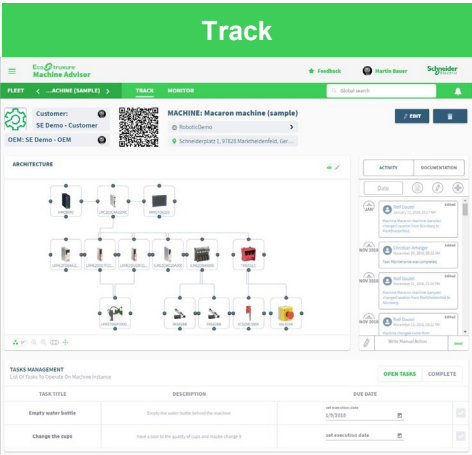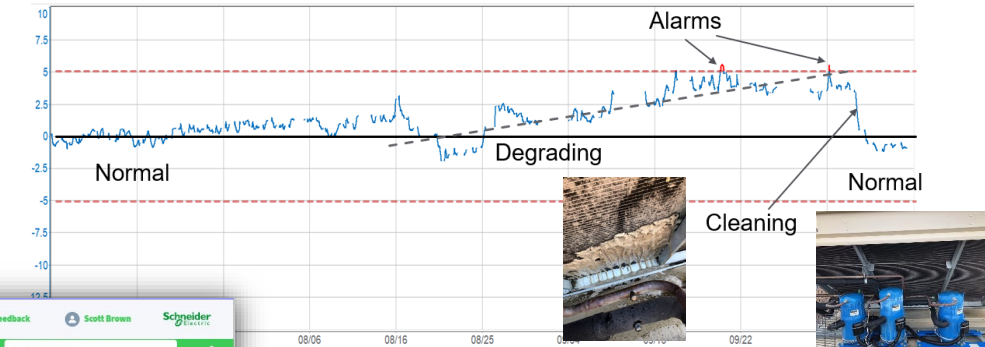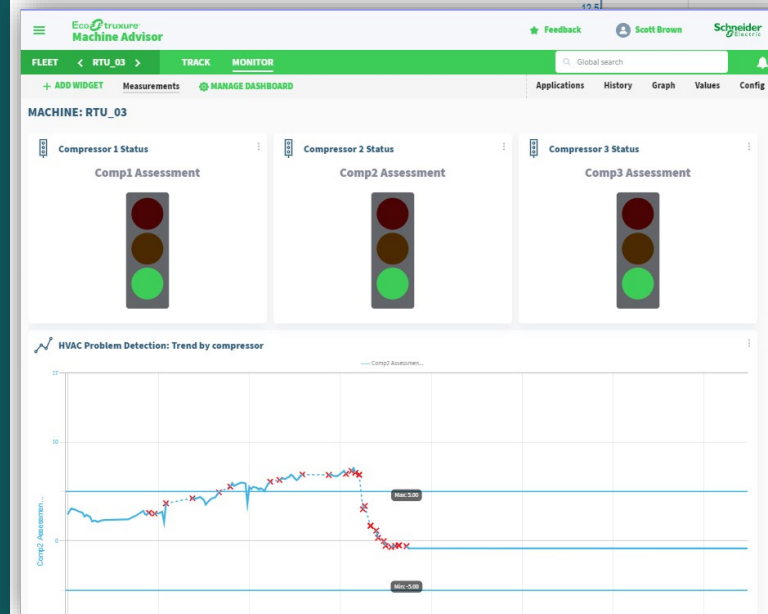| EcoStruxure Machine Advisor	Machine Tracking	Machine Monitoring

Condenser Fouling

Alarms · Degrading · Normal · Cleaning · Normal

Develop Apps, Analytics & Services

Use your HVAC application with a high energy efficiency.

Safe a relevant amount of energy, thanks to awareness and service the chiller at the right time. Protect the environment by consuming less.

Discover environmental aspects in an early stage

Leakage detection will be recognized and notified, long before humans are able to discover it on the chiller performance.

Connect your machine	Rooftop Units	Split Systems	Packaged Units	Data Centers

Challenges for Servitization Beginners
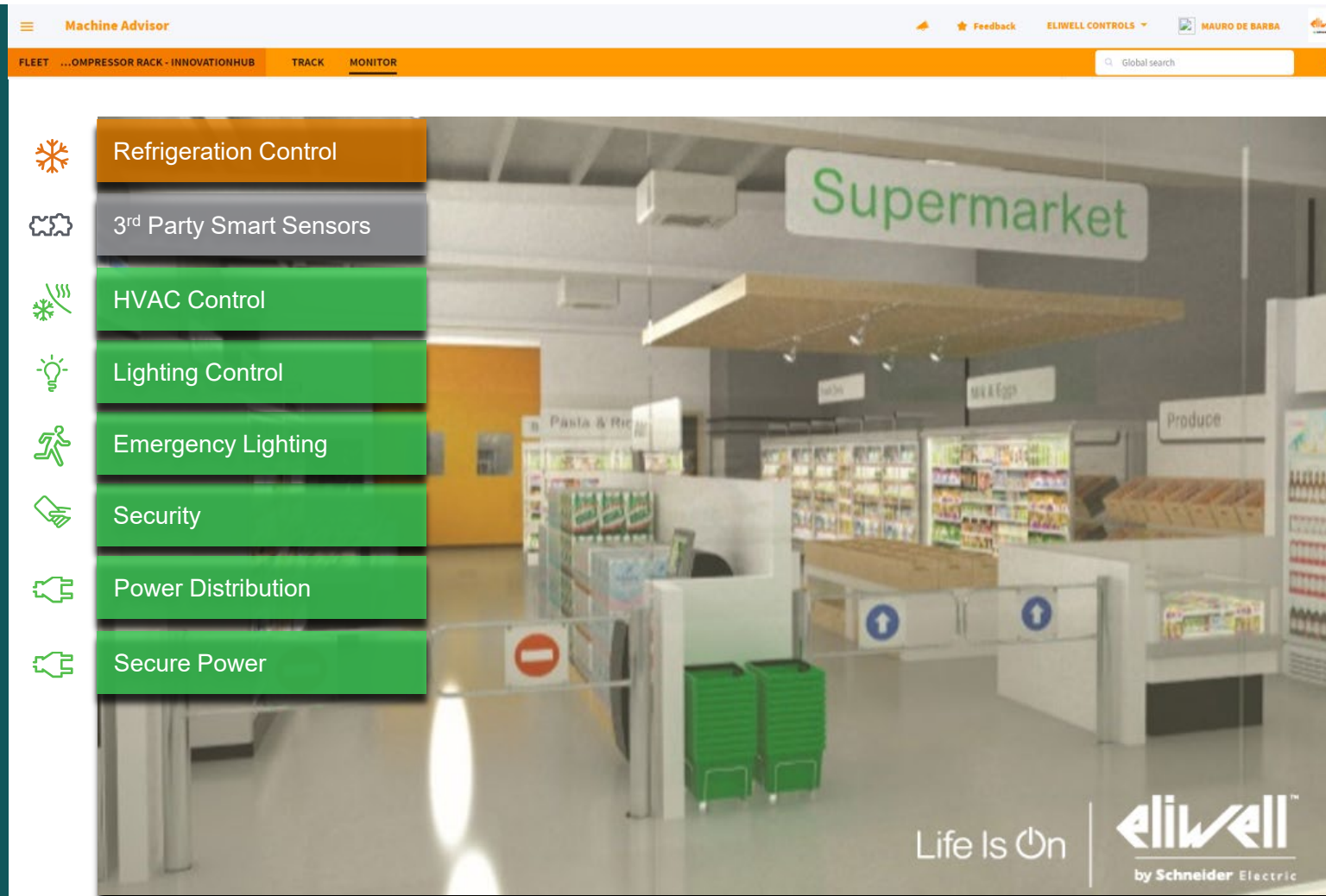Related to DIGITAL services

Develop Apps, Analytics & Services

Challenges for Servitization Beginners
Related to DIGITAL services

Develop Apps, Analytics & Services

Challenges for Servitization Beginners
Related to DIGITAL services

End-to-End Cybersecurity

More Connectivity…More Cybersecurity

80% of the HVAC machines are installed in buildings
– Integrated to BMS (Modbus, BACnet, LonWorks….)
– Used to control, monitor HVAC inside the building

HVAC machines are (most of time) not a critical process… but might be the entry point for a cyber attack
- Customers are asking more and more for Cybersecurity standard compliance

Target attack shows danger of remotely accessible HVAC systems

Qualys says about 55,000 Internet-connected heating systems, including one at the Sochi Olympic arena, lack adequate security

By Jaikumar Vijayan
Computerworld | FEB 7, 2014 6:52 AM PT

HVACker

https://krebsonsecurity.com/2014/02/target-hackers-broke-in-via-hvac-company/

http://www.foodserviceequipmentjournal.com/computer-hackers-breaking-in-through-restaurant-fridges/

05
FEB 14

Target Hackers Broke in Via HVAC Company

Challenges for Servitization Beginners
Related to DIGITAL services

End-to-End Cybersecurity

More Connectivity…More Cybersecurity

A cybersecure digitization of machines

- requires **secure connections** (both ends)
- customer **data protection** and **privacy**
- **incidents** can cause irreparable **damage** and impact on reputation

A security-minded deployment posture must be ensured

Challenges for Servitization Beginners
Related to DIGITAL services

End-to-End Cybersecurity

More Connectivity…More Cybersecurity

A secure IIoT architecture starts from the design, goes through the development and continues during the whole lifetime of the product

Authentication

Authorization ➡ IEC 62443

Encryption

Violations logging and notification

EcoStruxure™ Architecture

EcoStruxure™ Innovation At Every Level

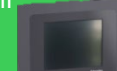|	EcoStruxure™ Building	EcoStruxure™ Power	EcoStruxure™ IT	EcoStruxure™ Machine	EcoStruxure™ Plant	EcoStruxure™ Grid
Apps, Analytics & Services	EcoStruxure Building Advisor*	TelevisGo	EcoStruxure Machine Advisor		EcoStruxure Facility Expert	EcoStruxure Augmented Operator Advisor
Edge Control	EcoStruxure Building Operation*	Automation Server*	Magelis IIoT Box & Industrial PC	Modicon M172		EcoStruxure Machine Expert - HVAC
Connected Products	Coldface series Solutions for cold rooms	EWSense temperature tracking	IDNext connectable controllers for refrigeration equipment	Sensors / Modicon M171O / Magelis HMI / M172 Remote Display / Altivar / SmartX Room Controllers*		DOMINO ZERO remote cabinets, compressor racks / LKD for refrigerant leaks detection

End-to-end Cybersecurity

Cloud and/or On Premise

Refrigeration   HVAC   Supermarkets

Servitization in HVAC-R Industry

– **Switch from Product to Services**

– **Close the Loop** with End Customer

– **Connected Products and Data Management** are the keys

– **Innovative and Digital services** main drivers for Growth

– **Apps, Analytics** to help customer in reducing costs, monitor applications and improve efficiency

– End-to-End **Cybersecurity**

Thank you for your attention.

CONNECTING EXPERTS.