

Enhanced Customer Service for Additive Manufacturing Specialists

Rethinking the customer journey in rapid
prototyping and production projects

An RP Platform White Paper



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Introduction

Companies around the world, in a growing range of industries, are turning to additive manufacturing techniques for their prototyping and production requirements, engaging both external service bureaus and their own internal production departments. The widespread adoption of this technology has now turned the spotlight squarely on the customer experience during additive manufacturing projects.

The opportunities are huge, particularly for additive manufacturing specialists working in the industrial and manufacturing sectors. However, customers requiring AM services have a wide range of project requirements, which need to be understood individually, as part of a wider customer service strategy. For more complex projects, AM bureaus will still need to undertake a lot of consultation with their customers to ensure the project specifications have been gathered and acted upon. At the other end of the scale, there is an increasing demand for more efficient processes for basic AM services (i.e. simple SLS projects with no need for post processing services), largely driven by improved understanding of this technology across the engineering and manufacturing sectors. However, the AM field as a whole has been slow to act on these demands.

While AM technology has evolved considerably in recent years, the complementary software and production processes have yet to experience a similar burst of innovation. As a result, customer service measures are failing to fulfil the possibilities offered by this new technology. A 2017 report by the Institute of Customer Service revealed that although overall standards of customer satisfaction across the UK had risen in the previous year, customers still regularly expressed dissatisfaction at the effort it often took to engage with organisations.¹

The purpose of this white paper is to examine each area of the typical customer journey in an additive manufacturing project in light of these trends, identify the key areas that often create pain points, and offer a perspective on how to optimise the process. We aim to show how striking a well-considered balance between automation and human consultation, it is possible to deliver an excellent experience for both new and returning customers while maintaining smooth, efficient internal processes.

This will help raise standards of customer service (and overall efficiency) in the field of additive manufacturing, which will in turn encourage more companies across numerous industries to explore its full potential.

¹ *UK Customer Satisfaction Index, January 2017*, The Institute of Customer Service, page 44

The Pre-Order Stage

The Assisted Approach -- Blending Consultation with Automation

At first glance, it might seem paradoxical that a consistently high standard of customer service is still so important to customers, even though more than 90% of them expect the companies they work with to offer a self-service option.²

Even in our era of increasing automation, the human touch still plays the biggest role in the customer experience. While your customers may be regularly submitting their orders online, it is likely that a degree of consultation will enter the process at some point. Although you may not be specifically offering consultation as part of your service package, it is likely that being willing to offer additional support and guidance early on in a project will frequently help avoid costly errors and delays.

It may therefore be better to think in terms of an 'assisted' process rather than an automated one for complex orders, where new technology complements and enhances established customer service strategies rather than replacing them. The level of automation can then be determined on a case-by-case basis. Low price and low complexity orders can be fully automated, while more complex projects or first-time customers can receive a higher level of hands-on support. The technology allows teams and resources to be deployed where they will prove most beneficial, while routine tasks (such as the gathering of project data, file conversion and repair, generation, and delivery of quotations on online orders) can be handled by the system.

For this type of process to prove effective, the following key areas should be considered during initial consultations:

The customer's choice of material

The choice of material will have a huge impact on a project's potential costs and timeframe, so it is essential that customers are offered guidance on this subject wherever necessary. For example, more and more companies are exploring recent developments in metal additive manufacturing, with sales of both laser melting (LM) and electron beam melting (EBM) printers currently on the rise. If they are unsure what will be most suitable for what they have in mind, be willing to offer them a breakdown of the different options available and their respective merits. A pre-made checklist may prove beneficial in this regard and will serve as a useful resource for future projects.

What technology should be utilised?

The range of commercial 3D printers is growing by the day, but with such increasing choice, it's imperative that AM bureaus are able to identify the right technology for their customers'

² 2016 *Global State of Customer Service Report*, Microsoft Dynamic, page 14

projects at the earliest opportunity. For example, a machine that is ideal for producing a prototype will not be suitable for producing the final production versions of the same design. A specialist industrial printer, such as an ExOne S-Print, will be required. It should therefore be established whether the appropriate technology will be available and this factored into the quotation delivered to the customer before committing to a project.

Will there be any degree of post-processing involved?

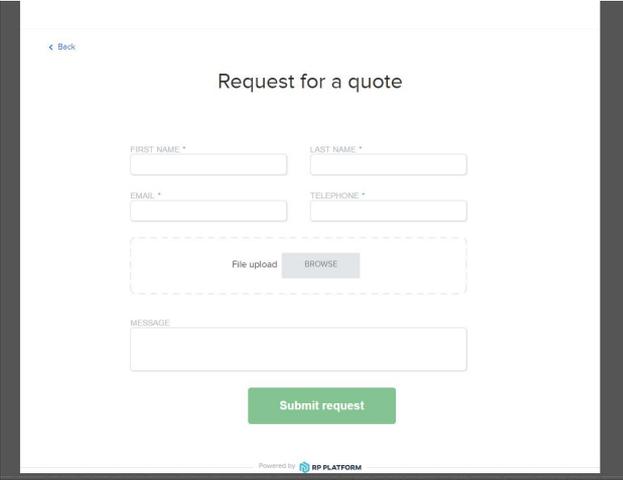
Depending on the choice of material and the technology implemented, it's possible that a degree of post-processing will be required. This should be discussed as part of the initial consultation stages, as the appropriate solution may involve a hybrid process of some description, combining additive manufacturing with elements of traditional manufacturing approaches. This will need to be factored into the wider workflow management strategy, with any additional costs that will be incurred discussed with the customer beforehand.

Is all the information required for correct part orientation available?

Establishing early on how a part will be orientated on the build platform, particularly for SLM, FDM and PolyJet projects, will help avoid problems further down the line when it is time to begin the printing process.

If you are taking online orders for any sort of additive manufacturing project, your online order form should be tailored to capture all the information your engineers to set the part orientation. If there is any confusion in this regard, direct consultation with the customer should take place.

When considering these different elements, consider the customer's long-term goals for this component. Is it intended to be a one-off prototype, which will be manufactured using a different method when it goes into production, or is it intended as a first run of the finished product? In the case of the latter, will the printing method used prove scalable if the component must later be produced in large volumes? Establishing this early on can help you lay the foundation of a successful, long-lasting partnership, and also develop a more efficient volume packing process.



Preparing the Project Data

Before any file is sent to the printer, it should be confirmed that it will definitely be printable and that all customer requirements with regards to surface quality etc. have been met. Whether you're planning on checking your customers' data manually or automating this stage of the project, it's absolutely vital that the process is effective. The quality of any

3D-printed product will largely hinge on the quality of the data used to generate it, and any errors will lead to flaws in the printed prototypes or render files completely unprintable.

As part of the conversion process, in which project data is converted from the original CAD format to an STL file, all data should be thoroughly checked and any errors repaired.

Consider the following checklist as a starting point:

- Wall thickness. Will the finished part be sufficiently durable, bearing in mind the choice of material? Will all parts be properly supported?
- Will there need to be any holes factored into the design to let out excess liquid or powder at the end of the process?
- Is the file free of open edges and self-intersections?
- Will all joints be strong enough to not break during the printing process?
- Has the mesh been subdivided in a way that will replicate any required smoothing modifiers?

Bear in mind that the specifics for each of these points will vary depending on the choice of material used. Once again, this should be established at the outset of each project.

It is now possible to automate the file repair process, using specialist software platforms to check the file and automatically repair any errors that are detected. While this is certainly a useful and attractive option for customers who are submitting files remotely, it may be necessary to still have the repairs checked manually before the file is ready to be printed. Exercise professional judgement in this regard, and if you are in any doubt, reach out to the customer for clarification. Communication is everything!

Working with multiple formats

There are a wide range of CAD-based programmes available at the time of writing, which will need to be converted into STL files to be printable. It's likely that different customers will have their own preferred formats that they are most comfortable working with, so you should exercise some flexibility in this regard. Ideally, any online self-service system implemented should be designed to accommodate multiple formats.

Offering a Quote

Quotes for any 3D-printed product should not just be delivered quickly -- they should be as clear and comprehensive as possible. Whether you have opted to prepare them manually, or have them generated automatically through your software platform, it should be clear to the customer exactly how the final figure was calculated, including the labour, resources and timeframes involved.

All quotes delivered to customers should be stored for future reference in your chosen CRM system. Bear this in mind when evaluating systems, as some additive manufacturing platforms delete automatically generated quotes after a certain number of days, or are unable to integrate with the most widely used CRM systems. This will lead to customers having to re-enter the same information repeatedly when they make repeat orders -- something that will quickly become frustrating for them. If past quotations can be recalled instantly, it will rapidly speed up the quotation and order process.

Balancing speed and quality

Remember, in our age of online shopping, speed has become an increasingly vital part of good customer service. Indeed, recent surveys have revealed that speed has supplanted agent knowledge as the most important customer service metric.³ This focus on rapid turnaround times is precisely what makes 3D printing such an attractive option for many customers.

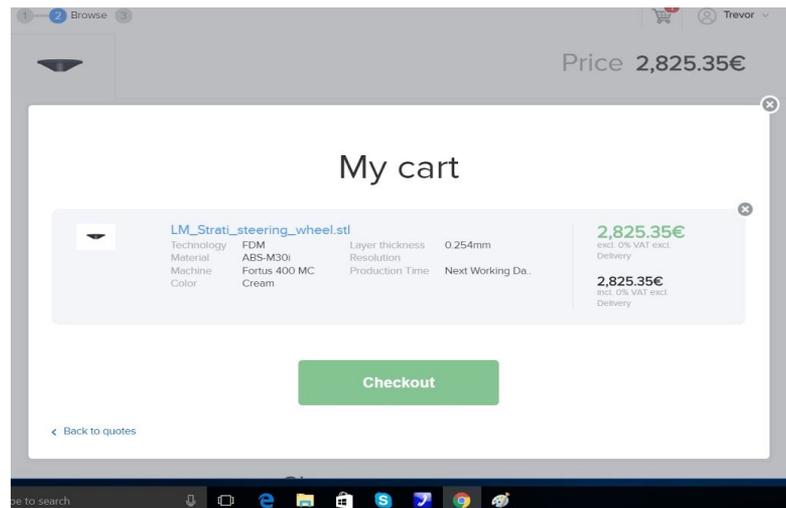
Bearing this in mind, once customers have submitted their projects' files and information, they will expect a comprehensive quote at the earliest opportunity. If an accurate quote can be turned around immediately, that is ideal, but this may not be achievable. Even if extra time must be factored in to review project specifications or check data manually, the timeframes involved should be communicated to the customer as soon as possible in order to manage their expectations.

³<http://www.customerzone360.com/customer-experience/articles/391865-customer-experience-survey-reveals-speed-as-top-priority.htm>

Delivering the Order

The value of simplicity

Once a quote has been delivered to the customer and they have decided they would like to proceed with their order, the next steps should be as easy as possible. Ideally, they should be able to confirm their order with a single click, and receive immediate acknowledgement that it is being processed. This can be a powerful differentiator when it comes to building brand loyalty. As we touched on earlier, customers are unlikely to want to go through a lengthy order process for every repeat order they make, so the fewer stages involved here, the better.



This is where the real value of an assisted approach reveals itself -- minimising the amount of time AM bureaus and their customers are required to spend on routine administrative tasks and non-complex orders, allowing them to focus on the areas that are most likely to lead to successful projects.

The importance of regular communication

The level of communication with a customer will be one of the deciding factors in their perception of your service, so it's important to get it right. Any updates to timeframes or order status should be communicated straightaway. If this can be automated to minimise any chances of human error, so much the better. Consider this: a recent 2016 survey revealed that 77% of consumers look favourably on any company that takes a proactive approach to customer notifications.⁴

Developing an effective system for order tracking

An effective system for order tracking can not only ameliorate customer concerns about communication, but also act as an effective time-saver for internal teams. This can also help measure service delivery times and customer feedback, allowing to integrate this process with a wider customer service strategy. For example, performance against proposed delivery times for each order can be tracked, and form part of the agreed KPIs with each customer.

⁴ 2016 Global State of Customer Service Report, Microsoft Dynamic, page 3

Integrating systems with Google Analytics offers a number of possibilities in this regard. Analytics is able to track customer behaviour within your client portal, helping to identify any potential issues or concerns and allowing you to then take a proactive approach to resolving them. This could include detailed reporting of the quotation process, covering what customers have searched for, clicked on and uploaded vs. what they have eventually ordered.

Such information can prove invaluable for refining the functionality of an online quotation system and reveal opportunities for offering new services or enhancing customer service.

Conclusion

In this white paper, we have reviewed the different areas of the typical customer journey for additive manufacturing projects, from the initial request and quote to the delivery of the finished product. We have looked closely at the potential for automation at different points in the process, and whether these new efficiencies can be balanced with an ongoing focus on the customer experience.

Technology in the world of additive manufacturing is evolving at a rapid rate, but it is important that each new development is implemented effectively, if the industry is to maintain its current upward trajectory. Any opportunities for automation should be considered carefully and tailored to suit the requirements of each individual AM bureau's processes, systems and customers, as part of a long-term customer service strategy.

Once this strategy becomes accepted best practice among bureaus, we will soon see additive manufacturing further establish itself as a versatile, effective tool for both rapid prototyping and production across a wide range of industries.

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