

Case Study

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Rapid Prototyping Additive Manufacturing Lab

How a technology equipment leader trimmed over 85% of time and cost using in-house 3D printing for rapid prototyping

With its global presence already established within the company, Ricoh was a partner of choice to run its Additive Manufacturing rapid prototyping lab. Ricoh accelerated the AM infrastructure and service the company offered to its internal users.

ABOUT THE CUSTOMER

This equipment company is a leading provider of process control and yield management solutions that partners with customers around the world to develop state-of-the-art technologies. Serving the industry for more than 40 years, the company has a portfolio of industry-standard products and a team of world-class engineers and scientists. Its engineering teams are heavily focused on design and integration, but less on component manufacturing—which is often sub-contracted.

Headquartered on the West Coast, the company has dedicated customer operations and service centers around the world. In addition to enabling technology to support its engineering teams in their design, integration and support objectives, it has incorporated Additive Manufacturing (AM) at many levels within the organization—including using AM for rapid prototyping purposes.

CHALLENGE

- Rising operational costs with non-dedicated personnel and non-consolidated equipment
- Inefficient processing of print job requests
- Inability to serve a large pool of internal users
- Inadequate process control and tracking for in-house and outsourced requests

The company added 3D printing capabilities several years ago when it began using AM primarily for form and fit testing and periodically function testing—depending on material used. They were also using AM for rapid tooling for R&D, production and service as well as visual demonstrations for various technical and non-technical purposes.

Early on in their exploration of 3D printing, the technology had many upsides for their business, yet it took engineers and designers several hours to output a single prototype. Once complete, the prototype then had to be cleaned and finished—adding extra time to the process, which took away from their primary duties as design engineers.

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Additionally, the company wasn't tracking print volumes or consumables use, with various operators purchasing materials from the printer manufacturer that weren't necessary for day-to-day production. While large prototypes needed to be outsourced, parts that could have been created in-house were outsourced due to lack of time from designers or inefficient process—causing costs to rise. Back then, with fewer available internal and external resources, those challenges were a necessary organic growth pain which allowed the company to confirm and strengthen their use cases and knowledge for AM rapid prototyping. However, it quickly realized that a centralized infrastructure was the best way to go forward, with dedicated resources to optimize job request and file processing, printing management, part post-processing, training and support to internal users.

RESULTS

- **More than 85-90% time and cost savings**
- **Nearly 85% of 3D print in-sourced**
- **Most jobs completed within 24 hours**
- **More than 200% growth in usage of AM rapid prototyping**

Today, the company has a knowledgeable partner in Ricoh, staffing their rapid prototyping AM lab, integrated in part with its internal AM program team. Having Ricoh operating the 3D printing lab provides structure and quality to a corporate service, as well as support for its employees and executives to adopt AM even further. Ricoh's presence instills confidence that each 3D printing job request will receive proper review and will get the best recommendation for materials and AM technologies to use. Ricoh also manages the company's user prototyping requests smoothly and effortlessly, which normally would require significant work from its users. The optimization of the AM rapid prototyping operation has led to a time and cost savings of more than 85-90% over traditional tooling prototypes, and more than

A qualified Ricoh specialist in the lab creates a comfort level and confidence the job will have the correct file review, material selection, printing and post-processing.

15-30% over the use of external service bureaus. Although Ricoh has established validated partnerships with external service bureaus to complement the needs in materials and technology that go beyond what it has internally, nearly 85% of prototypes are being cost effectively printed in-house within 24 hours after receipt of the job request.

Overall, the success and adoption of the rapid prototype lab has exceeded the company's expectations and new opportunities are continually uncovered to increase efficiency and cost savings. By leveraging Ricoh operational efficiency and controls, the company is able to get clear visibility into the benefits brought by AM rapid prototyping, as well as establish better and faster strategic plans to meet the needs of the increasing footprint that AM has on its product and services.

HOW WE DID IT

- **Brought in a specialized team to conduct assessment, recommend solutions**
- **Extended current managed services agreement to cover 3D printing**
- **Dedicated a trained Ricoh team to the AM rapid prototyping lab**
- **Created a simplified, streamlined and integrated tracking and billing tool**

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The Ricoh Managed Services team already on-site began a conversation to understand and anticipate the company's needs for their ongoing 3D printing program. Following an alignment with the company on their AM roadmap and objectives, Ricoh's AM team assessed the printing environment and made recommendations to address their specific challenges around ineffective operations, processes and increasing user adoption.

Within the Ricoh organization we extended the existing copy, mail and shipping managed services contract to cover operations in the AM rapid prototyping lab. We dedicated and cross-trained Ricoh specialists to the ongoing management of the lab. Additionally, we established a standard process workflow for in-sourcing and outsourcing prototypes to make the best use of printers and resources—and track print jobs. We also created a single point of billing to simplify the internal crosscharging and outsourcing process and eliminated multiple purchase orders and individual credit card charges by the company's users.

www.ricoh-usa.com

Learn more about **Ricoh Services and Solutions** or **contact us**

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