



Risk Management & **Additive** Manufacturing

How can 3D printing help you to
face manufacturing issues?

Sept. 2020 - Sculpteo 3D Printing

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How prepared are you to face risks?

Running a business and manufacturing products are inevitably exposing you to risk. Is there a way to face or even better, a way to prevent these numerous risks?

Unfortunately, the Covid-19 pandemic showed us that the manufacturing world was not prepared enough to face some problems: difficulties to build stock, parts that are urgently needed, transportation issues and the difficulties arising from closed borders.

In a survey conducted by the NAM (National Assn. of Manufacturers) to get a better understanding of the impact of Covid-19 on this industry 35.5% of manufacturing companies said they were already facing supply chain disruptions in early March, while 78% said that uncertainty around the COVID-19 might have a negative financial impact on their businesses.

Our manufacturing systems are not built to face dramatic situations such as a pandemic, but this situation really highlighted some of the main manufacturing issues faced by companies.

In this white paper, we'll make an in-depth analysis of the manufacturing risks you can encounter, and give you some advice about how to be prepared to face them. In the best scenario, this advice could even help you to prevent them! What are your alternatives during a crisis in your manufacturing process? What are the short-term and long-term options you need to consider?

We are going to see how the implementation of new manufacturing techniques or modifications in your supply chain can benefit your business and help you avoid risks in the future.

Manufacturing: What risks can you encounter?

The development of your products go through many different steps. Each part of this process is adding potential issues and risks. Being able to identify these risks will be essential to find the good solutions to prevent them.

Managing inventory

As you may know, inventory is a perpetual concern for nearly every type of business: but inventory also represents a cluster of risks for your company!

Unexpected events can contribute to the loss of a significant part of your business. Controlling inventory is already complicated, but this inventory could partially or completely be destroyed by any catastrophe, from floods, to fire, hurricane, or dramatic human errors. This would result in a huge loss for the company.

No matter what your sector is, while producing parts and potential spare parts, you naturally build an inventory to get enough stock for your customers. A lot of companies are relying on physical inventory in order to meet aftermarket needs.

The problem is, these parts often take a lot of space, and if they are not sold, these products become obsolete, representing a massive waste for the company. Your product has a life cycle, and sitting on a shelf, it will lose its value quite quickly if new products are produced by your competitors. An inaccurate forecasting could also be quite negative for your company, whether you get too many products or not enough.

Shortages are also a big problem when managing stock! We saw it during the Covid-19 pandemic: inventory is precious and some companies don't have any backup plan in case of supply shortfall. They were simply not able to produce their parts quickly enough, respecting the deadline and the usual budget.





Suppliers are facing their own difficulties

While deciding to externalize your production, you will have to get a good and reliable manufacturer. The success of your business will also depend on them, that is why you will have to consider this manufacturer as a real partner. The problems and your manufacturing partner faces by his own activity can certainly reverberate on your business as well.

Just like your business, in difficult times such as a pandemic period, your supplier might encounter their own problems. For example, social distancing and employee safety measures put an additional level of pressure on manufacturers too, as 40%-50% of their workforce is unavailable to perform their work tasks on-site.

Moreover, keep in mind that suppliers can also face shortages of raw materials and transportations issues on their side!

Transportation issues creating delays in your supply chain

From getting raw materials, building stock, getting your products, to delivering goods to your final customers: transportation is a crucial aspect of manufacturing. Delays created by transportation issues happen all the time, and not only in the context of a pandemic.

Moreover, while using transportation to create your stock, the shipping costs have to be as low as possible for your business without sacrificing the security of the shipment.

Indeed, during the current pandemic we've seen how logistical delays generated by transportation issues are affecting the whole supply chain, and have a negative impact on your business, in terms of deadline, budget and image to your customers!



Your business might not grow as expected

All the previous risks and problems we have listed can have a negative impact on your competitiveness. Keeping a competitive advantage is what will save your business, even during an unexpected global pandemic.

A tight budget might lead to innovative new ways to lower your costs, but some poor choices can also deteriorate the quality of your product! Finding the middle ground between good quality and low prices is not that easy, but your competitiveness depends on it, especially during a pandemic.

Moreover, competition is continuously changing, and innovating! New technologies and processes to adopt might always be present in the back of your mind.

Considering how to stay competitive even during the most troublesome times? What can make the difference? Affordable product development, the fastest manufacturing techniques, and logistics will be essential to save your business!

Moreover, avoiding all the inventories, suppliers and transportation issues will accelerate the growth of your company without any doubt. But, how to do so? Indeed, even with all the work you put into running your business, all these potential issues are a constant weight on your shoulders. If you are ready to embrace this uncertainty, then there are some options you should start to consider for your company.

How can Additive Manufacturing be a solution for your business?

Have you ever thought about implementing 3D printing inside your business? It might be a good moment to start thinking about this. Here is a selection of the advantages of this manufacturing technique, and how it could help you face the risks and issues we have previously discussed.

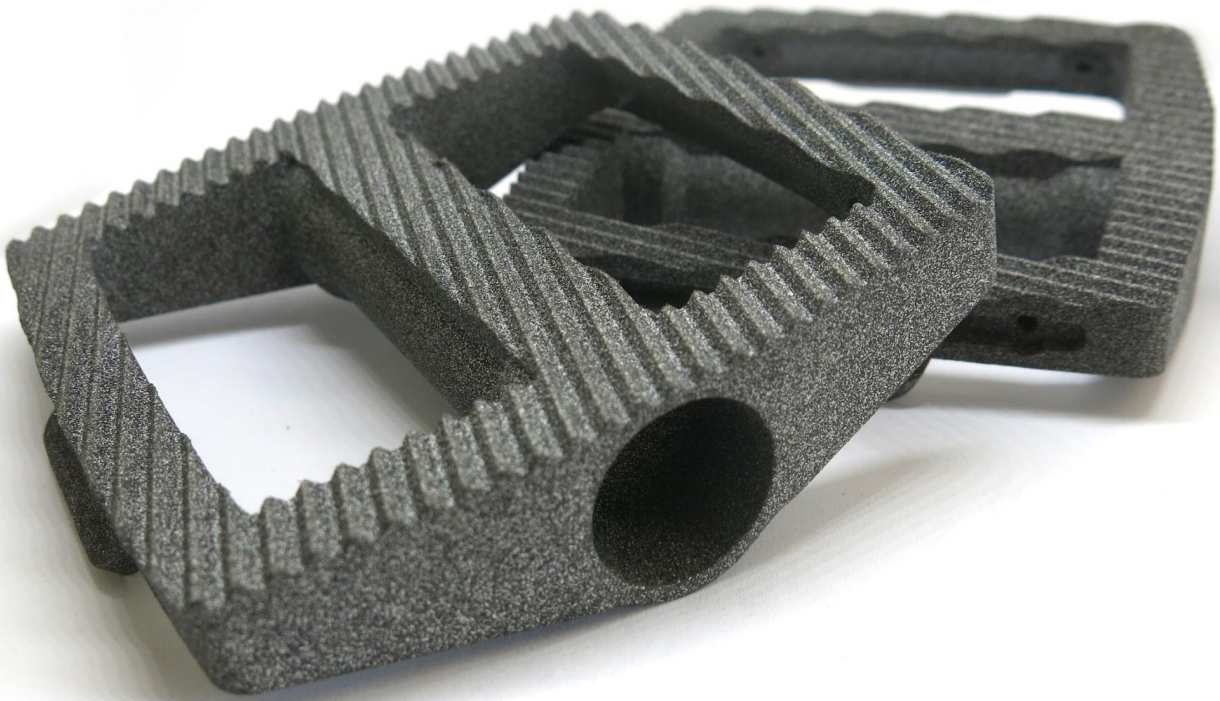
Keep up the competitive advantage and get ahead of your competitors

In Sculpteo's study about 3D printing, The State of 3D Printing 2019, nearly 50% of businesses see 3D printing as a competitive advantage in their industry and 55% actually say it's one of their strengths and that they are ahead of their competition in terms of adoption!

Why is additive manufacturing representing a competitive advantage for your company? There is a growing interest in additive manufacturing for a variety of applications.

This technology can be used at different levels of your company, you could optimize some processes and strengthen other ones. By adding flexibility to your processes and to your whole supply chain it might give you the opportunity to save time, money and increase customer satisfaction.





Lower your costs & accelerate your product development

Additive manufacturing might be the perfect solution to lower your manufacturing costs. Indeed, this manufacturing technique could benefit different levels of your business, from prototyping to production. For your prototyping process, additive manufacturing is simply the most cost-effective technique you will find on the market.

Indeed, developing a functional prototype with traditional manufacturing techniques such as injection molding and CNC will be expensive and will take valuable time. With 3D printing you can just accelerate your whole process, by making the most of rapid prototyping!

Make as many iterations as you need and print the amount of parts needed to run tests. While using additive manufacturing, you are not relying anymore on physical tooling, but on digital files, which makes your whole iteration process much easier.

Moreover, there is no minimum order, this manufacturing process will help you save a significant amount of time. And while running a business, time is money! It might be time for you to lower your costs and improve your product development. And lowering your costs will also be ... a competitive advantage!

Why don't you try managing a virtual warehouse?

As a long term solution for your business, rethinking your supply-chain using additive manufacturing might be the perfect solution to simplify your production and add up some flexibility. Busy warehouses can become a real problem, if you don't sell enough, you'll lose money, and if an unpredictable catastrophe physically hits your inventory, you will lose money as well.

Using 3D printing for your production leads to the dematerialization of the supply-chain, the perfect occasion for you to rethink your manufacturing process and reduce your tooling investment. What does digital inventory mean? No more busy warehouses, instead of physical products, you only have to store 3D file versions of your parts. As you might guess: all these 3D models of your parts are taking less physical space than your actual parts, and you should consider how to make the most of this great advantage.

This way, you will only have to create your parts on-demand, exactly when you need them. But, don't worry, to use additive manufacturing, you don't need to dematerialize your whole production all at once. Producing your spare parts can be ideal to start with! Indeed, this cutting-edge technology is good to print low-volumes, on-demand. It might even be more economical than other traditional manufacturing processes.

This manufacturing technique can be used for automotive parts, medical tools, consumer goods, fashion accessories or industrial goods. Whirlpool, the home appliance manufacturer, has officially decided to offer a digital catalog for some of their spare parts.



Let's get practical: 3 steps to get started with 3D printing!

Implementing additive manufacturing will benefit your business. As all companies are different and have their own needs, they won't have the same use of additive manufacturing. Here are all our advice to get started and optimize your manufacturing process.

Identify your risks

Identifying your risks and the weaknesses of your business will be the starting point of 3D printing implementation. There are 3D printing opportunities in each business, whether on the prototyping side, production, tooling or R&D side.

Analyze which parts of your manufacturing process take too much time! Is your inventory taking up too much space? Is your product development process too slow or too expensive? Is a supplier creating issues in your production line? Do you face shortages from time to time and need emergency parts?

Configure your manufacturing line more efficiently. You can also consider more than the manufacturing process, with the help of professionals, you can identify which of your parts are not optimally designed due to manufacturing constraints and optimize them for additive manufacturing.





Get a digital version of your parts

Creating a digital version of the products you are currently producing can offer you several benefits. It is an occasion for you to identify new design opportunities. Designing for 3D printing is a completely different thing than designing with traditional manufacturing. You will also have to identify the technology by analysing the performance requirements of your project. Using additive manufacturing you will be able to run tests by making a few iterations with the technology and 3D printing material of your choice!

Complex designs, impossible to create with traditional manufacturing techniques, are now possible with digital manufacturing, allowing you to get better performing parts, leading to significant cost-saving. What can additive manufacturing actually do for you in terms of design:

- Create integrated assembly and reduce the number of components
- Create un moldable designs
- Add new functionalities to your product
- Optimize your part to make it even more efficient and adapted to its use
- Get lighter and stronger parts thanks to innovative design structures
- Reduce the cost of parts

Once the iterations made and the manufacturability of your part confirmed, you will be ready to send your design to production.



Find a reliable manufacturer

The right manufacturer will help you optimize your supply chain, it will help you satisfy your customers and be a reliable partner for your business. You will have to find a manufacturer that will help you deliver your products on time, helping to establish your company as a real reference.

If you are not confident about your manufacturing process, you won't be confident about your own products. This is why, dealing with the right factory could help you to save money and/or improve your business. On the opposite side, dealing with the wrong supplier could be devastating for your business, and you could lose a lot of money, credibility, and energy. What do you think about partnering with the leader of additive manufacturing?

Acquired by BASF 3D Printing Solutions, a filial of BASF New Business GmbH, Sculpteo is now offering high-performance materials and innovative technologies, for the most demanding industries.

Sculpteo's website allows you to launch your production in just a few clicks. Sculpteo is an online 3D printing service, made to scale and speed up your prototyping and production: the only thing you have to do is get your 3D file ready and upload it directly on the website. You will get the opportunity to choose among 10 technologies and 75+ materials and benefit from optimizing tools to hollow, thicken or check the solidity of your part.

Need a hand to get started with additive manufacturing? Sculpteo Studio services are here for you. A team of 3D printing experts, offering consulting, design and training to help you go through your next challenges. They will help you find your 3D printing opportunities, and see how to optimize your product's design and your whole process. Sculpteo Studio will offer you the expertise you need to scale up your production!

MAKE YOUR BUSINESS THRIVE WITH 3D PRINTING

Access our
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and develop your AM strategy



Think additive & Gain an adaptive advantage for your business.

Access to a one-stop-shop of resources to discover your Additive Advantage and develop a strategy that will **put game-changing technology into your hands**.

Use it to unlock the full potential of 3D printing, and:

- **Create room for innovation,**
- **Scale your production,**
- **Make adaptability one of your greatest strengths.**

We've compiled our best ebooks, playbooks, guides, and customers' stories, made for professionals who want new additive manufacturing opportunities

...all in one place.



Digital manufacturing leader since 2009, Sculpteo works with innovative companies to integrate 3D printing in their manufacturing processes.

Sculpteo offers 3D printing on- demand with experienced digital manufacturing specialists and professional technologies.

Learn more about integrating 3D printing to your business:



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