

**CONCEPT** Proof of concept in rapid prototyping refers to creating a simple, initial version of a product or system to test whether the basic design and functionality are feasible and effective. This is typically done using rapid prototyping techniques such as 3D printing or computer-aided design. The goal is to quickly and inexpensively evaluate whether the concept can work before investing significant time and resources into further development. If the proof of concept is successful, it can be refined and iterated upon to create a more detailed prototype and ultimately a finished product.

## BACKGROUND

The first rapid prototyping technique, stereolithography, was invented in the mid-1980s by Chuck Hull, who went on to found 3D Systems Corporation. This technique used lasers to cure liquid resin layer by layer to create a physical model of the design.

In the 1990s, rapid prototyping technologies expanded to include other techniques such as selective laser sintering and fused deposition modeling, which used different materials and processes to create prototypes. As the technology improved and costs decreased, rapid prototyping became more accessible to a wider range of industries. With the access to 3D printers available today, rapid prototyping can be achieved by anyone, anywhere, at little cost.



## APPLICATION

With the use of rapid prototyping techniques, prosthetic devices can be designed and produced quickly at a lower cost. A person who needs a prosthetic hand can work with a designer to create a 3D model of the hand, which can be printed using a 3D printer. The printed prototype can be tested for fit and functionality, and any necessary adjustments can be made before the final prosthetic device is produced.