

## Case study

# A large midstream petroleum company leverages data to reduce pipeline leakages

By ingesting and analyzing vast amounts of pipeline data from IIoT sensors, the predictive analytics system offered a highly efficient way to mitigate the leaks

# An overview

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Discover how Fosfor helped a large midstream petroleum services company



Go from pipeline and profit leak

Miles of leaky pipelines and faulty meters led the organization to experience heavy leakages and associated financial losses



To an efficient system that eliminated leakages and mitigated environmental issues

Over 10 million records of time-series data ingested at an hourly rate into the data lake helped take preventive measure

## Using the Fosfor Decision Cloud

Fosfor leveraged millions of records of IIoT data and fixed the problem of pipeline leaks

# The results

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Reduced pipeline leakages

Lower environmental and regulatory risk

Reduced maintenance costs

# Challenges

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## Charting a course for leak-proof pipelines

In the petroleum industry, the efficient operation and maintenance of gas pipelines are critical for ensuring safety, minimizing environmental impact, and maximizing profitability. Gas pipeline leakages can lead to severe consequences, including environmental contamination, safety hazards, and financial losses. Thus, there is a pressing need for effective preventive measures to detect and mitigate leaks before they escalate.

The client, a large midstream petroleum services company, approached us with a significant challenge: their extensive network of gas pipelines was experiencing heavy leakages, resulting in substantial wastage and financial losses. The client sought solutions to reduce wastage by implementing preventive measures for leak detection, thereby enhancing operational efficiency and cost-effectiveness.

## Solution

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### Proactive pipeline protection: Early leak detection with the Fosfor Decision Cloud

To address the client's needs, we provided an innovative solution centered around early failure prediction to proactively identify and prevent leakages in the gas pipelines. Leveraging our expertise in data analytics and predictive modeling, we deployed the Fosfor Decision Cloud's Data Designer and integrated it with the IIoT gateway to ingest and analyze vast amounts of time-series data from the pipeline sensors.

Our solution involved the ingestion of over 10 million records of time-series data at an hourly level into the data lake. We conducted exploratory data analysis and developed statistical models for each of the pipeline meters to assess their probability distributions. We devised algorithms to detect deviations in pressure readings from the mean, signaling potential faults in the pipeline.

Furthermore, we automated the process by scheduling daily runs of the data flow to identify faulty meters and promptly alert the maintenance team for inspection and preventive measures. This proactive approach allowed the client to address potential leakages before they could escalate, thereby minimizing wastage and financial losses.

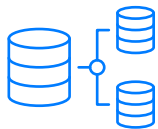
# How the Data Designer works

The Data Designer empowers seamless data organization and transformation, leveraging AI to construct reliable pipelines swiftly. With flexible environments and GenAI assistance, users efficiently curate AI-ready data, minimizing risks and maximizing performance for accelerated decision-making.

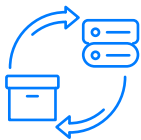
The Fosfor Decision Cloud allowed the large midstream petroleum services company to:



Gain tangible benefits by significantly reducing wastage and associated financial losses.



Enhance operational efficiency, mitigate environmental risks, and optimize costs in maintaining their gas pipelines.



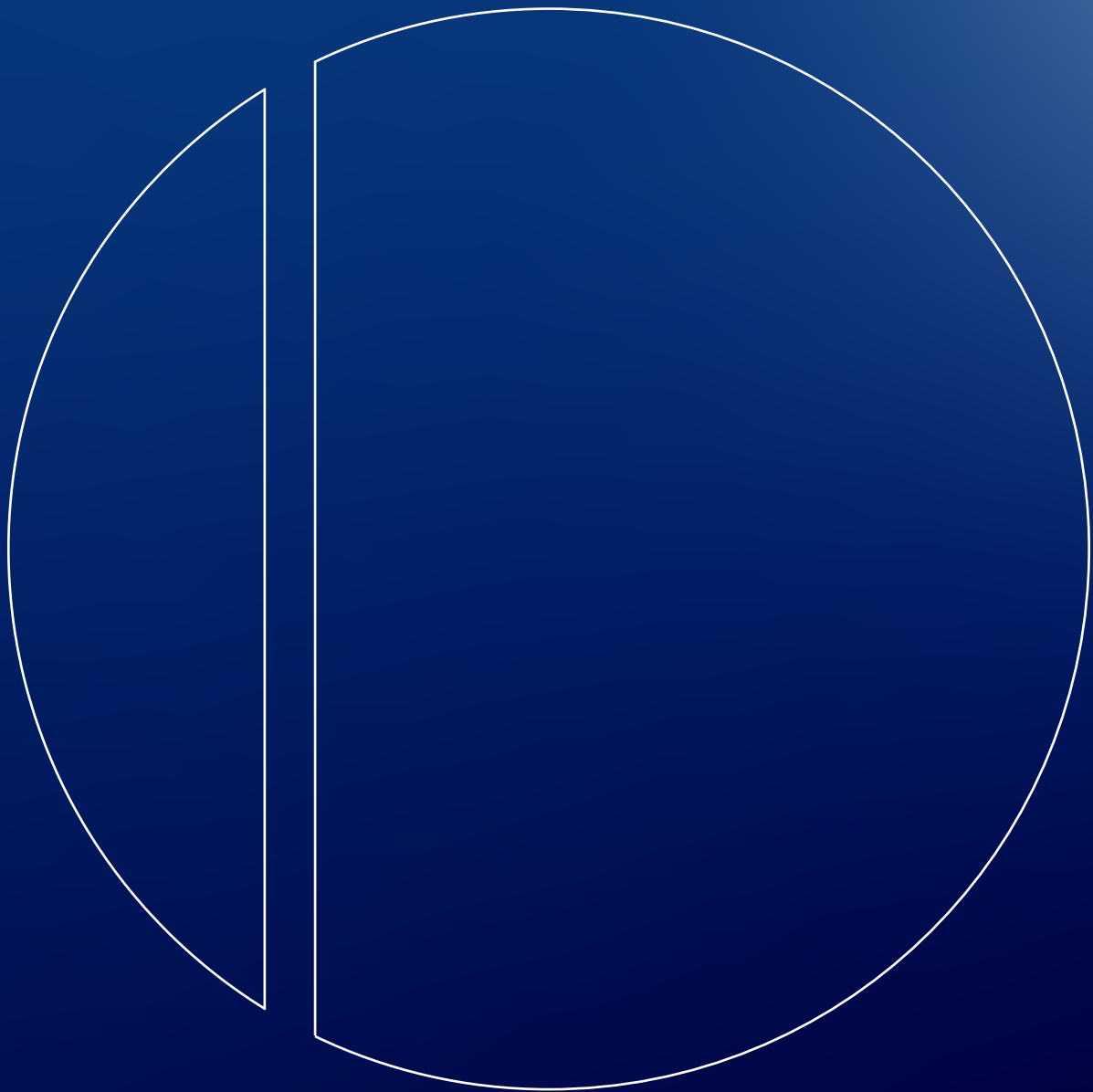
Foster a culture of safety and reliability, positioning them as a leader in sustainable pipeline management within the industry.

## The impact

Reduced pipeline  
leakages

Lower  
environmental and  
regulatory risk

Reduced  
maintenance costs



The Fosfor Decision Cloud is a connected fabric that unifies and amplifies the value promised by the modern data ecosystem, which is made up of infrastructure, data, and application clouds. Fosfor enables organizations to effectively curate data, generate impactful insights, and formulate effective decisions to deliver the long-sought promise of data and AI: optimal business outcomes. Fosfor is part of LTIMindtree, a global technology consulting and digital solutions company. For more information, visit [www.fosfor.com](https://www.fosfor.com).