

3D Printer Manufacturer



3D Printer Manufacturer Improves Efficiency and Agility — In Time for a Real-Life Test

Industry: Additive Manufacturing



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When we started this project with Tulip, we didn't anticipate how important it would be for responding quickly to changes in production

Project Lead, 3D Printer Manufacturer

This team is part of a global leader in additive manufacturing solutions, with industrial printers and materials in use across virtually every industry. The company has the goal to make sure all of their printers and materials are designed and made to the highest possible standards, so our customers get the best possible results, every time. In 30 years, the company has had over 140,000 installations, and is leading the additive manufacturing industry through constant innovation. In addition to manufacturing 3D printers, they also have a team devoted to manufacturing parts on-demand.

The on-demand manufacturing team decided to improve their operations and agility by adopting a platform to help equip workers and manage work orders.

Then, the COVID-19 pandemic put their operations to the test, requiring flexibility and increased production levels. To meet the demands of their operation, they began iterating on these unforeseen challenges with Tulip.

The Challenge

Oblivious to the impending pandemic crisis, the 3D printing manufacturer sought to improve productivity and agility

The on-demand manufacturing team's operations were run with paper records, Adhoc work order management, and little visibility into the status and performance of their machines. As the team grew, this administrative work hampered their ability to scale.

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To improve their efficiency and speed, the team set out to improve and innovate on their current methods. They decided to adopt Tulip's no-code frontline operations platform to help better manage their manufacturing process.

To continuously improve the quality of new products being introduced, the team needed a digital system that they could implement and then continually innovate on and adjust. They started to use Tulip to help with developing order tracking applications to coordinate jobs across dozens of printers and improve efficiency.

Pivoting manufacturing with the COVID-19 pandemic

The COVID-19 pandemic hit, causing the team to pivot and begin manufacturing face shields on their in-house 3D printers in their print farm in the midwest, consisting of several models of their industrial printers.

This pivot challenged the team's agility: they set a goal to maintain 24/7 production of PPE while keeping their employees safe. The team needed to get more done with fewer people on-site at a time and they needed to equip workers to operate expensive 3D printers correctly without in-person instructions or troubleshooting. They needed to equip workers with visual work instructions and remote engineering help -- and luckily, they already had a platform that could help them manage it.

The Solution

Printer Management and Connected Workers

Manufacturing Personal Protective Equipment (PPE) for COVID-19 proved to be a perfect opportunity to test a new digital solution on their manufacturing floor. With Tulip, the on-demand manufacturing team began by implementing digital apps that augmented the capabilities of their workforce and enabled them to run thousands of prints around the clock.



They were able to deploy a production tracking system with apps that route and manage new jobs, managing printers and manual machine monitoring.

Once a job is loaded, the system will automatically detect that the machine is running. Should an issue occur, the production crew can report a reason for downtime.

For new operators, work instructions were integrated directly into the job routing app, ensuring the correct steps were taken.

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The company also deployed simple dashboards to track KPIs giving the production crew insight into the number of parts they've contributed to the frontline and also tracks the utilization of their machines so they can make data-driven decisions to maximize throughput.

The Result

Safe, Efficient, and Rapid Production of Life Saving PPE

The team was able to scale from creating 5,000 face shields a week to creating and assembling 14,000 face shields per week. The 3D printing manufacturer donated all of the face shields they produced to medical and emergency organizations for frontline workers responding to the pandemic.

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Tulip is a platform that enables rapid deployment. Through this journey, as we got more familiar with the app[s], there were more opportunities for us to say, perhaps we can do this, or perhaps we can do something else.

Project Lead, 3D Printer Manufacturer

What's New

As the company began resuming its normal operations, they continued to use Tulip in their regular workflows, finding that responding to the COVID-19 crisis helped them to drive change.

The benefits of Tulip for work instructions began sparking different discussions on how it could be used for quality management or implementing lean practices. Having a flexible, no-code tool enabled the team to challenge themselves to come up with solutions to manufacture better.

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Beyond COVID-19: Connected Workers

After seeing how important it was to be agile, the company is exploring how to further connect operators with Tulip. They are looking at how information collected from users go through guided workflows can be used for production visibility, quality management, engineering troubleshooting, and more. With Tulip's no-code App Editor, it has been easy for the team to evaluate, build, deploy and improve applications without programming expertise.

Conclusion

The 3D printer manufacturer set out to transform its in-house additive manufacturing operations and was met with an unprecedented challenge: the COVID-19 pandemic.

With Tulip, they were able to meet the challenge head-on, and improve the production of printed face shields from 5,000 to 14,000 per week.

Tulip helped them gain valuable insight into their operations, empowering operators with machine monitoring, dashboards, and analytics, and work instructions.

The principles behind the applications have influenced some of the apps in the Tulip Library, providing out-of-the-box solutions to get up and running quickly.

We are excited to see how the team continues to innovate with Tulip in solving complex challenges in quality management as well — no code necessary.

