

Press Release

Research and Development

Shiseido and NTT begin joint research to develop technology to experience the tactile sensations of cosmetics remotely

Leveraging the strengths of both companies to meet the diverse needs of each consumer to create a new shopping experience

Shiseido Company, Limited and NTT Corporation have started a joint research project to develop an innovative technology that enables users to experience the illusory haptic sensation of cosmetics through visual and auditory senses by combining Shiseido's knowledge of Kansei*¹ science research with NTT's touchless information technology.

Until now, online shopping experiences have had limited means to convey the tactile experience of cosmetics without touching the products or testers and have mostly provided information through videos and verbal expressions. Through this joint research, the value of the shopping experience will be further enhanced and new opportunities will be created that meet the diverse needs of consumer around the world at any time, regardless of time, place, language, and other restrictions by experiencing the tactile sensation remotely (Figure 1).

*1. Kansei science is an approach to product innovation that focuses on emotional engineering. Fusing aesthetics, sensory psychology, and design, it seeks to create objects and experiences that appeal to the senses (visual, olfactory, auditory and tactile) in order to arouse an emotional response in the user.

A world where the touch of cosmetics can be experienced remotely and without contact

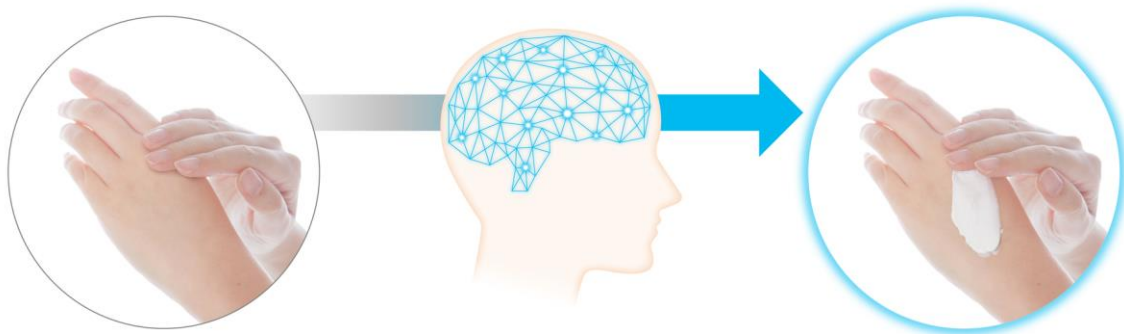


Figure 1. Collaborative research vision

Experience the tactile sensation through visual and auditory without touching the cosmetics

Background

With the rapid spread of online retail and transactions of goods and services over the Internet, many consumers are purchasing cosmetics through EC (Electronic Commerce). In contrast to today's generalization of diversified digital purchasing and experience activities, online retail environments present the challenge of not being able to directly touch and try cosmetics in the same way as in stores, such as checking the feel of delicate and diverse cosmetic products. Shiseido strives to realize a sustainable

society in which people can feel happiness by providing opportunities to enjoy the power of beauty anytime and anywhere while meeting the beauty needs of everyone. To achieve this, Shiseido is also engaged in several activities that combine research on the Kansei science, which is Shiseido's strength and uses an objective and scientific approach to elucidate subjective matters such as human senses and mind, and digital transformation (DX).

NTT is conducting research and development to create a society that can communicate and share the sensations and perceptions that people perceive in a realistic manner. In recent years, technologies that convey the softness of materials to customers without touching have been proposed*2.

The joint research was initiated as the vision of both companies and the knowledge required for new technology development were aligned.

Roles of the two companies and the core technologies to be utilized (Figure 2)

In the field of the Kansei science field, Shiseido will provide knowledge of perceptual mechanisms related to the tactile sensation of the skin*3,4, cosmetics, and formulations that produce pleasant sensations*5. NTT will provide a contactless information technology that transmits textures*6 and knowledge of tactile sensation of objects using an illusion*7.

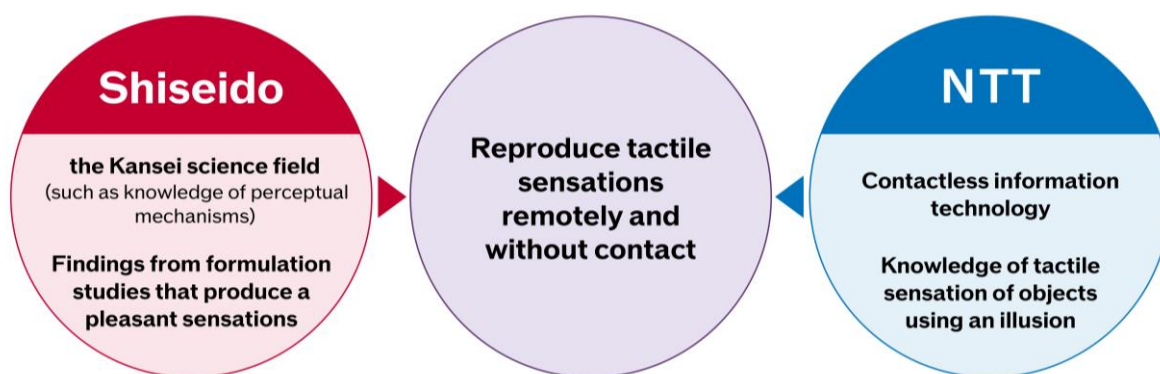


Figure 2. Joint research utilizing the strengths of both companies

Future prospects

In this joint research, the tactile sensation when a human touches a cosmetic formulation from multiple sensory perspectives such as visual and auditory will be explored, and a sensory interface that reproduces the tactile sensation of a cosmetic formulation with various senses will finally be realized. By utilizing this sensory interface, new opportunities for consumers to experience the tactile sensation even in situations where it is difficult to directly touch actual products or testers, such as online shopping will be created. By doing so, a world where it is possible to select and purchase cosmetics that meet the diverse needs and lifestyles of every individual will be created.

Comments from each company

Yosuke Tojo, Executive Officer, Chief Technology Officer, Shiseido Company, Limited

Shiseido's vision for 2030 is to become a "Personal Beauty Wellness Company" that will expand the range of skin beauty and realize personal health beauty throughout life. To this end, we are striving to create value that exceeds expectations by considering the changing and diversifying needs of consumers and social trends. We believe that this joint research will lead to the creation of new beauty experiences through sensory communication. Also, we hope that this will be a new experience that eases the feeling of isolation and meets the need for fulfillment that consumers have while the society has become more digitized and convenient. Going forward, we will continue to accelerate the creation of innovative experiences through Kansei science research, which is our strength.

**Shingo Kinoshita, Senior Vice President, Head of Research and Development Planning,
NTT Corporation**

In 2023, NTT established its new medium-term management strategy "New value creation & Sustainability 2027 powered by IOWN" and will strive to improve people's well-being through the creation of new value through technology. This requires a deep understanding of people's sensibilities and emotions in addition to conventional data-centered information processing. Shiseido is a leading cosmetic company with the corporate mission of "BEAUTY INNOVATIONS FOR A BETTER WORLD" and possesses outstanding knowledge and technology related to people's sensibility and emotions. We are very pleased to be able to collaborate with Shiseido on research and development to realize our shared vision.

Other Information

*2. Kawabe, T. & Ujitoko, Y. (2023). Softness perception of visual objects controlled by touchless inputs: The role of effective distance of hand movements. IEEE Transactions on Visualization and Computer Graphics.

<https://doi.org/10.1109/TVCG.2023.3254522>

*3. Shiseido independently develops two types of devices that realize highly accurate tactile evaluation (2021)

<https://corp.shiseido.com/en/news/detail.html?n=00000000003181>

*4. Shiseido reveals that physical properties of applied cosmetic film affect skin softness perception (2020)

<https://corp.shiseido.com/en/news/detail.html?n=00000000002983>

*5. Shiseido succeeds in developing ingredient that is rich in texture and smooth in application (2019)

<https://corp.shiseido.com/en/news/detail.html?n=00000000002744>

*6. Presenting Material Properties with Mid-air Pseudo-haptics

https://www.rd.ntt/e/research/JN202101_9679.html

*7. HenGenTou (Deformation Lamps): A magical lighting system to produce illusory movements in static photos and paintings (2015)

<https://group.ntt/en/newsrelease/2015/02/17/150217a.html>

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