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From OT systems to the cloud: Unlocking new capabilities through integration

In a few words

Veolia Energia Polska S.A., one of the country's largest providers of district heating, water and waste management services, relies on our support in integrating growing data volumes from the AVEVA PI System with modern cloud-based analytics tools. The implementation of the PI Data Integrator solution developed by ConnectPoint ensured secure and scalable data transfer to the Google Cloud environment while improving data quality. As a result, data is available faster, enabling more efficient analytics, supporting process optimization, and powering BI and AI solutions in near real-time.

- **Scalable integration with Google Cloud**
- **Higher data completeness**
- **A foundation for business analytics and AI**
- **Near real-time access to data**

Veolia Poland – facts & figures

For over 25 years, Veolia has been a trusted partner to industry and Polish cities undergoing an environmental transformation. Leveraging its expertise and international experience, the company delivers innovative environmental services and solutions based on creating synergies and maximizing the benefits of implementing circular economy principles.

Operating across three sectors – energy, water, and waste – Veolia is engaged in heat production and distribution, the provision of district heating services to approximately 3 million customers, energy trading and sales, as well as water transmission and treatment. By continuously investing in the expansion and modernization of its infrastructure, the company also develops modern services, including energy efficiency improvements and Total Waste Management solutions, contributing to the country's sustainable development.

Veolia in Poland employs more than 4,600 people whose mission is "Resourcing the World." The company operates in 123 locations and manages district heating networks in 58 cities. It operates through the following entities: Veolia Energia Polska (holding company), Veolia Energia Warszawa, Veolia Energia Łódź, Veolia Energia Poznań, Veolia term, Veolia Energy Contracting Poland, Veolia Industry Polska, Veolia EKOZEC, Przedsiębiorstwo Wodociągów i Kanalizacji w Tarnowskich Górach, and their subsidiaries. www.veolia.pl.



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FROM OT SYSTEMS TO THE CLOUD

1 Challenge

Veolia is facing a rapid increase in measurement data and the need to share it securely with modern cloud analytics tools. The company lacked a consistent, scalable mechanism for **transferring data from AVEVA PI Server to Google Cloud** while ensuring data completeness.

2 Solution

ConnectPoint implemented **PI Data Integrator,** responsible for the secure transfer of measurement data from **AVEVA PI** to the **Google Cloud** environment. The solution routes data directly to services such as **BigQuery, Cloud Storage,** and **Pub/Sub**, enabling the development of additional analytics layers on top of it. The entire process is supervised within **Smart RDM**, which provides full control over configuration and data flows. An important component of the integration is **backfilling**, allowing both automatic and manual completion of historical records, thereby ensuring the consistency of transferred datasets. The solution was designed with scalability in mind, enabling easy extension and efficient handling of large data volumes.

3 Key outcomes

Near real-time access to data

Data is available in the data platform from OT systems almost immediately.

Readiness for business analytics and AI

Data ready to be leveraged in analytics and reporting tools and across AI use cases.

Ease of management

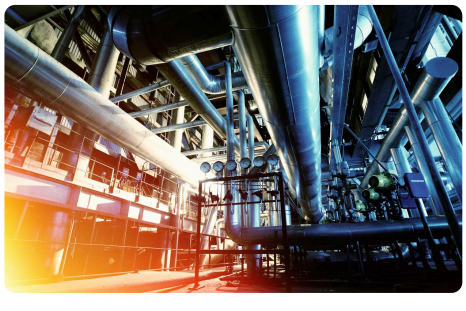
A centralized Smart RDM interface for configuring, launching, and monitoring PI data flows.

Improved data quality

Higher data completeness and reduced errors.

Performance and scalability

High-throughput and parallel transfer of large data volumes, ensuring rapid data availability.



4 Key results

Metric	Result
Data availability time in the cloud	< 1 second (real-time)
Integrator throughput	up to 1,000,000 PI points per instance
Reduction of data gaps	~100% thanks to automatic backfilling
Average end-to-end latency	~700 ms
Event handling	up to 20,000 events/s

Summary

The implementation of PI Data Integrator connected the OT world with the cloud in a secure, scalable, and easy-to-manage manner, providing Veolia with near real-time access to high-quality data. It establishes a solid foundation for analytics and AI — an integration that concludes the project as a ready-to-replicate case study while opening the door to further use cases.

