

Rebecca, an integrated and modular platform

Rebecca has been integrated with multiple systems in a simple and optimized way



SAP
MM, PS, PM, WEBI, SRM

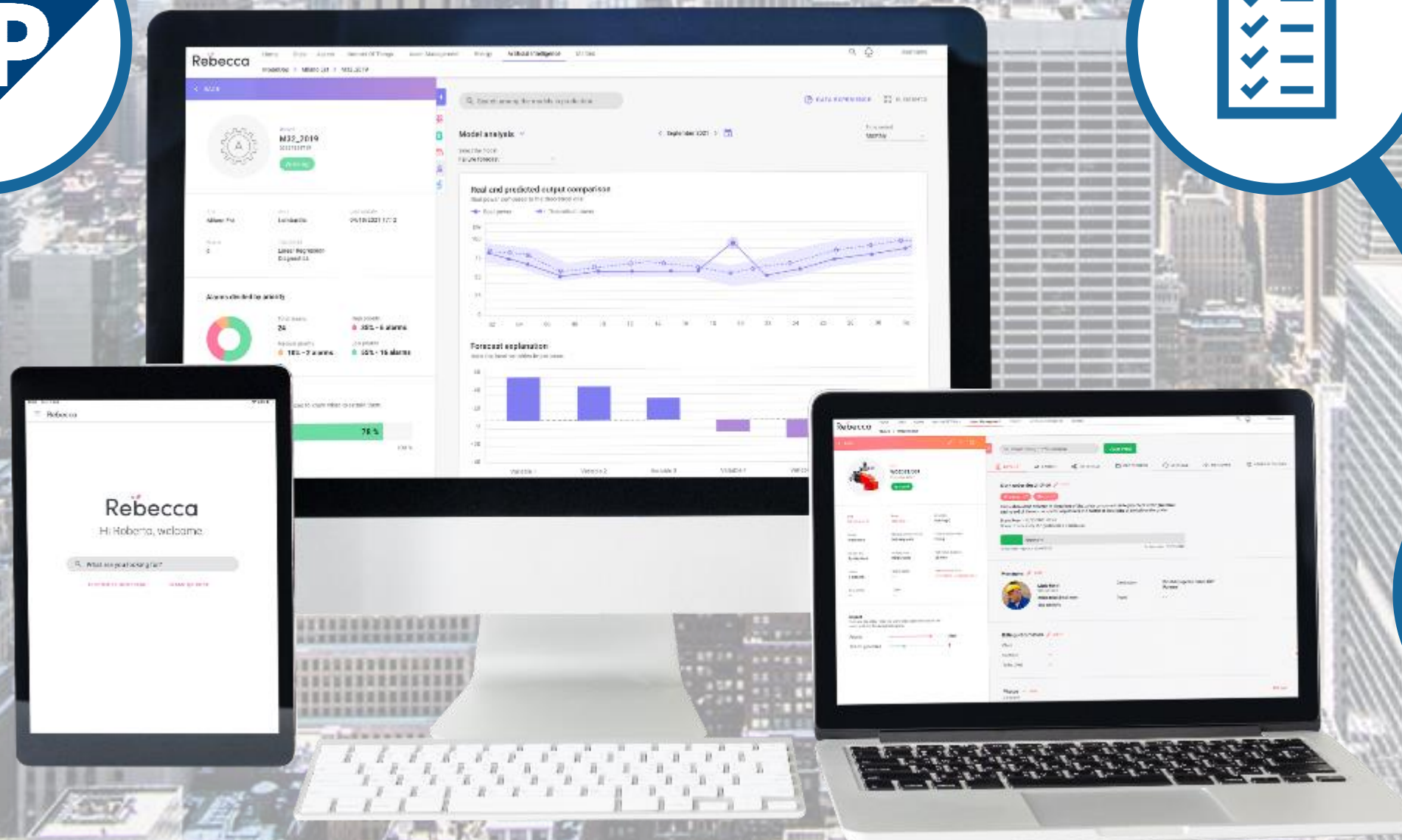
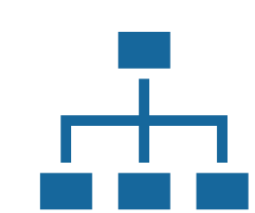


HR & DOCS
Workday, Jdoc...

SPARE PARTS
MANAGEMENT, IOT
Modula, Esolver...



ADMIN & IWMS
Jmax, Archibus...



Rebecca 2023

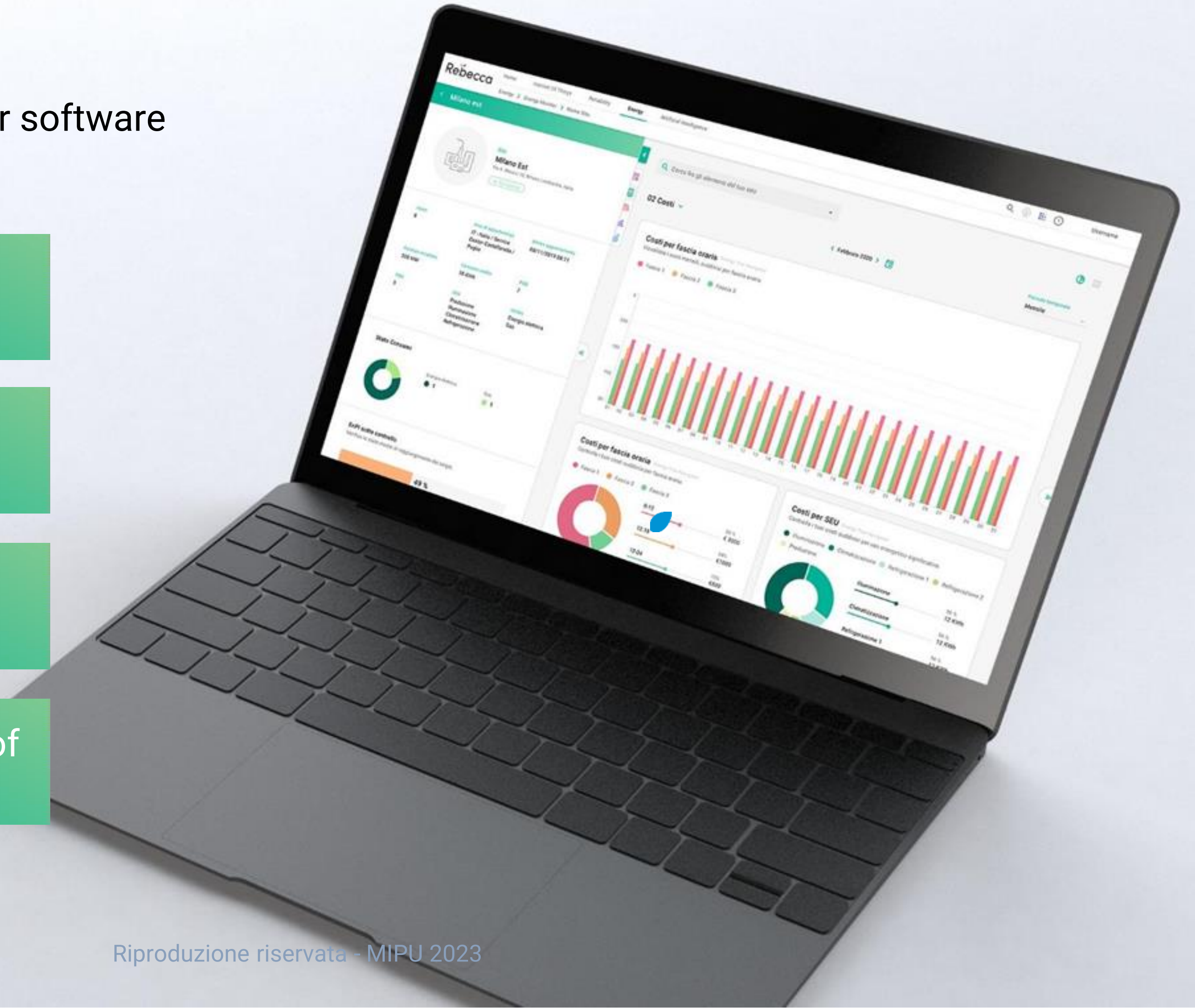
Rebecca Energy Management is our software solution that allows you to:

Monitor consumption


Detect waste and anomalies

Minimize the environmental impact

Improve the energy management of plants and facilities

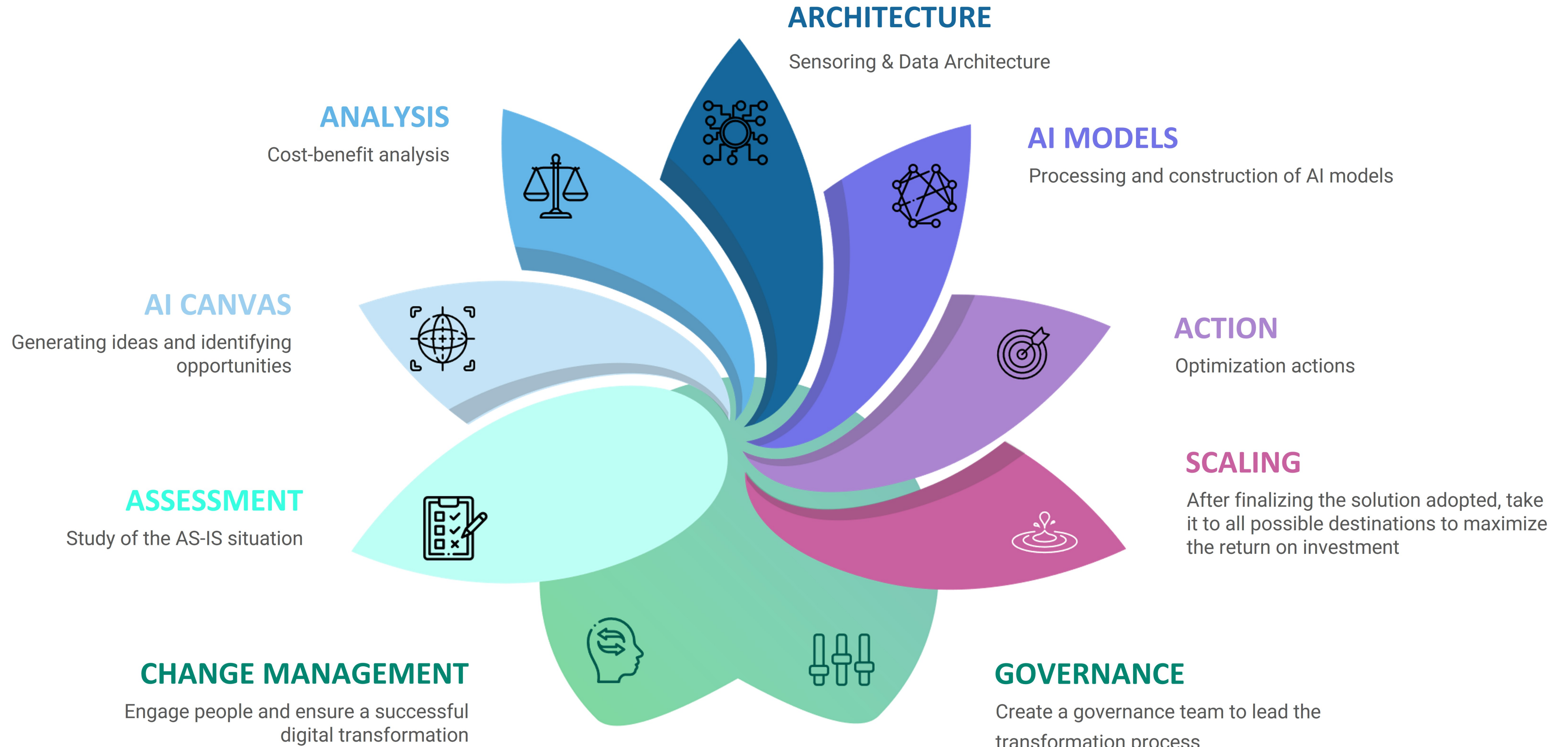


Our roadmap to the predictive enterprise

KNOW-HOW 

SOFTWARE

HARDWARE

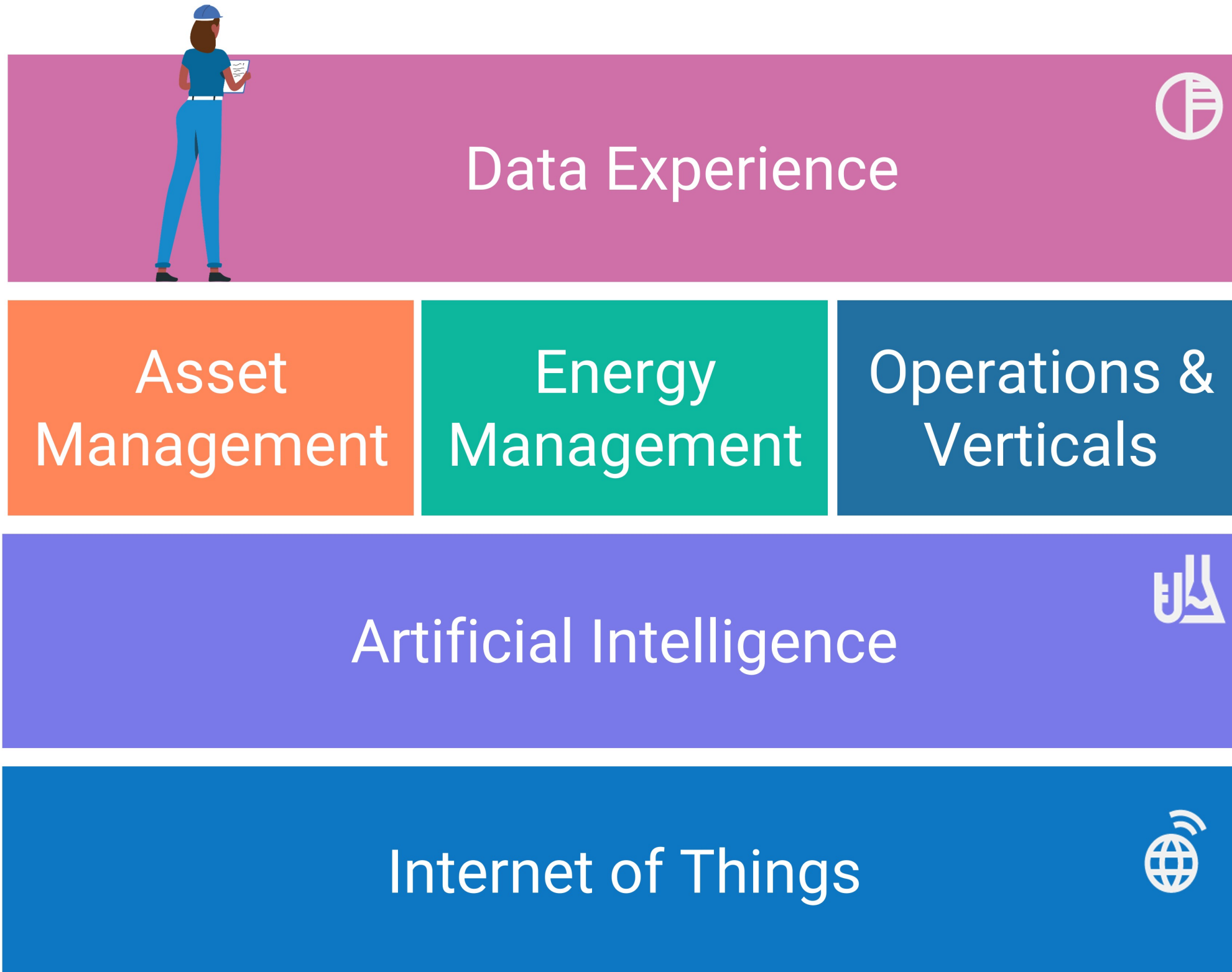


Rebecca | a modular and codeless platform

KNOW-HOW

SOFTWARE

HARDWARE



Asset Management | Manage and enhance the value of your assets

KNOW-HOW

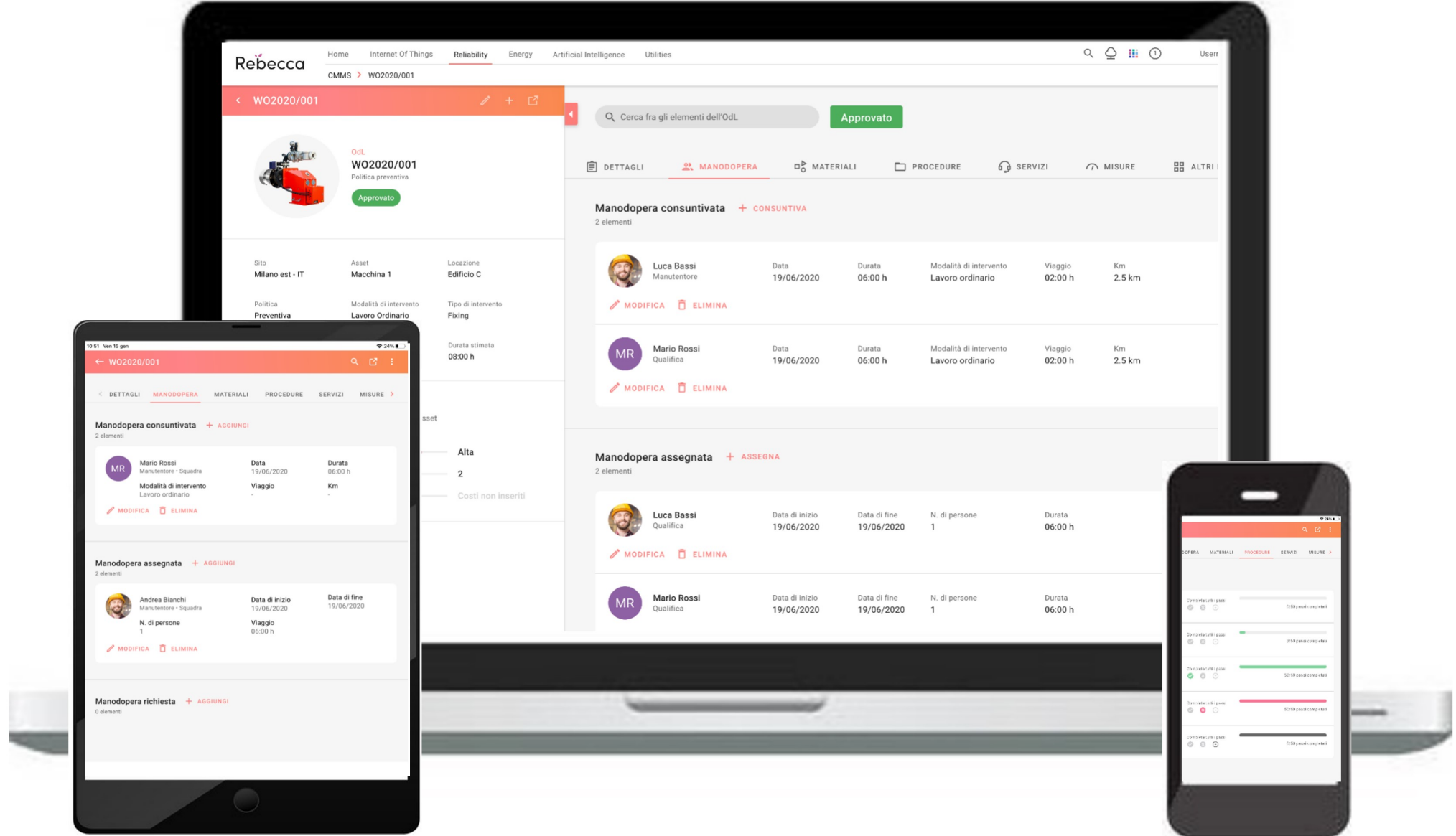
SOFTWARE

HARDWARE

MAP
MAP YOUR ASSETS
TRACK THEIR HISTORY

PLAN
DEFINE WORKFLOWS
SET PERFORMANCES

OPTIMIZE
DECREASE DOWNTIMES
INCREASE PRODUCTIVITY



Asset Management | Choose the apps and build your own solution



ASSET INFORMATION



INFOMAPPING



TICKETING



CMMS



SPARE PARTS



CALIBRATION MANAGEMENT



DOCUMENT MANAGEMENT



AUDIT & NON COMPLIANCE



REPORT & KPI

Energy Management | Give the right value to your investments

KNOW-HOW

SOFTWARE

HARDWARE

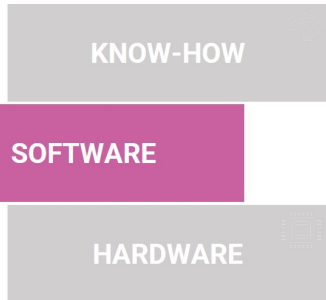
PLAN
DEFINE YOUR OBJECTIVES
BUILD THE ENPIs

CONTROL
MEASURE DEVIATIONS
CORRECT THE ROUTE

IMPROVE
REACH YOUR GOALS
ENHANCE YOUR RESULTS



Energy Management | Choose the apps and build your own solution



FAST CHECKUP 

THE ENERGY AUDIT 

THE ENERGY MONITORING 

THE ENERGY MANAGEMENT 

THE ENERGY REVIEW 

ENPI GOAL 

Artificial Intelligence | Predict and resolve problems of your company

BUILD

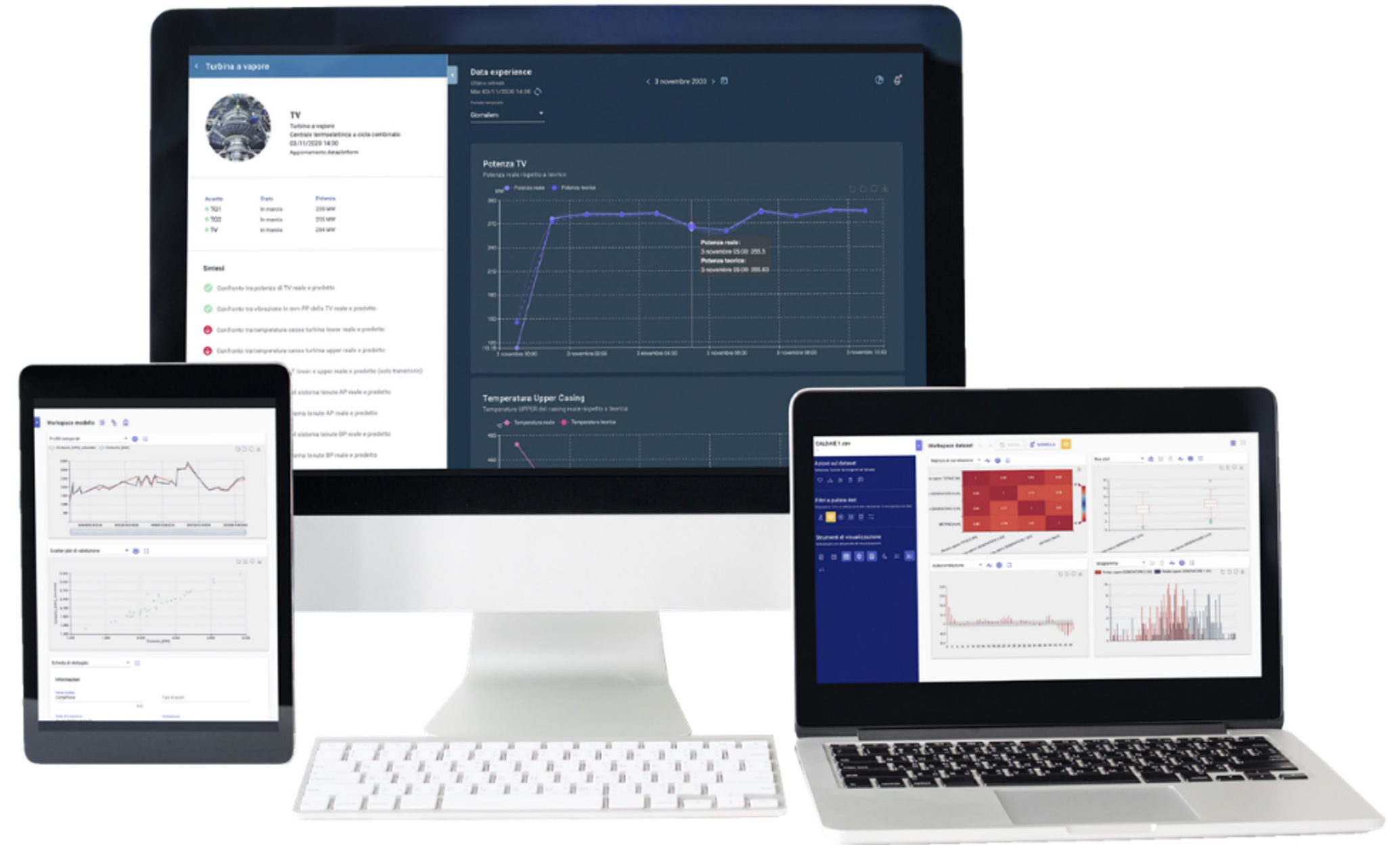
COLLECT DATA
TRAIN MODELS

INNEST

CREATE YOUR OWN SET OF INTELLIGENCES
CONNECT THEM TO YOUR EQUIPMENT

EVOLVE

ANTICIPATE CHANGES
BOOST YOUR INTELLIGENCES



BUILDER



INNEST



FRAME





AI & Predictive Maintenance in POWER GENERATION

OUR CUSTOMER



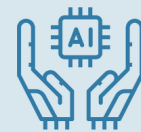
One of the main Italian players for energy production and distribution, part of a French multinational company.

THE CHALLENGE

The customer wanted to implement an **AI-based framework for predictive maintenance** on the turbines of its thermal power plants and on wind turbines.

The company expected to:

- Create a digital-twin model of the plants and most critical assets
- Have quick and easy overviews of plants performances



OUR SOLUTION



Development of machine learning models able to predict energy consumption and production



Software system to easily manage the created models and to create new ones with no coding



Automated alerts for deviations + optimized data experience for the overview of the assets performances



Rebecca INTERNET OF THINGS



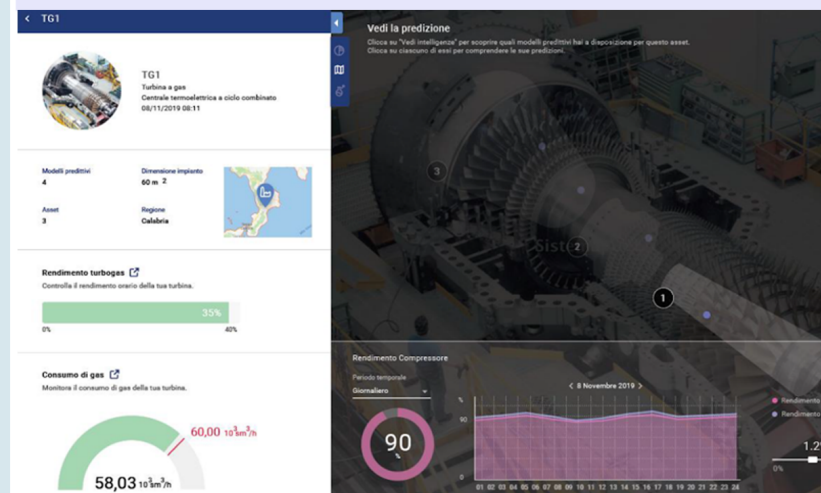
Rebecca ENERGY MANAGEMENT



Rebecca ASSET MANAGEMENT



Rebecca ARTIFICIAL INTELLIGENCE



RESULTS



- Algorithms **precision in modeling the assets: 99.2%**
- **Easy management of algorithms** even for dislocated assets and teams

ECONOMIC SAVINGS: fixing the anomalies identified by the algorithms is allowing a production increase of avg. 30 MWh per day - approximately **€135.000 monthly revenue increase**



Maintenance Management in MANUFACTURING

OUR CUSTOMER



First tyre manufacturer in the world. Developing prototypes in Italy, in a Technical Center employing 500 technicians.

THE CHALLENGE

A **modular CMMS** for the comprehensive organization of maintenance operations, both on equipment and on facilities.

The company was looking for:

- A modular and user-friendly platform
- A smart solution to manage 2 different teams
- A **partner** able to help them in the implementation of the CMMS



OUR SOLUTION



Asset inventory and implementation of maintenance plans



Implementation of an online Ticketing system for the automatic generation of documents and workflows



Digitization of Spare Parts Warehouse management operations



Rebecca INTERNET OF THINGS



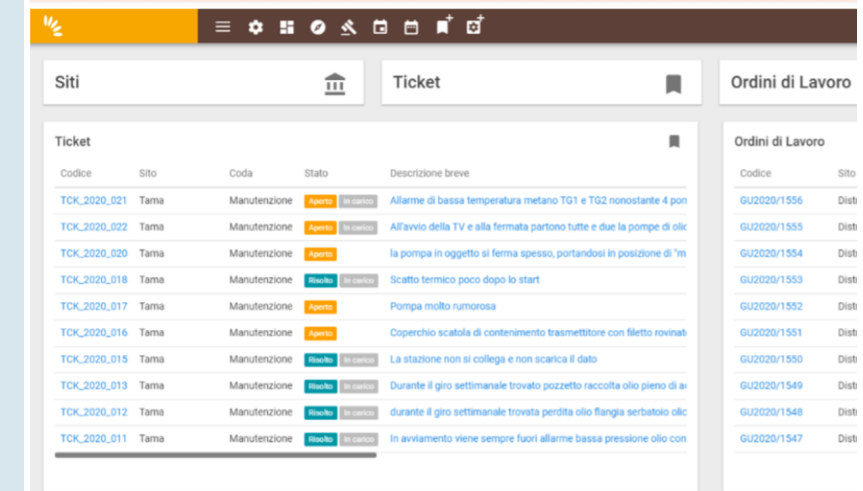
Rebecca ENERGY MANAGEMENT



Rebecca ASSET MANAGEMENT



Rebecca ARTIFICIAL INTELLIGENCE



RESULTS



- **Use of only one software platform for all maintenance operations** instead of 2 + paper
- Digitization of operations previously performed manually or on paper, resulting in a **better coordination of the maintenance teams**

OUR CUSTOMER



The company produces paper goods for personal care, employing 1700 people in 5 production plants in Italy and abroad.

THE CHALLENGE

The main objective was to **identify and control the EnPIs** (Energy Performance Indicators) of the plant.

The final goals:

- Interception of anomalies and deteriorations in the plant performances
- Energy consumption control and reduction



RESULTS



- Easy assessment of the energy needs
- Automatic reports for the overview of consumption, anomalies and energy sources to control

ECONOMIC SAVINGS: 5-7% of annual energy saving

OUR SOLUTION



Installation of 120 energy meters DAVIDE to collect data in the plant



Software platform able to combine energy and production data



Dashboards for the easy creation of baselines, consumption control and overview of the main EnPIs



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INTERNET OF THINGS



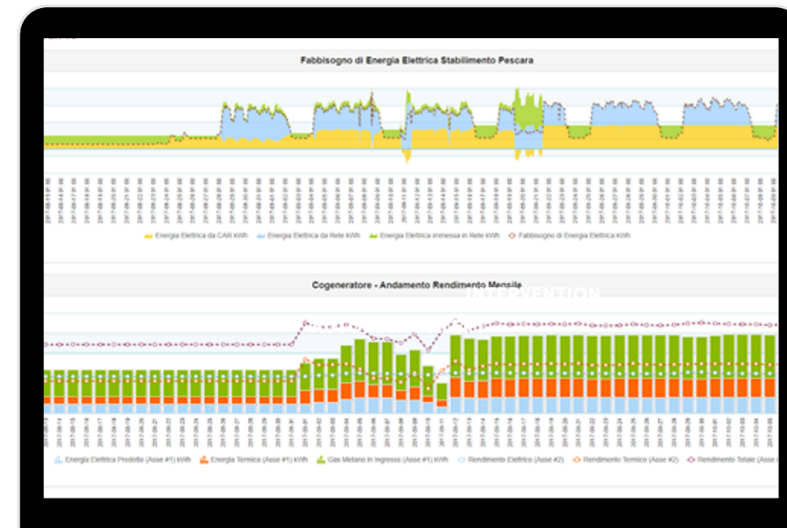
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ENERGY MANAGEMENT



Rebecca
ASSET MANAGEMENT



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OUR CUSTOMER



Italian machinery company that produces high customized industrial components such as jacks.

THE CHALLENGE

The customer wanted to implement an **IoT solution** in order to have the complete overview of its components worldwide.

The company expected to:

- Have a quick overlook of all the components installed at the end customers, in any moment
- Control and manage the components installed at the end customers



RESULTS



- **Easy remote management and control** of the components installed at the end customers
- Possibility to offer an **efficient and valuable after sales service**

OUR SOLUTION



Installation of a **gateway** as a remote unit near the component



Supply of an **IoT Software system** to easily collect information about the components on the cloud



Supply of a customized **Data Experience** for data analysis for any single component



Rebecca
INTERNET OF THINGS



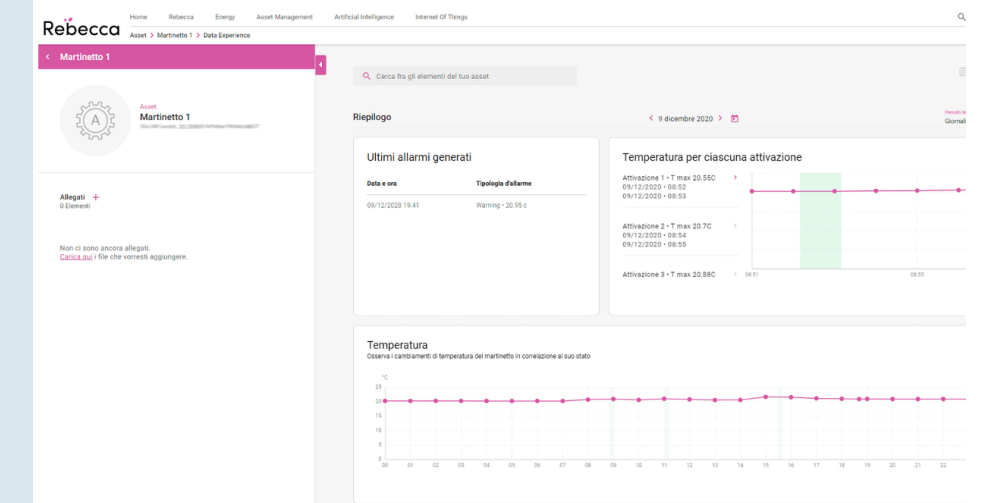
Rebecca
ENERGY MANAGEMENT



Rebecca
ASSET MANAGEMENT



Rebecca
ARTIFICIAL INTELLIGENCE





AI & Asset Management in PACKAGING MACHINES

OUR CUSTOMER



Italian company specialized in the design and production of coniforming machines for the packaging industry

THE CHALLENGE

The customer wanted to implement a **software platform** to always have the complete overview of the installed equipment and to optimize after sales services.

The company expected to:

- Have a quick overview of all the machines installed at the end client
- Manage the entire maintenance cycle with automatic tickets
- Apply predictive maintenance on the machines
- Control energy consumption and reduce waste



OUR SOLUTION



IoT platform to collect data from machines and components



Customized **Data Experience** to visualize production trends and analysis of OEE



Ticket application for the opening of assistance tickets and remote support



Energy module for energy monitoring



Artificial Intelligence for performance control and predictive maintenance



Rebecca
INTERNET OF THINGS



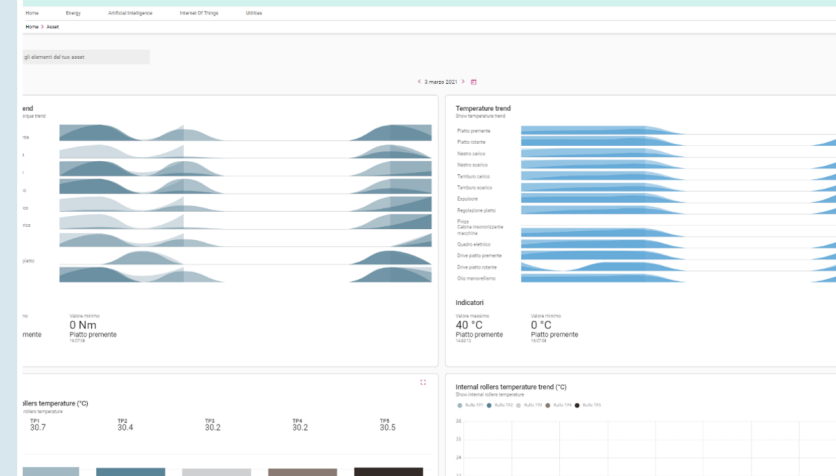
Rebecca
ENERGY MANAGEMENT



Rebecca
ASSET MANAGEMENT



Rebecca
ARTIFICIAL INTELLIGENCE









RESULTS









- **Easy remote management and control** of the components and machines installed at the end customers.
- **Complete platform for the control of** machine performances and monitoring of energy consumption;
- Possibility to offer an **efficient and valuable after sale service**
- artificial intelligence models to identify anomalies and failures

A SELECTION OF SUCCESSFUL CASE STUDIES

	INDUSTRY	CLIENT	CHALLENGE	SOLUTION	IMPACT
	TERMAL POWER PLANT	One of the main Italian player in production & distribution of energy	Creating an AI Based Framework for predictive maintenance on thermal power plant	Rebecca's AI and IoT modules to: <ul style="list-style-type: none"> · Create Digital Twin & +40 AI models · Predict Energy Consumption/Production · Create alert for performances deviations 	<ul style="list-style-type: none"> · Inefficiency identification within 0.3 % (prev. 0.7%), 99.2% reference performance · + € 135.000 monthly revenues
	WIND TURBINES	One of the main Italian player in production & distribution of energy	Creating an AI Based Framework to <ul style="list-style-type: none"> · Predict anomalies · Predict energy production considering weather forecasts 	Rebecca's AI and IoT modules to: <ul style="list-style-type: none"> · Create Digital Twin & 25 AI models · Predict Energy Consumption/Production · Create alert for performances deviations 	<ul style="list-style-type: none"> · 98% precision of assets models · Anomalies intercepted up to 6 months in advance
	RAILWAYS	Italian railway infrastructure manager, owner of Italy's railway network	<ul style="list-style-type: none"> · Automating low-skill and routinary tasks with AI models · Scale the assets management and anomaly detection activities 	Rebecca's AI module powered with machine vision algorithms to identify & monitor 22 assets categories, with anomalies real time notification	<ul style="list-style-type: none"> · 94% precision in anomalies detection · 80% anomalies predicted 4 months in advance · Costs decrease in maintenance & assets inventory management
	STEEL PRODUCTION	Steel producer with 2 plants in Europe	Creating an AI-Based models modules to monitor melting furnace health and identify in advance leakages in the cooling system, causing safety and quality issues	Rebecca AI modules to control +30 different parameters with 3 AI models and spot in real time degradation w/r/t reference behaviour.	<ul style="list-style-type: none"> · Detect 100% leaks · Critical leaks detected 1-5 hours in advance (prev. leakages detected late and with visual inspection)
	HYDRO – PRED. MAINTENANCE	One of the main France player in energy production	Introducing predictive maintenance for monitoring turbines , to predict failures and lower preventive maintenance costs	Rebecca's AI module with sensors analysing vibrations to predict the behaviour via vibration analysis	<ul style="list-style-type: none"> · Reduction of anomalies costs · € 37.000 saved after just one day of analysis
	HYDRO – POWER MANAGEMENT	Italian green energy provider and producer, with 9 hydro plant.	Predict in advance the flood wave based on weather forecast, in order to optimize the plant management	Rebecca's AI module with AI model to simulate the basin behaviour	<ul style="list-style-type: none"> · Est. +1M€ savings · Minimized flood risks for nearby cities

A SELECTION OF SUCCESSFUL CASE STUDIES

INDUSTRY	CLIENT	CHALLENGE	SOLUTION	IMPACT
 COGENERATION	One of the main Italian airport, est. +20 million people traveling	Creating an AI Based solution to maximize cogeneration production at the minimum cost	Rebecca's AI module to: <ul style="list-style-type: none"> · Create Digital Twin & AI models · Optimize the cog. Behaviour · Provide best hourly setpoint for next 24h 	<ul style="list-style-type: none"> · + € 1.2M revenues in the first year · + € 500.000 revenues from second year
 FASHION RETAIL	International fashion retail company, € 200M share capital	Creating an AI Based Framework to: <ul style="list-style-type: none"> · Optimize store consumptions · Detect anomalies · Identify inefficiencies 	Rebecca's AI and IoT SW modules + HW device to: <ul style="list-style-type: none"> · Model chiller consumption · Act on setpoints to minimize consumption (light & AC) 	<ul style="list-style-type: none"> · Est. -20% energy consumption/year · Optimized comfort at minimum energy cost · Switch from corrective to on condition maintenance
 FOODCHAIN STORES	One of the main Italian supermarket companies. +400 stores	<ul style="list-style-type: none"> · ISO 50001:2018 certified, needs to reduce energy consumption yearly · Data management from different sources 	Rebecca's AI + IoT module to: <ul style="list-style-type: none"> · Model stores consumption with 7 AI models to identify saving opportunities · Detect inefficiencies on main assets · Automatize energy audits with AI 	<ul style="list-style-type: none"> · -4% energy consumption yearly for 3 years in a row · -80% time to spot saving opportunities · -70% time to implement an energy audit
 BUILDINGS	International bank with offices in 18 different countries, quoted on stocks exchange	Creating an AI & IoT framework to minimize maintenance cost and switch to pay-per-use	Rebecca AI modules to monitor 65 HVAC and 13 chiller health in order to detect 3 different failure modes with +6 AI models.	<ul style="list-style-type: none"> · Est. -5% maintenance cost switching from corrective to on condition maintenance · Est. +10% energy savings thanks to inefficiency detection
 LOGISTIC	One of the largest manufacturers and distributors of soft drinks and syrup concentrates in the world.	Create an AI based solution to predict the number of travel needed to provide goods in the next 9 days	Rebecca's AI module with +500 AI models to simulate travel scenarios for different cities	<ul style="list-style-type: none"> · Prediction error around 10% (prev. 25%) · Est. -60% time to plan daily travels
 MANUFACTURING	Leading producer of paper tissues for personal care	Predicting the Energy Performance Indicators (EnPIs) of the plant to: <ul style="list-style-type: none"> · Intercept anomalies in the plant · Reduce energy costs 	Rebecca's AI module and energy meters to combine energy and production data	<ul style="list-style-type: none"> · 7% of annual energy costs saving · Detection of energy needs · Eased energy reporting

MIPU in Pharma



MIPU's experience in the pharmaceutical sector has grown over the years offering services and products compatible with a such a digitalized and constantly evolving field.

34 Customers

50% Large Corporate

MISSION Making a Pharmaceutical house Predictive by offering solutions digital ad hoc for Pharma, to create value for the Customer, patients who use its products and the entire community.



1. DEMAND FORECAST

- Quantity forecast
- Product type prediction



2. CAPACITY FORECAST



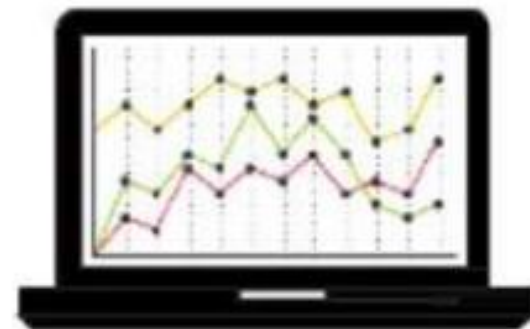
Availability:

- Machines up and running
- skills adequate



Efficiency:

- produced prices on theoretically producible parts
- optimization according to the format



- Quality of production

3. LOGISTICS FORECAST

- Alignment between production capacity & logistics
- Simulation of routes
- Prevision of punctuality



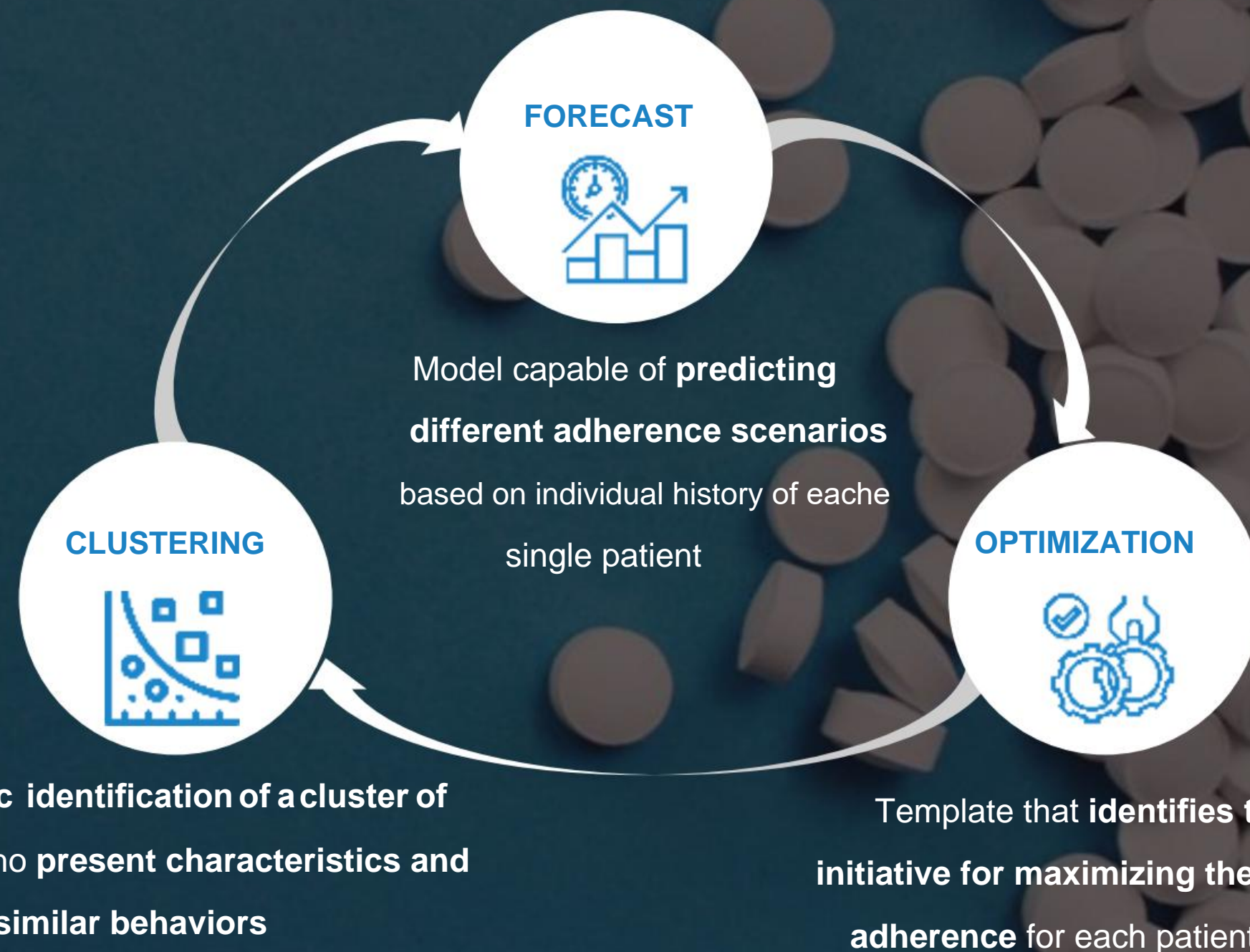
Demand forecast

BACKGROUND

Speaking of adherence to therapy, different rational and/or unconscious reasons, such as underestimation of risks or management difficulties, may compromise compliance with therapy.

It's possible to support them through measures tailored to their specific needs, through Artificial Intelligence, adopting the profile to the most efficient solution

MODEL



Challenge: Maintenance optimization



GOAL



Increase the average time between two maintenances subsequent (MTBM) of +30%

ACTIVITY

1. Assessment of the current state of machinery
2. Critical issues, modes and causes of failure
3. Creation of efficiency projection through the adoption of predictive maintenance (Cost-benefit analysis)
4. Implementation

RESULTS REACHED

- 98%
unplanned machine downtime

- 88.9%
maintenance costs (related to preventive replacement as opposed to breakdown interventions)

Prediction of operating anomalies for HVAC



GOAL



Predict failures and operating anomalies of HVAC for environments sterile to reduce the number of non compliance & the waste of raw materials and SFGs.

ACTIVITY

1. Assessment of critical HVAC
2. Installation of accelerometers e of the Wireless infrastructure for data collection
3. Definition of alarm thresholds based on the technical characteristics of the asset
4. Continuous monitoring and dispatch alert if the threshold is exceeded

RESULTS REACHED

- 90%
unplanned machine downtime

- 80.9%
maintenance costs (related to preventive replacement as opposed to breakdown interventions)

Quality: Process Quality Prediction

GOAL

Support operators in choosing the best management strategy

INPUT

SPO4

Phosphorus
Total

ORP

Oxidation
reduction
potential

SO2

dissolved
oxygen

TSS

Total
suspended
solid

PH

PROCESSING

IoT Layer



Up to 5000 measurements, anomaly detection system to intercept anomalous values.

AI layer and simulator



Simulation engine capable of simulating 10 (96) scenarios and to present to operators the best setting, possibly taking into account constraints that can also be set manually.

Control logic and data viz layer



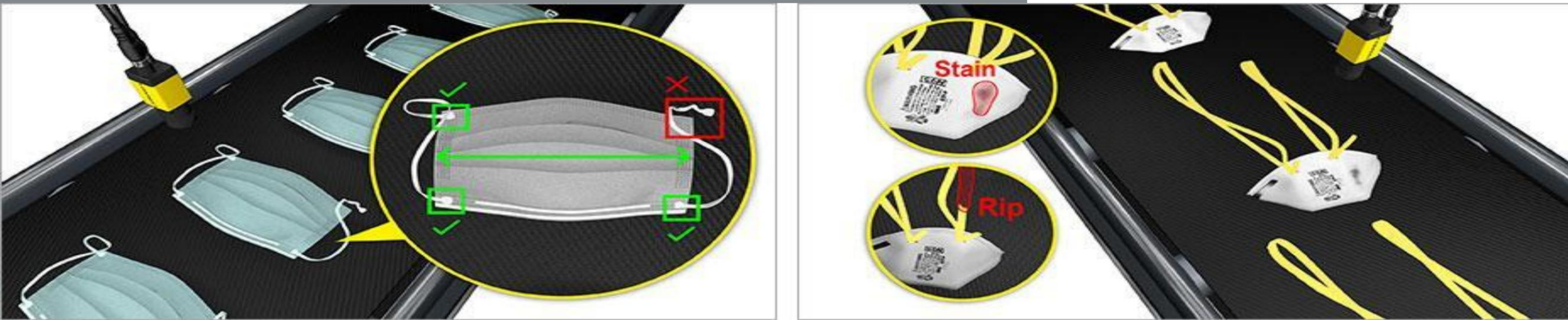
The information from the simulator is post processed to provide precise plant management indications.

OUTPUT



The simulated scenarios, at different probabilities, will result in a **management proposal both in terms of system regulation and the most suitable bacterial recipe to obtain a certain quality of wastewater.**

Quality: Product Quality Prediction



GOAL



Intercept qualitative defects
automatically

ACTIVITY

1. Creation of intelligence
2. Training (about 3 months)
3. Go Live

RESULTS REACHED

77.8%

true positives at 3 months

97.9%

true positives at 6 months

Quality: Other forecast objectives



Possible other objectives

Automatically intercept system quality defects such as:

- Sublevel or overflow level
- Wrong dosage
- Preform blowing anomalies
- Incorrect labelling
- Incorrect capping / sealing

Logistics: Forecast of transport needs

Reduction of risks related to production implementing Just In time logic



Reduce risks related to inventory management by analyzing demand



Reduction of shipping costs by avoiding the most expensive peak hours



Reduce costs on the last mile by analyzing the routes between warehouses and delivery points



Accurate prediction time of goods receipte



Prediction of local demand to ensure delivery within 24 hours



Optimization of ground vehicle routes



RESULTS

-9%

No. of vehicles needed

97.8%

prediction 6 days before the nr. of necessary means