



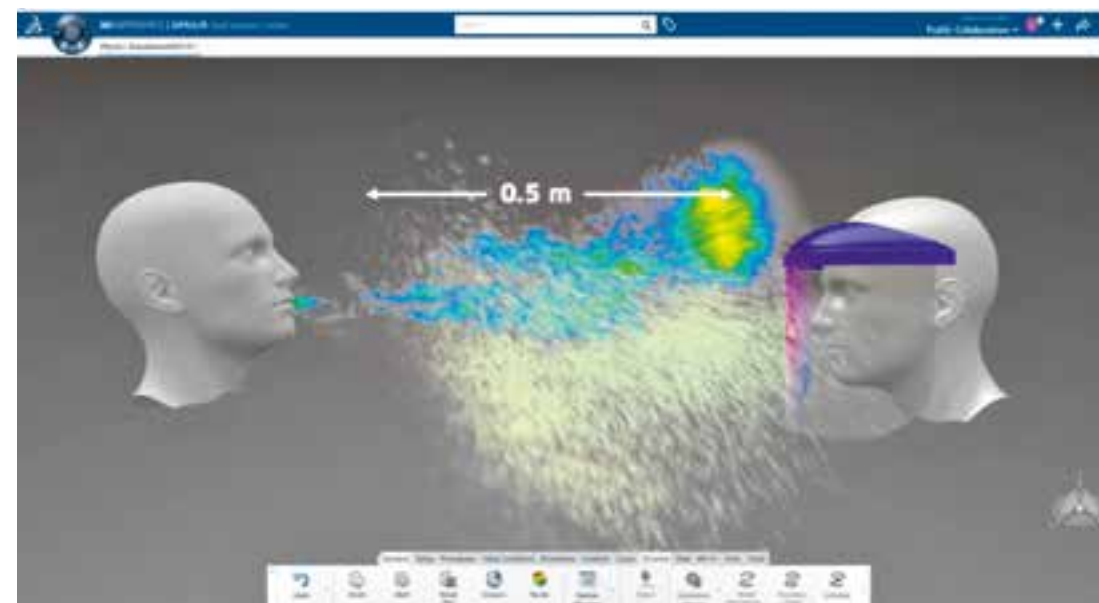
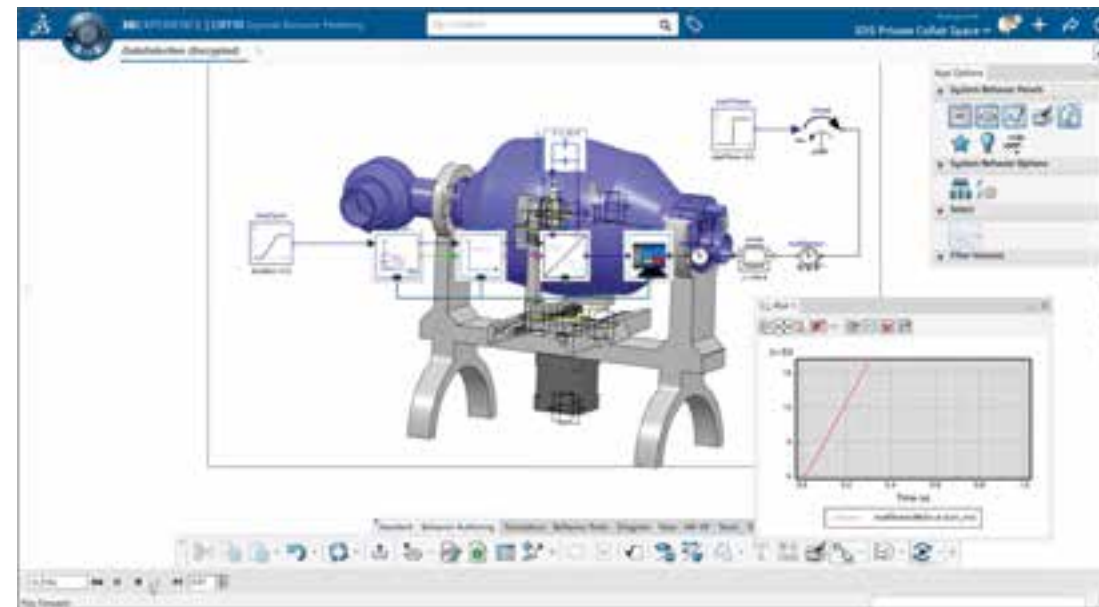
# WE WILL BE THERE TOMORROW

Because today's world demands collective intelligence, innovation and creativity that will require new talents to face the challenges of the future, we are championing initiatives to open up new horizons.

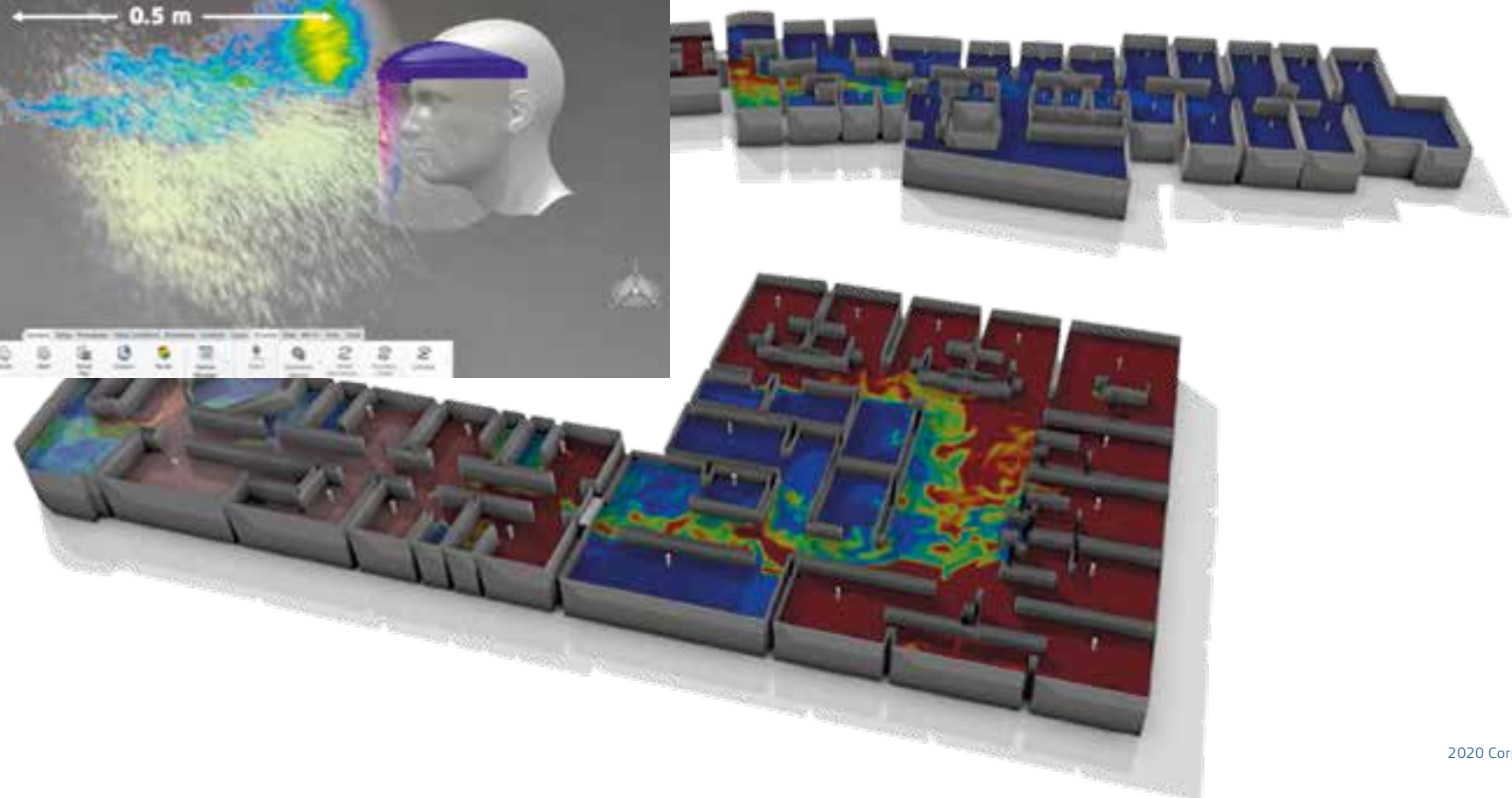
## HARNESSING COLLECTIVE INSIGHTS TO DEFEAT COVID-19

As soon as the pandemic began spreading, the **3DEXPERIENCE** Lab identified needs and difficulties arising and found that many people working on COVID-19-related projects were doing so in isolation. The Lab team brought together these designers, engineers, scientists and decision-makers to pool their energy, harness collective insights and share needs and solutions; in turn the team classified and supported the projects. The Open COVID-19 community created an effective way of gaining an overview of efforts to combat the pandemic, aggregating the latest information concerning pharmaceutical and scientific advances, ventilators, face shields, and progress by manufacturers and labs. Over 150 projects received backing, including design and production of face shields in Fab labs, digital simulations of virus dispersement into the air when a patient coughs or sneezes, airborne propagation simulations, ventilators, etc.

Three projects really stood out: in India, the Inali Foundation startup, which had already made a name for itself by creating an artificial arm for people with disabilities, built a prototype smart ventilator. It took just eight days thanks to the support provided by the **3DEXPERIENCE** Lab's team in India and input from mentors and designers from around the world via the cloud. In the United States, the Lab guided the design process for face shields via the network of Fab labs, with support from US-based teams of **3DEXPERIENCE** and SOLIDWORKS experts. Geolocation data was used to put these Fab labs in contact with nearby hospitals and healthcare professionals. In France, the SIMULIA team helped simulate air flows in the Saint-François hospital in Marange-Silvange, to rapidly identify the safest way of accommodating COVID-19 patients and to show the way forward to have optimal air flows.



From top to bottom:  
Inali's virtual prototype of its smart ventilator, a simulation of face shield protection and another one of the premises of Saint-François hospital in Marange-Silvange



## SUPPORTING RESEARCH AND EDUCATION DURING THE PANDEMIC

**La Fondation Dassault Systèmes** rapidly deployed its teams as the COVID-19 pandemic spread and lent its support to various initiatives driving change in education and research by harnessing the power of 3D technology and virtual universes. It made a donation to the Institut Gustave Roussy (Villejuif, Paris) for its research into the effects of SARS-CoV-2 on cancer patients. Through a second donation to the BREATHE Center at the University of California, Riverside School of Medicine, its support furthered work on identifying engineering solutions to mitigate damage caused by artificial respiration and helping improve patients' condition. The Foundation also established a partnership with Ecodair, an association promoting community employment, to provide computers to students at the Apprentis d'Auteuil home for young workers in Versailles (France), so they could continue taking their classes online. Lastly, ConnectNext, a program launched in 2020 to forge closer ties between academia and industry in India, connected 16,000 students, teachers and industry professionals during the lockdown period. The Franco-Indian chamber of commerce gave this initiative a CSR Award.



## DEVELOPING RURAL AREAS AND NURTURING TALENT IN INDIA

**La Fondation Dassault Systèmes** India supported a number of projects in 2020 championing the development of rural areas. Photovoltaic solutions powering irrigation pumps, spraying devices and water purification systems play a key role in this program. Solar energy is also used in new pasteurization, dehydration and portable refrigeration systems for transporting drugs. The ultimate goal is to make villages self-sufficient in both energy and food by implementing innovative, sustainable and local fruit and vegetable production strategies. The foundation for a circular ecosystem will be laid through a shift from managing waste to recycling useful materials. Water-related issues are the focus for two of the other projects supported by the Foundation — a floating

system that collects the waste from lakes and rivers, and another that curbs pollution on waterways. **La Fondation Dassault Systèmes** India also took its talent development initiative to the next level. The “Made in 3D” program introduced by **La Fondation Dassault Systèmes** in Europe in 2016 to inspire students to become future innovators and entrepreneurs was successfully adapted to India in 2020. Lastly, the ConnectNext initiative introduced a new form of collaboration and interaction between industry and academia in India, giving businesses the opportunity to spot talent while allowing students to showcase their skills and abilities through webinars and virtual events. ✕

## TRAINING FUTURE GENERATIONS OF ENGINEERS IN AFRICA

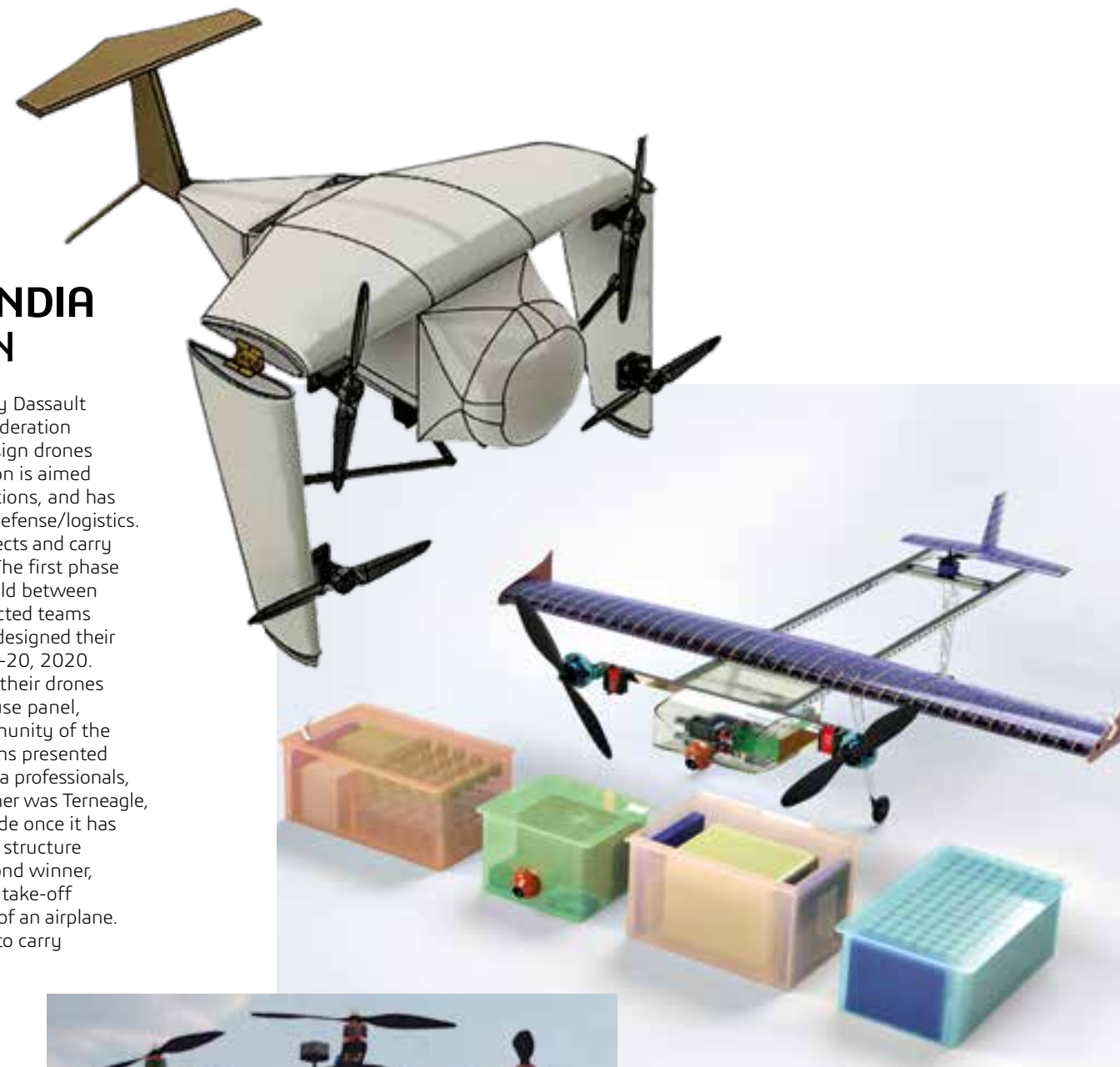
InnoTechLab, which was established with support from **La Fondation Dassault Systèmes**, is a tech innovation lab held a launch event in October 2020 in Yaoundé (Cameroon) in the presence of the minister for employment and professional training and the minister for small and medium-sized enterprises. The center will foster experimentation with and training in digital technologies and 3D simulations. Dassault Systèmes employees will share their knowledge under a skills-based volunteering program and help to train a new generation of African engineers. Industrial engineering, urban planning, energy, agriculture, logistics, mobility, life sciences and connected health are fields covered

by this initiative. InnoTechLab is also the cornerstone of a strategy for upskilling young engineers across Africa. In parallel, the Haile-Manas Academy has initiated a plan to build an innovative school at Debre Birhan thanks to support from **La Fondation Dassault Systèmes** US. It will educate 400 talented students from across the country. They will receive high-caliber teaching spanning multiple disciplines and will gain professional skills through access to a “makers” space. The teachers will be trained in how to support and guide students in extra-curricular workshops during which they will learn the basics of 3D design and engineering technologies. ✕



## PURSUING SUSTAINABILITY IN INDIA WITH DRONE-A-THON

Drone-a-thon is a virtual hackathon organized by Dassault Systèmes 3DEXPERIENCE Lab and the Drone Federation of India to encourage students and others to design drones using the 3DEXPERIENCE platform. Drone-a-thon is aimed at universities, startups and non-profit organizations, and has four categories: agriculture, city, healthcare and defense/logistics. Participants use the platform to design their projects and carry out simulation and systems engineering work. The first phase involved a challenge that narrowed down the field between October 19-31, 2020. In the second phase, selected teams received training in how to use the platform and designed their drones as part of a hackathon from November 9-20, 2020. In the third phase, 10 selected teams presented their drones to Dassault Systèmes employees and an in-house panel, and five were selected through a vote by a community of the platform's users. In the final phase, the five teams presented their concepts to a panel of industry and academia professionals, and three winners were selected. The overall winner was Terneagle, a quadcopter drone that can switch to glider mode once it has reached a certain altitude, since its aerodynamic structure is compatible with both types of flight. The second winner, Pegasus, a tilt-rotor VTOL, combines the vertical take-off capability of a helicopter with the cruising speed of an airplane. Finally, Agro-Raptor is a robust drone designed to carry heavy loads.



## SPEAKING THE LANGUAGE OF INNOVATION AT THE PURDUE CENTER

"The language of innovation in the future will be simulation," said Dr. R. Byron Pipes at the opening of the 3DEXPERIENCE Education Center of Excellence in Advanced Composites. Dr. Pipes, Distinguished Professor of Engineering and Executive Director of the Composites Manufacturing & Simulation Center (CMSC) housed at Purdue University's Indiana Manufacturing Institute, is a world-renowned specialist in the field of composite materials. "The knowledge base we've created currently resides in books, magazines and academic papers. Eventually, it will reside in simulation tools. This is where the future is going," he added. The aim of the Center of Excellence is to create a learning environment for research into the manufacturing and performance of advanced composites and the engagement of all levels of students, in order to develop the knowledge required for Industry 4.0. Dassault Systèmes' center is located within the Indiana Manufacturing Institute at Purdue Research Park. One of the materials being developed there, a new thermoplastic composite, could help drive development in urban air mobility, drones and aerospace platforms. By giving designers a way of trying out innovative new materials and manufacturing processes virtually, the aim is to speed up the creation of new systems with the students of today and generations to come.

