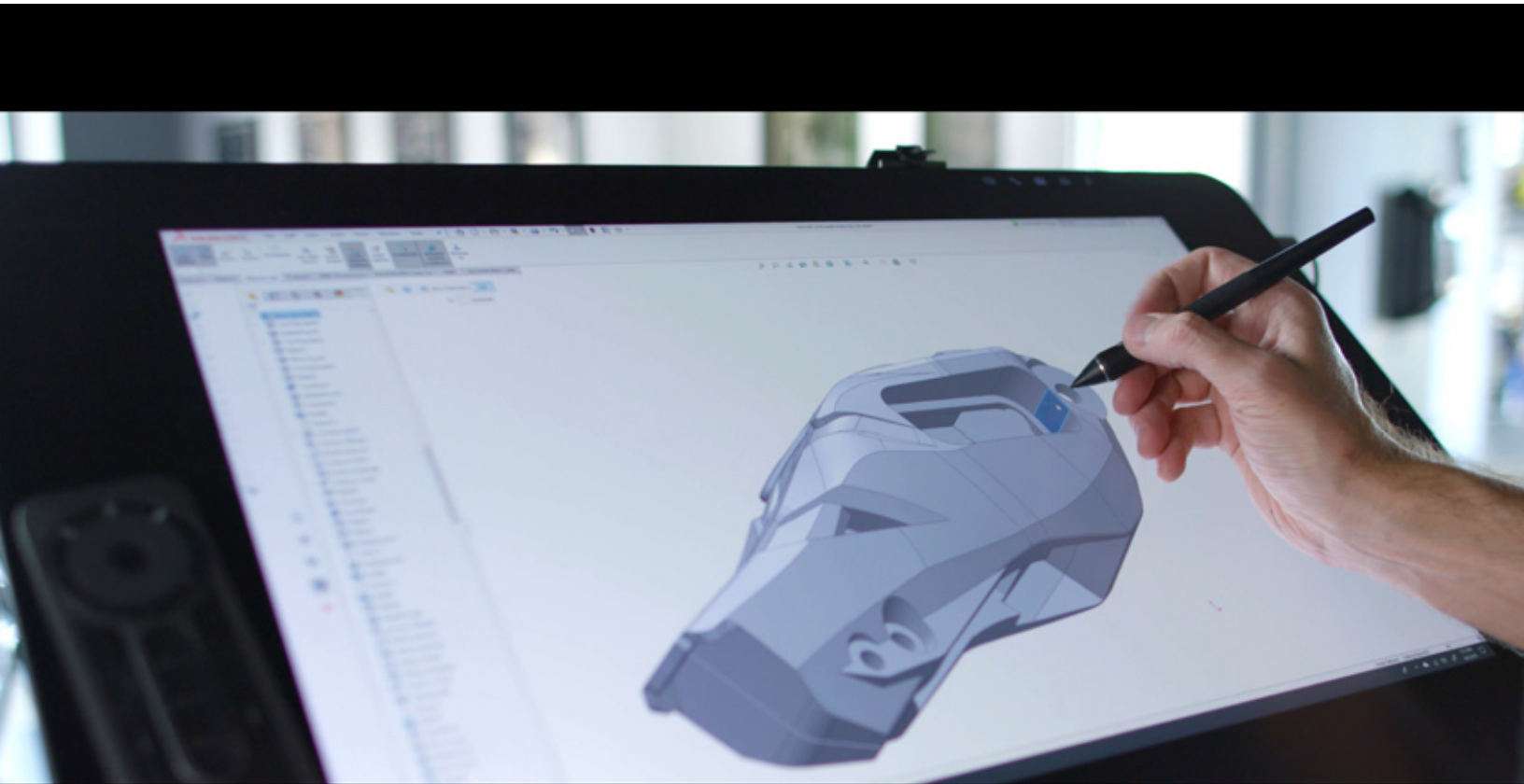




3D Printers Lead to Fast ROI, More Revenue, and Greater Profitability for Fast-Growing Design Firm

The Center for Advanced Design achieved an ROI of less than four months on a Stratasys F370 printer.



Product design firms must be creative, responsive to customer needs, adaptable, and have a solid understanding of fundamental design principles. But as important as those qualities are, they're not always enough for business success. Just like other types of businesses, design firms must continually find new ways to increase their revenues and profitability by creating increased value for customers. The key is to do so without adding to headcount and increasing long-term costs.

One way a design firm can do that is by adding to its 3D printing capabilities. 3D printing gives designers the ability to quickly and

economically produce prototypes, product samples, teaching and demonstration models, and complex finished parts that are impossible or too costly to produce by any other method. It leads to faster time-to-market, more fruitful collaborations between designers and customers, and the ability to produce a greater diversity and volume of parts.

All of these benefits can be obtained without necessarily adding to headcount and with a fast return on investment (ROI) on a printer because designers can produce more error-free parts in less time. An increase in 3D printing capabilities also lays the foundation for expanded business opportunities in the future.



Take the example of fast-growing Elk River, Minnesota-based product development and design firm Center for Advanced Design (CAD), which achieved an ROI of less than four months on its investment in a Stratasys F370 printer.

ROI of Less Than Four Months

CAD specializes in creating solutions for companies for a range of applications including branding, documentation, and graphic and industrial design.

The company began in 2011 when the two founders and partners, Jesse Hahne and Marc McCauley, left their product development positions at another company to start the business. “CAD is a creative services agency. We use our fundamental design knowledge and years of experience to solve customers’ difficult challenges,” Hahne said. “Marc and I had used a 3D printer at our

previous jobs. We became intrigued by the technology and had this dream to start our own firm based on it. At first it was just the two of us but now we’re up to 14 people.”

Hahne said 80% percent of the firm’s work comes from mid- to large-sized companies such as Target, Medtronic, SpaceX, and others. The fact that these companies, which have many resources and extensive product design/development experience, choose to entrust CAD with critical design work is a testament to CAD’s business and financial acumen as well as its design expertise. Helping startups and inventors achieve their dreams comprises the remaining 20% of the design firm’s business.

CAD purchased two Stratasys F370 printers in 2018 to grow its customer base and take on an increased number and diversity of projects. The F370 units offer more features, higher capacities, better performance, and higher reliability than the company’s

original 3D printers. These capabilities have not only enabled CAD to win more business but have also given the firm the ability to bill for its services more accurately and profitably.

Stratasys' F370 printers are part of the company's F123 series of industrial-grade 3D printers, known for their reliability and uptime. They support a range of user requirements from functional prototyping to manufacturing-floor production. They work with a range of materials and include advanced features for streamlined workflows such as GrabCAD Print software that enables users to go directly from CAD file formats to 3D printing, a Fast Draft mode for truly rapid prototyping, and soluble supports to prevent design compromises and eliminate the need for hands-on removal of support components and flashing.

How a Project is Priced

To understand how CAD achieved such a fast ROI, it's helpful to review how the firm structures its customer engagements. Hahne said, "First, new customers come in for a free half-hour consultation, which is a way to see if we are a good fit for each other. If that goes well, then we structure a project scope and cost it out."

Projects differ but generally for a large project, CAD will first digitally sketch in 2D five to ten different concepts/looks/feels/shapes. At this point, the work doesn't encompass ergonomics, finish, colors, and so forth. Then there is a customer review in which the customer selects one or more of these ideas.

"At that point, we go back and incorporate the inputs, solidify the sketches, and come up with a proposal that may be from three to as many as 20 pages long, breaking out the specific look and feel of the part, how it will be assembled, how long it will take, and so on. We call this roadmap the ID Deck and customers use it to get project signoff from their relevant business units, or if they are startups, they use it to get outside funding. The cost for the ID Deck is based on an hourly rate."

Once the ID Deck is approved, CAD then produces an evaluation model of the 3D design for customer review. "Only after we get the OK on that model do we quote the 3D print phase. We can't usually quote this in the first phase unless there's an existing model already," he said. Once it's approved, CAD gets everything ready for production (e.g., tooling, sourcing, etc.) and then there may be yet another touch point with the customer regarding an injection molder's specific requirements (e.g., cooling considerations).

CAD's 3D printing costs are based on the time spent producing a part, taking into account material usage. It is also important to note that CAD prints during nights and weekends. This allows them



to still generate revenue in the off-hours. In addition, they can monitor the print with the GRABCAD app and even see it if they want to since the F370 has a built-in camera. Hahne said CAD turns to Stratasys Direct Manufacturing when a project calls for materials that it doesn't work with such as carbon fiber or nylon.

"We have a large number of designers working to generate the models that feed the 3D printers. We charge to the 15-minute mark and our people work as fast as possible but if a printer's down, then we can't charge for anyone's time and we can't make money," Hahne said. "So, print speed, flexibility, and reliability are key considerations for us and with the Stratasys machines, we know we can hit 'print' and walk away knowing the job will be done right.

"In addition, there are many other less obvious but still quite important benefits to the F370 printers that drive our profitability. One is that although we can't charge for molding and flashing



removal, it still must be done, and Stratasys' soluble support is a big help in that regard," he said.

"Also, advanced new machines like this give you capabilities you didn't even know you needed and it's a very pleasant feeling indeed because nine out of 10 times, we can charge for them," Hahne said.

Stratasys (www.stratasys.com) is a global leader in additive manufacturing or 3D printing technology and is the manufacturer of FDM[®] and PolyJet[™] 3D printers. Stratasys technologies are used to create prototypes, manufacturing tools, and production parts for industries including aerospace, automotive, healthcare, consumer products and education. For 30 years, Stratasys products have helped manufacturers reduce product-development time, cost, and time-to-market, as well as reduce or eliminate tooling costs and improve product quality. The Stratasys 3D printing ecosystem of solutions and expertise includes 3D printers, materials, software, expert services, and on-demand parts production.

To learn more about CAD, visit
<https://centerforadvanceddesign.com/>