PitAIa

Intelligent Process Optimizer

Solution presentation

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Intelligent Process Optimizer

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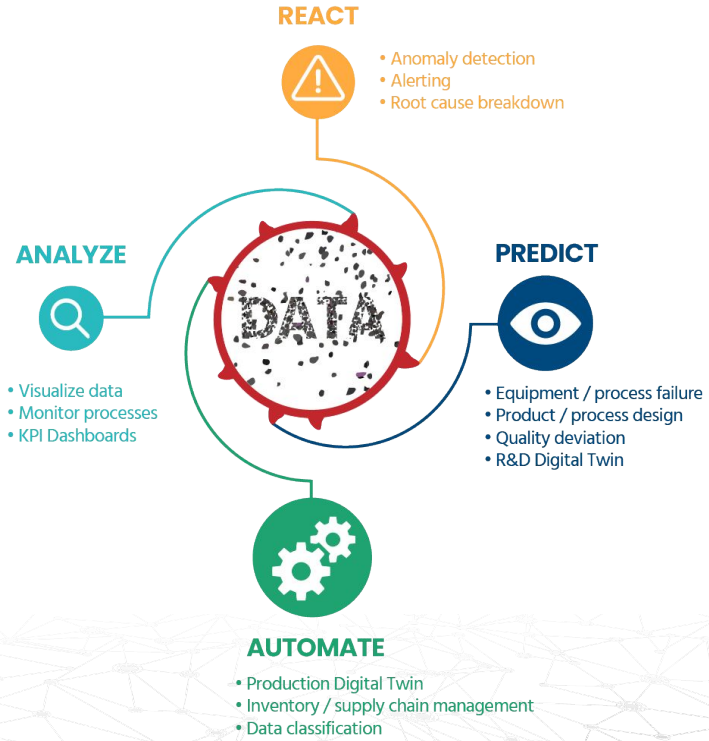
What is **PitAIa?**

AXIOLOGO PitAIa
Intelligent Process Optimizer

PitAIa is a solution for extracting value from production process data. It helps you collect, analyze and monetize process data.

Main benefits are

- 20% increase in efficiency
- Increased batch yields



Solution Overview

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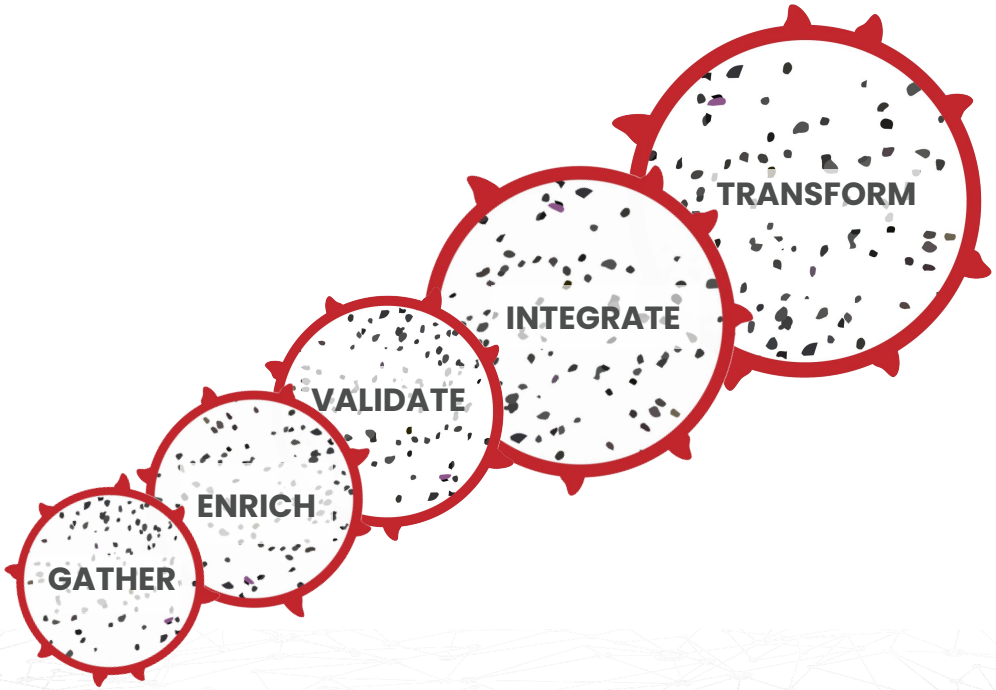

DATA GATHERING & MANAGEMENT

AUTOMATE

PREDICT

REACT

ANALYZE

DATA USAGE

Seamless integration with:

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Your data sources

Data Management

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Gather → Enrich → Validate → Integrate & ensure quality → Transform

Timely collection of raw data from existing data sources (databases, excel files, streams).

Data Management

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Gather | **Enrich** | Validate | Integrate & ensure quality | Transform

Enrichment of data with additional data sources that add context to the manufacturing data

- type of operation (testing, maintenance ...),
- weather data,
- operators qualifications ...

Data Management

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Gather → Enrich → **Validate** → Integrate & ensure quality → Transform

Gathered data is automatically validated against individual validation parameters.

Data Management

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Gather → Enrich → Validate → **Integrate & ensure quality** → Transform

Data is integrated and then run through a quality management process.

Data Management

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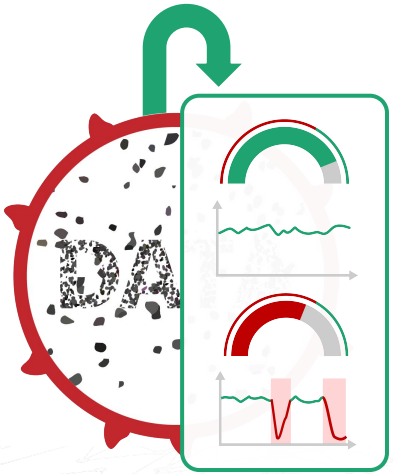
Gather → Enrich → Validate → Integrate & ensure quality → **Transform**



Data is finally transformed in the formats in which it is used/consumed

- data marts for analytics
- time series for process monitoring
- new parameters are generated
- ML specific formats

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Data Visualizations

Allow your team to have a good understanding of the data.

Pitaya provides a data visualization framework that you can fully customize for your needs and preferences.

Visualizations are self-service tools for technologists and process engineers.

ANALYZE

Visualize data
Monitor Process
KPI Dashboard

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Monitor processes

End to end process monitoring is possible after integration of data from various machines and subprocesses.

Pitaya allows definition of golden batches and monitoring of deviations from them.

ANALYZE

Visualize data
Monitor Process
KPI Dashboard

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KPI dashboards

Allow your teams to monitor the health of your manufacturing operation through a set of predefined KPIs.

New parameters can simply be generated/calculated from measured parameters.

ANALYZE

Visualize data
Monitor Process
KPI Dashboard

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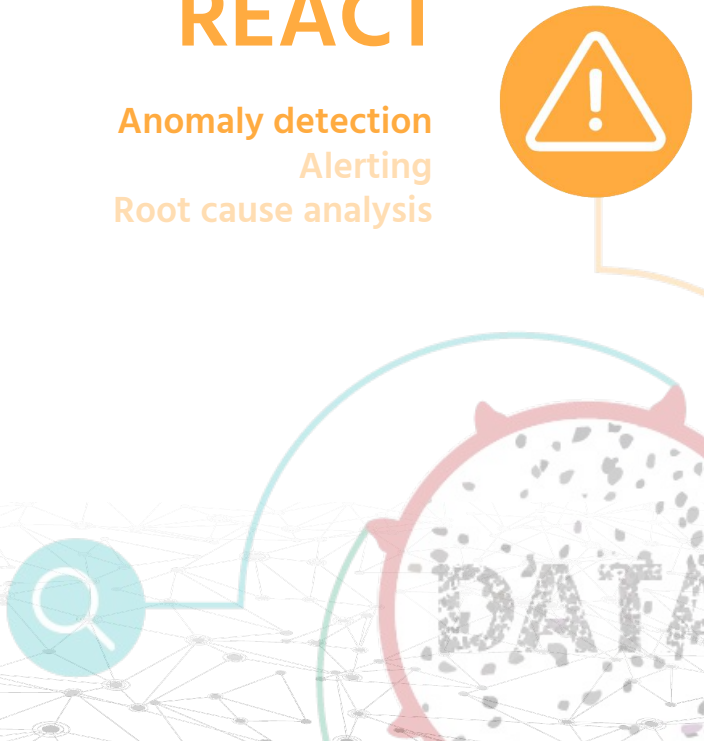
Anomaly detection

Automatically and timely detects data patterns that are related to abnormal manufacturing behaviour like:

- equipment malfunction
- inconsistent input materials
- process errors
- deviations from golden batch settings

REACT

Anomaly detection
Alerting
Root cause analysis



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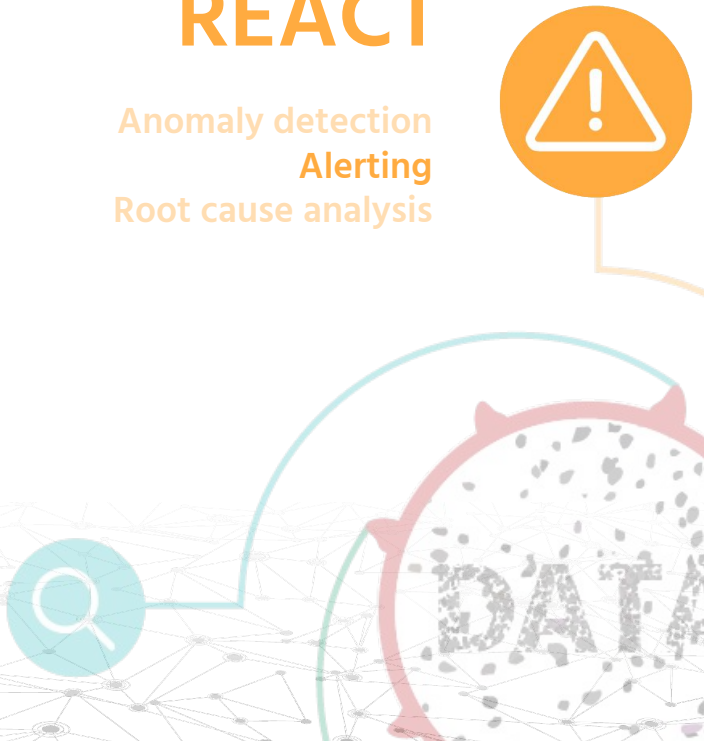
Alerting

When an important event happens your teams can be informed about it though various channels (mail, Teams, sms, other applications ...).

Event notifications reduce reaction times and can significantly impact the operation profitability and uptime.

REACT

Anomaly detection
Alerting
Root cause analysis



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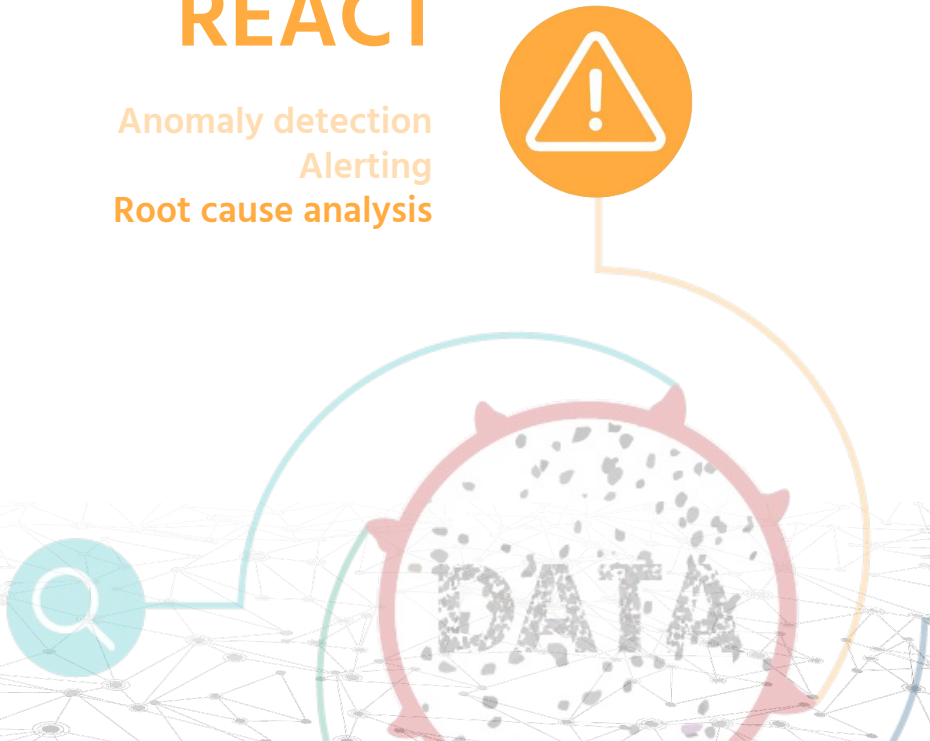
Root cause analysis

Helps you teams investigate and understand the root cause of complex problems that significantly impact the manufacturing operation.

Pitaya provides a set of tools that helps you manipulate manufacturing data and understand the root cause of your key problems.

REACT

Anomaly detection
Alerting
Root cause analysis



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PREDICT

Equipment / process failure
Product / process design
Quality deviations
Product Digital Twin

Equipment / process failure

High maintenance costs and process downtown can successfully be decreased with preventive maintenance.

Pitaya allows you to understand your machines/production lines maintenance needs based on data patterns and set up needed algorithms for preventive maintenance.

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PREDICT

Equipment / process failure
Product / process design
Quality deviations
Product Digital Twin

Product / process design

Designing a product or process requires to consider many factors and options with limited time and resources.

Pitaya DoE tools help customers to explore the design space with as few experiments as possible.

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PREDICT

Equipment / process failure
Product / process design
Quality deviations
Product Digital Twin

Quality deviations

Smart measuring and in depth understanding of the process/product can lead to good control over quality.

Pitaya enables automated monitoring of product/process quality drifts and sensor calibration.

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PREDICT

Equipment / process failure
Product / process design
Quality deviations
Product Digital Twin

Product digital twin

All relevant R&D data can be used to develop a digital twin of the product.

Pitaya enables the development of a product digital twin and provides tools that enable R&D departments to develop next product version faster and cheaper.

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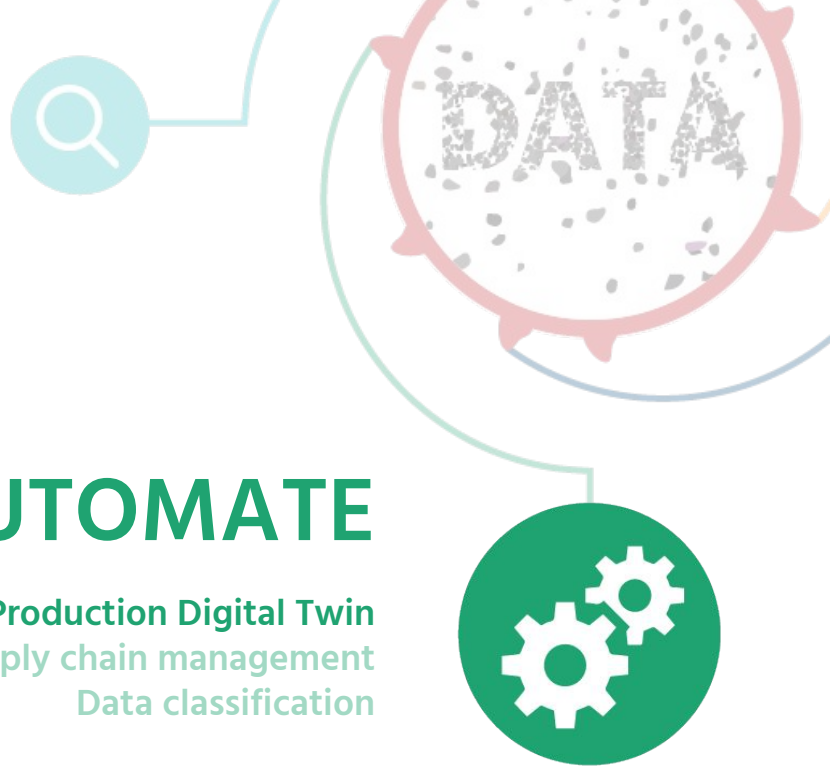
Production digital twin

The evolution of the production process is faster and easier with the use of production digital twin.

It allows simulations of changes in materials, machine settings and their impact on the production process.

Pitaya enables effective development of production digital twins.



AUTOMATE

Production Digital Twin
Inventory / supply chain management
Data classification

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Inventory / supply chain management

Supply chain modelling enables customers to find an optimal balance between costs and inventory levels.

Pitaya enables use of real time production data to improve manufacturing supply chain logistics.

AUTOMATE

Production Digital Twin
Inventory / supply chain management
Data classification

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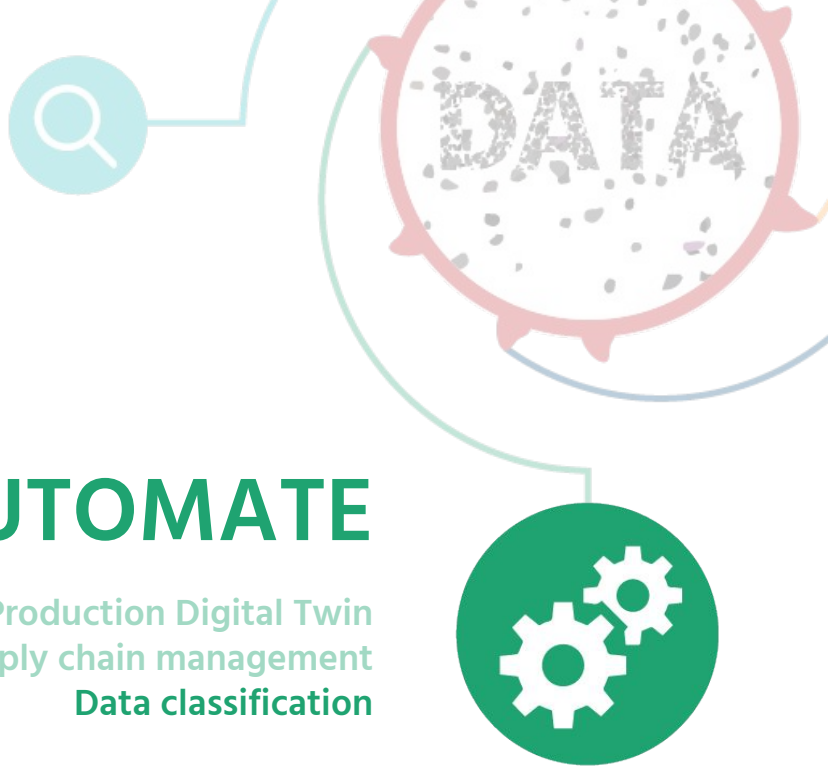
Data classification

Manual data classification can many times be replaced by faster and more accurate classification algorithms.

Pitaya integrates various data classification algorithms that can be used to automatically process data.



AUTOMATE

Production Digital Twin
Inventory / supply chain management
Data classification

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USE CASES

ANALYZE - KPI Dashboard

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Customers challenge:

- Complex production floor with many production lines and hundreds of machines.
- Experienced technical staff deals with acute issues when alerted to problems by coworkers.
- The number of machines and components makes it impossible to have a good overview or control over the entire floor by one person or even a group of people.

ANALYZE - KPI Dashboard

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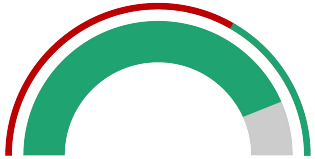
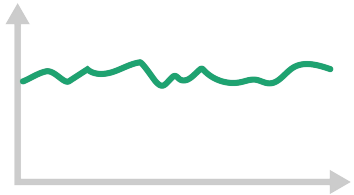
LINE 1

YIELD



468 kg

TEMPERATURE

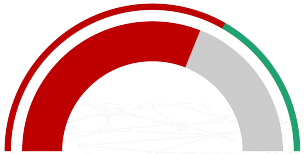


TOP FAILURES

- Material
- Temp low
- Machine stop

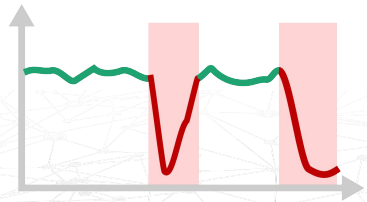
LINE 2

YIELD



42 l/min

HISTORICAL YIELD



TOP FAILURES

- Pressure control
- Valve malfunction
- Impurity A

ANALYZE - Visualize data

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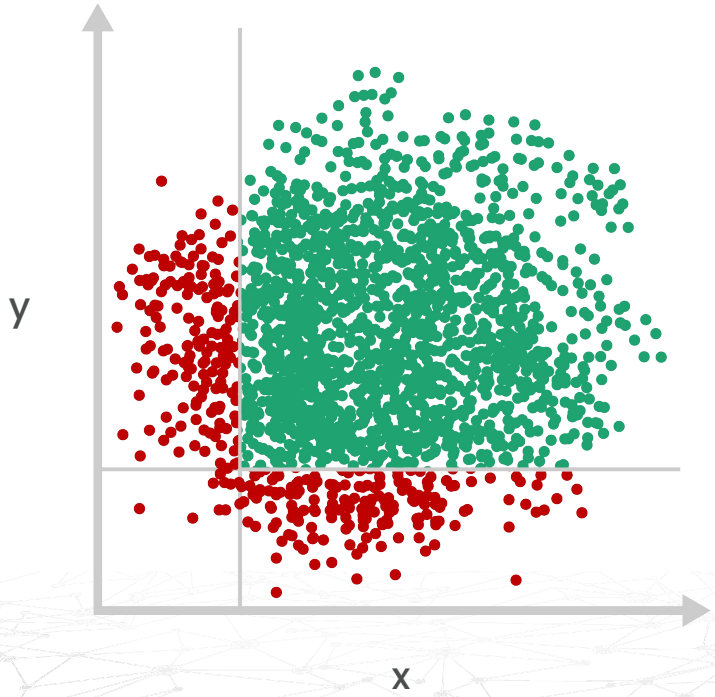

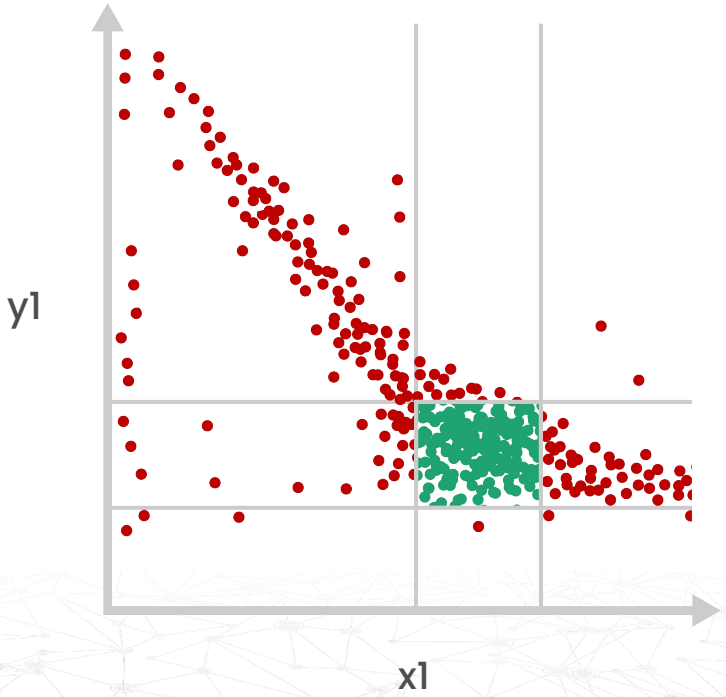

ANALYZE - Monitor process

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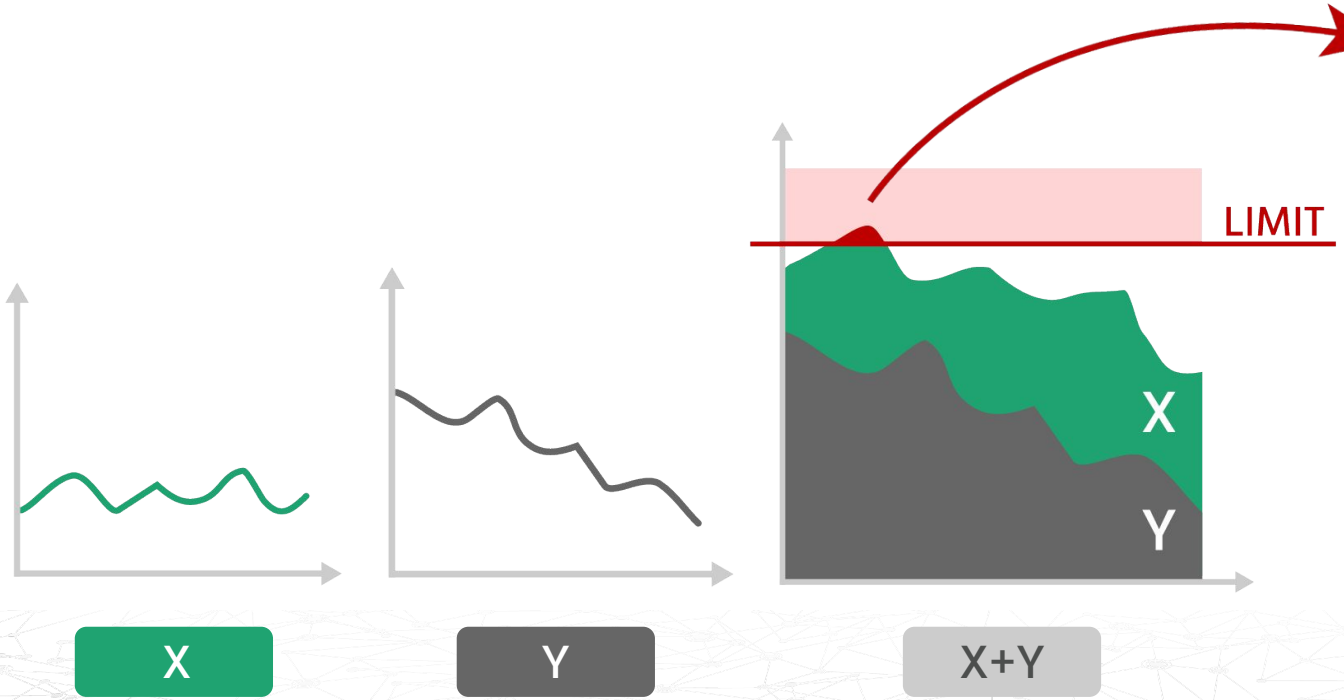

⚠ ALERT ⚠

PARAMETERS X+Y OVER LIMIT

ALERT ME ANYWHERE

AUTOMATE - Digital Twin

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Challenge:

- Customer produces a semi-product thought a hot melt extrusion process
- The characteristics of incoming material are changing due because of switching suppliers or different batches
- The client experienced batch failures and spent quite some time in lengthy analysis and fine-tuning cycles before each batch

AUTOMATE - Digital Twin

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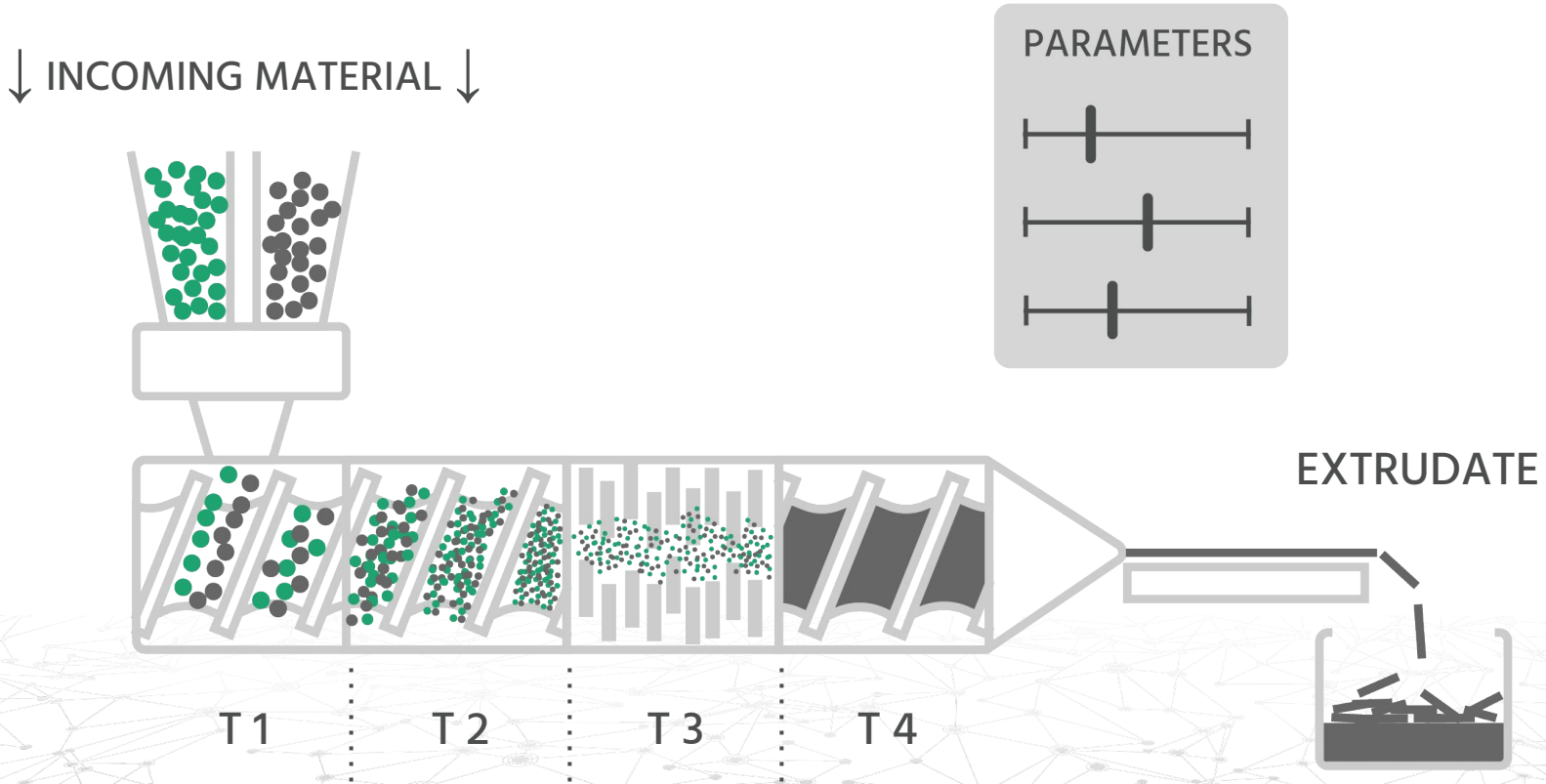

AUTOMATE - Digital Twin

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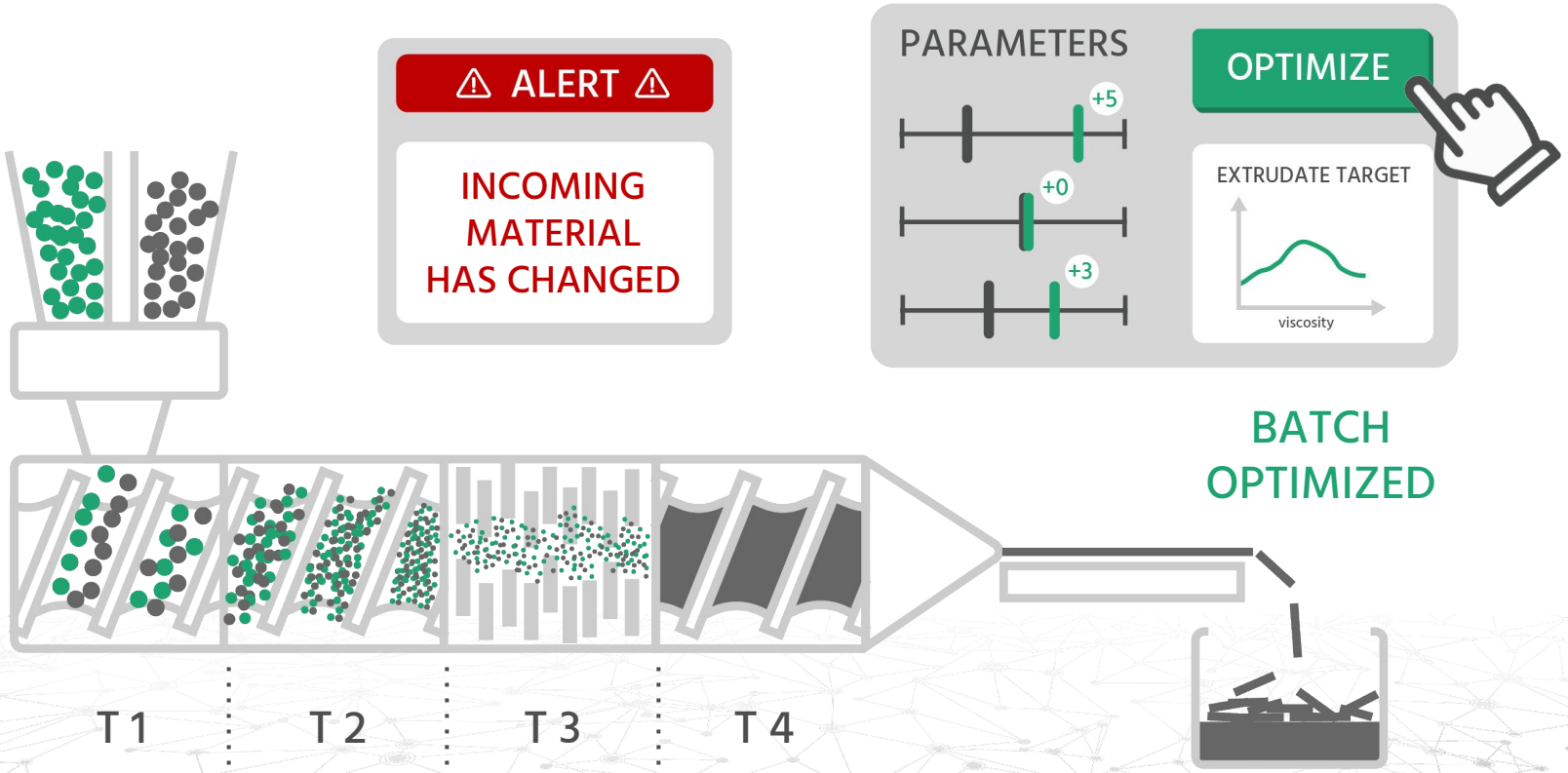

PitAIa deployment

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- On private/public cloud
- SaaS

Benefits

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PitAIa

enables companies to

speed up R&D processes

increase productivity in manufacturing

by 20%

Contact

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