



Case Study: **Tires**

Overview

When Tire Company X* first implemented Braincube, they were hoping that insights into their production process would enable them to minimize waste, save money, and improve quality. Four years later, they have achieved these goals by completely revolutionizing how data is used in their organization. As part of their efforts to continuously improve globally, they have scaled Braincube to multiple facilities around the world and undergone a holistic digital transformation.

Challenge

Tire Company X wanted to minimize waste during a specific part of their tire production process. They had access to their production data but didn't know how to adequately identify the most impactful process parameters.

Solution

In a matter of a few months, they achieved their objective and minimized waste by 35% within their target process. More importantly, though, Tire Company X revolutionized how they use data across their entire organization. This resulted in improved collaboration between teams, across different plants worldwide, and between management and operations.

* For proprietary reasons, this company has elected to remain anonymous. All facts and figures are accurate.



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Introduction

When Tire Company X first implemented Braincube at one of their plants, they were focused on improving their analytical discoveries to save money. In just four years, though, they have completely reorganized how they share and use data across the entire company and have scaled the Braincube Smart IIoT Platform and App Suite throughout their plant network, globally.

Here's how they scaled their digital transformation efforts so quickly.

Early Goals: Minimize Waste, Improve Quality, and Enhance Traceability

Producing tires is a complex process with high variability and cost. Additionally, tires are a very consumer-driven industry: quality, safety, consistency, and reliability are key product attributes that bring consumers back to the same tire brands over the course of the consumer life cycle.

Tire Company X knew that advanced analytical capabilities could help them better understand their end-to-end production process. Additionally, if Tire Company X could ensure traceability on every single tire, they could guarantee that only the highest-quality tires were produced and distributed to consumers.

These changes would make it possible to increase revenue on both ends of the spectrum: cost reduction and improved quality. Less waste and more efficient production methods would result in cost savings and improved tire quality. Shipping the highest-quality products to market could bolster consumer confidence and vendor satisfaction, leading to more revenue over time.

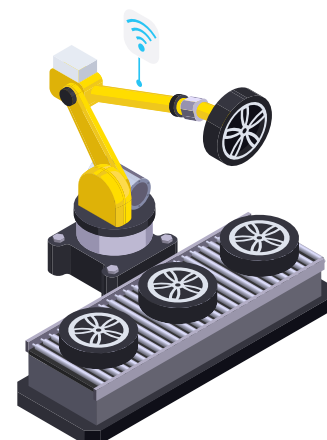
Data-Driven Efficiencies

Tire Company X wanted to implement an Industry 4.0 solution that could help them improve visibility into the hundreds of variables that go into their process. With a greater understanding of their most impactful input variables and how to better optimize their process, operations teams could uncover specific settings for maximizing efficiency and increasing yield for every production

run. With more than 40 tires produced every minute at their largest facilities, improving stability would have substantial implications for company margins.

Specifically, Tire Company X's initial goal was to decrease waste on a specific part of their process. Braincube's data architects worked with SMEs and engineers at Tire Company X to [build a contextualized Digital Twin](#) of the specific tire's production process. Aggregating all their data sources into one centralized location is a valuable step on the road to digital transformation. Braincube's Digital Twins takes this one step further by ensuring the data is cleansed, structured, and contextualized.

This can then be leveraged by a wide variety of users including operators, process engineers, and IT teams. This puts valuable information right into the hands of those who directly impact the production process.



Once their dynamic Digital Twin was built, Tire Company X's teams leveraged Braincube's powerful low-code/no-code apps to advance their knowledge around their processes.

Automated CrossRank Scoring, Braincube's proprietary AI algorithm, helped the teams locate the exact set points for operating at maximum efficiency every run. CrossRank fit in well with Tire Company X's existing Six Sigma efforts. This included focusing on the DMAIC process (Define, Measure, Analyze, Improve, and Control), which was already part of a globally supported process at the organization. Industrial Internet of Things (IIoT) wasn't brought in as a different or conflicting solution: it supported—and advanced—Tire Company X's existing philosophies and engineering best practices.

In other words, the plant teams didn't see an [IIoT Platform](#) as a separate endeavor to their digital transformation efforts. They saw it as part of their existing goals and objectives.



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[Machine Learning and AI provided additional opportunities](#) to reduce human error, improve efficiency, and generate new discoveries.

By the Numbers

35% Reduction

in waste on a single process

\$1 Million

saved per year on a single process after implementing Braincube

4 Years

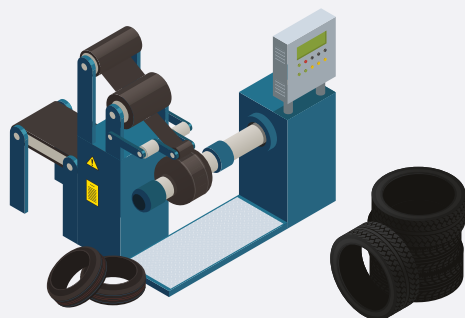
for Tire Company X to implement Braincube at multiple facilities worldwide

Using CrossRank, plant teams were able to isolate the two input variables that had the biggest impact on waste for this part of the process. Operators adjusted the optimal operating range for these two variables and ran the scenario through a test environment. The results were significant: changing these operating ranges resulted in **28% less waste than their existing production conditions.**

Leveraging AI for Continuous Improvement

Validating these operational changes in their Digital Twin (which enables engineers to test production changes before implementing new operating conditions) gave teams confidence that they would see positive results. Engineers identified the key production changes using the data from their streaming dashboard, Braincube Live. With these insights in hand, operators then implemented these changes into production.

Setting these new operational ranges into production meant that new data entered the equation. Teams could see how these new changes impacted other parts of the production process. They were able to dial into other impactful variables and see what additional changes could be made.



The 4 Steps to Continuous Improvement

1 Understand an opportunity

Look for parts of your production process that could be optimized. Production bottlenecks and processes with multiple steps taking place at the same time (e.g. heating and compressing a material simultaneously) are good places to look for improvement opportunities.

2 Validate the results

A Digital Twin provides you with a virtual testing environment for process changes. You can experiment with parameter adjustments and see the changes in a digital environment before going into production, saving you both time and resources.

3 Push to production

Once a hypothesis is validated, implement the change into your production process and track results.

4 Use new data to make further improvements

When your processes change, your production data changes. Live, up-to-date data is automatically added to Braincube's Digital Twin for your analyses. This makes it possible to make new discoveries based on current production data.

It only took five months of new production data for teams at Tire Company X to discover what other input variables they could modify. Using Braincube's advanced analytics apps, teams made additional changes that enabled them to exceed their projections by more than 5%, resulting in more than \$1 million in savings in one year. This approach is continuous improvement at its best: understand an opportunity, validate the results, push to production, then use new data to make further improvements.

Using Braincube as a centralized platform for gathering data, performing analyses, and pushing findings into production showed the teams what they could achieve with cross-collaboration. With management, engineering, and operations working together towards a common objective, each team could level up their efforts and achieve more.



New Collaboration Opportunities

This success inspired managers and leaders at other departments. As an organization, Tire Company X moved beyond their initial IIoT use cases—solving operational problems—to revolutionizing how the entire company shares data and [works cross-functionally](#). After all, this is the ultimate goal of digital transformation: truly transforming how teams use data to achieve goals across the entire organization.

Tire Company X understood that investing in an IIoT solution was about more than solving a limited set of operational problems. Yes, Braincube enabled them to optimize a process that saved them money and resources. But more importantly, it completely changed the way data was consumed and shared across the organization. This enables the company to remain competitive by acting strategically based on shared knowledge.

With Braincube, both plant and corporate teams at Tire Company X developed more efficient reporting processes. The platform minimizes the amount of time required to pull, cleanse, structure, and contextualize data. Braincube also enables everyone at the organization to have access to the same data

instead of limiting access to engineers and data scientists. As a result, plant managers and operators collaborate more easily, resulting in higher quality products and more efficient production processes.

Over the last decade, Tire Company X isn't just using the Braincube platform to improve a single part of the production process. For example, they have also improved their finishing processes as a result of their findings in Braincube. They have continuous traceability for every tire made at their facilities around the world. If a defect is discovered

after a tire is produced, it is possible to look back and analyze the specific production conditions that may have caused issues. These findings can be used to make continuous quality improvements.

The company has also seen an increase in plant-to-plant collaboration. Since many production processes are similar at their

different facilities, Tire Company X can implement improvement discoveries to multiple locations. This is what happened with the waste improvement at their Braincube flagship plant. Not only did the first plant help show what was possible with an IIoT platform, but it also served as an implementation model for future roll-outs.



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Global Expansion

Tire Company X found enough value in Braincube that they decided to implement the platform at other facilities. Four years after first implementing Braincube, they now use it at multiple facilities worldwide.

Part of Tire Company X's success is the result of having global product tagging at every plant across the world. Even if a product had a different name locally, their global tags were identical. The company worked on standardizing the few tags that had varying names across the world. Once completed, this streamlined the roll-out process every time they implemented Braincube at a new facility. It also allows teams to easily implement changes when a new improvement is discovered, even if it was found at a different plant.

"The infrastructure is easy to maintain and we can roll out new plants rapidly," said an Industry 4.0 Enterprise Architect at Tire Company X. "Braincube is driving innovation in the data analytics and AI space. We are delighted to have Braincube as a strategic partner as we navigate along our journey to Industry 4.0."

Company Overview

Company Tire X has been around for over 100 years. They are one of the largest tire manufacturers in the world with facilities in over 20 countries.

★ Unexpected Wins

- ✓ After using Braincube to make an initial round of process changes, Tire Company X used new production data to improve initial operating conditions an additional 5%.
- ✓ Establishing—and updating—their global product tagging system enabled Tire Company X to streamline Braincube's implementation at multiple factories in just four years.
- ✓ Democratized data resulted in improved cross-departmental collaboration and plant-to-plant communication.



Why We're Different



A Single Hub to Access and Use Production Data

Operate at peak performance by leveraging your streaming data to take immediate action and your historical data to accelerate continuous improvement.

Our solutions are flexible. Whether you are looking for Edge, Cloud or a Hybrid offer, our software was designed by manufacturers for manufacturers with your ideal deployment: on-prem or in a private or public cloud.



Continuous Structurization with Process Digital Twin

Find efficiency opportunities, cost savings, test changes without wasting resources or track your entire process using your Digital Twin from Braincube.

This dynamic replica lags all of your production variables and instantly identifies the most impactful variables in your process and prescribes how you can best leverage new optimizations with AI and Machine Learning.



Empower Your Employees with Autonomous Factories

Braincube continuously adapts to environment and process variability, giving you a continuous look into every step of your production process—so your team spends more time focused on improving operations, and less time wrangling data.

C-Suite, process engineers, operators and data scientists can use advanced apps that simplify data visualization, Big Data mining, complex third-party integrations and more.

About Braincube

Braincube is an IIoT platform suite with business and expert apps designed for industry. Founded by Laurent Laporte, Hélène Olphe-Galliard, and Sylvain Rubat du Mérac in 2007, Braincube has paved the way for artificial intelligence in the industrial world for more than a decade.

Braincube's platform and off-the-shelf apps empower manufacturers to find instant and long-term value from data streams and Big Data analytics. Its operating software provides immediate visibility into live conditions via Edge and provides a hub of analysis apps via Cloud to better optimize performance.

Combine Edge and Cloud to get the best results from your IIoT platform: adjust to real-time recommendations and improve future performance. Choose from a robust app store to help you achieve your context-specific goals whether you are striving for continuous improvement and higher productivity, cost-reduction via Machine Learning, asset monitoring and predictive maintenance strategies, or visualization with charts, tables, and dashboards.

Braincube provides a one-stop-shop to take control of your data and transform your operations.

\$5.5 BILLION

Saved by Braincube users' production lines in the last 10 years

35,000+

Braincube users every day

250+

Manufacturing companies using Braincube in their factories

1,200+

Production lines running Braincube across 30 countries

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