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"Contactless technologies will gain prominence in the upcoming future"- Deepak NG

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Deepak NG, Managing Director, Dassault Systèmes, Bengaluru, India talks about the impact of COVID-19

By when do you think India will become COVID-19 free?

The COVID19 pandemic outbreak in India has had a widespread and unprecedented impact on people, businesses and economy. While, the entire healthcare ecosystem and Life Science industry is putting in endless efforts to contain the proliferation of this virus, it is difficult to predict about the timelines. Extensive research have been conducted in India and almost every country that has been impacted so far, while we are yet to see conclusive evidences we hope to see potential vaccines soon.

The current priority should be to flatten the curve of the infection spread, at the earliest. Usage of masks, gloves and strict personal hygiene practices can prevent new cases whereas setting up of new facilities for testing and treatment will ensure effective and quick recovery of the infected patients. It is also important to equip the hospitals with the right set of equipment and infrastructure.

As a pioneer of innovations for Life Sciences industry, we, at Dassault Systemes, are helping the ecosystem with the 3DEXPERIENCE platform and brands like BIOVIA, SIMULIA for our customers in research and drug discovery, quality and manufacturing of vital medical equipments and patient care.

How is Dassault Systemes India contributing to this fight against COVID-19?

Dassault Systemes is putting in concerted efforts to fight the impact of COVID-19 on multiple fronts.

Dassault Systèmes' 3DEXPERIENCE Lab supported the Indian startup Inali in the rapid development of a safe, affordable "smart ventilator" that could be quickly manufactured and deployed for emergency use. Using cloud-based digital applications, Inali was able to rapidly design a 3D model of the smart ventilator, engineer it, simulate its function, and manufacture and validate a prototype. This development took less than eight days. The smart ventilator is designed to identify performance metrics for parameters such as air velocity and air pressure that are needed to function, and adjust its operating parameters accordingly, as well as to identify the appropriate oxygen level for an individual patient and the safety metrics required for reliable and safe use. Inali will publish the complete ventilator design and manufacturing details as open source information. It can be used by anyone by downloading the information and manufacture the ventilators. Smart Ventilator could be available at an affordable cost.

Our SIMULIA team in India has made 3D printed face shield frames and supplied them to a Chennai based medical college. 3D Printers installed in 3DEXPERIENCE Innovation Center in Andhra Pradesh are being used by the local authorities to manufacture critical medical equipment components in treatment of COVID-19. General Aeronautics, a startup that designs UAVs and Drones on Dassault Systemes' 3DEXPERIENCE Platform, has supported the Government of Karnataka in fumigation and sanitation of key areas in Bengaluru.

Many of our customers are using BIOVIA Discovery Studio and Designed to Cure Industry Solution Experience to work re-purposing of existing drugs and design of antibodies that can help in combating COVID-19.

We are actively involved in major initiatives and projects to fight COVID-19 pandemic in other countries as well.

Dassault Systemes' fluid simulation application SIMULIA XFlow was used by designers of Wuhan's newly built Leishenshan Hospital in China to design and simulate its air supply and exhaust systems. Air flow simulation powered by SIMULIA, was used for a collaborative project to reduce the risk of virus propagation inside the St. Francis Hospital in Marange-Silvange in northeastern France – the country's second largest region impacted by COVID-19.

Aden Group, one of Asia's largest integrated facility management companies, will be collaborating with Dassault Systemes on the development of a turnkey, ready-to-use infectious disease hospital solution, Akila Care. This solution could be quickly deployed and easily maintained in countries severely impacted by COVID-19 and urgently in need of high quality medical facilities.

Dassault Systemes is using scientific simulation of the human sneeze to support the development of personal protective equipment (PPE) projects in the 3DEXPERIENCE Lab OPEN COVID-19 online community. Sneezing is one way that pathogens, including COVID-19, spread. The simulations are used to demonstrate what happens when a person sneezes, to better understand the effectiveness of different PPE being developed and deployed, and to aid in improving their design. Dassault Systèmes used SIMULIA PowerFLOW simulation applications to develop a computational simulation of a sneeze to provide insight into the flow physics of sneezes.

The online community comprises of engineers, designers, manufacturers, scientists, makers and fabbers, who can share design projects as 3D models with each other. The Open COVID-19 Community includes members from the USA, UK, India, France and the Netherlands.

What more needs to be done so that India is prepared for a future pandemic?

Various initiatives by the Government to ensure and enable social distancing has helped to bring the crisis to a manageable level. Nationwide lockdown, isolation of cases and quarantining the contacts of the COVID-19 infected patients across the country has been quite successful in the recent weeks. These measures have also raised awareness of COVID-19 and instilled a sense of personal hygiene among people.

To prepare for such future pandemics, India needs to pre-empt potential scenarios and build capacity for healthcare facilities and drug discovery, as well as sustain the awareness level among people and communities. We should be able to leverage collective intelligence to source, qualify, design, engineer and manufacture rapid solutions during the pandemic. It will be crucial to scale up testing, provide life-support equipment such as ventilators and ensure adequate personal protective

equipment (PPE) for healthcare workers. Life Sciences will have a key role in such preparations as it can facilitate high value research, advance the discovery of new medicines and improve healing solutions.

What will be the impact of this outbreak on the Indian economy? How is Dassault Systemes India preparing itself?

The COVID-19 pandemic has changed the world around us, forever, and we can't expect to go back to the way things were before the outbreak. India's GDP has decelerated significantly, due to a slowdown in private consumption, investments and external trade. The one thing which is clear is the fact that the current downturn in the economy is fundamentally different from recessions that we have seen in the past. While we are all trying to comprehend and scale and impact of this pandemic, we are looking at certain permanent, structural changes in the way we live and work.

Use of Digital/virtual platforms is no more an option, and rather an imperative to enable engagement between people or between people and machines (shop floor). Our focus will be to drive increased adoption of 3DEXPERIENCE platform through sustained growth in Manufacturing sector, enablement of Infrastructure, Construction and Architect community and expansion of footprint in Life Sciences industry in India. The Life sciences industry in India is expected to gain momentum, especially in pharma research, drug discovery, and prosthetics. We are already working with leading pharma companies, associations, research institutes and several startups to drive relevant innovation in this segment.

Contactless technologies will gain prominence in the upcoming future and our 3DEXCITE solutions can help to enhances visualization aspects, sales & marketing channels of our customers.