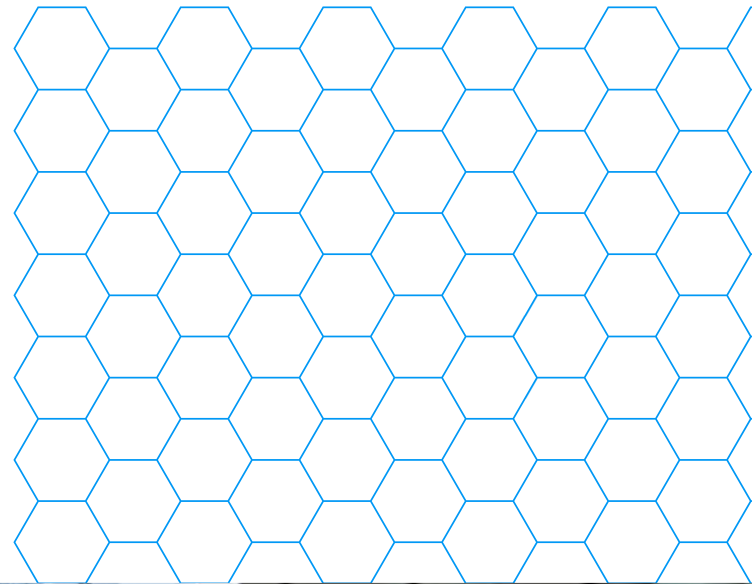


Ultimaker executive read

Top business benefits of 3D printing



Ultimaker



Top business benefits of 3D printing

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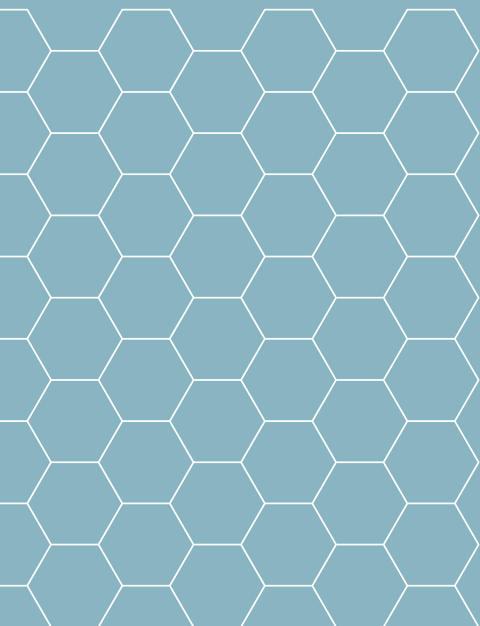
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Introduction: Flexibility and sustainable value



By Jürgen von Hollen, Ultimaker CEO

To say that we live in a “VUCA” world is an understatement.

Volatility, Uncertainty, Complexity, and Ambiguity have come together like most of us have never experienced. More has changed in one year than in the previous ten years combined. Technology is changing faster than ever, product life cycles are shortening, mass customization requirements are on the rise, political instabilities and legislation are impacting trade. Overlay that with a global pandemic that uprooted just about every routine and process at once. After we thought we had seen it all, a clog in the Suez Canal made us keenly aware how vulnerable our supply chain has become. And as we speak, on every continent we see climate disruption exposing society and economies in unpredictable ways.

Leadership has always been – but is exponentially more so now – about changing, adapting, and redeploying resources to face stiffer competition, exceeding the more demanding expectations of customers, becoming socially inclusive and environmentally restorative, and doing so with a forecasting and planning window that has been reduced to a few months at best.

How do we win in such an operating environment? I believe that we need to focus on two key ingredients to succeed in this new world: flexibility and sustainable value.

↕ **Flexibility** is about our responsiveness to address challenges or pursue opportunities; it’s about our ability to pivot quickly and effectively redeploy our teams, processes and technologies to remain out in front.

↻ **Sustainable value** is about continuity and an organization’s long-term relevance. It has several elements for successful business growth.

We need to address the **key resource constraints**; assure that we have the right resource base and ability to scale in a competitive market for scarce talent. Sustainable value is also about having the learning culture and mechanisms in place that inspires human ingenuity, resourcefulness, and **continuous improvement** within our organizations. It’s about **updated investment and business case criteria** and ROI outcomes with much shorter return cycles. The last key ingredient is **proactive risk management**. Changing everything at once will bring too much risk in the business. Incremental, yet concerted change strategies help you proactively understand and mitigate risk and drive the desired outcome.

Interestingly, the European Investment Bank (EIB) just released a research report that underlines how companies that have invested in advanced digital technologies such as 3D printing, robotics, artificial intelligence, and the internet of things, are associated with higher productivity, investment, and innovation activity. No matter their size, these companies perform better than non-digital firms: they invest more, are more innovative, have better management practices, grow faster, and create higher paying jobs. The EIB research also concluded that businesses that have adopted digital technologies coped better with the disruption unleashed by the COVID-19 pandemic.

We indeed see that companies turn to 3D printing, also known as additive manufacturing, as an enabling technology to improve their flexibility and sustainable value. 3D printing pushes the production of goods closer to the consumer, democratizing manufacturing on a global scale and allowing products to be cost-effectively customized to consumers' needs. We see 3D printing being used to develop bespoke grippers, fixtures and tools enabling companies to profitably accept custom orders locally that would be difficult to fulfill with a fixed automation production process remotely. Others gain financial, spatial and sustainability advantage from 3D printing by maintaining stock digitally and print parts on demand.

So why didn't the adoption of 3D printing as an enterprise solution happen sooner and go faster? Until recently, 3D printing was too complex with closed eco-systems, a fragmented landscape of software and material solutions; there were frankly too many operational barriers for mainstream usage.

Ultimaker cracked the code on how to make 3D printing a transformative experience at a mainstream business level. We have created a leading 3D printing platform and eco-system that is open, integrated and continuously evolving. We are just at the beginning with more software plug-ins, more material, more applications and hardware add-ons to be added to our eco-system. And with it, 3D printing is ready for business and we are seeing the market respond in kind. Ultimaker Cura 3D printing software is used by over 800,000 users, a 2020 year-over-year growth of 40%. We are seeing 400% growth in Digital Factory prints.

With 3D printing now moving rapidly from hobbyist tech to an expansive business platform, it is here for the long haul and Ultimaker is leading the way. While the 3D tech sector focused on its technology, Ultimaker made it about a customer-centric platform of hardware, software, materials, and a world-class network of expert partners.

To show you what 3D printing can do – for you, for your organization, for your industry – we've packaged stories, articles, and information that showcases the transformative power of 3D printing.

My hope is that this Executive Read will inspire you over the summer when you take time to relax but likely also formulate fresh ideas for your business to pursue. We have structured it to make it easy for you to distribute it to those in your organization who will find it most relevant and return to work inspired and ready for action.

Please reach out to share your transformational story with us. I can't wait to see what you accomplish.

Jürgen von Hollen
CEO, Ultimaker

Volatility

Unpredictable events and changes beyond your control necessitate the ability to respond and adapt quickly. And to sustain this ability over the long term.

Complexity

We live in a dynamic, interdependent, and often confusing world. Separate systems impact one another, and different issues compound each other's effects.

Uncertainty

Decisions must be made without complete certainty or access to all the information you would ideally want for business planning processes.

Ambiguity

When making decisions, the effects of your actions will be unclear as precedents are non-existent or even contradictory.

Speed to market



Fast iterations to enable the perfect design, on time

Designing and developing new products is an iterative and complex team process. Designs must be constantly reviewed, functionally tested, and evaluated by team members and users for feedback. More thorough testing leads to better products, but what about the time to market? What if it can take hours versus weeks to have the next iteration of a product or part in hand? Let's have a look at how 3D printing can help increase speed to market in a sector where little is more important than being out there first and release new versions constantly.

The NavVis VLX is the world's most accurate wearable mapping device with simultaneous mapping and localization (SLAM) technology. Fast, precise, and compact, it allows operators to efficiently capture as-built indoor data for visualization in the AEC industry and elsewhere.

In designing the device, NavVis industrial designers Sarah Godoj and Nils Christensen leveraged the power of rapid prototyping and Ultimaker 3D printers, creating a design that balances accuracy, accessibility, and ergonomics.



Using a 24-hour iteration cadence allowed Sarah and Nils to test new ideas as quickly as possible – saving time and reducing risk of costly mistakes – while the remote printing capabilities of Ultimaker 3D printers and software enabled the Munich, Germany-based team to continue working through the COVID-19 pandemic.

The end result was an ergonomic, front-worn device that utilizes two multi-layer LiDAR sensors with four high-res cameras, which measure and map a 360-degree view of the indoor space, that was comfortable for anyone to wear.

Want to learn more about how NavVis used 3D printing to map out a rapidly prototyped plan?

Who else should see this?



[Read more](#)

Customization at any scale



Use 3D printing to adapt and solve problems quickly



In the Netherlands, F3 and F4 racing team Van Amersfoort Racing has a history of success, both on the track in the development of world-renowned drivers such as Charles Leclerc and Max Verstappen. By necessity, the team works in a fast-paced environment, in which every second counts – literally.

When the team received two new car chassis, however, it was in an even tighter spot than usual. Formula cars must be perfectly tuned before they are track-ready, after all, and the race was just two weeks out.

By developing custom tools with Ultimaker 3D printers, the team spent every possible moment fine-tuning its vehicles. A rear-alignment tool, for example, was created to place on the taillight of a Formula 3 car. This allowed mechanics to accurately adjust the wheels of the car to ensure they were perfectly adjusted for the track.

3D printing technology enabled the Van Amersfoort Racing team to react quickly while on a tight deadline. It also showed the team that additive manufacturing had the potential to change the way it approaches car assembly and maintenance – creating processes that are more efficient and making life in the garage and pit easier.

Want to learn more about how Van Amersfoort Racing used 3D printing in a race to the finish line?

[Read more](#)

Who else should see this?



A digital factory is a flexible factory



Flexibility on the production line

Today's manufacturers need to compete in a world where customers "want everything, at any time, from anywhere", as Anne Debauge, Digital Manager of Packaging and Development at L'Oréal, puts it.

This is a challenge that necessitates digital transformation. Whether it's mass-produced product ranges or highly customized low-volume items, 3D printing can help businesses meet the consumer demands of the 21st century.

On a high-volume production line, additive manufacturing allows tools to be created on-site in a matter of days, as soon as the requirements for new packaging designs are understood. Relying on traditional manufacturing methods, it could take months to source the tooling and sparts needed to get a production line ready for a new product line, delaying introduction of the product.

Follow the link below to read more about how L'Oréal have used Ultimaker technology to transform their approach to manufacturing and prototyping, or alternatively, hear the full story from L'Oréal's Matthew Forrester in [this episode of our Talking Additive podcast](#).



[Read more](#)

Who else should see this?



Connect teams, talent, and tech



Keep your top talent connected to parts, printers, and each other



The workplace as we know it has changed. As professionals, we must adjust to this. But these changes are not necessarily negative; in fact, the sudden normalization of remote work has opened the door to talent previously unavailable due to geographical restrictions.

And with 3D printing technology – and especially the right 3D printing software – you can push remote work to its limits. With Ultimaker Digital Factory and Ultimaker Cura, for example, your designers and engineers can design, iterate, and store 3D printed parts in a “digital warehouse” enabling them to collaborate and innovate – no matter where they are.

In our webinar, “Staying connected with Ultimaker Cura and Digital Factory,” Ultimaker Application Engineers Terri-Ann dela Cruz and Dylan George provide an overview of Ultimaker Digital Factory and give a tour of its most interesting and useful features for your daily operations.

On the way, you’ll learn:

- The benefits of using Ultimaker Digital Factory
- How to add printers in your Ultimaker Account
- How to start sharing printers with others
- How to start remote printing

Ready to get started?

[Watch the webinar](#)

Who else should see this?



Make working capital work harder



Save space and expenditure by going digital

For legacy or in-market products alike, maintaining a minimal inventory of parts seems necessary at all times and all cost in order to service valued customers. But what if you could free up physical space and make your working capital work harder in other ways?

As General Manager and Cofounder of Azoth LLC, Cody Cochran is focused on creating “digital inventories”– a method for preparing projects for immediate, on-demand part production.

Azoth is a recent additive manufacturing service launched within the EWIE Group of Companies (EGC), a family of manufacturing brands headquartered in Ann Arbor, Michigan. Its 3D Center of Excellence is said to have grown from an empty warehouse into an impressive lab of the industry’s highest-performing technology in less than two years.

There, Azoth makes use of its “Take One, Make One” (TOMO) model. In this approach, every time a replacement part is pulled from physical inventory to be deployed for use, the fabrication process is triggered to start printing the next item to replace it on site. This can result in a part that is printed and shipped within 24 hours. The TOMO model keeps the physical storage requirements for warehousing modest, while serving even relatively high wear-and-tear items.



Cody and the Azoth team have so far selected parts such as jigs and fixtures, gripper fingers, blow-off nozzles, and gage handlers for its digital inventory recommendations. These manufacturing process parts are good candidates for Azoth’s approach, as they can be produced additively, with limited post-processing and tooling, minimal order quantities, and offer both time and cost savings compared to traditional production routes.

Want to learn more about Azoth’s efforts in creating a “digital inventory”? Listen to our Talking Additive podcast on the subject.

[Listen now](#)

Who else should see this?



Achieve ROI with a few prints



Efficient production that's low-cost, low-risk, and low-effort



The low-cost, low-risk and low-effort nature of 3D printing is revolutionizing production processes even as complex as in the automotive and aeronautics sectors. It removes common hurdles from the design for manufacturing processes and inspires surprising levels of human ingenuity.

Ford Motor Company, for example, uses 3D printing to print custom tooling in-house, more than 50 of which were used to produce the all-new Ford Focus. Volkswagen Autoeuropa uses custom 3D printed tools to maximize production efficiency on its assembly lines. For them, a wheel protection jig that previously cost €800 to manufacture externally can be 3D printed for €21. After nine prints, the 3D printer has effectively paid for itself. The Ultimaker platform and eco-system are designed for affordable scaling, which, when applied to an entire factory, campus or enterprise production system, could generate low-risk investment returns that could amount to millions.

Want to learn more about how 3D printing can increase your ROI and make your organization more cost-efficient? Download our free white paper, "5 ways to stop wasting money on production processes".

[Get the white paper](#)

Who else should see this?



Safety and quality first



Create sustainable value with custom devices and tooling

If you can't produce it safely, how will employees respond? If you can't produce quality consistently, how will customers respond? A business is a hollow shell without engaged employees and loyal customers. From the outside it looks like something, but it lacks the life inside it to perform its proper purpose.

A sustainable business is fundamentally a safety and quality-oriented operation. Repeatable, predictable, ergonomically optimized manufacturing processes result in high output and quality – but are also safe and fulfilling for employees.

Heineken, like many producers, deliberately puts employee health and safety as its number one priority. And 3D printing is a key part of this process, creating custom safety latches, lock out tag out (LOTO) procedures, key depositories, and ergonomic manufacturing aids, all designed specifically to ensure safety and quality on the production line.

With 3D printing, mechanisms can be printed in red or yellow to show hazards, or tools color coded to help guide employees. And if a flaw is observed, feedback from operators can immediately be actioned and a new tool ready in a matter of days or hours, as soon as the print is done.

Read our full Heineken customer success story to discover how 3D printing helps them put employee safety first in their breweries.



[Read more](#)

Who else should see this?



Printing green



Local production with less waste makes economic and ecological sense



Most likely the question is not if, but when business needs to become carbon neutral. Many are willing, but few see their way through to a more sustainable business profile without compromising their competitive position.

3D printing is proving to be a helpful enabler in multiple ways. By its additive nature, the 3D printing process produces little to no raw material waste by using exactly what is needed. It enables storing files in digital warehouses for on-demand just-in-time local printing which reduces the environmental impact of road, sea or air transportation and physical warehousing. Furthermore, 3D printing enables product developers and material specialists to prototype eco-friendly material on existing or new products. It enables maintenance engineers to extend the technical life of legacy machinery with printed parts which may no longer be available on the market.

Want to learn more about how 3D printing can help your organization create a more sustainable future? Check out the All3DP article, "7 ways 3D printing helps you become eco-friendly".

[Read more](#)

Who else should see this?



In closing: Join the transformation

Ultimaker believes in 3D printing. We are passionate about pursuing these fundamental advantages that reach well outside of the walls of a factory or an architectural, design & engineering studio. It's affordable scaling is increasingly recognized by businesses of all sizes, types and profiles. Educational institutions all over the world are teaching future employees of its value and capability.

Core to this success is Ultimaker's pioneering lead in providing a user-centric seamless integration of hardware, software and materials that simply work. Our employees and partners collaborate globally to deliver a platform that enables customers to take full advantage of the unique Ultimaker ecosystem that offers the largest diversity of 3D printing products and services in the industry. Our key measure of success is your 'first time right print'.

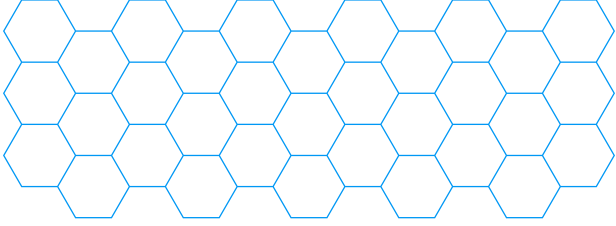
Whether your team will be creating tools, jigs, and fixtures, end-use parts, functional or design prototypes or something else entirely – the Ultimaker ecosystem supported by our expert network around the world is there to guide them through the process.

We're on a mission to accelerate the world's transformation to flexible, empowering, and sustainable solutions. And we'd like you to join us.



[Discover Ultimaker 3D printers](#)

[Talk to an expert](#)



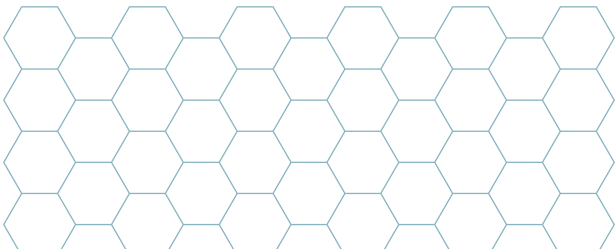
About Ultimaker

Since 2011, Ultimaker has built an open and easy-to-use solution of 3D printers, software, and materials that enables professional designers and engineers to innovate every day. Today, Ultimaker is the market leader in desktop 3D printing. From offices in the Netherlands, New York, Boston, and Singapore – plus production facilities in Europe and the US – its global team of over 400 employees work together to accelerate the world's transition to local, digital manufacturing.

ultimaker.com

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