

## CISCO

### EXPLORING INNOVATION IN THE FACTORY THROUGH 3D PRINTING

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Cisco, a company with \$50B in annual revenues, is a worldwide leader in networking with 85% of Internet traffic running through Cisco hardware. The company's supply chain is consistently recognized by Gartner as one of the top 10 supply chains in the world, and Cisco is building on this success by investing in programs that drive innovation and breakthrough improvements. One such project focuses on 3D printing which has yet to be adopted in manufacturing for the high tech electronics industry.

The Tauber team identified tools and fixtures as the key opportunity for 3D printing in the factory today. The team designed and 3D printed tools and fixtures and implemented them on the factory floor with the following results:

- 70-80% cost reduction for tools and fixtures
- 50-90% faster tool and fixture procurement
- Improved manufacturing process yields for end products

To get to these results, the Tauber team compared the capabilities of 3D printing to the requirements for tools and fixtures to establish which items could be printed. The team engaged with contract manufacturing partners and Cisco engineers to identify optimal candidates for pilot projects. The team designed, printed, and deployed multiple pilot projects to the factory floor. By comparing 3D printed parts to quotes received from traditional vendors and measuring the parts' impact on quality and cycle time, the team captured the aforementioned benefits of cost reduction, speed, and quality improvement.

When applied across Cisco, these benefits are projected to save \$4M in capital expenses annually, improve time to market for new product introductions, and improve manufacturing processes. For example, Cisco's expected savings from just one of the projects was at least \$300K annually from cycle time reduction and quality improvements. Cisco's executive leadership was doubtful of the immediate benefit of 3DP, but the results from the Tauber team's project convinced them to accelerate implementation and investment for the program.