

Case Study

Physical Digital Ltd

Physical Digital Ltd Brings Reverse Engineering In House with SpaceClaim

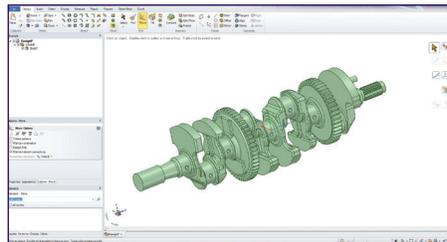
As an R&D engineer with McLaren Group, Tim Rapley was an integral part of the team that introduced high-quality, non-contact 3D scanning to the motorsport organization. His success in implementing the technology had him working extensively with suppliers, ultimately spending more time on the road than at home.

After several years, he determined there was a significant opportunity to do the same kind of work as a service bureau. In 2005, he purchased his own scanning system – the only one employed by an independent bureau in the UK – and opened Physical Digital Ltd in his home county of Surrey. Soon, he was serving clients in nearly every manufacturing industry, with clients across the UK and beyond.

Capturing Reverse Engineering Revenue

As the company grew, Rapley and Daniel Lainchbury, Senior Applications Engineer for Physical Digital, found that a large percentage of the company's client requests included reverse engineering in addition to providing the scanned data. The company had been sending that work out to third parties, and it had an opportunity to bring reverse engineering in house if they found the right tools. Rapley had worked in CATIA™ and Lainchbury had experience with SolidWorks®, but they considered those systems too expensive or not well suited to working with scanned data.

After a review of several software options, SpaceClaim looked to be easy to use, required minimal training, and matched up well with the company's needs. In 2012, a reverse engineering project came to



Physical Digital that was both straight-forward and large enough that Lainchbury took the leap, purchased SpaceClaim, and began working with it.

"The ability to play around for a couple of hours and then start to do the work, as opposed to having to train for a few weeks to learn the software, was a huge benefit," says Lainchbury. "SpaceClaim paid for itself literally overnight. It was incredible, really."

From Promising Beginnings to a Line of Business

Physical Digital is still the only service bureau offering the high-end 3D scanning sought out by its customers, providing a steady stream of demand for reverse engineering, which has become 40 percent of the company's business. By providing reverse engineering in house, Physical Digital is able to reduce clients' costs, prototyping errors, and time to market.

Today, Physical Digital provides clients with reverse engineered components and assemblies for analysis and remanufacture. The company specializes in fast replications of products for a range of reverse engineering projects, including material changes, injection molding, R&D, tool making, and prototyping.

Using the scan data as a guide, Physical Digital and its clients can make key design decisions in order to replicate a component as it was originally designed. This includes

About Physical Digital

- Helps businesses improve quality, prototype accurately, and move to production with lower costs
- Provides 3D scanning and reverse engineering clients in industries including Aerospace, Computer Gaming, Motorsports, and Pharmaceutical
- Founded in 2005 as the only independent service bureau in the UK offering highly accurate 3D scanning

Goals

- Expand a thriving 3D scanning business into reverse engineering and capture downstream revenue
- Find software that does not require extensive training
- Realize a rapid return on investment

Results

- Physical Digital began work on the first project hours after its first interaction with SpaceClaim
- The purchase price of SpaceClaim was recouped with the first job, on its first day in use
- Reverse engineering is now 40 percent of the company's revenue, two years after adopting SpaceClaim
- Physical Digital is able to reduce clients' costs, errors, and time to market



www.physicaldigital.com

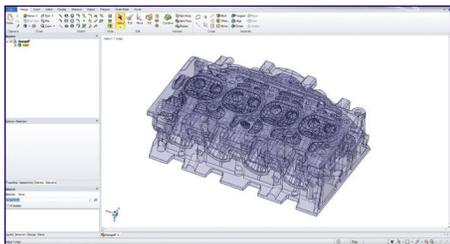
"We were awarded a project that was substantial enough and easy enough to look at doing the work ourselves and in doing that work, SpaceClaim paid for itself. That was a big advantage. It was literally overnight."

"SpaceClaim is great for what we do. Reverse engineering has become 40 percent of our revenue."

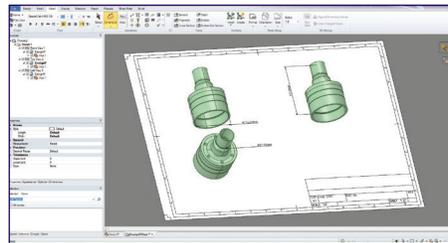
— Daniel Lainchbury, senior applications engineer, Physical Digital

the creation of geometric features to exact dimensions rather than fitted to the scan data. Components can be reverse engineered exactly as manufactured, recreating scan data accurately into a CAD model for use in remanufacture of components or analysis including Computational Fluid Dynamics and Finite Element Analysis. Further, using SpaceClaim means history-free CAD files can be provided in a wide range of formats.

Physical Digital now counts leading brands in the aerospace, marine, automotive and medical industries, among others as reverse engineering customers thanks to the industriousness of Rapley and Lainchbury, along with the ease of use and power of SpaceClaim.



Using the industry's leading optical scanning systems, it has the ability to scan organic and geometric forms and a wide range of sizes from tiny molded components to airplanes and ocean-going yachts. Physical Digital can work on-site with clients or from dedicated offices in Surrey.



Its measurement equipment allows the company to scan any object of any size in precise detail, delivering the data in any format clients require, so that they can immediately use it to improve designs and processes.

Non-contact 3D scanning is a fast, accurate and cost-effective way to collect physical data that allows engineers to design better products, reduce prototyping errors, improve production processes, guarantee quality and build a reputation for excellence.

Physical Digital's services are used for:

- All engineering and manufacturing sectors
- Design
- Animation
- Medical products
- Education
- 3D presentations
- Art and archaeology
- Consumer goods
- Virtual reality and more

About SpaceClaim

SpaceClaim, the flexible and affordable 3D modeling software for engineers from ANSYS, Inc., is easy to learn and use and is completely CAD-neutral. It enables engineers and other manufacturing professionals to rapidly create new designs or manipulate and edit existing 2D and 3D geometry, without the complexity of traditional CAD.

For more information on SpaceClaim, please visit www.spaceclaim.com.

About Physical Digital

Physical Digital specializes in non-contact 3D scanning using the GOM ATOS and TRITOP measurement system. Physical Digital is the UK's leading bureau service and provides bespoke solutions to high-end industrial applications.

The company's areas of expertise include:

- Reverse engineering
- Quality inspection
- Design & reducing time-to-market
- Research and development
- Rapid prototyping



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