

Unite all of your customers' lift assets on a single platform

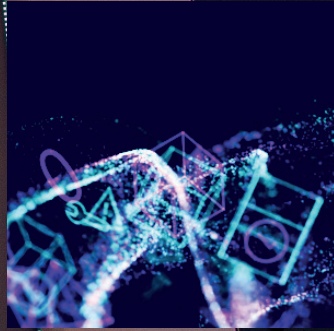
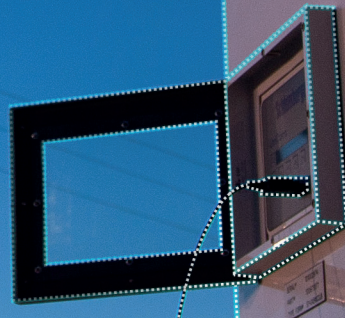
Avalon Lift Surveillance



Connect everything to everyone



BUILT ON
AVALON



Empower your customers to adapt, react and expand with Avalon Lift Surveillance

Avalon Lift Surveillance is an enriched, scalable system encompassing a range of artificial lift applications that drive Intelligent Action across your production operations.

Avalon Lift Surveillance provides the tools to generate automated workflows to make your customers' repeatable operations more efficient, faster and secure. The system has predefined workflows for artificial lift operations allowing you to quickly get up and running.

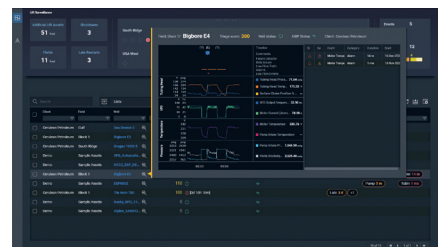
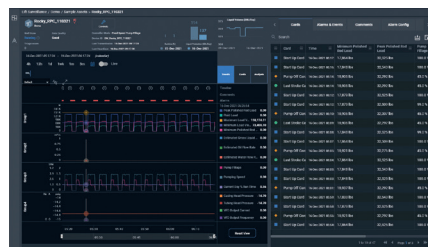
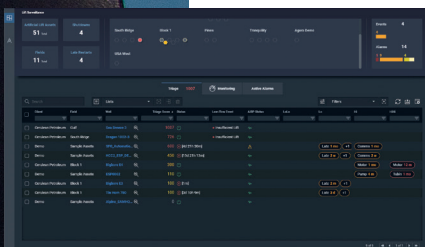
With total flexibility built in, your customers can start small by bringing intelligence to their existing devices – and easily adapt and integrate with advanced edge capabilities of today and tomorrow.

Built on Avalon. Ready for anything.

With the Avalon Lift Surveillance platform, your customers will capture data from day one to unlock valuable insights which can be used to optimize future performance.

Our single, future-proof lift surveillance system also offers the opportunity for considerable whole-life cost savings. Customers can start just with few wells and grow, as and when they need it, to cover their entire operation with multiple lift types and manufacturers functioning on the same platform:

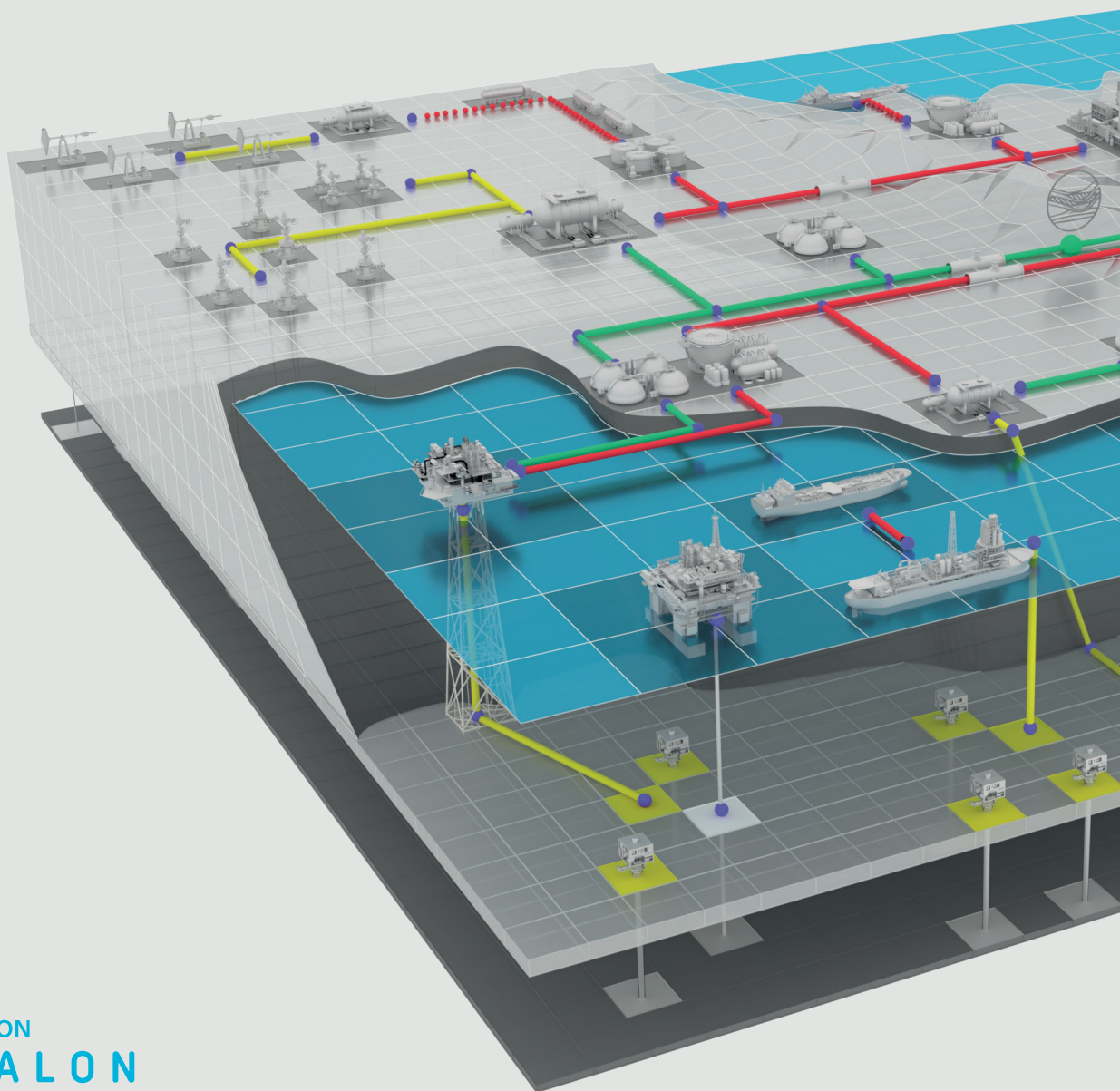
- + ESP
- + SRP
- + PCP



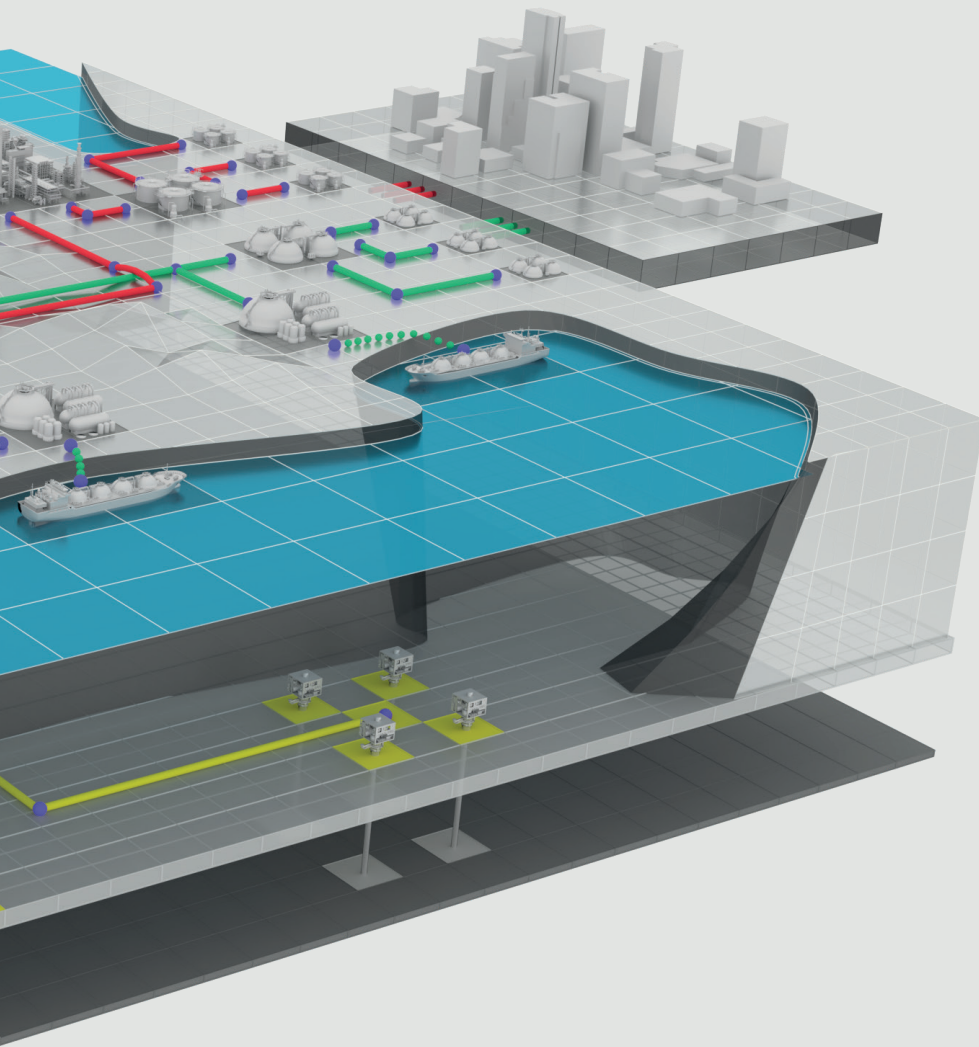
Product overview: Avalon Lift Surveillance

Connecting everything to everyone with Avalon

Formerly known as ConnectedProduction – Avalon is the new name for the open digitalization platform underpinning our latest portfolio of autonomous, automated, and connected solutions. Avalon is bigger, better and more versatile. Avalon is what your customers make it. Now you can help them make it their own.



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Our Lift Surveillance platform combines the latest advances in Machine Learning and IIoT Technologies to help you take your customers' digitalization journey to the next level.

- + Provide faster diagnostics of Artificial Lift performance.
- + Prioritize the attention of production and lift surveillance engineers.
- + Prevent major failures that could result in deferred production and unplanned well services.
- + Offer deeper insight that leads to more effective production optimization – faster.
- + Improve the overall profitability of artificial lift operations.

Value to Production Engineers and Company IT

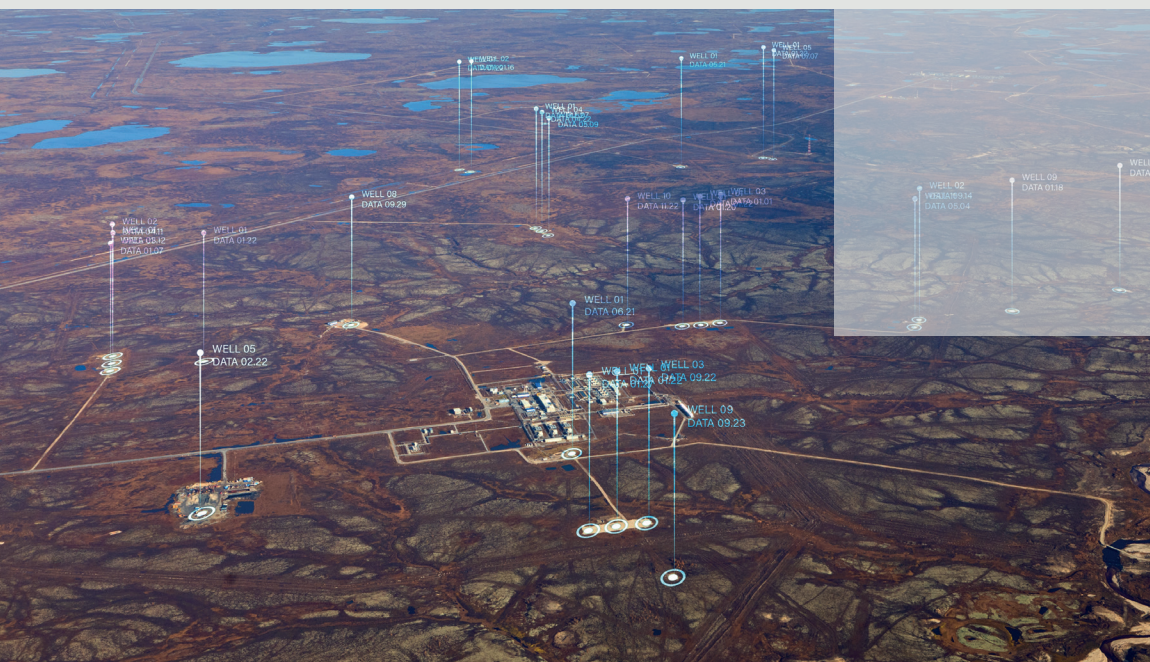
Production Engineers

- + Operators that do not yet have communication infrastructure can rely on Sensia to deploy edge gateways, and establish communication with Avalon Lift Surveillance application.
- + Lift Surveillance incorporates an Artificial Intelligence Response Prioritization (AiRP) for ESPs. It is a fully trained AI that will detect unwanted events for all wells instantaneously to prevent premature ESP failures field-wide while eliminating false alarms.
- + Lift Surveillance module provides polling frequencies as fast as every minute, which is invaluable for ESP wells in dynamically changing operating environment.
- + Companies that operate other lift methods in addition to ESPs will also benefit from Lift Surveillance SRP and PCP modules that provide real-time monitoring and remote control.



Company IT

- + Avalon Lift Surveillance has modern architecture with open and flexible APIs that allows for the easier addition of new apps in the future.
- + Avalon Lift Surveillance is secure – with data encrypted from edge to platform to inside the platform. Conforms to IEC62443-3-3 standard.
- + Avalon Lift Surveillance features built-in historian and provides data back-fill which is valuable in locations experiencing connectivity issues.
- + Avalon Lift Surveillance has high degree of availability. As a triple redundant system, it is unlikely to crash.



Example use case: ESP AiRP functionality

Scenario:

ESP AI identifies the patterns, verifies the data against fully trained knowledge base and provides a diagnosis for an unwanted event.

Client	Field	Well	Triage Score	Pumping Status	Low-Flow Event	AiRP Status	LoLo	Lo	HI	HIHI
(2) Avalon Energy										
<input type="checkbox"/> Avalon Energy	Tranquility	ESP well HIHI ala...	1100	🟢	⚠️ Insufficient Lift	🟢	-	-	-	⚠️ Tubin 43 m
<input type="checkbox"/> Avalon Energy	Longhorn	Mesquite A-12	500	🟢	⚠️ Pump Off	🟢	-	-	-	-
<input type="checkbox"/> Demo Sample Assets	Artificial Lift Wells	SRP-Pump Off	110	🟢	-	🟢	-	-	-	⚠️ Pump 51 s
<input type="checkbox"/> Avalon Energy	Tranquility	Causal 203B	100	🟡 [29m]	-	🟢	-	-	-	-
<input type="checkbox"/> Avalon Energy	Tranquility	Foothills ac [po]	100	🟢	⚠️ Dead Head Type 2	🟢	-	-	-	-

Avalon AI engine has detected insufficient flow on one of the ESP wells. Insufficient Lift is a dangerous condition that can quickly lead to a premature ESP failure. Immediate detection is paramount to prevent a significant economic loss.

If a Production Engineer detects the same event:

- + Without AiRP, a production engineer would need to analyze real-time trends with a naked eye. It requires years of experience in ESP production optimization to be able to interpret such abnormalities.
- + Even for experienced optimization engineers it may take a long time to analyze trends for hundreds of wells.

If the same event is detected by AiRP:

- + AiRP detects abnormalities for all wells in the field in a fraction of a second.
- + Production Engineers can quickly react and prevent premature failures. Avalon ESP allows you to do more with less.
- + This helps to reduce ESP failure rate and leaves more time for production engineers to focus on analyzing and implementing optimization opportunities such as increasing production or decreasing lift cost.

ESP AIRP PRINCIPAL OF OPERATION



**Solving challenges from
the reservoir to refinery.
One challenge at a time.**

We collaborate with all stakeholders to make the production, transportation and processing of oil & gas simpler, safer, more secure, more productive and better understood from end-to-end. Sensia is making the advantages of industrial-scale digitalization and seamless automation available to every oil & gas company.

Now, every asset can operate more sustainably, productively and more profitably.

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