

Onshape Case Study

KAIKAKU



INDUSTRY: ROBOTICS, AUTOMATION

The Challenge

The global foodservice industry is under increasing strain. Rising costs, inconsistent operations, and persistent labor challenges are forcing operators to rethink how kitchens function at a fundamental level.

London-based [Kaikaku](#) is tackling this challenge by developing back-of-house robotics and sensing systems that bring automation, consistency, and data-driven decision-making into foodservice environments.

From their beginning in 2023, the team took a hands-on approach. Rather than designing in isolation, Kaikaku built and operated its own “living lab” restaurant: a fully functioning environment in Central London where engineers could test hardware in real time, often iterating between service periods. But as Kaikaku evolved, so did its business goals.

The company began transitioning from experimental development to commercial deployment, bringing products like its AI-powered Fusion automation platform and TraySense sensing system into customer environments. That shift required a CAD platform capable of supporting continuous iteration, real-world deployment, and scalable product development without slowing the team down.

Kaikaku knew traditional file-based CAD systems would not support this level of speed or flexibility. They required a cloud-native platform capable of enabling agile hardware development at startup velocity without sacrificing control or traceability. They chose [PTC's Onshape CAD+PDM](#).

Results

- ◆ **2X improvement**
in collaboration efficiency and overall productivity
- ◆ **As little as one week**
to complete concept-to-procurement cycles
- ◆ **Built-in PDM**
enables structured transition to commercial scalability
- ◆ **Parametric design workflows**
enable rapid product customization for new use cases
- ◆ **Seamless transition**
from Startup Program to commercial deployments

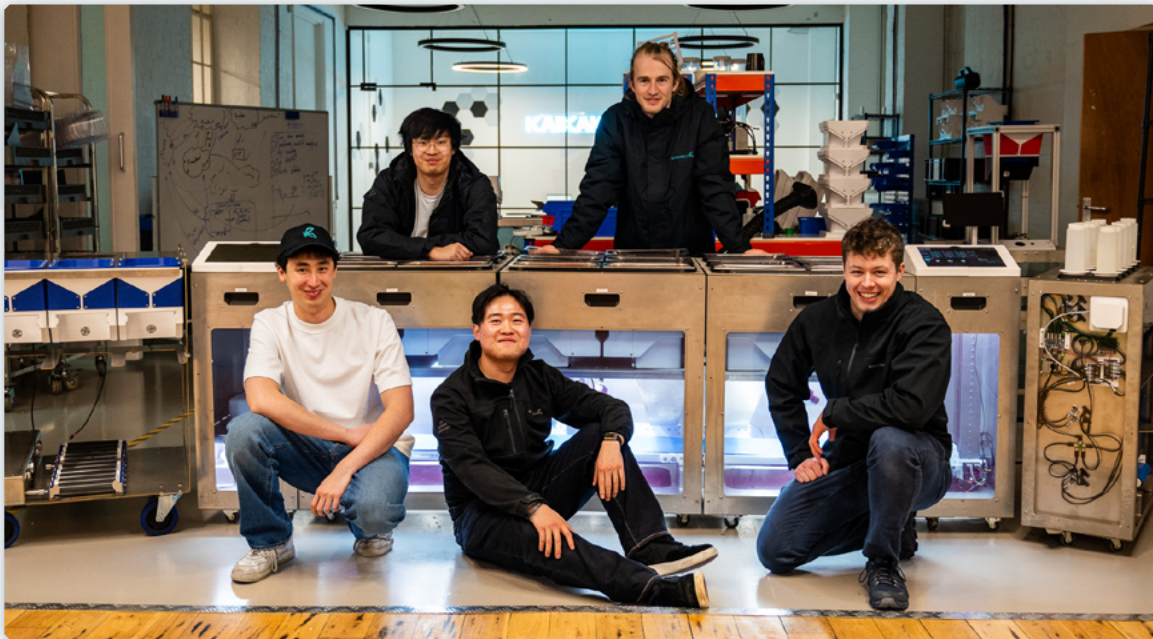


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Cloud-Native Onshape Helps Kaikaku Scale Restaurant Automation Solutions with Agile Hardware Development

The foodservice tech startup doubled collaboration and productivity returns with Onshape CAD+PDM, enabling rapid product customization for commercial deployments.



Kaikaku's team in front of various automated food service solutions. With Onshape, they achieve about a 2X improvement in collaboration and productivity compared to working in file-based systems.

Agile design collaboration empowers a small team to build at scale

Kaikaku's four-person engineering team operates with the velocity of a much larger organization. Despite its size, they achieve about a **2X improvement in collaboration and overall productivity** compared to working in legacy, file-based systems.

Onshape's [real-time collaboration](#) tools are critical to Kaikaku's continued growth. With cloud-native CAD, engineers aren't separated from production or deployment.

They design, build, test, and refine systems in close proximity, often working directly alongside prototyping equipment and manufacturing tools.

"It's common for us to identify an issue, redesign a part in Onshape, print it, and redeploy the same day," explains Louis Horrell, Senior Mechatronics Engineer.

With Onshape, Kaikaku's engineers work in a shared, real-time environment where designs are always up to date, allowing multiple contributors to iterate simultaneously without conflict. This collaborative efficiency allows them to move quickly from problem identification to solution.

One-week development cycles turn ideas into production-ready solutions faster

Development speed is critical for Kaikaku, and with [Onshape's cloud-native ecosystem](#), the team can go from concept to production-ready design in **as little as a week**.

That speed came into sharp focus with the development of [TraySense](#), an AI-powered sensing product designed to bring real-time portion data into restaurant operations. The initial concept quickly turned into a fully realized product.



Kaikaku's AI-powered stations provide real-time portion data, bringing automation, speed, and consistency to foodservice establishments.

“We went from idea to CAD, prototype, and procurement in about seven days. That wouldn’t have been possible without Onshape,” says Ivan Tregear, Kaikaku Chief Technology Officer.

This speed is made possible by combining Onshape’s cloud-native CAD environment with Kaikaku’s in-house manufacturing capabilities. The team relies heavily on 3D printing to avoid early tooling investment and maintain a rapid iteration cadence.

Instead of waiting for external validation, engineers can test designs physically, often within hours, and feed those learnings directly back into Onshape. This reduces friction and creates a tight feedback loop between design and reality, allowing Kaikaku to refine products faster and bring new solutions to market with unprecedented speed.

Built-in PDM keeps development on track for commercial readiness

As Kaikaku transitions from startup experimentation to commercial deployment, the team is now developing more production-ready systems designed for broader deployment across customer environments.

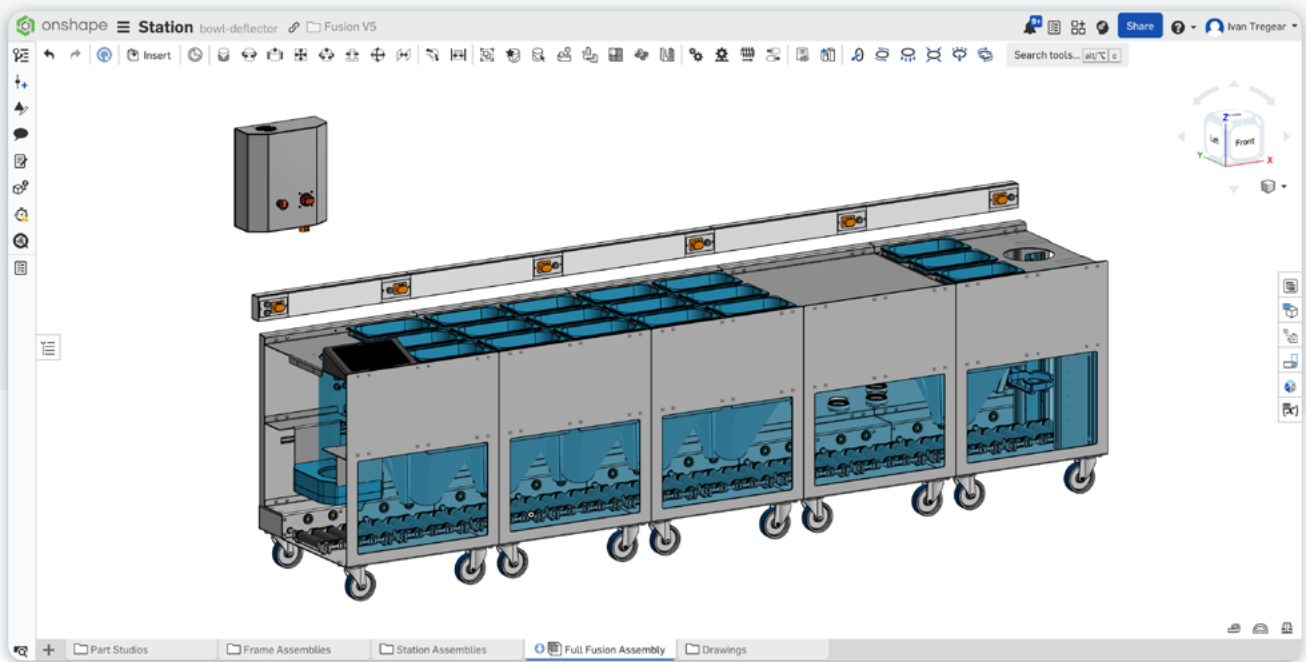
This shift introduced new complexity: managing parallel development across products, maintaining design integrity, and ensuring manufacturability while continuing to iterate quickly. Onshape’s [built-in PDM](#), including [branching and merging](#), enables Kaikaku to scale this process without introducing bottlenecks.



A top view of Kaikaku's Fusion design in Onshape. Branching and merging allows them to maintain design integrity while customizing stations for customer requirements.

Cloud-native PDM helps Kaikaku organize, track, and reuse information throughout the product lifecycle, so engineers can explore multiple design paths simultaneously, test improvements in isolated workspaces, and merge validated changes back into production designs while maintaining full revision history and traceability.

“Non-blocking releases and collaborative workflows let us iterate hardware at the speed required by an early-stage startup,” says Tregear.



A Kaikaku Fusion food service station design in Onshape. As they scale commercially, Onshape's built-in PDM helps them maintain full revision history and traceability.

Kaikaku's products must also meet rigorous safety requirements as they move toward commercialization. For example, designing food-contact components requires adherence to strict hygienic standards like [EN 1672](#), which mandates eliminating crevices, avoiding exposed fasteners, and ensuring components can be cleaned efficiently.

“Designing robust mechanisms that also meet hygiene requirements is consistently the hardest challenge,” says Horrell.

These constraints demand careful iteration for not just speed, but also control. With Onshape, Kaikaku can manage multiple generations of parts, track revisions across [assemblies](#), and refine designs without disrupting ongoing development. This allows the team to maintain its high-velocity workflow while introducing the structure needed for scalable product development.

The result is a development process that bridges startup speed with commercial readiness.

Modular product designs support diverse customer deployments

As Kaikaku expands into commercial deployments, variability becomes a central challenge. Different foodservice environments require different configurations, from ambient ingredient handling to temperature-controlled dispensing.

Rather than building entirely bespoke systems, Kaikaku relies on a modular design approach supported by Onshape's [parametric modeling capabilities](#), especially [configurations](#).



Kaikaku's adaptive designs, supported by Onshape's parametric modeling capabilities, allow for custom commercial implementations.

With Onshape Configurations, the team manages families of related components that can be adapted through parameter changes and derived designs. This allows engineers to reuse core architecture while making targeted adjustments for specific use cases.

"We have a lot of similar parts with slight variations. Managing that complexity is one of the biggest challenges, and one of the biggest advantages of how we use Onshape," Tregear says.

This approach allows Kaikaku to deliver tailored solutions without sacrificing consistency, traceability, or development speed.



Kaikaku's AI-powered Fusion back-of-house automation platform portions out meals based on preset conditions. It is capable of serving 360 meals per hour.

From Startup Program to scalable commercial platform

Kaikaku's journey with Onshape began in the [Startup Program](#), where the team adopted the platform as the foundation of its [hardware development](#). The program gives qualified startups free access to Onshape's professional-grade CAD, built-in PDM, collaboration tools, and more.

From the outset, Onshape's cloud-native workflows aligned with the company's fast-moving, software-inspired approach to engineering. As Kaikaku transitioned to a paying customer, that foundation remained unchanged, enabling the company to scale without disruption.

"Within a couple of weeks, there was no way we'd go back. When it came time to move off the Startup Program, it was a very fair purchase," says Tregear.

There was no need for migration, retraining, or workflow redesign. The same platform that supported rapid experimentation in the living lab now supports commercial product development, manufacturing readiness, and diverse customer deployments.



An Onshape CAD model of Kaikaku's Fusion platform. The team adopted Onshape through the Startup Program, which gave them free access to a full suite of professional-grade CAD tools from day one.

Building the future of restaurants with agile hardware development

At its core, Kaikaku is applying a software mindset to hardware, redefining how hardware innovation happens in one of the world's most complex operational environments.

Onshape helps makes this possible by providing:

- ◆ **Cloud-native CAD** that enables access from the workshop to the restaurant floor
- ◆ **Built-in PDM** that manages constant iteration without introducing friction
- ◆ **Agile hardware workflows** that support rapid experimentation and deployment

This combination allows Kaikaku to operate differently from traditional hardware companies, moving faster, learning faster, and scaling more efficiently. As the company expands deployments, launches new products, and enters new markets, that ability to iterate in real time has become a defining competitive advantage.

The Onshape Discovery Program

Learn how qualified CAD professionals can get Onshape Professional for up to 6 months - at no cost!

[DISCOVER ONSHAPE TODAY](#)

