Machine Learning as-a-Service

Get your model in production to monitor thousands of assets in real-time

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Leading Professional

Operational Problems

threaten business continuity

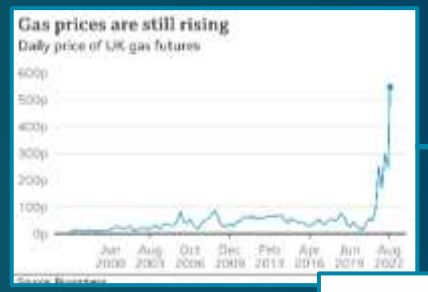
leaking pipe leads to: water loss, high energy usage, water distribution downtime, sinkholes, ...

clogged pump leads to: high energy usage, water distribution or treatment downtime, flooding, ...

blocked sewer leads to: flooded streets and houses, sewage overflow to surface water, fines, ...

Operational Problems

lead to high OPEX, CAPEX and downtime



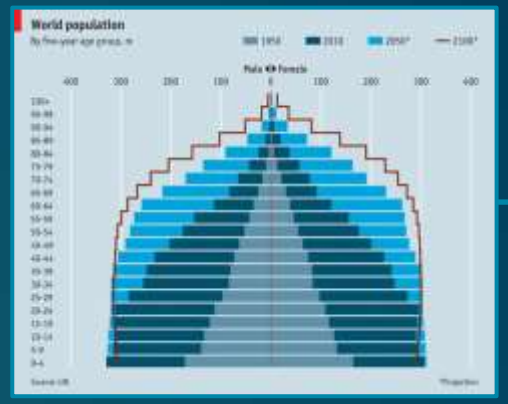
High **operational costs** (OPEX) due to soaring energy prices, stringent legislation, high fines

High **capital costs** (CAPEX) for parts and long delivery times to replace/fix broken assets

Process downtime due to unexpected maintenance or unmet legislation

Operational Monitoring

is increasingly harder to do for humans



Shortage of expert operators

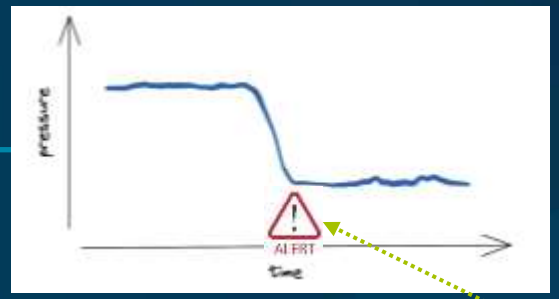
due to aging population in western world

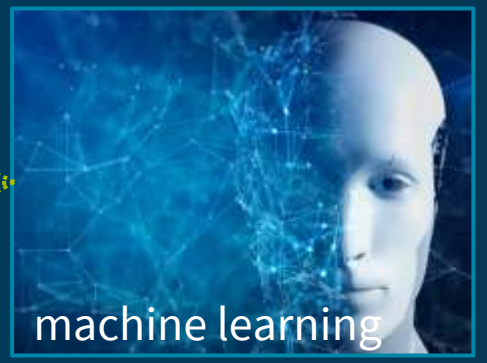
Complex business goals

optimizing for energy usage, costs, legislation etc.

Operational Monitoring

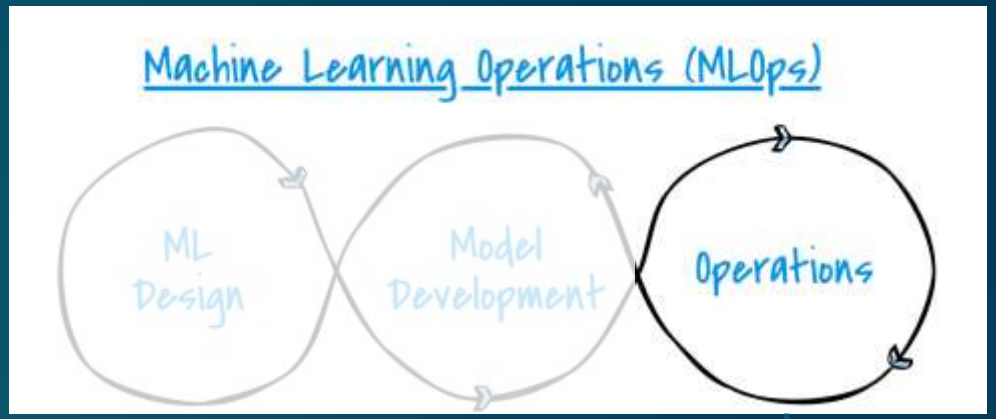
can be automated using sensor data and machine learning





But, ML in operations is hard

models need to deal with changing circumstances



‘MLops’ deals with models in production

What to do when:

1. sensor connection drops
2. data quality changes
3. business process changes
4. sensors are installed/removed
5. etc...

Twinn Machine Learning as a Service

data validation and model deployment at scale in the cloud

Connect your models to live data
Scale to thousands of assets

Automate data science workflows
data validation, model evaluation, (re)training, prediction triggering

Apply MLops standards
model releases, model versioning, model- and input data drift tracking

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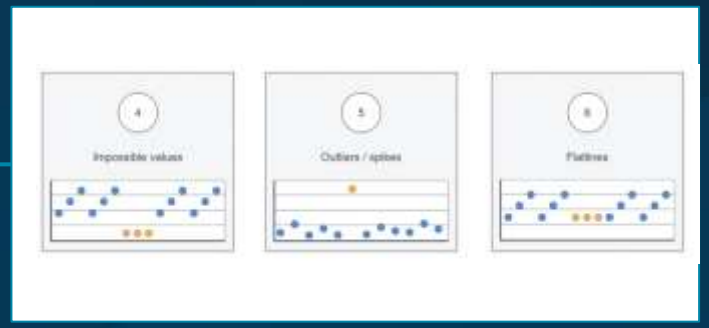
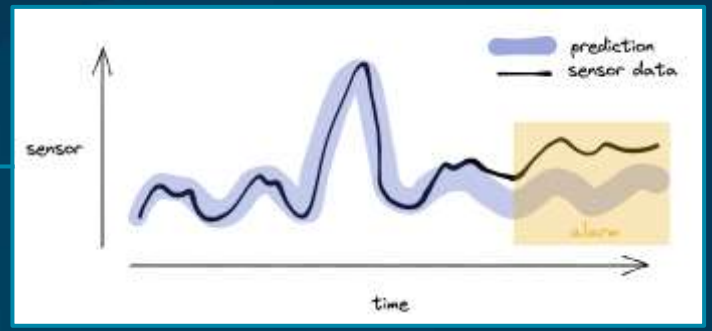
3 types of Machine Learning

currently supported

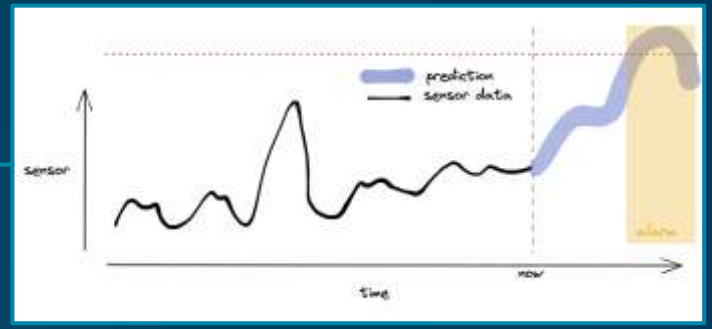
1 **Data Validation**
Validate incoming sensor data



2 **Process Monitoring**
Detect current misalignments



3 **Forecasting**
Detect upcoming threshold exceedences



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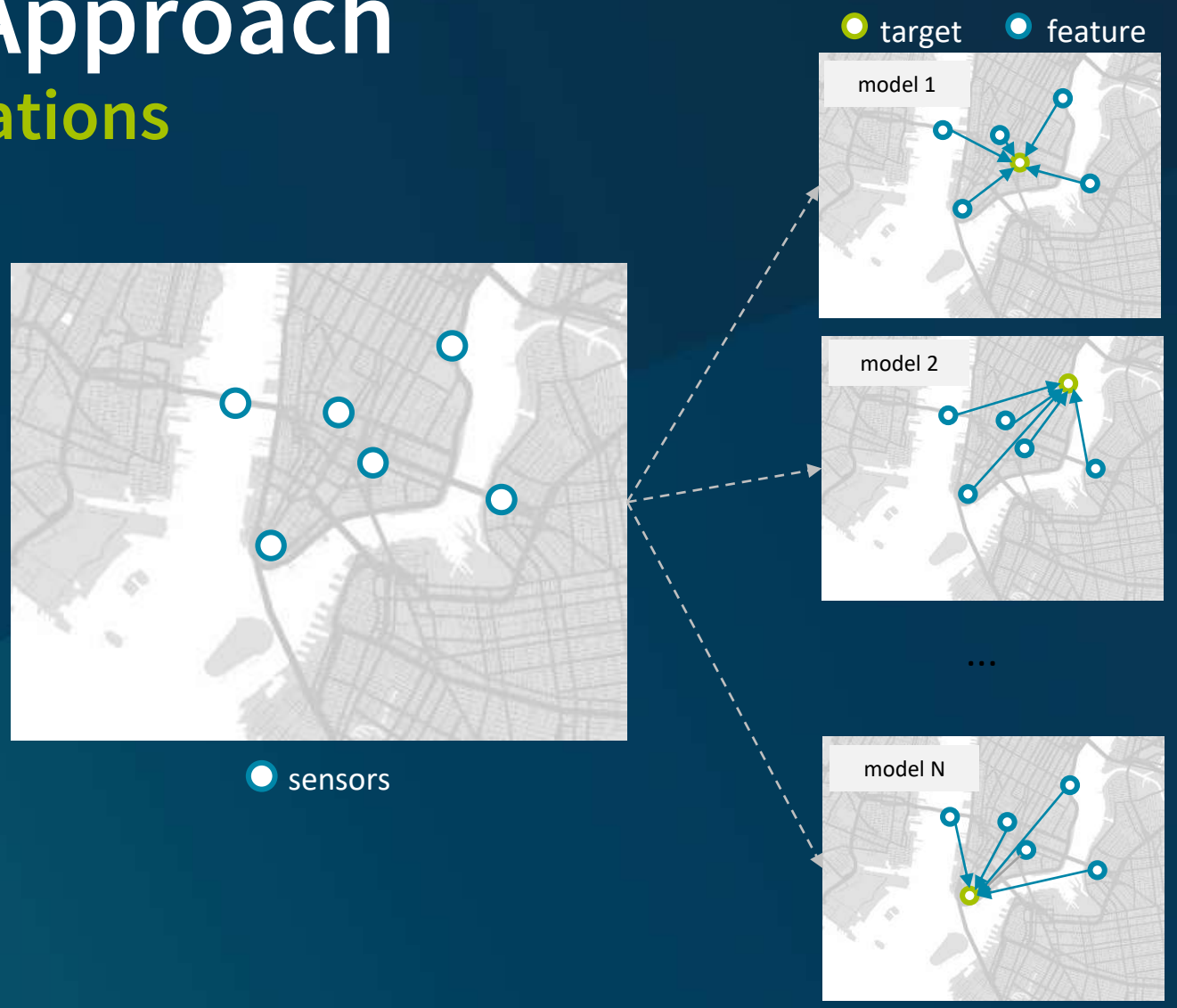
Machine Learning Approach

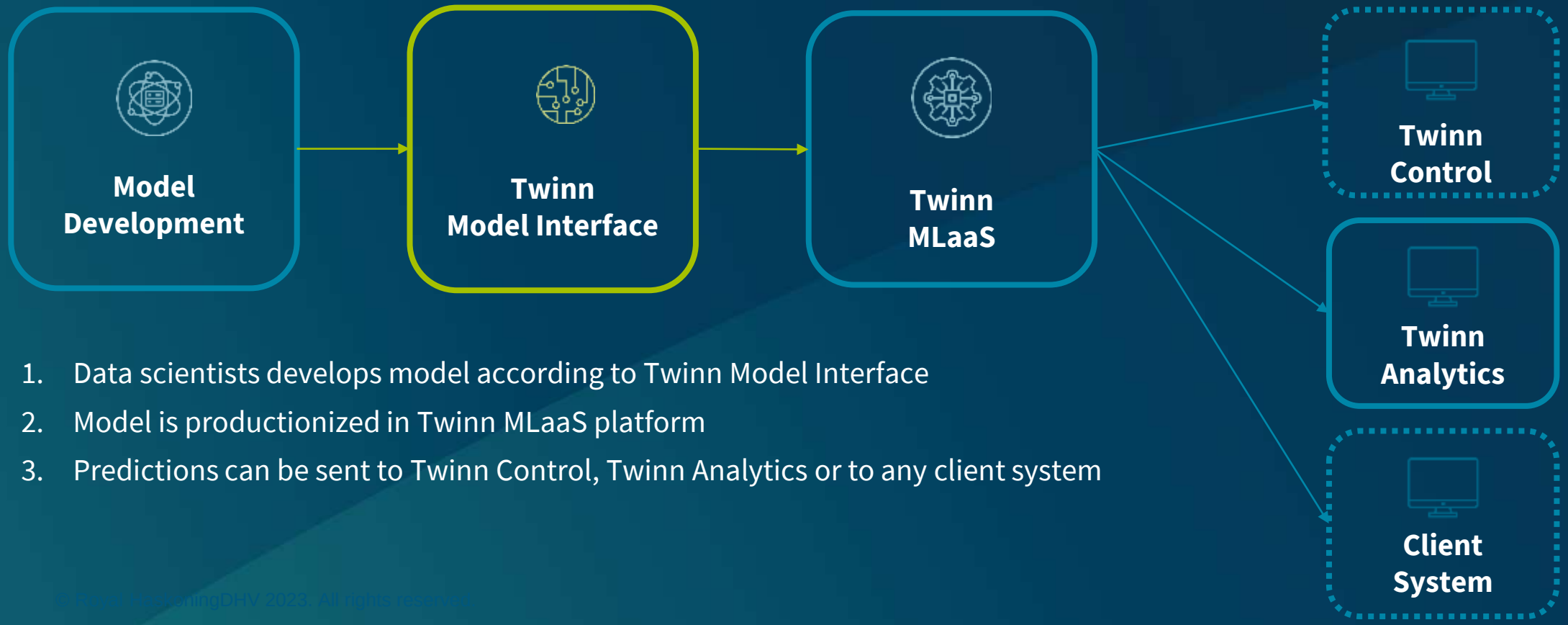
to scale to thousands of locations

1. **Domain expert** defines relevant data
2. **Data scientist** defines preprocessing, feature engineering model tuning using RHDHVs open-source SAM package
3. **Twinn MLaaS platform** scales the modeling approach to N locations



Machine Learning as a Service

Twinn Model Interface to standardize model deployment



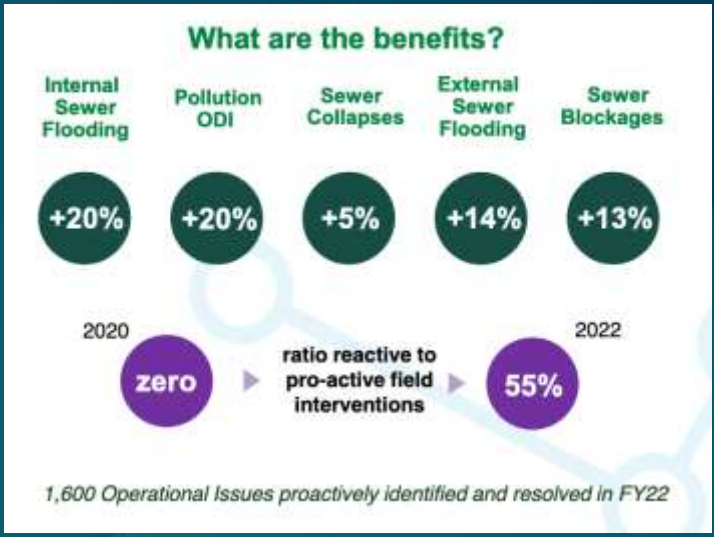
1. Data scientists develops model according to Twinn Model Interface
2. Model is productionized in Twinn MLaaS platform
3. Predictions can be sent to Twinn Control, Twinn Analytics or to any client system

Twinn MLaaS Use Case - SEWR

preventing sewage spills

Early detection of **upstream & downstream blockages and sludge buildups** to reduce sewer spills

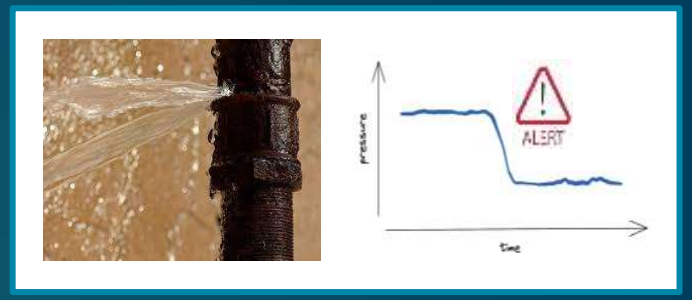
Forecasting future spills
leading to poor surface water quality and according fines



20 thousand sensors connected to the platform

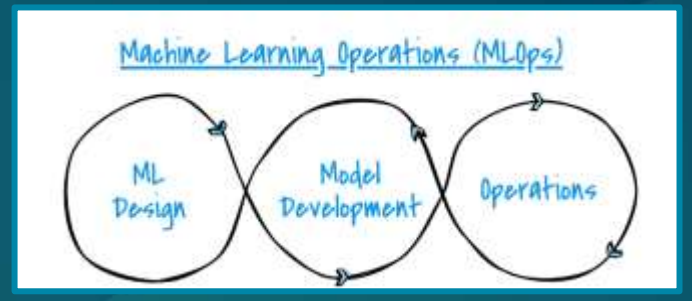
In Summary: Twinn MLaaS

Empowers data scientists to monitor operational problems



Detect and prevent operational problems
using machine learning at scale

Reduce reliance on skilled operators
capture domain knowledge in models that operate 24/7



Take the leap to machine learning in operation
Without the need for a team of developers

Twinn

Start your data science in production journey on Twinn's MLaaS platform

Contact Daan

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