



CASE STUDY

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## How dsm-firmenich helped scientists to capture more data at the bench



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STUDY ONLINE

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## MEET OUR CLIENT



## Investing in innovative technologies for speeding up innovation.

Speeding up experimentation through digitization and automation of laboratories are an important target for the life sciences industry in order to achieve cost-effective innovation. The multi-national dsm-firmenich, innovators in nutrition, health, and beauty, has been at the forefront of tackling these challenges. With a nearly 30,000 strong team and unparalleled capabilities built on more than a century of cutting-edge science, dsm-firmenich aims to be a continued trailblazer in the reinvention, manufacturing, and combination of vital nutrients, flavors, and fragrances.

To address their innovation challenges and speed-up innovation cycles, dsm-firmenich naturally favored the latest innovations in the field of digitalization and turned to LabTwin's pioneering voice-recognition solution.

In this case study, we will explore the successful roll-out and scale-up of LabTwin at multiple dsm-firmenich Science & Research labs and the positive outcomes that were achieved. By choosing LabTwin, dsm-firmenich was able to overcome their challenges and achieve their goals, while also demonstrating commitment to innovation and continuous improvement.

## THE CHALLENGE



### Capturing more data and enabling lab-connectivity with real-time digital solutions.

dsm-firmenich operates over 20 Science & Research labs worldwide and generates large volumes of data and knowledge every day. Despite previous efforts to implement various lab informatics, dsm-firmenich scientists often rely on manual processes for documentation at the bench, which might be time-consuming and prone to errors. In response, dsm-firmenich recognized the opportunity to improve data capturing quality and efficiency and enhance their overall digital capabilities to speed up innovation cycles.



**“At the moment, the process looks like the follow:**

- 1. Keep everything in memory while working in the lab,**
- 2. When done in the lab, go back immediately to the office,**
- 3. Grab the first piece of paper and write notes down.”**

**Romi**  
Application Engineer,  
dsm-firmenich

Having selected and rolled out Revvity Signals ELN Notebook as their ELN, dsm-firmenich scientists are already digitalizing their experiments' notes in this data repository, enabling them to centralize their documentation and generate comprehensive reports.

However, entering the data into the ELN while performing the experiment in the lab remains a challenge for the scientists as it requires an interruption in their workflow and the access to a computer. To manage the hindrance, many scientists rely on paper during the time of their experiment in the lab and transcribe their notes in their ELN when they are back at their desk during the day. However, a delay in their note transcription impacts both the quality and quantity of data capture and retyping the notes from the paper is double work.

Some labs at dsm-firmenich have stricter regulations that do not allow paper usage due to the handling of certain chemicals, requiring scientists to keep notes in memory during the whole time of the experiment, similarly impacting the data quality.

## THE SOLUTION


**Hands-free data capture with a digital lab assistant.**

Willi Gottstein, Senior Scientist at the Center for Digital Innovation, played a pivotal role in spearheading dsm-firmenich's efforts to overcome these challenges. Being responsible for piloting and rolling out software tools across R&D sites, Willi became deeply committed to dsm-firmenich's goals of both improving data capture and increasing operational efficiency.

The clear opportunity for hands-free capability drove Willi's interest for a more efficient and effective solution. Willi believed that LabTwin could be the ideal solution to address both the process of hands-free documentation and real-time digitalization through its integration with their existing ELN system, Revvity Signals ELN Notebook. LabTwin would lower the threshold to document in the lab, which would lead to a higher reproducibility of the experiments and save time from preventing repeating experiments due to incomplete documentation.

It would also directly save time by replacing interruptions to write down notes during the workflow by concomitant voice notes, and the need to summarize them as a report could be automatically generated and uploaded to the ELN.



**Some labs at dsm-firmenich have stricter regulations that do not allow paper usage due to the handling of certain chemicals, requiring scientists to keep notes in memory during the whole time of the experiment, similarly impacting the data quality.**

By partnering with LabTwin, dsm-firmenich aimed to achieve multiple objectives, including saving time, increasing efficiency, generating more complete documentation, and enhancing reproducibility. Given LabTwin's ability to streamline data entry and integrate with existing systems, dsm-firmenich recognized it as the ideal solution for their needs and selected it for their Early Adopter Program.

Figure 1: Timeline of the rolling out of LabTwin at dsm-firmenich.





THE PILOT

**A successful collaboration.**

After a successful Proof of Concept with 10 scientists from the Analytical Chemistry and the Microbial Genetics departments of the main dsm-firmenich bioscience site in the Netherlands, dsm-firmenich moved to a pilot involving 50 users from various departments globally.

The pilot program included LabTwin's integration with Revvity Signals ELN Notebook and the establishment of a shared laboratory protocol library. Willi, worked closely with our team to ensure that the implementation went smoothly. Through a combination of thorough testing and effective

communication, LabTwin was integrated seamlessly with dsm-firmenich's systems.

To support Willi in showcasing LabTwin's value to the leadership and get approval for the roll out, LabTwin's team aligned with the dsm-firmenich team on criteria which would define success and procedures to measure key indicators. Time savings and quality of documentation were therefore measured throughout the pilot, and it brought up interesting insights on the current processes and the added value of LabTwin (see Results section). The overall project was completed on time and within budget.

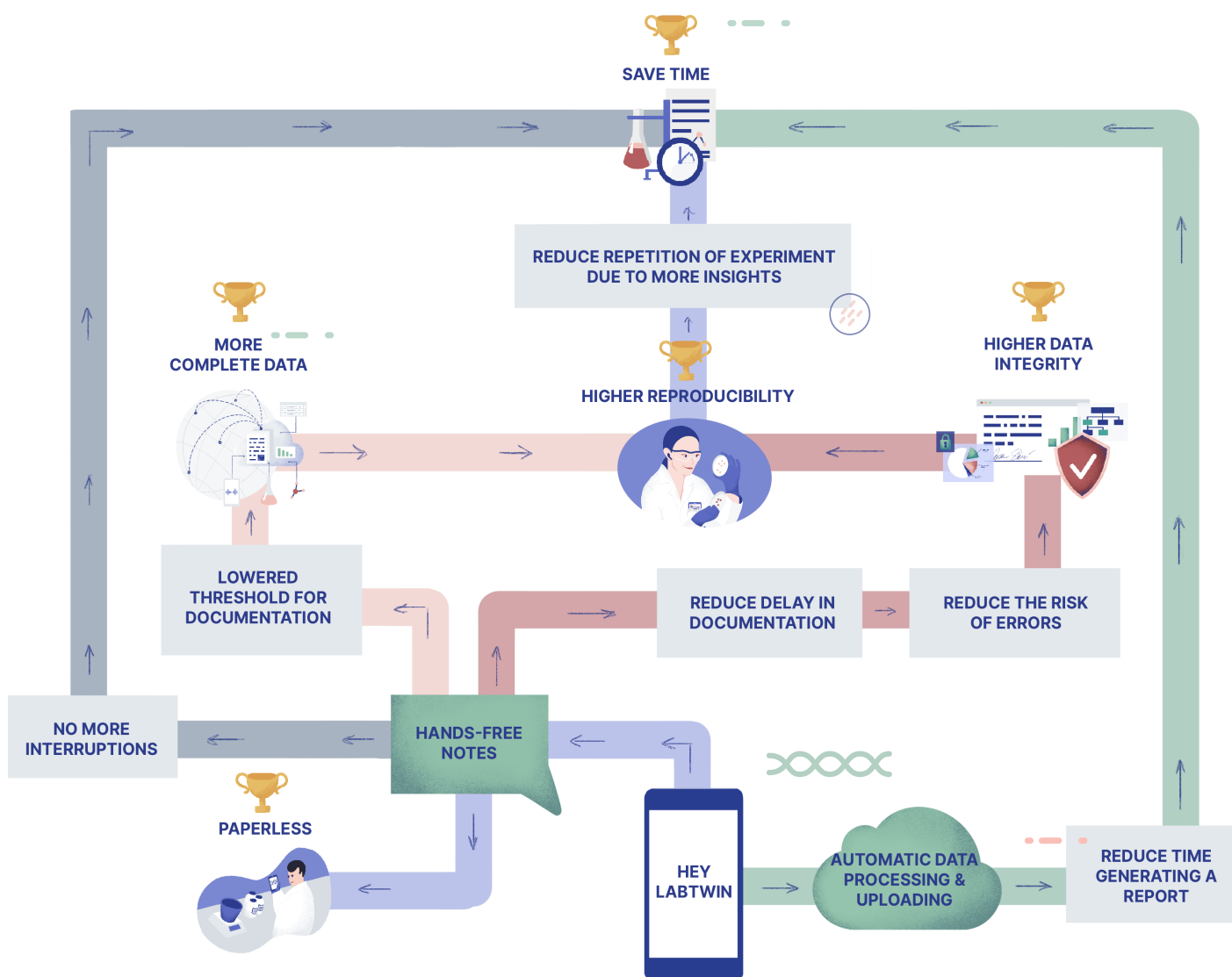


Figure 2: How LabTwin's digital lab assistant helps to achieve dsm-firmenich's goals of saving time by generating a more complete documentation and enhancing reproducibility.



**“We realized that even if we have an ELN, and might even have a laptop in the lab, scientists don’t enter their data directly because they would still need to interrupt their experiment. And that’s indeed something that LabTwin can solve for us: hands-free documentation and directly digitalized.”**

**Marija**  
Scientist,  
Center for Analytical Innovation, dsm-firmenich

Willi praised LabTwin’s collaboration throughout the implementation process. But the success of the project equally relies in the dedication of the dsm-firmenich project team.

“The collaboration with dsm-firmenich has been excellent from the start with us working together as a team with the committed dsm-firmenich project team but also directly with the scientists themselves. The regular information exchange and on-site visits with dsm-firmenich scientists

allowed us to deeply understand their workflows and challenges and tailor our solution to their needs, with their feedback having a clear impact on our design. It is great to see how the collaboration evolved as we scaled up and are now working with a motivated network of scientists and managers across the several new locations,” - says Audrey, Team Lead Customer Success at LabTwin.



**“The collaboration has been very open and collaborative, with brainstorming sessions to explore how to measure success. Meetings were well-prepared, and complaints were addressed promptly. LabTwin has proven to be very reliable, delivering on their promises and incorporating user feedback throughout the process.”**

**Willi**  
Senior Scientist,  
Center of Digital Innovation, dsm-firmenich

**The lower threshold for documentation at the bench as well as the immediate digitalization of the data resulted in a 60% increase in data quality, enriching the reports with important details and pictures about the experiment execution.**

## The roll-out of Revvity Signals ELN Notebook as their ELN enabled dsm-firmenich scientists to centralize their documentation and generate comprehensive reports to their clients.

### OUR RESULTS



### A positive impact with happy users.

The implementation of LabTwin at dsm-firmenich has led to significant improvements in efficiency, data quality. Before LabTwin's implementation, only 15% of dsm-firmenich's notes were captured directly in Signals Notebook, at the cost of interruptions. The remaining 85% of notes were not digitized at the bench, with 35% captured on paper, 34% memorized and 16% not documented at all. Having LabTwin at the bench to record hands-free notes enabled the digitization of 100% of this data in real-time and the removal of paper.

The lower threshold for documentation at the bench as well as the immediate digitalization of the data thus resulted in a 16% increase in the amount of data captured



**“I don't have to walk back and forth to my desk anymore to look up important information the customer shared with me, and I don't have to remember all my observations which otherwise could get lost because reporting is done a week or two after the imaging. This tool works and I love it.”**

**Jennifer**  
Analytical Chemist,  
dsm-firmenich

Figure 3: Benefits of using LabTwin as measured by dsm-firmenich users during the Pilot phase.



On average, dsm-firmenich scientists **saved 56 min per week** with LabTwin.



By using LabTwin, scientists recorded **16% more data**.



The average user needs LabTwin for **50% of their lab work**



Documentation **saved the ELN within 24h instead of weeks** thanks to the LabTwin-Signals integration



**Reduce contamination risk** by eliminating paper from the bench.

and 60% increase in data quality, enriching the reports with important details and pictures about the experiment execution. All these extra details are automatically transferred to Signals Notebook where it can be reviewed by the scientists and their managers.

By preventing interruptions to document and post-experiment transcription of the paper notes, dsm-firmenich's scientists were able to save an average of 56 minutes per week per scientist in the pilot phase. According to dsm-firmenich scientists, capturing more

details around each experiment has already a positive impact on improving the reproducibility of their experiments.

dsm-firmenich also understands the long-term potential that will follow from further development and integration of the digital lab assistant, by bringing more insights on scientific operations or improving lab safety by enabling a voice-powered access to data safety sheets.



**“I saw other people with LabTwin and realize this was the solution which would help my challenge, so I asked for joining.”**

**Sharina**  
Senior Associate Scientist NMR and  
LabTwin Champion,  
dsm-firmenich



**“Since LabTwin was rolled out with the Signals integration, it became much easier for me to create a presentation based on the data of my team thanks to all the precious details and standardized structure.”**

**Olivia**  
Project Lead,  
dsm-firmenich

**By preventing interruptions to document and post-experiment transcription of the paper notes, LabTwin saved an average of 56 minutes per week per scientist in the pilot phase.**



Figure 4: Before LabTwin, only 15% of the data was captured directly in the ELN during interruptions. The remaining 85% was not directly digitized, but captured on paper (35%), kept in memory (34%), or not at all documented (16%).



**85%**  
of experimental data is not digitized at the bench

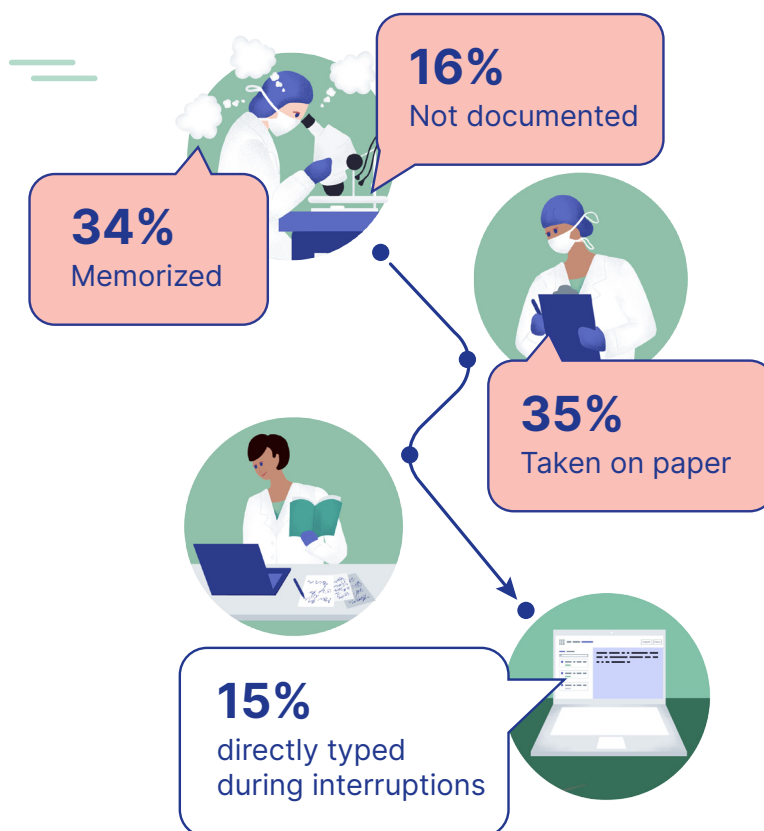


Figure 5: After LabTwin, 100% of the data was immediately digitized at the bench.



**100%**  
is digitized in real-time with LabTwin's digital lab assistant



**Feedback from users was generally positive, with many commenting on how much easier it is to use LabTwin compared to their previous processes and increasing the quality of the documentation.**

#### THE GLOBAL DEPLOYMENT



### **Led by LabTwin champions at dsm-firmenich.**

dsm-firmenich is now scaling-up and deploying LabTwin licenses to multiple departments in five countries (Netherlands, Switzerland, Austria, US, and China) as part of a multi-year license and collaboration agreement.

Sharina, Senior Associate Scientist NMR at dsm-firmenich and LabTwin's champion, had an increasing role in the pilot and will now be part of the team in charge of the rolling out of LabTwin. It became obvious to dsm-firmenich that promoting the newly acquired technology to scientists in other groups would be best achieved by a convinced user educating and sharing the passion for the product.



**It became obvious that promoting the newly acquired technology to scientists in other groups would be best achieved by a convinced user educating and sharing the passion for the product.**

**“LabTwin is designed to enable real-time data capture and will be applied in several of our Science & Innovation laboratories around the world. Introduced to speed up innovation cycles both for ourselves and for our customers, LabTwin offers a “Siri”-like experience in the lab, with many options for further advancing our lab operations – from guiding our scientists through laboratory protocols to interacting with labware and storing data and observations in a smart, hands-free way.”**

dsm-firmenich Annual Report 2022



**“I envision LabTwin as the primary note capture system and the primary source of information when working in the lab.”**

**Willi**

Senior Scientist,  
Center of Digital Innovation, dsm-firmenich

#### THE USE-CASES

**From method development to routine work.**

LabTwin proved to be versatile, with scientists employing for a multitude of use-cases, such as performing routine lab protocols in analytical chemistry, developing a new method, documenting fermentation and cell culture, facilitating training, capturing imaging observations, and supporting sample preparation. In these situations, they were able to register reagents and instruments through barcode scanning, Optical Character Recognition or voice notes, capture observations, deviations, interpretations, ideas, and results in tables or voice notes while running their experiments. LabTwin allowed for a better structuring of the data capture, associating labels to categorize the data and linking pictures such as microscopy images or gel pictures, to their experiment context.

Feedback from users was generally positive, with many commenting on how much easier it is to use LabTwin compared to their previous processes and increasing the quality of the documentation.

“There are people that I didn’t expect them to, but they are actually really enthusiastic about LabTwin, also people that were a bit skeptical about using it and in the end, they are using it a lot! What I also like is the different ways that LabTwin is being used by everyone. For example, I use it a lot for new analysis that I am developing while a colleague is using it a lot for routine analysis, another one from Genetics is really using it for looking at the growth of his bacterial colonies, taking pictures, counting them out loud and seeing it appearing in LabTwin’s tables.”, Sharina, Senior Associate Scientist NMR and part of the roll out team.



**LabTwin’s team made sure to align on criteria which would define success and procedures to measure key performance indicators. The overall project was completed on time and within budget.**

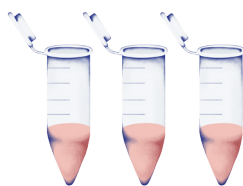
**Figure 6: dsm-firmenich scientists have found LabTwin especially useful for use-cases where documenting was challenging: in the sterile environment of cell culture, when optimizing a method or preparing multiple samples, in the dark room of microscopy or to streamline the training of colleagues.**



**Bacterial culture**



**Method development**



**Sample prep**

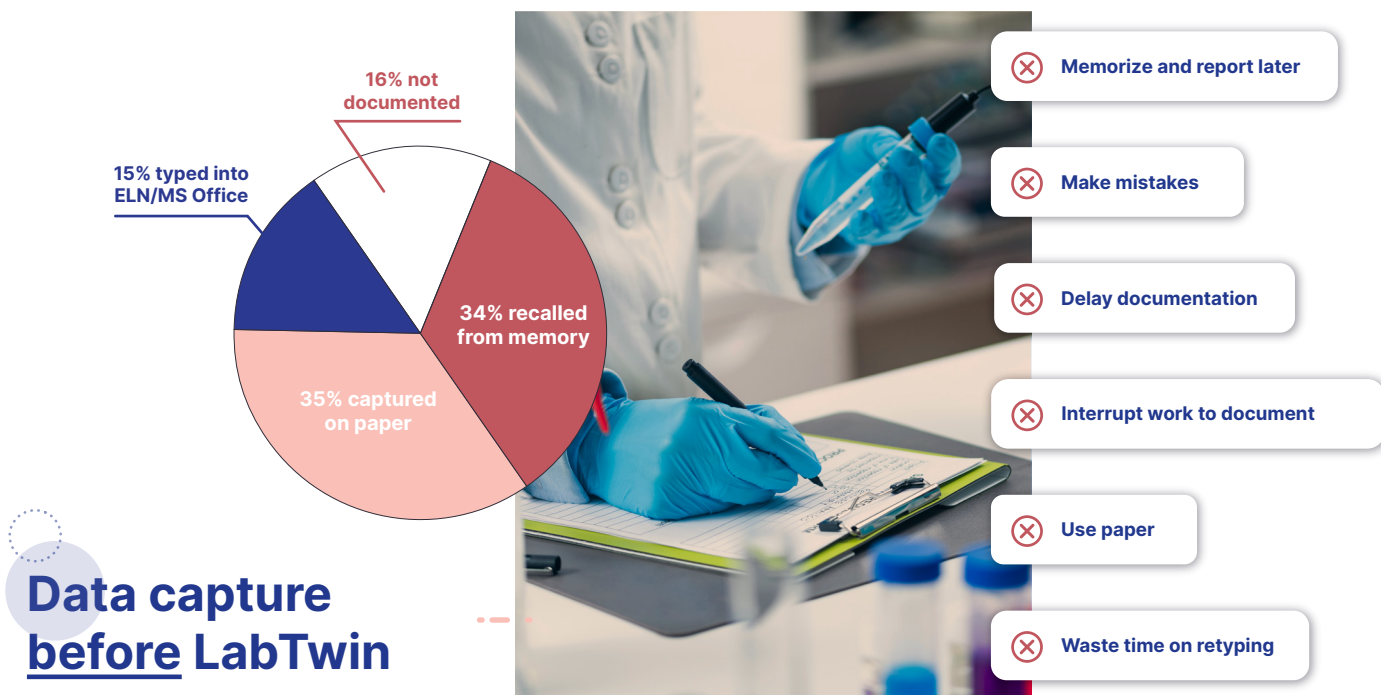


**Imaging**



**Training**

Figure 7: How dsm-firmenich scientists have changed their documentation practices at the bench and benefited from LabTwin's hands-free digital data capture and access.



## WHAT'S NEXT

**dsm-firmenich's Lab of the Future is digital and augmented.**

dsm-firmenich has a clear vision for the Lab of the Future, which includes digital solutions for sample and data tracking, laboratory automation and facilitate user experience in their labs globally. dsm-firmenich believes LabTwin is optimal to support this new approach through its ability to record deviations and ideas in real-time, update and share protocol templates. Moving forward, dsm-firmenich plans to expand LabTwin's use to all their R&D labs, eventually followed by QC and application labs. They will also look into further integrating it with their proprietary system to support inventory management, equipment booking, as well as general access to the company knowledge base. With LabTwin's continued development and dsm-firmenich's commitment to innovation, the Lab of the Future at dsm-firmenich is rapidly becoming a reality.

**Book a demo at [www.labtwin.com/demo](http://www.labtwin.com/demo) to learn more about how LabTwin can help you digitalize your lab and build a Smart Lab of the Future.**



**“LabTwin offers us a Siri-like experience for the Lab with many options for further advancing our lab operations, from guiding our scientists through laboratory protocols to interacting with labware and storing data and observations in a smart, hands-free way”**

**Hans Roubos**

Director Digital Science and Technologies,  
Center of Digital Innovation, dsm-firmenich

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BOOK A DEMO

# Who We Are

## LabTwin

LabTwin GmbH is an AI software company on a mission to create the next generation of integrated, connected smart digital lab tools. Their leading voice-powered digital lab assistant enables hands-free data capture and exchange with informatics systems at the point of experimentation. Both user- and data-centered, LabTwin saves scientists time while increasing data quality and interoperability. LabTwin is a Germany-based company led by an experienced, highly skilled management team and backed by Sartorius and BCG DV. For more information visit: [www.labtwin.com](http://www.labtwin.com)

## dsm-firmenich

As innovators in nutrition, health, and beauty, dsm-firmenich reinvents, manufactures, and combines vital nutrients, flavors, and fragrances for the world's growing population to thrive. With our comprehensive range of solutions, with natural and renewable ingredients and renowned science and technology capabilities, we work to create what is essential for life, desirable for consumers, and more sustainable for the planet. dsm-firmenich is a Swiss-Dutch company, listed on the Euronext Amsterdam, with operations in almost 60 countries and revenues of more than €12 billion. With a diverse, worldwide team of nearly 30,000 employees, we bring progress to life™ every day, everywhere, for billions of people. For more information visit: [www.dsm-firmenich.com](http://www.dsm-firmenich.com)



