PREMIER TECH

OpRize™

OpRize™:

Achieving Operational Excellence

Optimisation with a Reliable Digital Foundation

Premier Tech's Water and Environment division has been leading the manufacturing of the most sustainable septic systems, with the lowest available carbon footprint. Operating with industry leading expertise and the planet at heart, PT Water and Environment has been manufacturing their ecofriendly polyethylene septic tanks and sustainable Ecoflo® biofiltering systems in factories across Canada and France.

The manufacturing of the majority of these systems is made through a process of rotational molding using robotic arms. Three arms simultaneously operate successive stages of molding to maximize production. The core of the issue lies in the fact that related processes, such as calculating downtimes and adjusting molding times, were done manually. As one can expect, the system that was designed to operate smoothly created unwanted delays. Consequently, the fluctuating process times resulted in additional losses and costs.

Following a set of constructive assessment meetings with the department heads within PT Water and Environment, their sister division Premier Tech Digital took charge of the project. Specialists paired digital solutions tailored to PT Water and Environment's needs. These technical conversations are how our experts amass a deeper understanding of the operation specific concerns.

Challenges

In an effort to refine its sequenced production, PT Water and Environment sought to acquire a technologically inclined solution. **Hoping to optimise the production process by maximising their raw materials and time, the solution had to automatically detect and collect data specifically related** to their M2000 Rotational Molding Machine.

Photo credit: Premier Tech Water and Environment

The problem lied where although there were three mechanical arms to process fabrication, the time sequence between the warming, molding, and demolding fluctuated greatly. A first challenge brought to PT Digital's attention was that the downtimes were recorded by memory and written down after-the-fact to be later analyzed. This was highly problematic, because a mold needed to be decoupled in time to prevent an additional warm up sequence.

PT Water and Environment relied on in-house expert knowledge to manually record and alter production. This translated into an initial invitation to convert to digital practices - in order to track and optimize the downtimes. To keep its efficacy and allow for easier training, the solution had to also be paperless and accessible.

Finding a solution

A gradual assisted digital transformation was deemed as the best approach for the challenges. **The key point was to think big but start small.** Once the factory updated their older Programmable Logic Controllers (PLCs) to be connectable, PT Digital was able to identify needs:

- Interconnecting the machines, notably the M2000's processes.
- Calculating the Overall Equipment Efficiency (OEE).
- Tracking downtimes and relating efficiency to optimise sequencing.
- Offering a centralized overview of the operation to adjust proactively.

To address these needs, Premier Tech's Water and Environment division chose to rely on **OpRize™**, a Premier Tech Digital solution. **OpRize™ is a state-of-the-art Manufacturing Operation Management (MoM) system. It is a collection of modules for managing end-to-end manufacturing processes with a view on optimizing efficiency.**

OpRize™ system allowed PT Water and Environment to:

Calculate their Overall Equipment Efficiency:

An overall initial goal was to interconnect the machines to have a way to **calculate the variables, track efficiency, and visualize the data**. This was to have a reliable way to highlight machine statuses, such as: downtime, faults, production speed, total production, rejections, as well as metric tracking of weight, pressure, temperatures, etc. to ensure production quality.

Track downtimes:

From the collected data, downtimes could be tracked and associated a reason in real-time. As previously mentioned, the timing between processes was not always consistent. For the system to be as effective as possible, these issues needed to be highlighted and easily accessible.

Relate efficiency and figure out optimal sequencing:

Once the downtimes were tracked and visualized, the solution could pass to calculating and organizing the sequence. The team figured out that the heating process was often delayed due to the previous cooling and demolding processes taking too long. This resulted in needing an additional warming sequence, further delaying the operation.

OpRize's tracking allowed the specialists at PT Digital to effectively configure a plan to solve this timing issue, among others. Additional features were also configured:

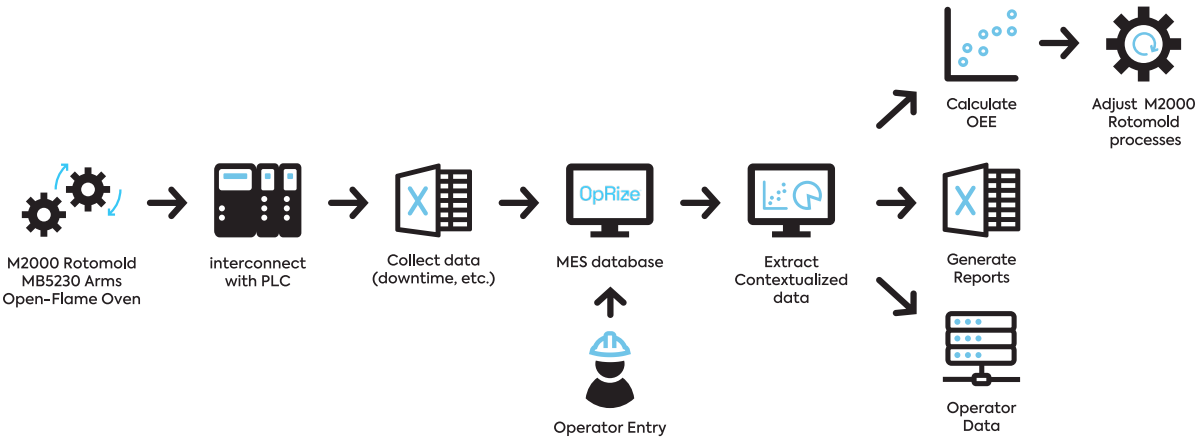
- Tracking and signaling for operational standards: temperatures, production speed, material levels, etc
- Dashboarding and BI enabled visualization and advanced analysis
- Historization was also a key implementation, where statistics can be generated to view and compare days, weeks, and months, to operational expectations.

OpRize™ software further sets up the necessary prerequisites for the next steps of digitalization, the automation of workorders and raw material registries.

Once the manufacturing sequence was reliable and consistent, the second major issue could be addressed. As with the majority of industries worldwide, PT Water and Environment faced a labour shortage in both America and Europe. This labour shortage meant the solution needed to be autonomous in terms of learning to use it and flexible enough to accommodate the rotating workforce.

To tackle these issues, an evolutive approach was deemed as the best approach. The goal of this approach was to introduce the various integrated functionalities in steps to ensure the smoothest transition to using the solution as a daily standard. By choosing a champion, PT Water and Environment could effectively train and adapt their operators to rely on OpRize™ to ease processes.

Optimization with OpRize™



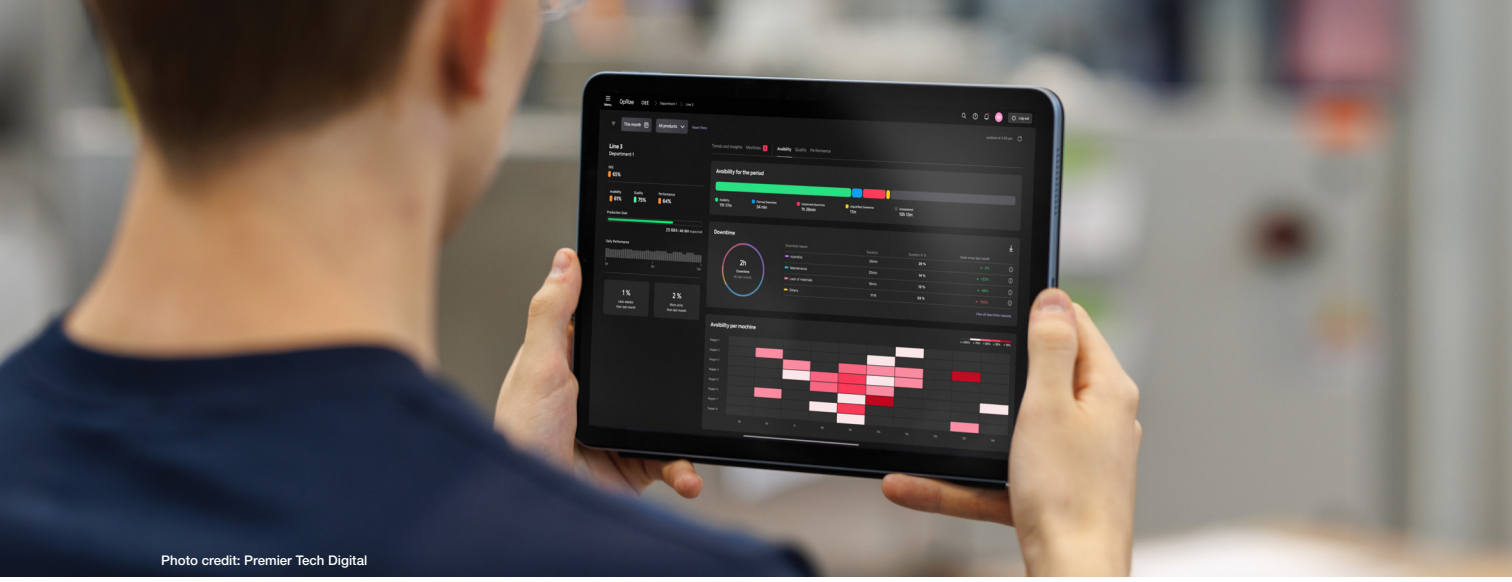


Photo credit: Premier Tech Digital

Results and Benefits

In light of several time-sensitive dilemmas in their manufacturing processes, PT Water and Environment sought out Premier Tech Digital's expertise in integrating a scalable digitalisation solution.

The OpRize™ system allows to leverage real-time equipment data through its Get connected module. The updated PLCs forwarded data on downtime tracking and historization to translate it into meaningful metrics. By capturing and centralizing equipment data, PT Water and Environment was able to get their M2000 Rotational Molding Machine and biaxial swingarms to maximize the production of their ecological polyethylene septic systems.

When asked about the outcomes of the system, Mehdi Lazzouli, Project Manager – Industrial Processes at PT Water and Environment replied, **"OpRize was able to give us visibility on the machine downtime and to make more thorough analyses, which allowed us to take actions that helped improve the machines' efficiency."**

Workplace efficiency was greatly improved thanks to real-time tracking and accessibility: the OpRize™ solution was an asset in simplifying the manufacturing process. Now able to keep an eye on the various steps of production, manufacturing took on a pre-emptive reporting approach.

This immediate action approach effectively granted them the ability to proactively adjust, greatly reducing downtimes, wastes and granting a sharper handle on the situation.

The user-friendly software, paired with PT Digital's knowledge transfer allows for a "champion", or autonomous operator to take charge of the system. This creates an improved onboarding process, which brings new professionals up to speed, all while the production keeps its cadence.

"What I liked about working with PT Digital was their agility and their ability to quickly find solutions. These solutions allowed us to focus our efforts in the right places, by reviewing our ways of doing things for better efficacy."

On a day-to-day basis, operators now work and react pre-emptively to adjust manufacturing based on real-time data to significantly improve quality and reduce waste.

As any business knows, preventing losses is a significant benefit to profitability. By being able to automatically intercept out-of-bound results, the factories have been able to adjust processes in a more diligent manner and have seen substantial savings in terms of cost, time, and waste-reduction.

Photo credit: Premier Tech Digital

What's Next...

PT Water and Environment's case demonstrates the value of referring to the right service provider to set up a digital solution to optimise factory processes and sequencing.

In being able to consult and create partnerships with various domains, PT Digital is specializing towards facilitating prospective requests to acclimatize operations to Artificial Intelligence (AI) data analysis and improving on environmental footprints based on comprehensive data models.

PT Water and Environment's ambitions go beyond simply interconnecting machines to gather manufacturing data. Ambitions grew and their next steps are to integrate a modular solution to automate work orders to their manufacturing processes. **"The future will be just as promising, especially working with a dedicated, positive, and hardworking team"**, said Mehdi Lazzouli.

Task automation can energise your team, increase profitability, and boost productivity. As a result, organisations are able to stay ahead of the competition and set up practical tools to keep pace with the 4.0 smart manufacturing revolution.

Are you curious to see how a manufacturing execution system combined with PT Digital's smart manufacturing excellence and support services can help you optimize your production lines?

Get in touch and we can determine the possibilities that apply to your context together!

PREMIER TECH

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Industry: **Water management**
Client: **Premier Tech Water and Environment**
Location: **Canada and France**
Integrated Solutions: **OpRize™**