BioSpectrum the business of Bio & Health Sciences ASIA EDITION

Building the lab of the future, today

02 March 2021 | News

What do we mean, when we talk about the “lab of the future”? What does it look like? How does it work? And how does it set science in motion?

Avantor are building the lab of the future, today. Building the lab of the future is more than just outsourcing services and setting up customized facilities—although that’s an important piece of what we do—it’s training people and building systems, for a more streamlined, efficient path to innovation. It’s globalization, so science can be shared. And it’s setting science in motion through comprehensive, customized support services for labs all over the world.

TRENDS SHAPING THE LAB OF THE FUTURE

If the lab of the past was one scientist working in a deserted lab through the night, the lab of the future is many scientists working together through systems and technology, around the clock and around the world. Avantor Services focuses on people and processes, and builds services, solutions, and facilities to support the people who make scientific breakthroughs possible. This is how we are building the lab of the future, today.

We see several industry trends as the foundation for the lab of the future, with three notable trends standing out:

- Globalization
- Systems
- Digital solutions

GLOBALIZATION

Globalization is a driving force behind new ideas and scientific advances. Through diversity of experience and perspective, scientists are able to gain a deeper understanding of the needs that prompt discovery. Scientists collaborate to share and expand on ideas, creating a network of ever-building knowledge that allows innovation to increase exponentially.

Avantor Services works with organizations to provide scientists with support that advances ideas and fosters collaboration. As the boundaries between labs and their resource partners blur, organizations realize both economic and intellectual advantages through globalization. Establishing locations for R&D, manufacturing, and distribution in areas with emerging markets can aid in swift and efficient marketization of products. In addition, organizations that are not limited by geographic location can catalyze talent and resources from all over the world.

How do scientists take advantage of globalization, while ensuring consistent procedures and results in collaborative experiments?

SYSTEMS

Efficient, standardized procedures can help to create consistent foundational data, chart more efficient routes to innovation, and produce more reliable results. That's why systems are an important component of the lab of the future. Avantor can customize systems for customer needs, providing guidance and expertise to help streamline and automate procedures for a more efficient path to discovery and a more effective plan for delivery.

Trends in automation and artificial intelligence (AI) will drive systems improvement. Robots are increasingly handling experiments. This not only frees up time for scientists, who can monitor progress remotely and focus on ideas, it also produces more reliable results by eliminating the elements of human error and idiosyncrasies that make many experiments impossible to fully replicate. With the help of AI, scientists will be able to identify relationships between disparate results and track protocols and data with heretofore unheard-of speed and accuracy.

DIGITAL SOLUTIONS

Science is only as good as its data, so much of our work includes generating valuable data for analysis and supporting science. Digital tools and solutions drive analysis and increase productivity in every area of research. As data is digitized, it becomes more accessible for collaboration, predictive maintenance, and demand forecasting. Researchers can also conduct virtual experiments to reduce the number of in-person experiments.

Digital solutions can be used to streamline the supply procurement and management process, revolutionizing the route every step of the way, from discovery to delivery. Robots can collect the required data for experiments—but more than that, machines can capture and communicate performance data. Performance data can be used to adapt and improve processes, and over time, it can offer insights to aid in customization of facilities, which is a hallmark of Avantor Services.

The new generation of scientists entering the field has grown up in the digital world, and they are accustomed to the flexibility and open approach to work that digitization brings. For up-and-coming scientists, the future is now, and digital tools and solutions are simply an accepted way of doing business—and a way to bring science into the light.

CONCLUSION

Facilities customization is driven by the people conducting scientific work, and the systems supporting them. The lab of the future is not a building, but an idea. The lab of the future is not discrete tasks, but standardized procedures. And the lab of the future is often virtual, with sophisticated digital tools and solutions that promote globalization in an environment that is more open and collaborative.

At Avantor, we are building the lab of the future by focusing on the people who work in science, and the systems they need to focus on scientific breakthrough, from discovery to delivery, all over the world.

Source : https://www.avantorsciences.com/