

AGMS - Advanced Gas Management System

Energynomics – Oil and Gas – September 2022

Smart Solution for Natural Gas Transmission and Distribution Pipeline Grid Management



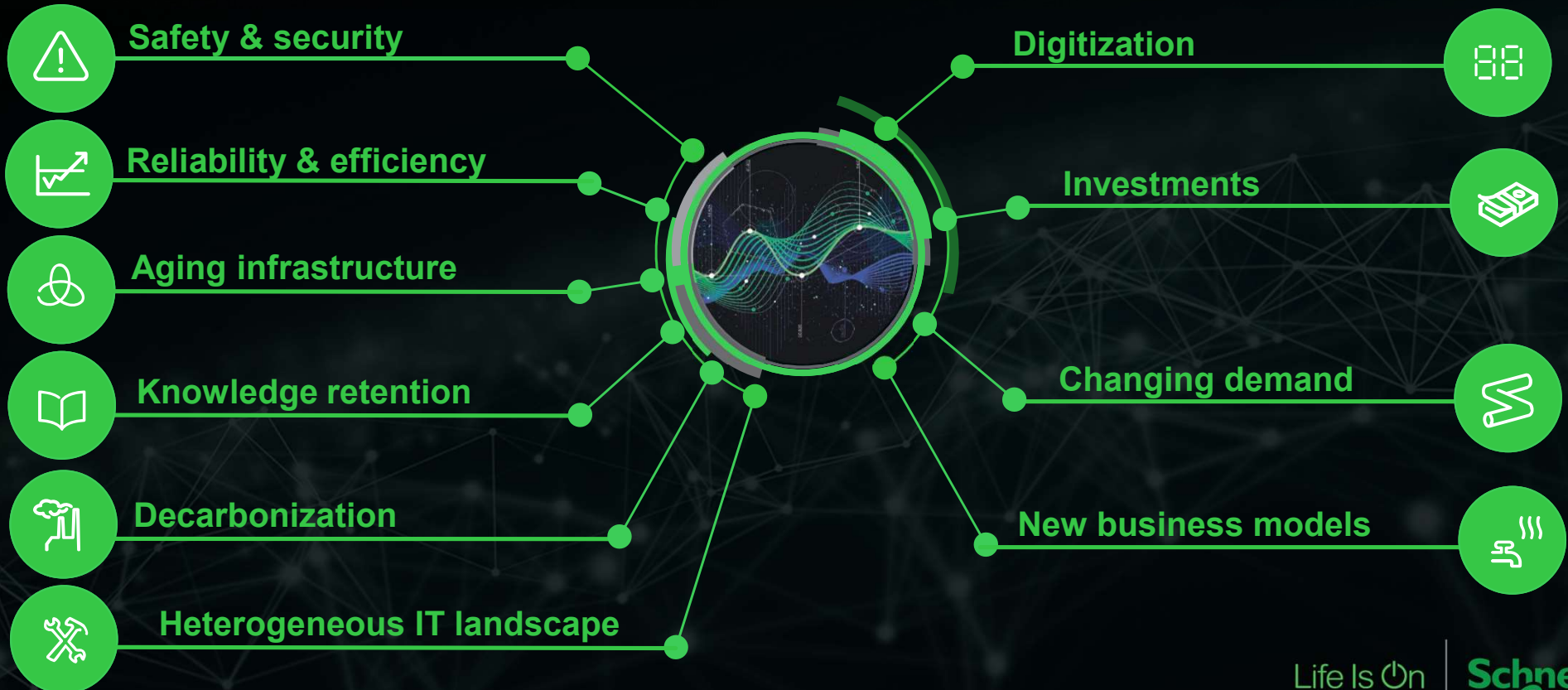
Traditional industry at the edge of digitization

Oil, Gas and Petrochemical (OGP) sector – subsector of natural gas

Challenges



Initiatives



AGMS in Brief

AGMS is a brand-new Schneider Electric's technology for natural gas distribution operators

What AGMS is:

- **Integrated** software platform
- **Seamlessly** connected SCADA, GIS, Topology, Estimations/Simulations, Historian, Forecast, Operation management (planned work), Outage management ...
- Comprehensive solution concentrating information flows from **variety of sources**
- All applications are accessible through a **truly single pane of glass HMI**
- **Flexible and scalable** solution

What AGMS is not:

- **Traditional SCADA** – AGMS is more than SCADA with embedded network model enabling intelligent functions
- **DCS SCADA** – AGMS plays as master SCADA, a solution for controlling the overall critical infrastructure
- **Off-line tool with nice HMI** – AGMS integrates high-tech visualization with real-time analysis and control

Life Is On

Schneider
Electric

AGMS in Operation

Examples of an arbitrary window layout

The screenshot displays a complex SCADA/AGMS interface with several overlapping windows:

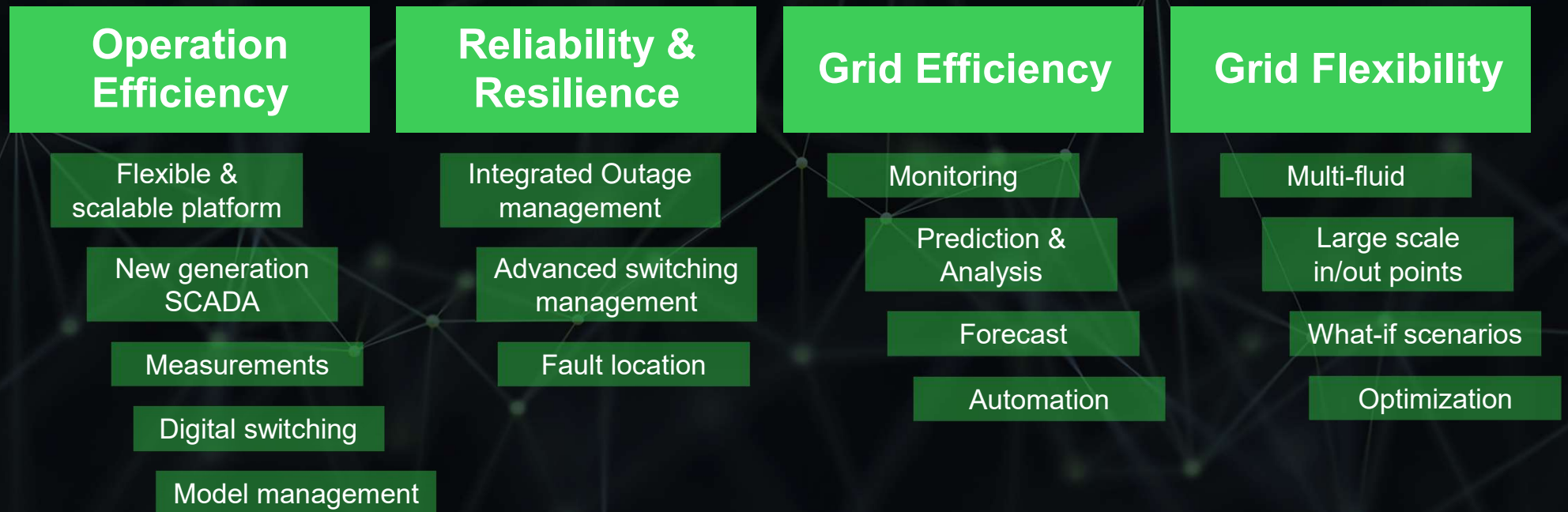
- Control Window:** Shows a control panel for 'M4 373 Block Valve 2' with 'Opened' status and 'Execute' button.
- Alarm Summary:** A table listing active alarms with columns for Message, Severity, Priority, Class, Category, Info, Alarm note, Region, Subregion, and Location/Type.

Message	Severity	Priority	Class	Category	Info	Alarm note	Region	Subregion	Location/Type
15/09/2017 7:49:35 AM Gas storage change is now in Closed-In Area Active	High	2	ClassifiedArea	Test_Regio...	North-Bo...		North-Bo...		North-Bo...
15/09/2017 7:49:35 AM Gas storage change is now in Closed-In Area Active	High	2	ClassifiedArea	Test_Regio...	North-Bo...		North-Bo...		North-Bo...
15/09/2017 7:49:35 AM Gas storage change is now in Closed-In Area Active	High	2	ClassifiedArea	Test_Regio...	North-Bo...		North-Bo...		North-Bo...
15/09/2017 7:49:35 AM Gas storage change is now in Closed-In Area Active	High	2	ClassifiedArea	Test_Regio...	North-Bo...		North-Bo...		North-Bo...
15/09/2017 7:49:35 AM Gas storage change is now in Closed-In Area Active	High	2	ClassifiedArea	Test_Regio...	North-Bo...		North-Bo...		North-Bo...
15/09/2017 7:49:35 AM Gas storage change is now in Closed-In Area Active	High	2	ClassifiedArea	Test_Regio...	North-Bo...		North-Bo...		North-Bo...
- ES Bocholtz Trend Chart:** Three line graphs showing energy consumption trends for different units (E109, E309, E109) over time, with Y-axis in kWh/h and m³/h.
- Gas Quality:** A detailed data table for gas quality parameters.

Parameter	Value	Unit
P	53,04	H
Q	0	W
Q_ABS	0	W
H2O	0	
CO2	1,625	
O2	0	
TWD	-27,35	
- Process Diagram:** A schematic diagram showing gas flow between units E109 and E309, with various valves and flow rates (e.g., Q_E109_E309 C 796,8 k).
- Map:** A geographic map showing the layout of the facility.

AGMS Value Streams

Step by step transition to a sustainable future

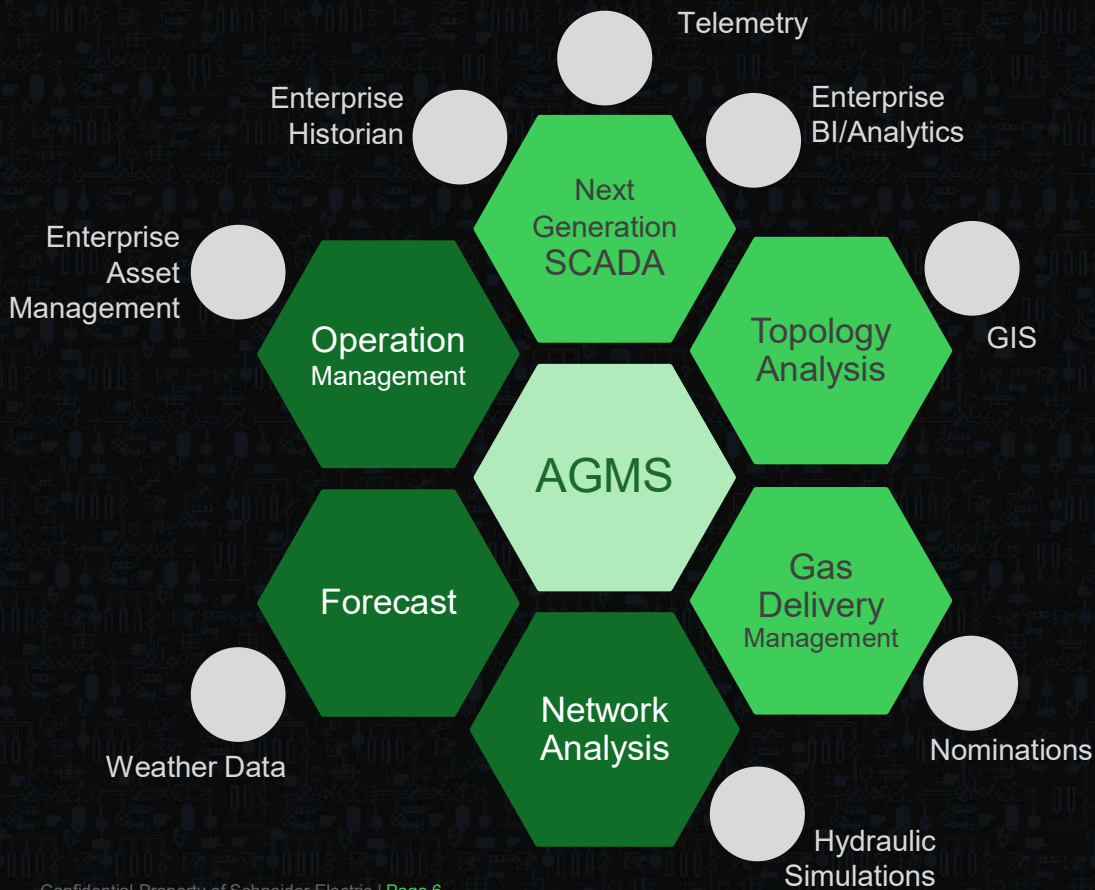


Life Is On



AGMS Solution – truly integrated system of applications

... provides streamlined end-to-end digital processes



Operation management platform

Ensure the best quality of service for your customers with Fast, Secure and Reliable system and for business continuity

Enterprise systems integration platform

Faster execution of design and verification of systems integration supported by SDK, along with reduced risk and impact to project schedule

Unique UI / UX

Single, consistent and intuitive UX powered by the Smart Grid Platform, enabling access to multiple sources of information from a single place

Multi-display and multi-screen workspace with powerful and configurable visualization and navigation capabilities

Online network state simulation

Steady state simulation analysis as well as transient state simulation analysis visible and accessible through AGMS features of Future trends, Multiple source values, Gas quality/compound tracking, Time travel etc.

Automated dispatching routines

Any signal state value (telemetry or simulated ...) can be used in C#-like scripts to execute calculations, to generate alarms or even to issue a command.

Partner in AGMS development

Gasunie Transport Services B.V. The Netherlands

Replacement of the gas SCADA and gas management platform with Advanced Gas Management System (AGMS)

Customer Challenges

- Several systems used to manage gas transport
- Lack of information for proper simulation of gas transport
- Incapability to present information in a structured way
- Gathering right information became a complex activity
- Risks of non-optimal decisions in specific situations

Solutions

- Build a new technology for natural gas grid management equivalent to **EcoStruxure™ ADMS*** - **SE** scope of work
- Integrate it with external Simulator, Nominations, SAP ... and deploy it as dual-redundant/dual-site - Gasunie and **Accenture** scope of work with **SE** participation

Customer Benefits

- High-end situational awareness by complete visibility of actual network state, past and future, with topology processing, advanced alarming, automatic dispatching etc.
- Dispatchers are focused on efficient operation decisioning
- Proactive maneuvering enabled by periodic prediction of network state conditions and time travel feature

The Results: Life is On with...

- Advanced Gas Management System (**AGMS**) – brand new cutting-edge technology for natural gas grid management
- AGMS acts as a single point of truth by collecting all the operational information coming from: GIS, telemetry, simulation, forecast, planning ...

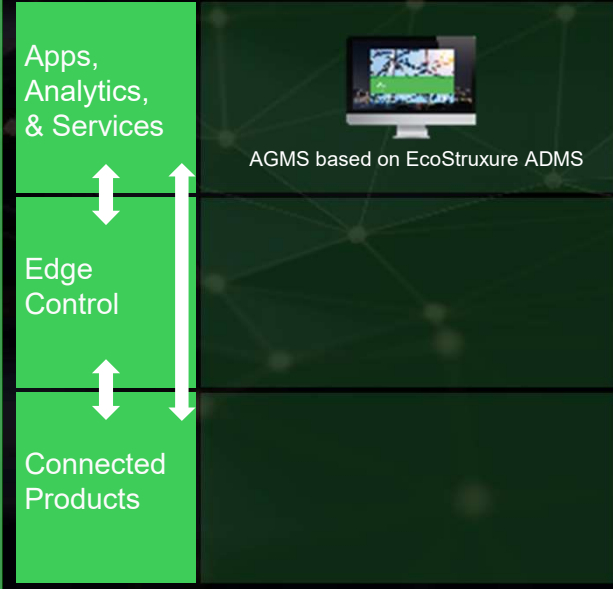
"The AGMS software developed by Schneider Electric combines many years of experience in electrical grid operations with state-of-the-art technology. This enables Gasunie to reduce operational transport cost while maintaining the highest standards for safe and secure operations of the Dutch gas grid"

Jeroen Zanting,
Manager of Gas transport at Gasunie Transport Services B.V.

* Formerly known as Advanced Distribution Management System (ADMS) – leading worldwide industry-proven solution for power industry



125 billion m³ per year of capacity in
15,000 km pipelines with **1,300** gas receiving stations and **100+** compressor stations



Benefits of AGMS Technology

- Increased efficiency of operation
- Reduced cost of ownership
- Increased quality of overall operations



Life Is On

Schneider
Electric

Life Is On

Schneider
Electric