Press Release
Research and Development

Shiseido ushers in new era of innovative cosmetics development by blending century of research with advanced AI technology

Shiseido aims to realize innovative cosmetics development through co-creation with AI, blending the R&D capabilities inherited by its researchers over more than 100 years with advanced AI technology. Shiseido, in collaboration with Accenture, has developed a unique formulation development AI function using proprietary algorithms. This AI function has been integrated into Shiseido's unique digital platform for cosmetics development, VOYAGER[*1] (Figure 1), and has been fully operational since February 2024.

Shiseido has always, throughout its history, created unprecedented and entirely new forms of beauty by blending seemingly incompatible dual values. In line with the company's R&D philosophy, DYNAMIC HARMONY, the company has embarked on the challenging process of converting TAKUMI (Artisan skills), the heritage passed down to its researchers and cross-disciplinary expertise, into more than half a million data points. These have been meticulously entered into a comprehensive database and blended with AI technology to enhance the company's research and development capabilities.

By leveraging this platform, Shiseido aims to accelerate the development of innovative values that cannot be derived solely from human experience through co-creation with AI. This will enable researchers to focus more on creative research that drives new innovations. Consequently, Shiseido will be able to swiftly deliver beauty solutions that meet the increasingly diverse needs of consumers and continue to make steady progress towards achieving its vision for 2030 of becoming a Personal Beauty Wellness Company.

Figure 1. The name VOYAGER carries connotations of pursuing new territory and journeying toward unknown worlds, reflecting Shiseido's aim of developing innovative beauty value for the future.
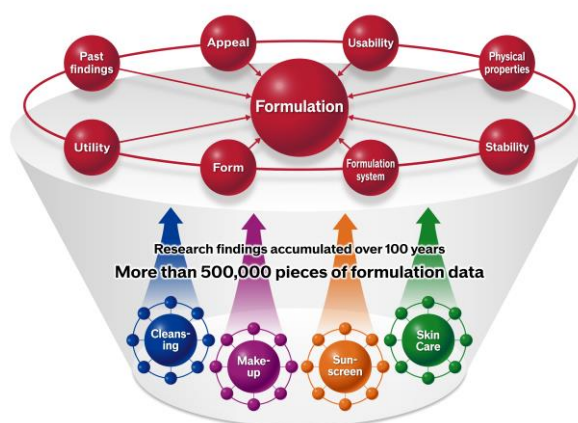

Figure 2. Formulation knowledge covering specialized research fields converted to more than half a million data points.

Features of the Formulation Development AI integrated into VOYAGER, Shiseido's Unique Digital Platform for Cosmetics Development

The formulation development AI feature integrated into VOYAGER was developed utilizing ingredient informatics[*2].

The feature of this formulation development AI is that it comprehensively covers product development data including raw material information and formulation data obtained from basic research in cutaneous science, sensory science, and formulation chemistry, as well as data related to container design (Figure 2). By employing AI technology with proprietary algorithms, Shiseido analyzes an extensive database that encompasses over half a million data points that have been passed down and refined by Shiseido's researchers with various areas of expertise, including ingredients, compounds, prototype properties and conditions, sensory experience, stability over time, and the distinctive expertise in quality enhancement. If certain data are not available, the system can predict and fill in missing information using data on various factors such as ingredients, combinations, and stability over time. This enables comparative analyses and similarity assessments across different formulation domains, such as skincare and foundations, facilitating more efficient and precise cosmetic development. Looking ahead, Shiseido plans to integrate several new functions into VOYAGER and drive its expansion to other Shiseido research centers worldwide.

*1 ITOCHU Techno-Solutions Corporation is responsible for the platform development.

*2 Ingredient informatics is based on comprehensive AI learning that incorporates not only the individual characteristics of ingredients but also data on the effects of different "combinations" of ingredients, texture, stability, etc. Since cosmetic formulas require complex formulations, learning comprehensive data, in addition to using data pertaining to the characteristics of each ingredient, will help achieve better formulation development.

Example of Use

Since its operation, numerous practical applications have emerged. One such example is the development of prototype formulations achieved by utilizing a function that searches similar formulations. This was inspired by the combination of cleansing formulation technology with skincare formulation technology. Typically, it's a significant challenge to develop a cleansing formula that provides both a dense, rich lather and a refreshing feel. However, by leveraging Shiseido's similar formulation search function that enables the integration of the company's expertise in both cleansing and skincare formulation technology, it has successfully developed a prototype formulation for a cleanser that provides a refreshing feel while maintaining a dense lather (Figure 3). This groundbreaking achievement is a result of combining different fields of expertise. It is indeed a prime example of the fusion of Shiseido's TAKUMI (artisan skills) and AI technology. From this example, Shiseido found that the introduction of formulation development AI could potentially accelerate product development that meets diverse consumer needs for various usage sensations and functions. Going forward, the company will continue to utilize formulation development AI from various perspectives, including diversifying consumer needs and social issues such as sustainability, to aim for the creation of innovative beauty values.
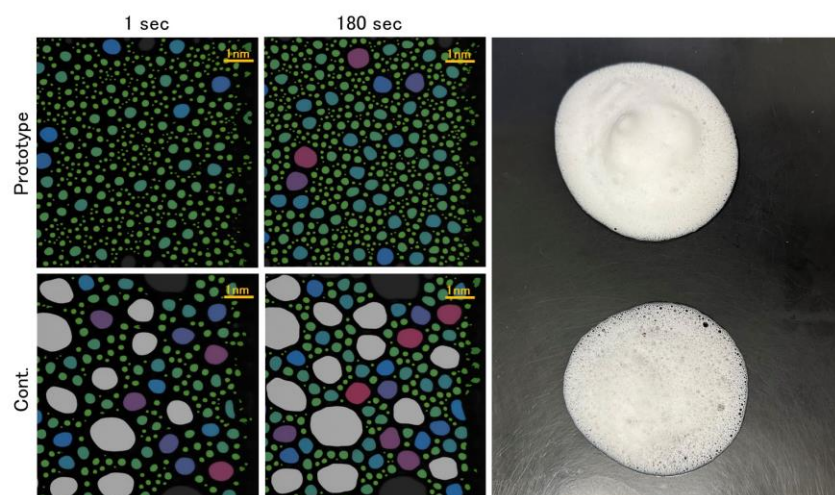

Figure 3.   A prototype formulation for a cleanser developed experimentally using the similar formulation search function has a small initial foam diameter and maintains a small diameter even over time.

Researchers' Challenges

Digital technologies and the future of research and development

Shiseido is preparing an organizational culture and environment where every researcher can break with convention, mull over ideas that lie dormant within, and take on the challenges of exciting value development. This is how the company envisions digital transformation (DX) and the future of its research and development. Digital technology is the means to support and realize such a future.

Shiseido has promoted this development in the belief that by making digital technology its ally, it is possible to allocate ideas and time to more creative and challenging work, resulting in the development of more innovative value. The existing culture, which has evolved over a long period of time, may be stimulated by collaborative creation between human beings (researchers) and digital technology. Since the company was founded, Shiseido has pursued value created by blending two contradictory worlds, Western science and Eastern wisdom, and has continued to create innovation that is a step ahead of the times. Launched this year, the AI function for developing formulas is already being used by more than 80% of Shiseido's researchers and is becoming pervasive in the company's work. Be prepared for advanced creation from Shiseido as it continues to promote innovation to create value that exceeds consumer expectations.

Hidehito Munakata Researcher

Enhancing research capabilities with AI

Shiseido has conducted many experiments and verifications for research purposes, expending considerable time and effort to gather information. This has typically left limited time to develop new ideas and opportunities to encounter the knowledge that can become a source of new value. However, now that Shiseido's vast store of accumulated research assets can be utilized through VOYAGER, it will be possible to extract diverse knowledge in less time and from a broader perspective. Not only will researchers be able to obtain the information they need more efficiently than ever before, but going forward, this will also lead to the creation of new and unique ideas that are difficult to come up with using human intelligence alone. By utilizing VOYAGER, Shiseido aims to take its research capabilities to the next level, enabling it to deliver products that offer high quality and new value to consumers.

Moemi Chida Researcher