

JC Fab Lab

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## 3DEXPERIENCE LAB: REACHING OUT TO COMMUNITIES, CONNECTING RESOURCES

### WHAT'S GOING ON IN THE WORLD RIGHT NOW?

**Abhishek Bali:** There are many things that are broken, many systems and many protocols. On the positive side, what I see is that it has given us, makers and creative people at the **3DEXPERIENCE** Lab and at all the other fab labs and makerspaces across the world, an opportunity to be more creative and to take innovative approaches to doing the same things that we would do normally. I see this as a design, engineering and a trust problem in some ways. We've been physically confined to our homes but our minds are not. Our minds are everywhere and they are solving problems right now.

In my role, I've been able to facilitate a number of innovations during the pandemic and being a part of the entire process has opened my eyes to a lot of possibilities.

### THERE ARE MANY SHORTAGES HAPPENING RIGHT NOW. WHAT CAN YOU TELL ME ABOUT THAT?

Well, it's a supply and demand problem. When you design a system or a service, the first thing that you consider is the capacity that you are building out for. Due to the unprecedented nature and scale of COVID-19 pandemic, there is a high magnitude of load being applied on the existing healthcare system, and even on our telecom systems, and all the different systems that make our world tick. All factors of safety have flown out in thin air. At the same time, there is a problem with the supply that was allocated to that system

and because of that, there is a gap. Existing supply chain has only so much bandwidth in order to fill that gap. So, there have been a lot of innovations that have sprung up from across the world to fill this gap, especially in context of Personal Protective Equipment (PPE)

### ABHISHEK, WHAT IS A FAB LAB AND HOW DOES IT WORK?

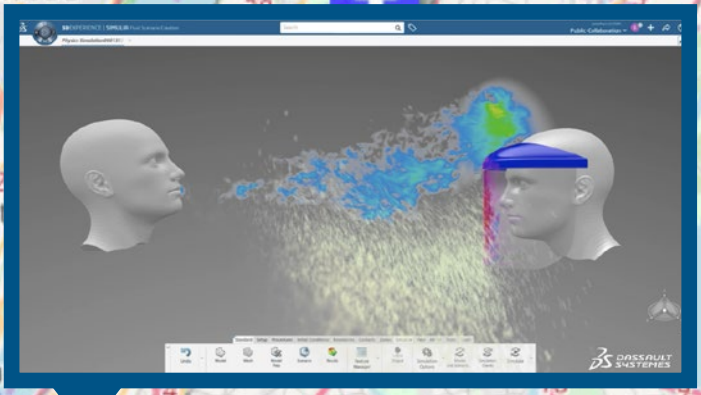
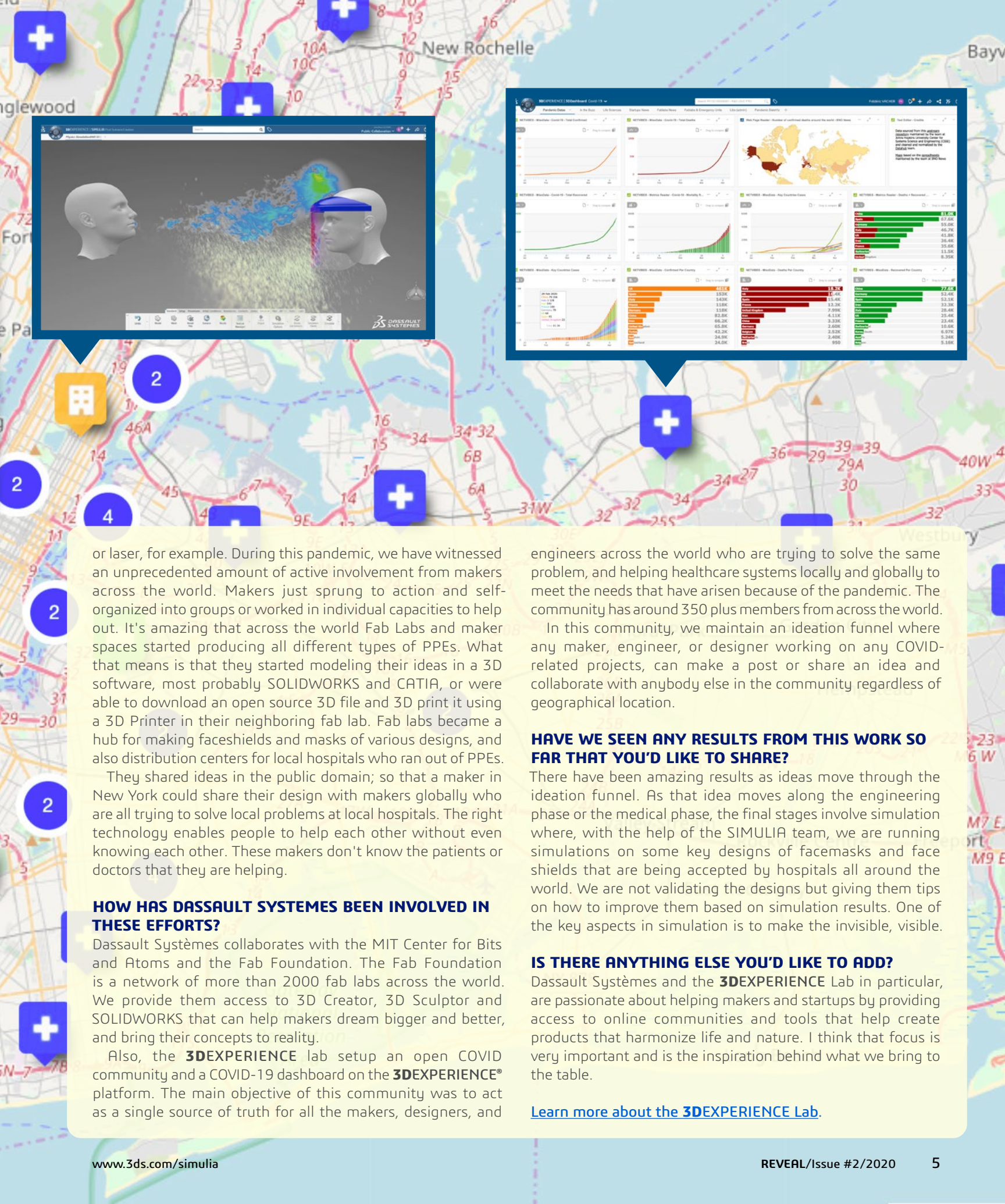
Fab lab is short for a digital fabrication lab or you can call it a maker space. It's a collection of digital fabrication machines, like laser cutters, 3D printers, vinyl cutters, CNC mills, etc. The basic aim is to facilitate anybody who wants to get into personal fabrication with tools and a physical space to build a prototype of their idea or a working product itself. Usually it is for personal use and not for mass production or for commercial purposes.

This is why additive manufacturing is a vital part of a standard Fab Lab, because 3D printers are a way for a maker to conceive of something in their mind, design it using a 3D tool such as xDesign, xShape, SOLIDWORKS, CATIA, and then create a physical manifestation of it by 3D printing it. This shows how Fab Lab and additive manufacturing are so intertwined.

### HOW DO YOU SEE A FAB LAB HELPING WITH THE CURRENT CRISIS?

By definition, a Fab Lab gives you access to all of these amazing tools that help you take that journey, from concept to reality. So whether it's through 3D printing or vinyl cutting





or laser, for example. During this pandemic, we have witnessed an unprecedented amount of active involvement from makers across the world. Makers just sprung to action and self-organized into groups or worked in individual capacities to help out. It's amazing that across the world Fab Labs and maker spaces started producing all different types of PPEs. What that means is that they started modeling their ideas in a 3D software, most probably SOLIDWORKS and CATIA, or were able to download an open source 3D file and 3D print it using a 3D Printer in their neighboring fab lab. Fab labs became a hub for making faceshields and masks of various designs, and also distribution centers for local hospitals who ran out of PPEs.

They shared ideas in the public domain; so that a maker in New York could share their design with makers globally who are all trying to solve local problems at local hospitals. The right technology enables people to help each other without even knowing each other. These makers don't know the patients or doctors that they are helping.

### HOW HAS DASSAULT SYSTEMES BEEN INVOLVED IN THESE EFFORTS?

Dassault Systèmes collaborates with the MIT Center for Bits and Atoms and the Fab Foundation. The Fab Foundation is a network of more than 2000 fab labs across the world. We provide them access to 3D Creator, 3D Sculptor and SOLIDWORKS that can help makers dream bigger and better, and bring their concepts to reality.

Also, the 3DEXPERIENCE lab setup an open COVID community and a COVID-19 dashboard on the 3DEXPERIENCE® platform. The main objective of this community was to act as a single source of truth for all the makers, designers, and

engineers across the world who are trying to solve the same problem, and helping healthcare systems locally and globally to meet the needs that have arisen because of the pandemic. The community has around 350 plus members from across the world.

In this community, we maintain an ideation funnel where any maker, engineer, or designer working on any COVID-related projects, can make a post or share an idea and collaborate with anybody else in the community regardless of geographical location.

### HAVE WE SEEN ANY RESULTS FROM THIS WORK SO FAR THAT YOU'D LIKE TO SHARE?

There have been amazing results as ideas move through the ideation funnel. As that idea moves along the engineering phase or the medical phase, the final stages involve simulation where, with the help of the SIMULIA team, we are running simulations on some key designs of facemasks and face shields that are being accepted by hospitals all around the world. We are not validating the designs but giving them tips on how to improve them based on simulation results. One of the key aspects in simulation is to make the invisible, visible.

### IS THERE ANYTHING ELSE YOU'D LIKE TO ADD?

Dassault Systèmes and the 3DEXPERIENCE Lab in particular, are passionate about helping makers and startups by providing access to online communities and tools that help create products that harmonize life and nature. I think that focus is very important and is the inspiration behind what we bring to the table.

[Learn more about the 3DEXPERIENCE Lab.](#)