BIOVIA User Report:Lotte
Takes First Steps toward Accelerating Innovation by Introducing
Cloud-Enabled Electronic Lab Notebook（ELN）

Lotte is the manufacturer and retailer of such market-leading innovative products as Green Gum, Ghana Milk chocolate, YUKIMI ice cream, and XYLITOL Gum. Considering digital transformation（DX）to be indispensable in taking the next step in innovation, Lotte has decided to deploy BIOVIA Notebook, a cloud-enabled Electronic Lab Notebook（ELN）from Dassault Systèmes. In the future, Lotte intends to use digital tools to not only share research progress and information but also conduct R&D anytime, anywhere with those living overseas. The Japan Food Journal spoke with Mr. Yuuichi Maeda, Manager, and Ms. Yoriko Hatakeyama from the Core Technology Section, Future Value R&D Department, Central Laboratory, Lotte Co., Ltd.

Mission to create new value

——What mission does the Central Laboratory have at Lotte?

Maeda：The Central Laboratory is responsible for the R&D of confectioneries, ice cream, and daily necessities that Lotte manufactures and sells. The Laboratory consists of a development division that develops products and a fundamental research division that conducts core technology and new research necessary for product development. Among those departments, the Future Value R&D Department, where we belong, conducts fundamental research that delves into and scrutinizes our current technology to create new value.

——I believe innovation is an important factor for your company.

But is it correct to say that the Central Laboratory plays a role in creating that innovation?

Maeda：Absolutely. Central Laboratory research was the catalyst for Lotte developing and selling a number of market-leading innovative products, including Green Gum, Ghana Milk chocolate, YUKIMI ice cream, and XYLITOL Gum.

——Do you think DX is indispensable in creating more of such innovations?

Maeda：Let's say a researcher in the fundamental research department comes up with a new idea. The first thing we think about is whether similar research has been done before. If it has, we want to know where that research sits at the moment.

Hatakeyama：We were able to examine past in-house reports and papers outlining findings, but while they offer examples of successful cases, sometimes they did not include some of the research projects or processes and backgrounds behind decisions that we as researchers wanted to know. When someone in charge of a piece of research is transferred to a new position, they only handed their research notebooks off to their successor due to time constraints when it's busy, and the successor was unable to fully utilize them.

▲Mr. Yuuichi Maeda（right）, Manager, and Ms. Yoriko Hatakeyama（left）, staff member, of the Core Technology Section, Future Value R&D Department, Central Laboratory, Lotte Co., Ltd.

Maeda：What we want the most is the precious knowledge and experience that each individual has. But paper record formats differ from person to person, so it was almost impossible to find what you want. Ultimately, we were only able to leverage one part.

Full-scale operation began in FY2022

——So that's why you deployed Dassault Systèmes' ELN?

Maeda：As we believe effective use of digital tools is essential for the efficient development of new confectioneries and ice cream, we are currently furthering DX in our R&D. For the first step, we are improving the efficiency of product development by collecting and transferring knowledge; and for the second step, we are look-

▲Ms. Yoriko Hatakeyama, staff member of the Core Technology Section,Future Value R&D Department, Central Laboratory

ing at developing a new workplace, including systems, for product development that is not bound by existing frameworks. One of the tools deployed for this first step was ELN. We rolled it out across the Laboratory in FY2022.

—— What effects have the deployment of ELN had?

Hatakeyama：The use of ELN makes it easier to read and search research notes more efficiently. Being able to quickly access the desired information has made our work go much smoother. And as each team member records data and information from their daily research, a great deal of knowledge accumulates in ELN, creating a sort of "collective knowledge."

——Why did you choose Dassault Systèmes?

Maeda：Before deploying their ELN, we held a briefing on how to use it and felt that the UI was user-friendly and versatile, rather than being designed for one specific scientific field. We also found the ability to record related information such as references and experimental results in one place to be very useful too. Also, by creating a format and saving information in there, it makes it easier than ever to search notes. Having all the information in one place saves time and effort when looking back through notes and makes it easier to share information with other members of the team. We think it will allow us to carry out work more smoothly going forward.

——Did the deployment go smoothly?

Maeda：The barrier wasn't high at all as there weren't any special preparations or training we needed to begin using the system. When introducing new analytical equipment, for example, at least four days of training is required usually. But Dassault Systèmes' ELN didn't require this kind of special training. I think this contributed to making the implementation go smoothly in the labs（Fig.1）.

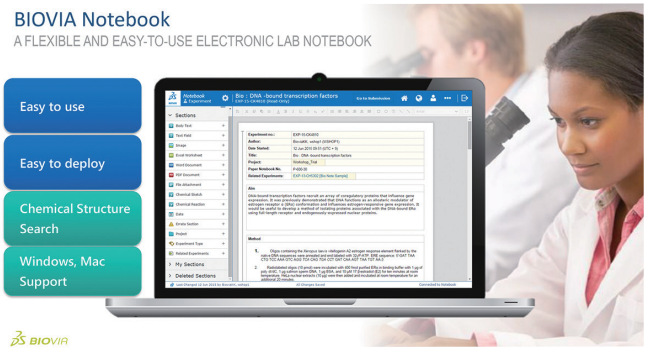
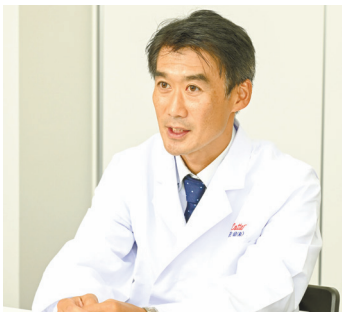


Fig.1：BIOVIA Notebook（Electronic Lab Notebook）

Accelerating development, anytime, anywhere



▲Mr. Yuuichi Maeda, Manager of the Core Technology Section,Future Value R&D Department, Central Laboratory

—What do you expect from future DX development?

Maeda：In the short term, I expect that by fully leveraging the functions of ELN, we can improve the efficiency of existing operations by reducing the time required to prepare reports and other documents, and preventing circuitous routes in operations using practical information. However, rather than making operations efficiency be the goal, we believe that it is more important to use the time we have gained to focus on creative research. Going forward, we would like to use digital tools in R&D, not only to share research progress and information but to also conduct R&D anywhere anytime with those living overseas for example.

Hatakeyama：Meetings are often held within each department, so we were unable to share research information between departments. But ELN has allowed us to smoothly share research results with different departments and so we believe it will help us create further innovations as well.

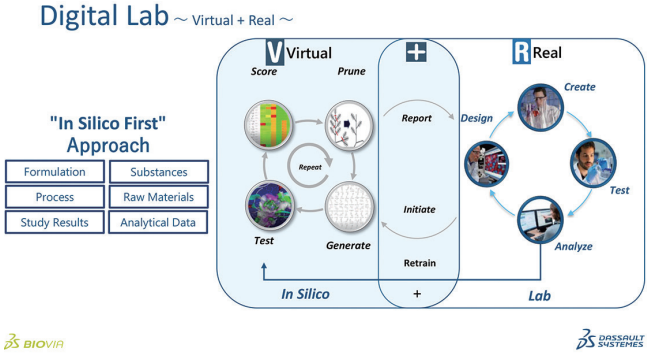


Fig.2：Dassault Systèmes' vision of a future digital lab　Provided by Dassault Systèmes

Maeda：The data collected by members in ELN will need to be analyzed differently from how we have done so previously, so some trial and error will be required. Also, we need a system that can quickly process a variety of data in order to promptly grasp and respond to changing tides. In the near future, we will probably need new analysis systems that specialize in either of these areas（Fig.2）.

Hatakeyama：With the introduction of ELN, we will be able to streamline our operations and work on even more new projects than before. I think that the number of proposals that lead to bottom-up innovation and new products will increase going forward.

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