INSIDE OUT OF
AN INDUSTRY LAB:

The use of data in the R&D area.

ST-One

CHALLENGE:

The aim of this project is to create a solution that monitors the climatic aspects of 17 Research and Development laboratories, to improve the quality analysis and performance of experiments in a pulp and paper industry.

SOLUTION:

The solution embraces the installation of ST-One® Hardware on the CLP, for the collection of temperature and humidity data from 17 R&D laboratories. Then, START™ is used to classify – based on an intelligent algorithm – the main variables of the air conditioning system and, with the help of the STRUCT™, this information is managed and assigned to the appropriate skills. Finally, the data is made available on the dashboard of the STASH™ platform, in a dynamic way to impact to the decision-making process.

IMPACT:

◆ Creation of a secure cloud structure to store all necessary data, accessible to all employees;

◆ Paperless operation, with more reliability and automation in processes;

◆ Greater efficiency in project delivery, due to constant supervision;

◆ More agility in corrective maintenance;

◆ Advance of the characterizations used as a basis in other areas of the industry.

"In addition to the service itself, which transform the routine of the laboratories, the after-sales service never let us down.

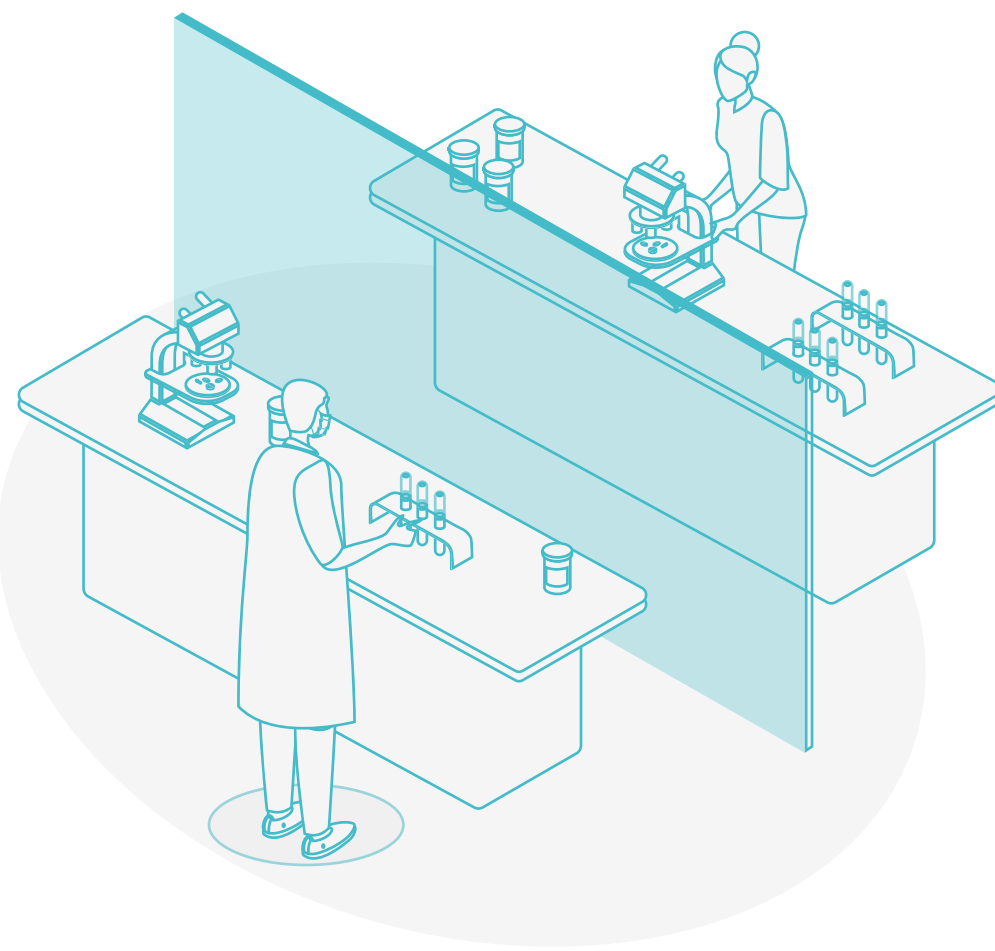. Whether it's to change our dashboards or to design screens the way we believe is the best, we are always well served."

- Supervisor of the Industrial Technology Center, responsible for the Research and Development Laboratories.

OVERVIEW

The client is a big pulp and paper company, and one of the largest Brazilian exporters in this sector, with several plants spread across the country.

As a company that invests and focuses on innovation, it puts special attention in a well-established Research & Development (R&D) area, composed by several laboratories. For its proper functioning, the laboratories were divided in a systematic way, according to its specific function, for example: physical, infrared, and refining testing laboratories, among others. The rooms, which are all refrigerated, also have their own requirements and particularities in terms of temperature and humidity, as some need strict control at all times and a proven climate control track record to attest to the quality of the experiments.

As the supplies and experiments need stability in any situation, it is essential for the area supervisors to visualize the conditions of the environment in which they are inserted. This proves the quality of the tests, as it attests that the analyses were performed while the indicators were within the required standards.

In addition, the loss of raw material caused by the oscillation of the air conditioning is avoided, because with the data monitoring it is possible to quickly identify if the system is not meeting the requirements of the laboratory in question.

Before the ST-One Solution, the information recording was done manually by the employees themselves. To get this done, it was necessary to go to a remote central room, at some times of the day, to write the requested data. This scenario is not beneficial because, in addition to this practice relying only on human workforce, it took time that could be better applied to functions that are relevant to the experiments performed.
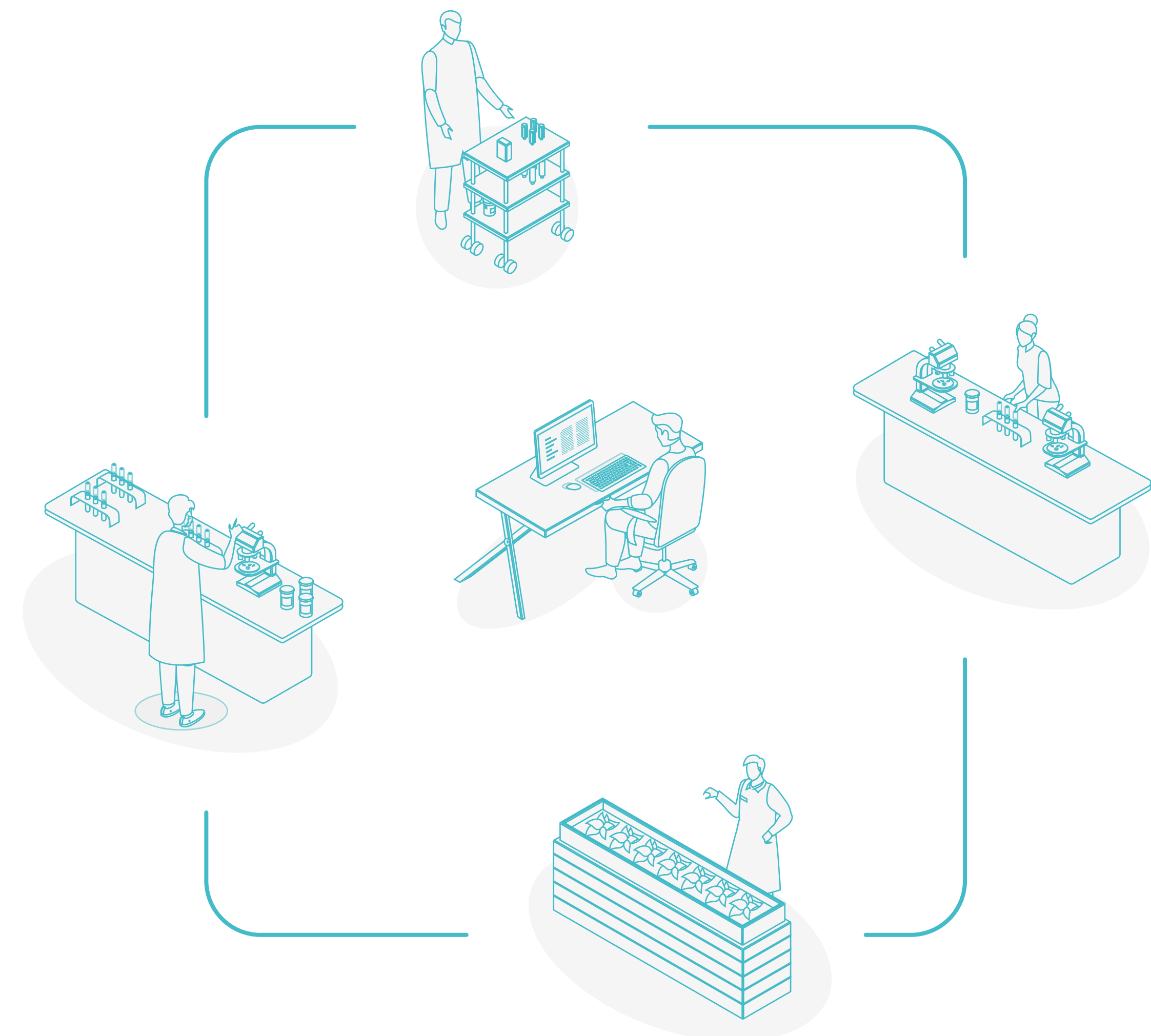
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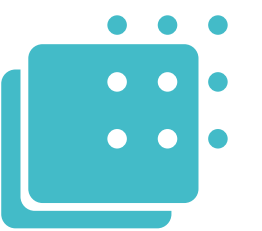
ST-ONE DEPLOYMENT

The ST-One Solution was implemented with the purpose to help the understanding of the climate variation in Research and Development laboratories. The Solution embraces, at first, the connection of the ST-One Hardware to the central computer. In this case in question, the hardware was able to collect all the necessary data and then, with the application of START™, a labeling software, it analyzed – using and intelligent algorithm – and identified the main information needed.

After this process, with the help STRUCT™, the data is managed and assigned it to the appropriate skills. Finally, ST-One data scientists do the analyses required and create dashboards, available on the STASH™ platform, for real-time, dynamic visualization. These dashboards are made based on a complex formula that solves the industry pain in a customized way for each situation.

To match the team's needs, 18 dashboards were created, considering that one of them shows the overview of the rooms, containing the most critical signals, and the others are used for the monitoring of each room and its function specifically – due to the different procedural types of air conditioning, as explained above.

Still about the platform, it centralized the data collected in the laboratories in one place. The information is stored in a cloud structure, in a secure and accessible way, available to all employees whenever they need it. In addition, the data is track uninterruptedly, resulting in the creation of a 24-hour history, that can be used to search for the behavior patterns of the variables at any time. Finally, the solution has an alert system for when the humidity and temperature state go beyond ideal standards.

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PART III

IMPACT

From the use of dashboards in a big pulp and paper industry, the management team of the R&D area can accurately monitor the climatic conditions, such as temperature and humidity, necessary for the proper functioning of laboratories every day.

With the implementation of the ST-One Solution, the monitored data is centralized in one place, which avoids the commute of employees to a distant control room and improves the productive use of time. Also, due to the installation of the ST-One hardware , data collection is now automated, becoming an accurate, agile, and reliable process.

With the stability motivated by the Solution, there is a reduction in the loss of inputs and raw materials, since through the monitoring it is possible to assure that the analyses were carried out within the expected standards.

It also allows the experiments to be executed during the night.
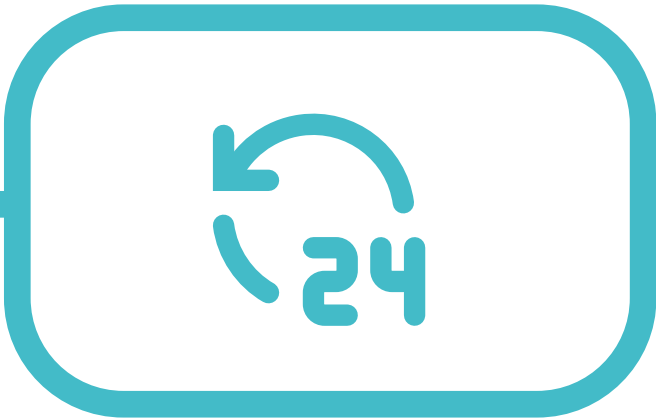
Now, in addition to the delivery of a project being measured, it is possible to deliver it reliably, in a shorter period of time, subsequently generating improvements in the scope of other segments.

Since the implementation of monitoring, projects have been delivered up to **1 day in advance.**

And the whole company benefits from it:

Technicians can advance the characterizations that impact the other areas **within 3 days**.

Also, the time required to detect issues for corrective maintenance has improved, because with the use of the platform – which makes it possible to understand its constancy and detect which variable is not operating as expected – the problem is quickly identified, resulting in a fast and assertive correction.

In addition, the responsible for the maintenance of the equipment have access to the dashboards and, consequently, have the autonomy to verify if its operation is within the established standards

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UNLOCK RESULTS

ST-One was founded with the purpose of transforming the industry to a new level of productivity.

> The science developed by ST-One is improved with each new challenge, and makes it possible for digitalization, present in different sectors of industry, to reach the next stage of connectivity and intelligence.

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