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Braskem unifies data to leverage innovation and a data driven culture

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Presenter’s Introduction

Naími Souza is an Automation Engineer with Braskem and responsible for industrial historians and MES layer solutions on all Braskem industrial sites. Naími holds a Bachelor’s degree in Electrical Engineering and an MBA in Project Management.

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ABOUT BRASKEM

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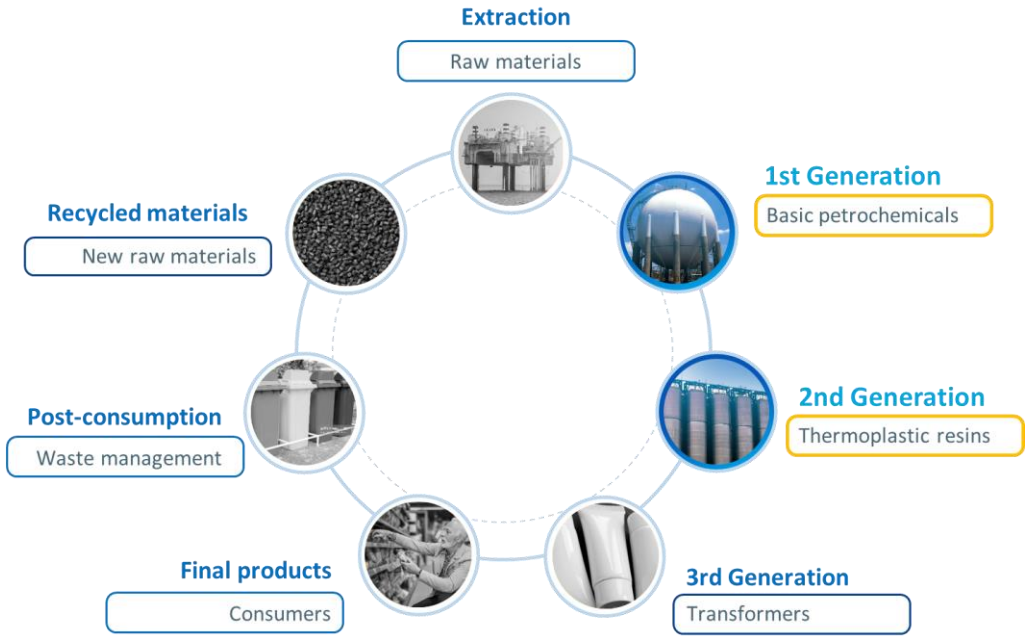
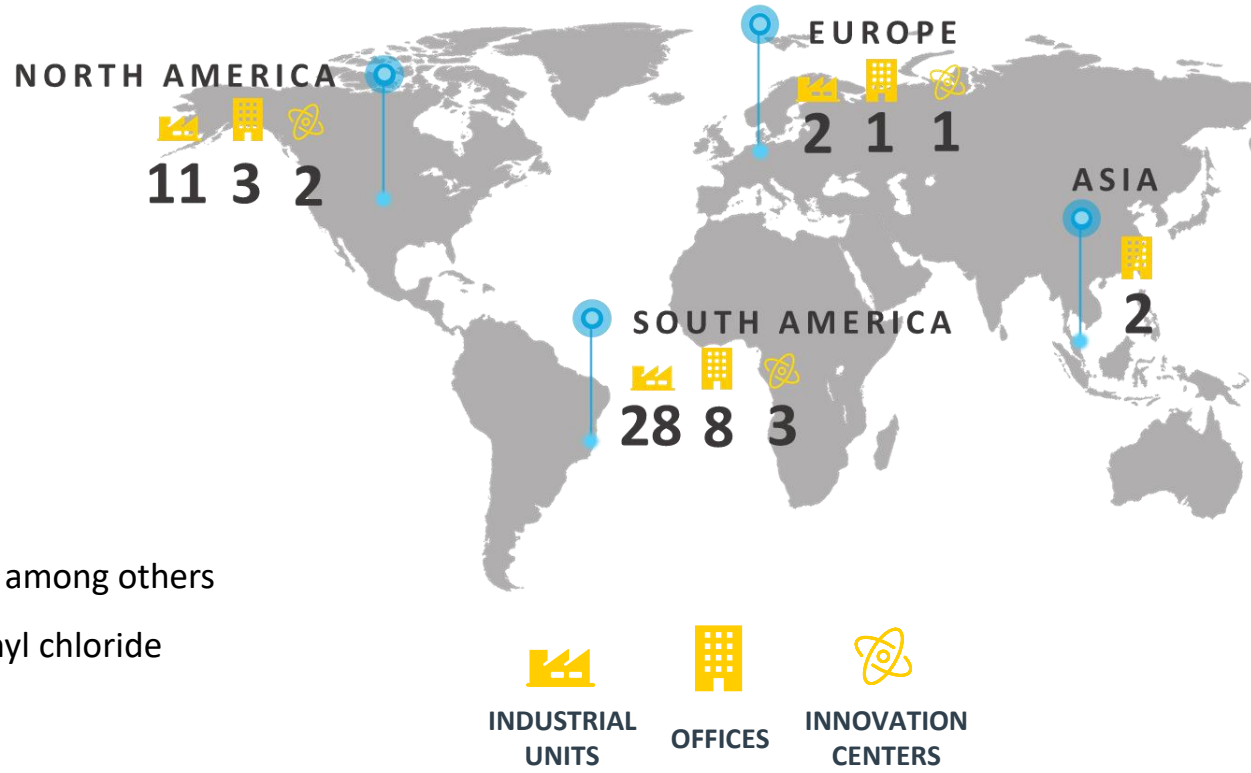
BRASKEM IS A GLOBAL PETROCHEMICAL INDUSTRY





- Basic chemical inputs, such as ethylene, propylene, butadiene, benzene, among others
- Production focuses on polyethylene (PE), polypropylene (PP) and polyvinyl chloride (PVC) thermoplastic resins
- Largest thermoplastic resins production in the Americas
- Largest polypropylene production in the USA

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THE DIGITAL TRANSFORMATION DRIVES US

Braskem has engaged in applying digital technologies to develop strategic portions of our business, leverage our performance and reshape the way we work.

- **VALUE GENERATION FOR PEOPLE**
- **ACCELERATION OF TRANSFORMING DIGITAL INITIATIVES**
- **LINK WITH THE EXTERNAL INNOVATION ECOSYSTEM**
- **DIGITAL SKILLS TO WORK TO NEW METHODS**
- **CREATION OF NEW BUSINESS MODELS**
- **INFRASTRUCTURE EXPANSION FOR DIGITAL SUSTAINABILITY AND INDUSTRIAL SYSTEMS.**

IMPORTANT FIGURES:

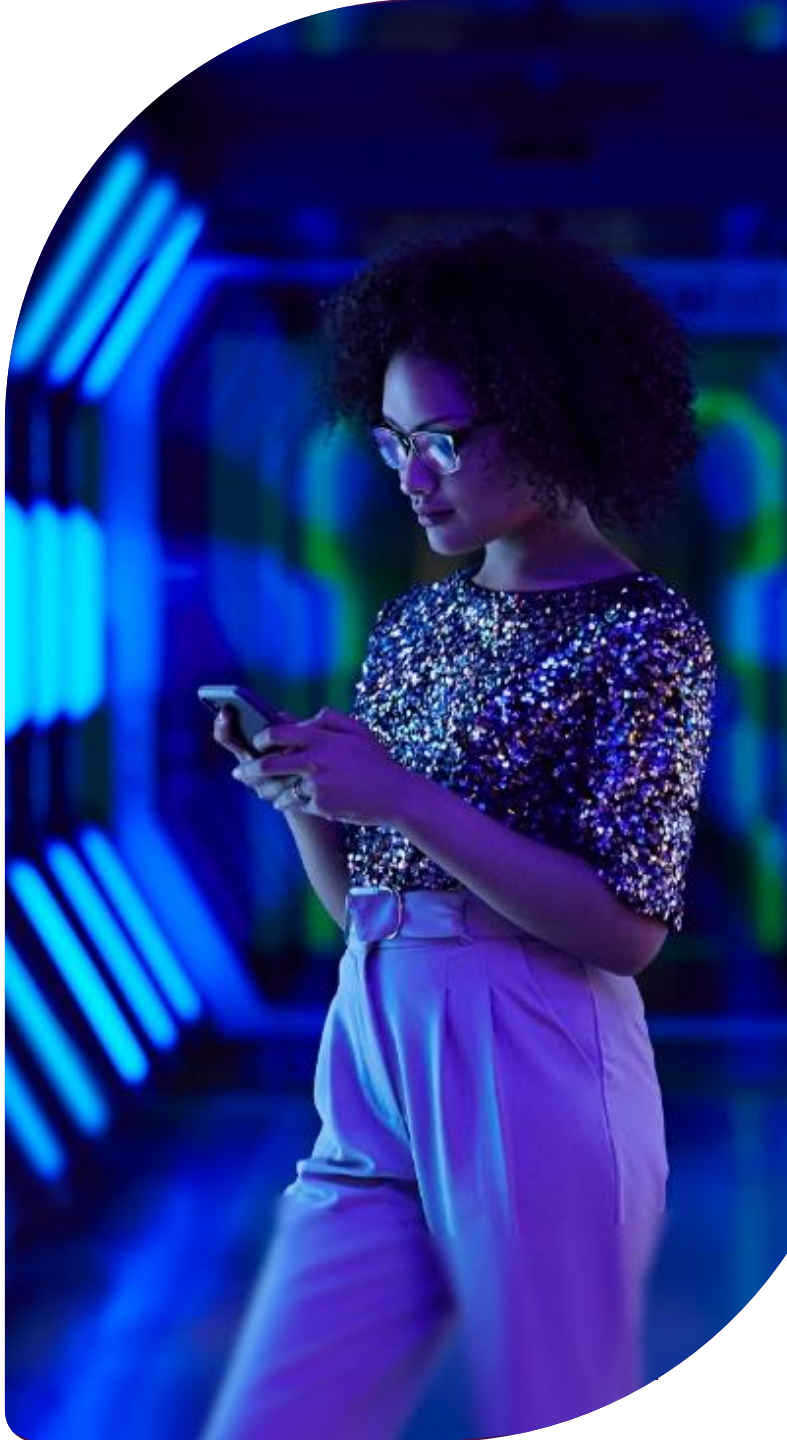
7
Pilot plants

293
Participants in Innovation and Technology

USD 62,03 MM
Investments in Innovation in 2020

363
Patents granted

+350
Clients supported by Innovation and Technology in 2020



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HOW AVEVA SUPPORTED OUR DIGITAL TRANSFORMATION BY IMPROVING OUR DATA INFRASTRUCTURE

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How we used AVEVA PI System to enable industrial data integration and leverage a data driven culture

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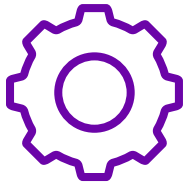

Challenge

- Provide a solution that allows the centralization of industrial data from all of Braskem's business units and meet the demands of integration with the various digital transformation initiatives

Solution

- Deployed AVEVA PI System technology including a central PI Data Server, PI AF, PI Vision and PI Integrator for BA as an enabler infrastructure for cloud based digital solutions and to increase data visibility across the organization

Benefits

- Accelerated data driven projects/solutions implementation (with significant captures), increased team productivity, allows monitoring and data insights on a corporate level

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CHALLENGES

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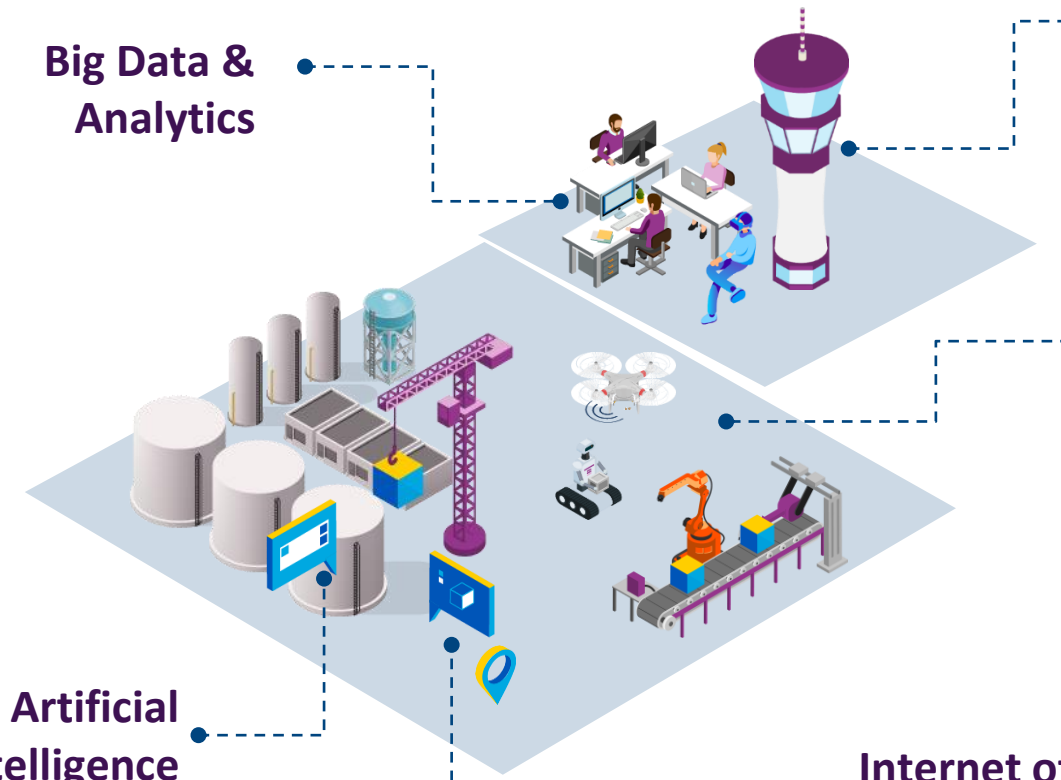
NEW CHALLENGES BROUGHT BY
INDUSTRY 4.0 AND DATA DRIVEN CULTURE



DATA

- Single source of truth (reliable data)
- Availability
- Taxonomy, contextualization
- Security, access and data protection

INFRASTRUCTURE

- Connectivity
- Cybersecurity
- Data infrastructure and governance

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BRASKEM'S PIMS STRUCTURE
BEFORE CENTRAL PIMS

- Data silos – 35 historian servers
- Different technologies – AVEVA PI system and other solutions
- Lack of integrated view of industrial data
- Difficulty integrating with Data Lake

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SOLUTION

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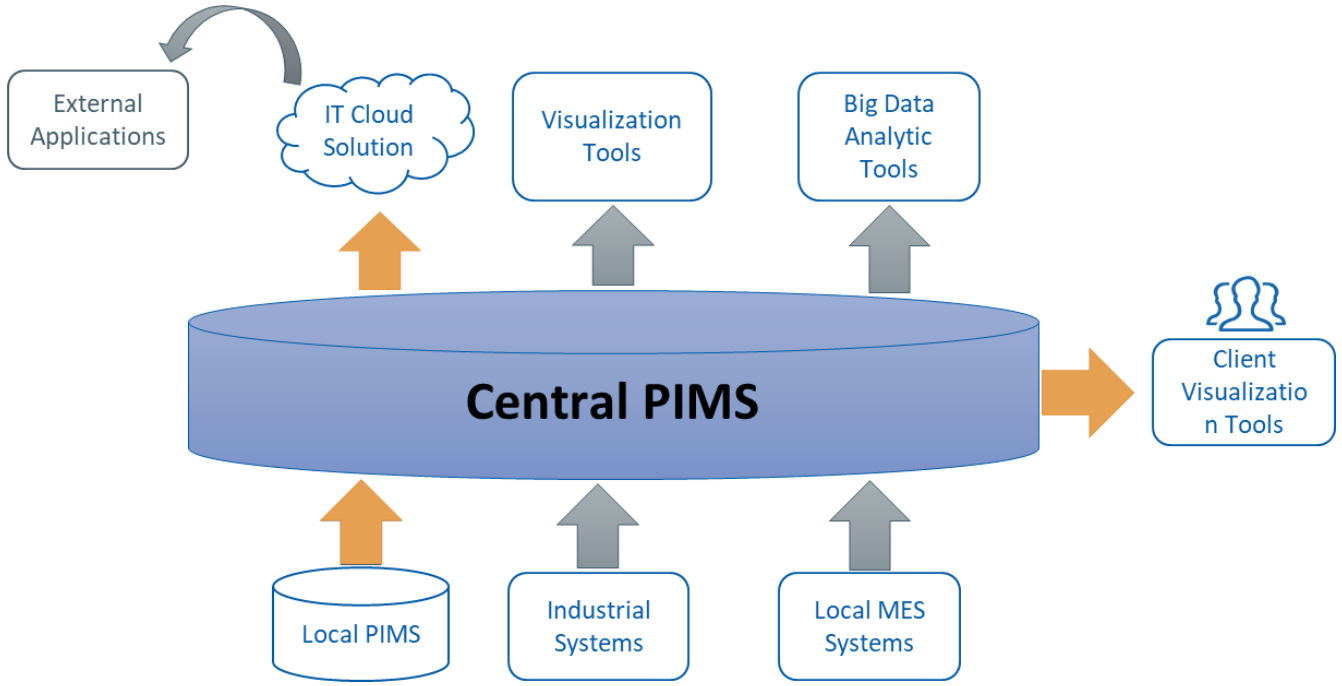
Make industrial data available in a safe, centralized and structured way for the demands of Braskem's Digital Transformation, in a Global scope.

BULDING DATA INFRASTRUCTURE WITH AVEVA PI SYSTEM



- Central Server integrated with 35 regional servers
- Secure integration with enterprise cloud solution using PI Integrator for BA
- Scalable architecture to include new data sources and technologies
- Data hierarchy on the central server, enabling contextualization, data Aggregation and asset modeling

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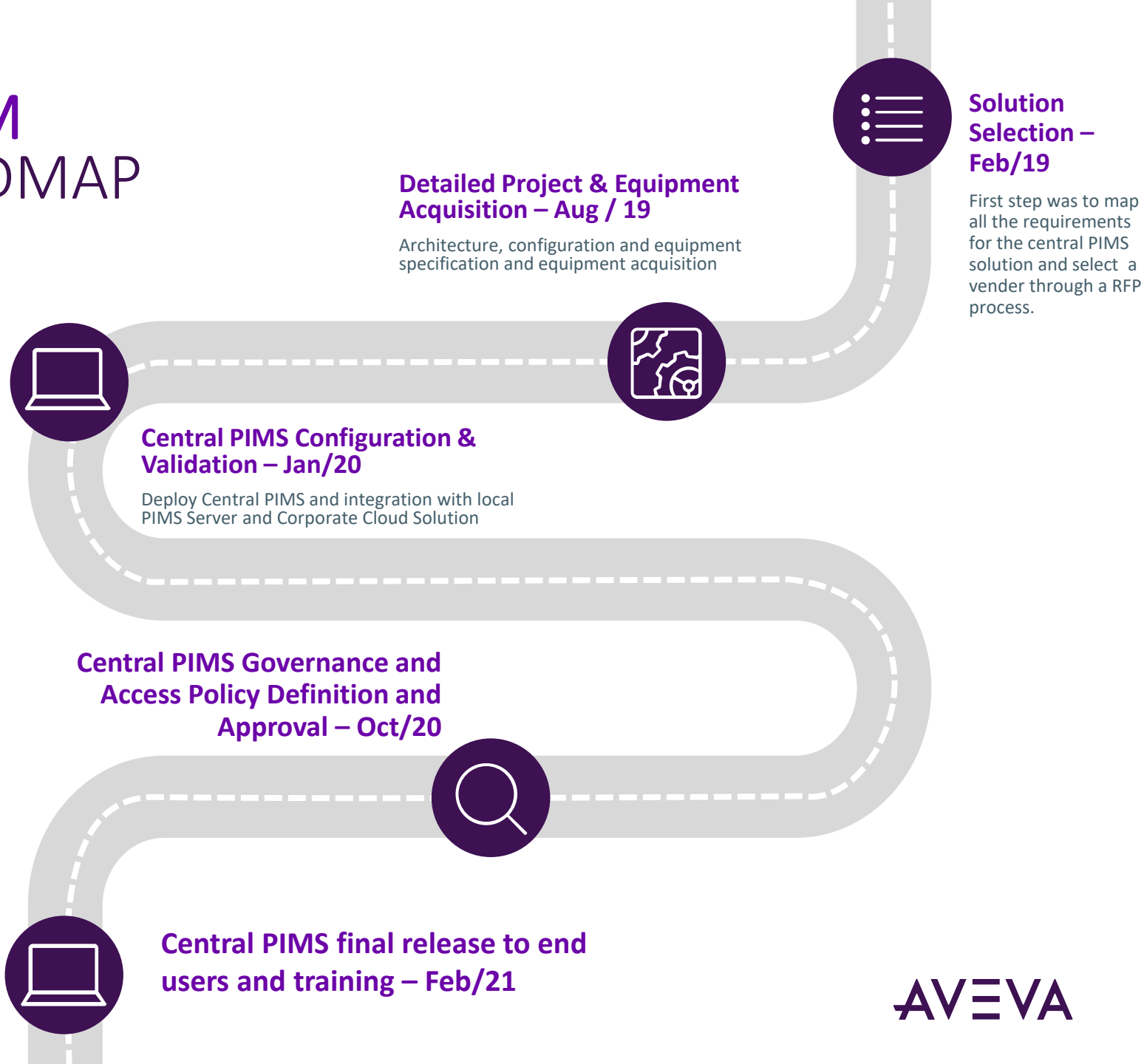
CENTRAL AVEVA PI SYSTEM IMPLEMENTATION ROADMAP

Challenges

- Access policy approval on a corporate level;
- Support from specialists from the different business areas in order to structure and contextualize data;



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BENEFITS

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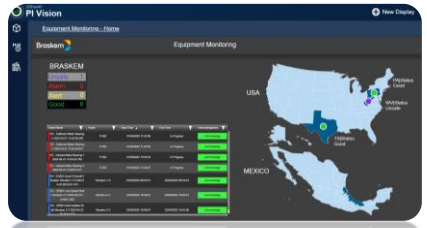
CENTRAL AVEVA PI SYSTEM MAIN BENEFITS

Data centralization and greater visibility

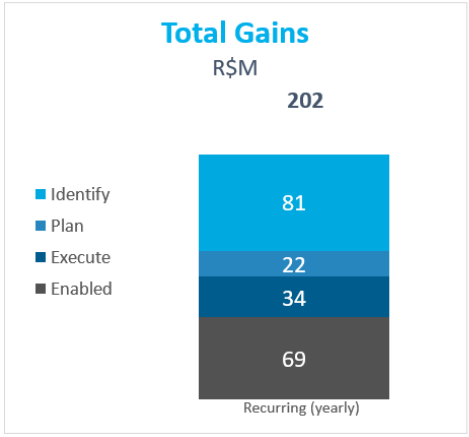
Data Centralization from sites in: Brazil, Mexico, USA and Germany, in line with safe remote access practices and considering an approved access and data security governance. It became the main industrial data source for corporate solutions: Predictive Maintenance, Control Towers, Carbon Inventory, Environmental Agents Monitoring.

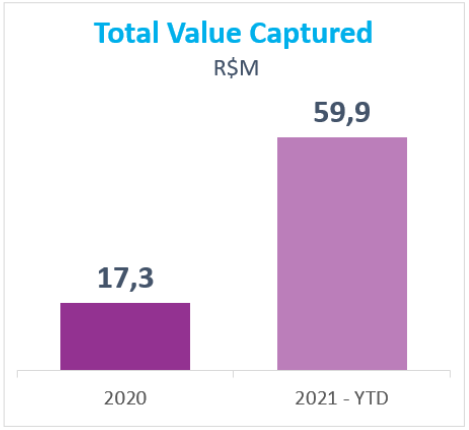
Agility in implementing new initiatives and reliable data infrastructure

It allows the deployment of scalable solutions for different business units in a simplified way: MVP → Proves Value → Roll out



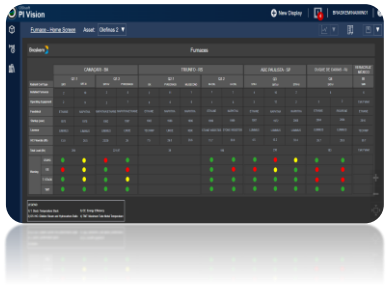
Full Potential and Captures from initiatives that use Central AVEVA PI System as infrastrucutre





Team Productivity

Taxonomy, creating a structured/ contextualized database and defining corporate standards. Users can have access to the right information in a faster and easier way.



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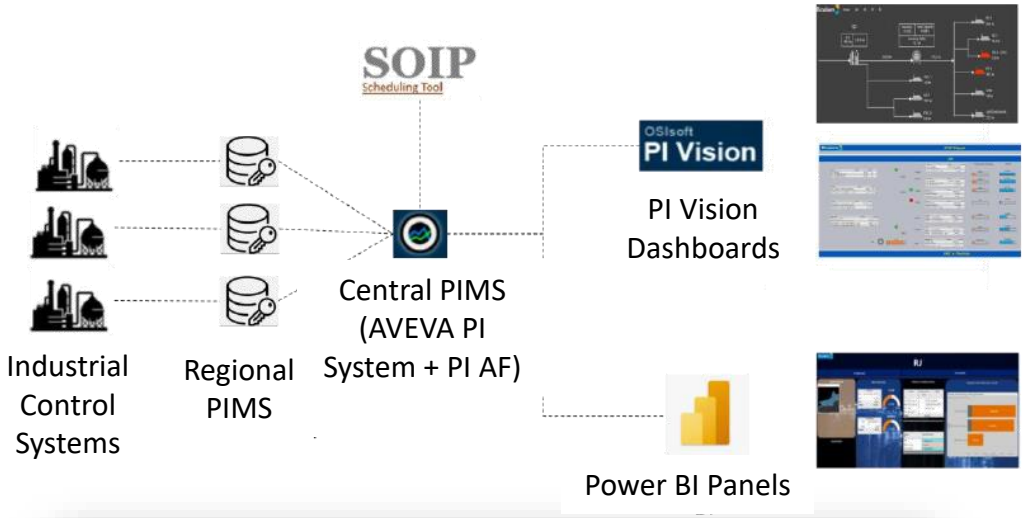
Use case 1: SOIP Control Tower Brazil achieves significant team productivity gains and promotes greater integration between 1st and 2nd generation using Central AVEVA PI SYSTEM

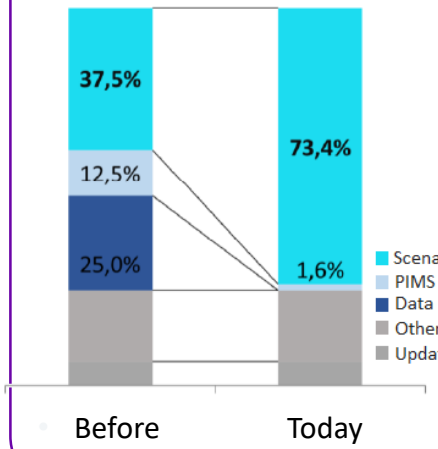
Solution



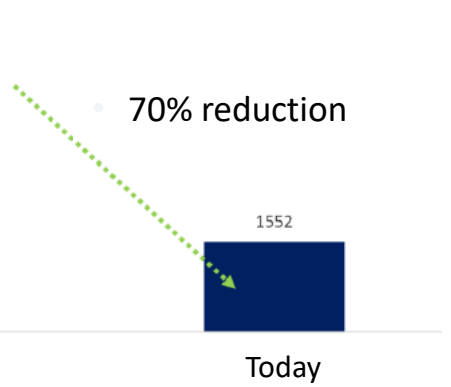
Benefits

"The day-to-day productivity gain resulting from the improvements of this initiative allowed a 96% increase in the time dedicated to high value-added activities (scenarios analysis for decision making), by reducing the time dedicated to manual information gathering, database queries, as well as the elimination of manual generation of the daily report."

Daily productivity gain



Estimated annual impact in hours



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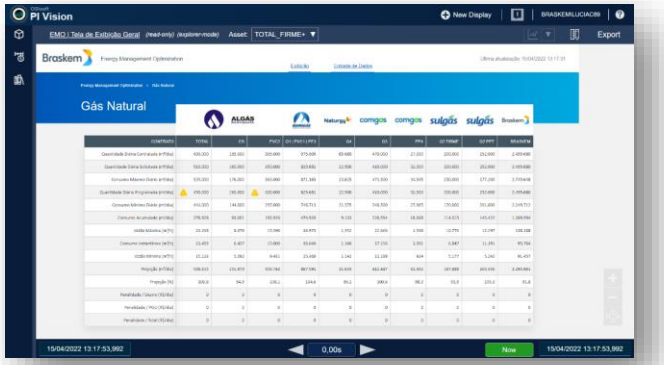
Use case 2: Energy Management Optimization initiative uses central AVEVA PI System to capture value by reducing payment of penalties

Solution

"Our initiative that optimizes the gas management helps the energy area to react quickly and effectively to the constant changes in consumption scenarios for this energy source, centralizing information and enabling the reduction of penalty costs"



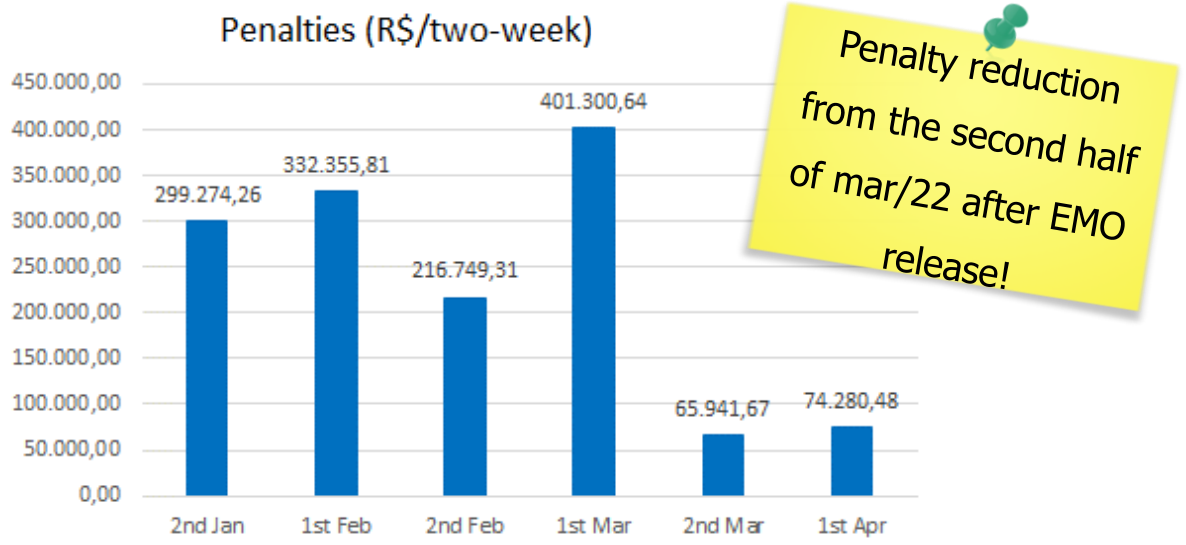
- Daily monitoring
- Real-time consumption data
- Online penalty calculation

Benefits

3 MONTHS
Time

R$4M/year
Enabled Value

R$345K
Captured Value



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CONCLUSION

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“Centralization of the industrial data and its integration with the business data are the key elements of a well-functioning data-driven architecture.”

Daniel Morales, corporate automation manager

Next Steps

- Increase number of users and initiatives on Central PIMS;
- Leverage the added value of Central PIMS;
- Increasingly support the various areas of Braskem in making data-based decisions.

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