

simic Spa



BUSINESS

Engineering

Manufacturing

Assembly &
**maintenance of
industrial plants**



INDUSTRIES

Oil & Gas

Nuclear Energy

Power Generation

Aerospace

Scientific Research

Renewable Energy



LOCATIONS

operative units,
sites and human
resources

in over 11
countries besides
Italy

Innovating maintenance of industrial plants means combining



Preventive



Reactive



Corrective

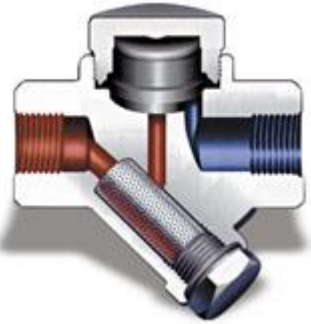


Predictive / On-condition

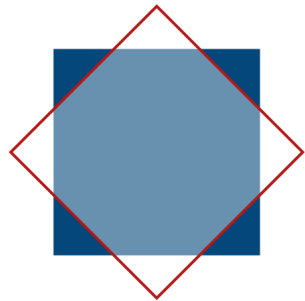
and experimenting new solutions

experimenting new solutions

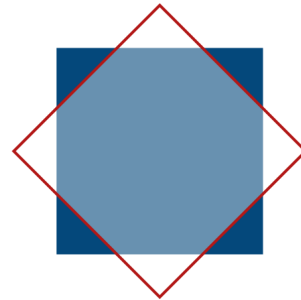
steam traps are



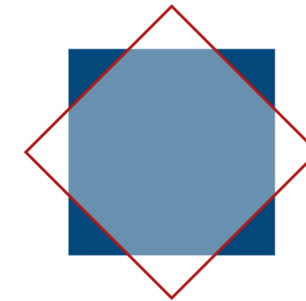
used to discharge condensate
along steam pipes



crucial for optimal
functioning of steam
distribution systems



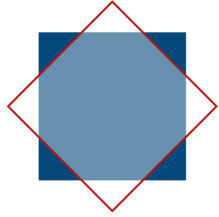
not easily
accessible



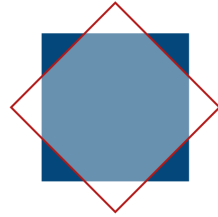
difficult to
maintain

experimenting new solutions

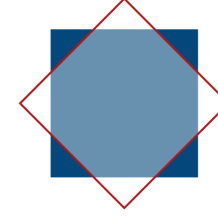
steam traps are



crucial for optimal functioning of steam distribution systems



not easily accessible



difficult to maintain

leading to



infrequent monitoring



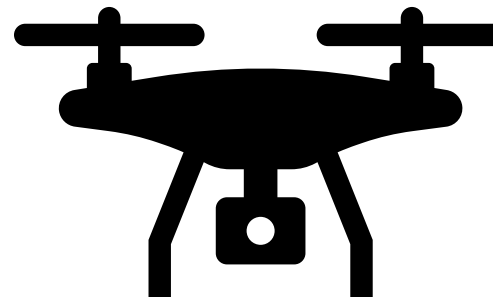
infrequent reparation

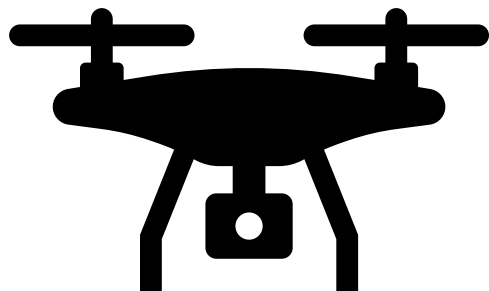


energy waste

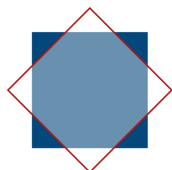
experimenting a new solution

monitoring steam traps
using a drone with a
thermal camera

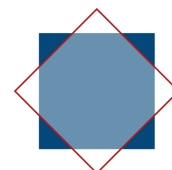




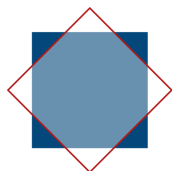
today



Data
in/out temperature
discrete data → time series



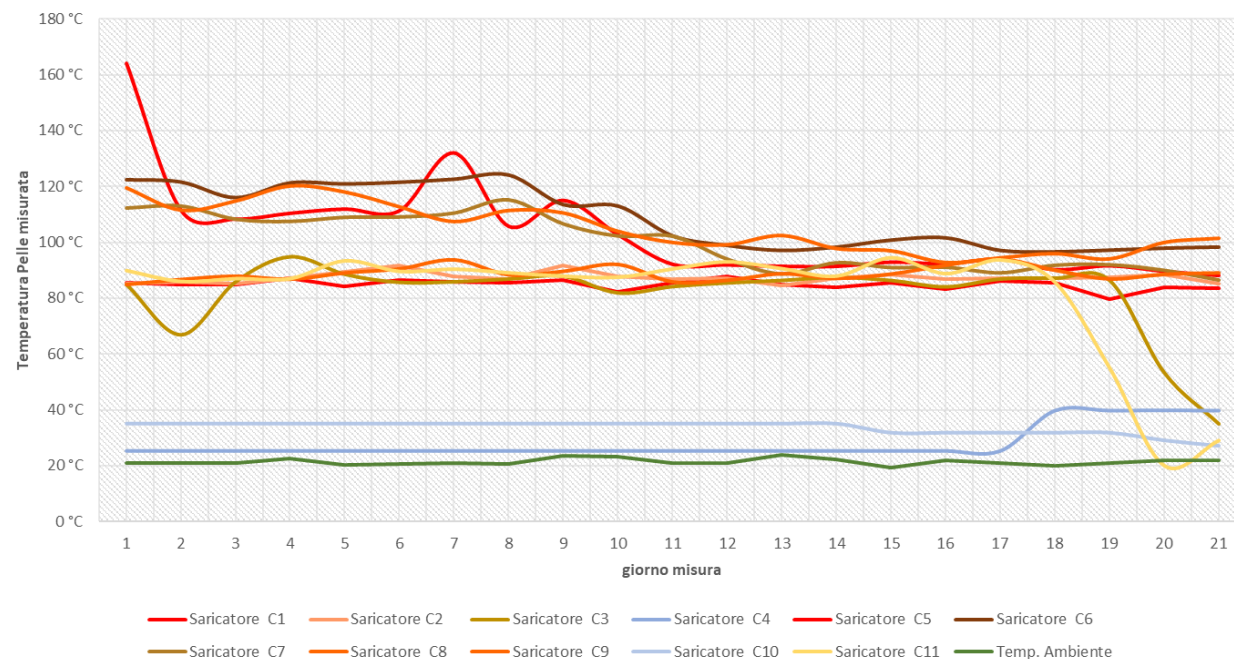
Analysis
Temperature profile for each piece
Characterization of common behaviours
Anomaly detection

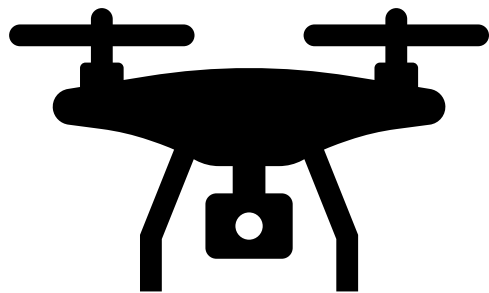


Maintenance
On-condition

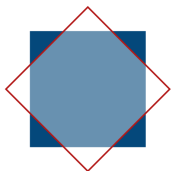


Temperature Uscita Scaricatori

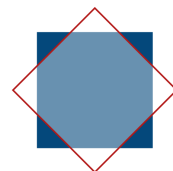




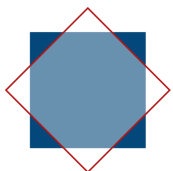
tomorrow



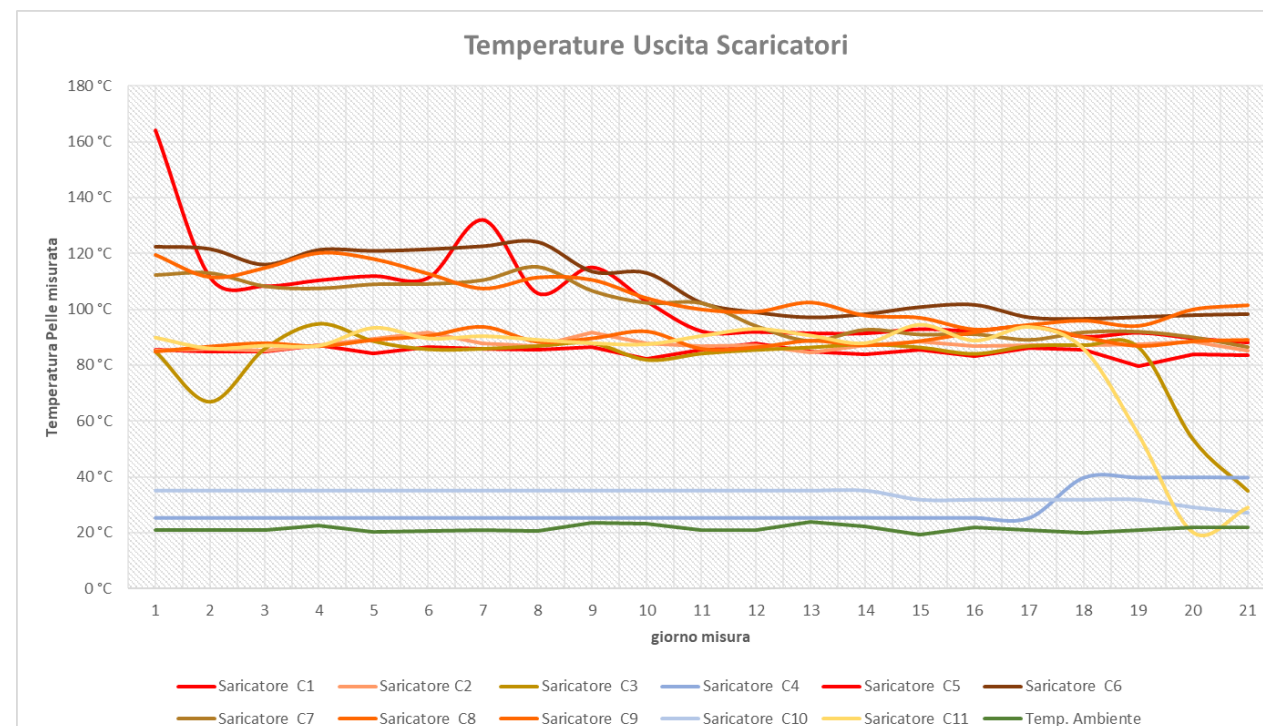
Data
in/out temperature
discrete data → time series



Analysis
Temperature profile for each piece
Characterization of common behaviours
Anomaly detection
time series trends



Maintenance
On-condition
predictive



steam traps



were difficult to maintain became easy to maintain

time-based maintenance

every 6 months

overhead work
2 operators

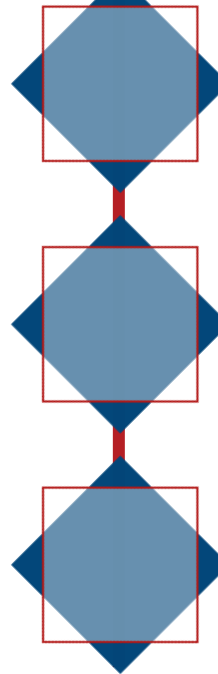
long times
5-6 h

on-condition maintenance

every month

driving drone
1 operator

short times
30 min



steam traps



were difficult to maintain became easy to maintain

time-based maintenance

Infrequent monitoring

on-condition maintenance

Frequent monitoring

Infrequent maintenance

Punctual maintenance

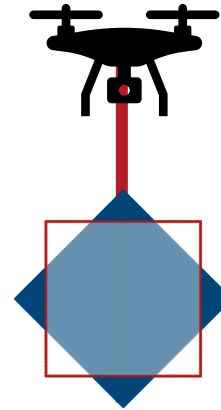
Energy waste

Energy saving



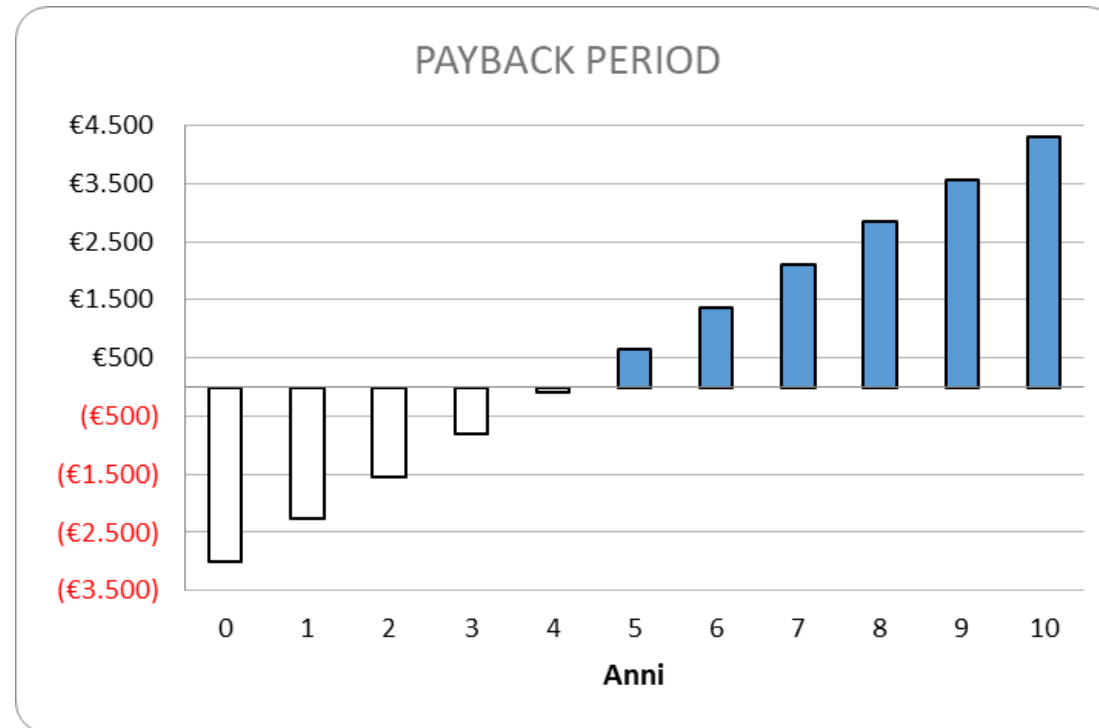
steam traps

**from
time-based maintenance**

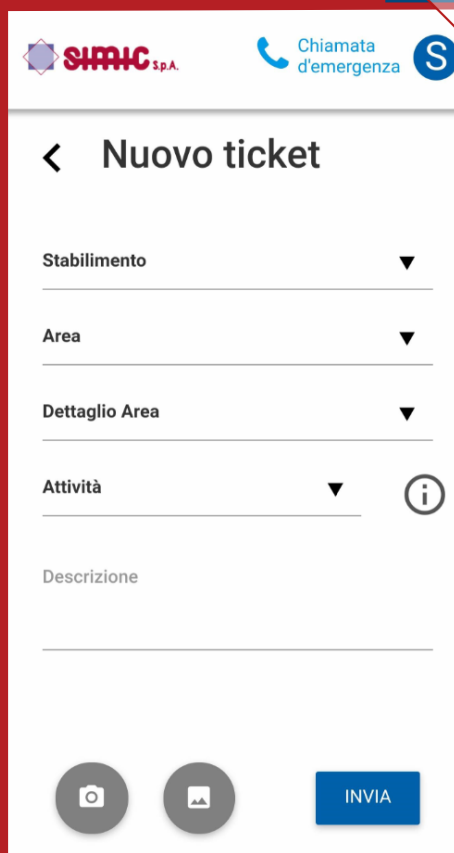
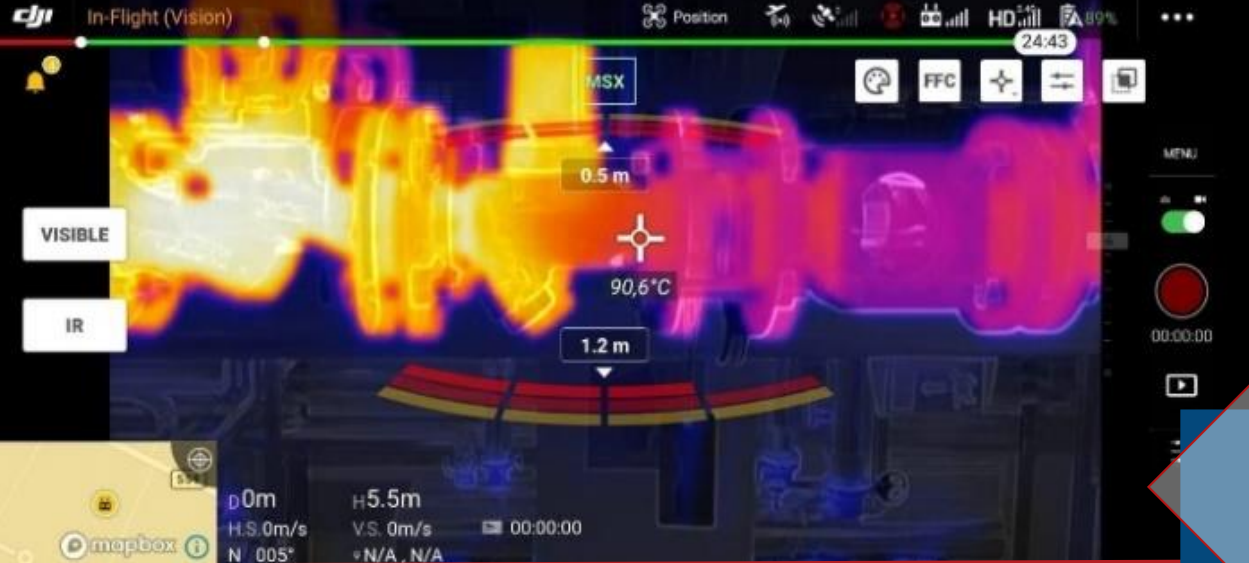


**to
on-condition maintenance**

payback
period of 4
years



using the estimated
value of recovered
energy




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