

HOMETACT: The Cutting Edge Smart-home Platform in Japan

Yoshihiro Tachibana

Director
Residential Business Planning Dept.
Mitsubishi Estate Co. Ltd.



1. Introduction —What is HOMETACT? —

The HOMETACT integrated smart-home service was announced in November, 2021, consisting of a system side that includes TACTCORE, an IoT platform for real estate management business, a HOMETACT application and TACTBASE, a management portal function. It also has integrated smart-home user support, which includes equipment and configuration services and a call center (Figure 1). System development and platform operation is handled by Mitsubishi Estate. It is built to be reliable, with integrated service support

through collaboration with enterprises such as the Bic Camera Group, it integrates smart-home related services that were previously fragmented by device or solution, and is provided as a single package (Figure 2). As of November, 2021, many manufacturers were participating, including home equipment manufacturers such as Rinnai and IoT device manufactures in Japan and overseas. The HOMETACT ecosystem is expanding rapidly, with further collaborations to be announced in the future.

2. Why smart-home technology is not penetrating the residential space in Japan

Currently, HOMETACT is gradually being introduced into Mitsubishi Estate’s “The Parkhabio” series of leasehold condominiums. Since the press release, there has been a strong reaction, including discussion initiated with many manufacturers of residential equipment and IoT devices and inquiries from many other developer companies in our own industry who are considering adopting the system. As background to this response, there are several obstacles to introducing smart-home technologies in the residential space in Japan.

HOMETACT aims to eliminate the following obstacles to introduction of smart-home technologies: (1) Applications for using it are fragmented and they cannot be operated together (multiple applications assumed), (2) It is difficult for users to install and configure themselves (installation hurdles are high), and (3) User services such as call centers and emergency support are not well developed. HOMETACT truly removes these barriers, and aims to spread smart-home technology broadly in Japan. Being an integrated developer and having a strong sense of these difficulties are important factors that have enabled us to develop HOMETACT. The fact that we have received inquiries from other companies in this industry also suggests that this service addresses some of the pain points felt in the real-estate industry. To encourage penetration of smart-home technology in the Japanese market, it is extremely important that services are easy for developers to adopt. A new approach that meets new customer needs and is different than existing Home Energy Management Systems (HEMS) is critical.

This article describes the strengths and extensibility of this service as an IoT platform and its user-interface and user-experience (UI/UX) design, starting with how HOMETACT came to be developed, and then touches on HOMETACT’s goal of becoming the “new residential-space infrastructure.”

Figure 1: HOMETACT platform overview

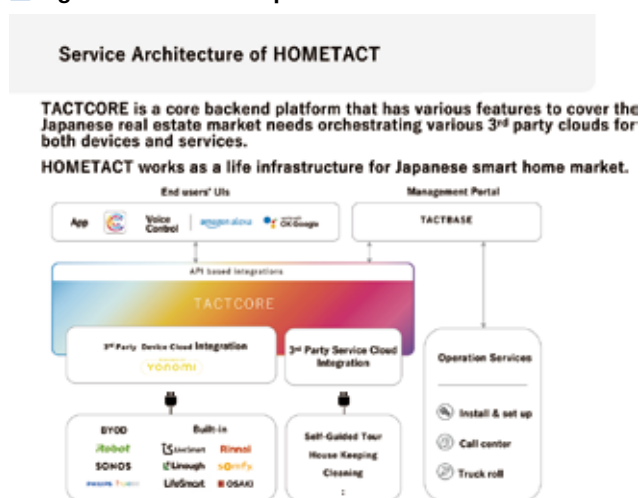


Figure 2: HOMETACT service provision organization



3. History of HOMETACT development

As background to Mitsubishi Estate starting to develop an IoT platform as an integrated developer, we go back to June, 2018, when the “Mitsubishi Estate Residence Club” membership organization was launched. Initially, as the person in charge of promoting the project, I was working on the large project of integrating Customer Relationship Management (CRM) for each of the companies in our Residential Business Group with the existing member organizations, which were separate. After the launch, however, developers felt that the system’s content capabilities were limited in terms of “building a digital customer contact point.” Developers had initiatives to expand opportunities for providing real-estate services such as renovations and agency for buying and selling, to advance marketing with various sales promotions, and to build customer loyalty (i.e. holding events, presentations, etc.). To build a stronger customer contact point, they felt a need for a digital system able to connect with customers at a more basic, lifestyle level. Around 2017, we began seriously considering introducing smart-home technology universally, prompted by our interest in using smart locks as a customer contact-point, but this beginning encountered many issues. At the time, recognition of smart locks was very low compared to now, and there were concerns that we no longer face (although some hold deep-seated biases), such as “it seems dangerous,” “a real key would be safer,” and “what if it got hacked.” As such the hopes of the aforementioned Mitsubishi Estate Residence Club and Mitsubishi Estate properties, to introduce and collaborate on smart-home functions in our properties, did not come true.

4. Collaboration with YONOMI, Inc., including American market survey

However, it became clear that the image of using smart locks and smart-home systems as a digital customer contact point was increasing day-by-day, and market studies continued after the Mitsubishi Estate Residence Club was established. In 2019, smart-home market surveys in the USA had become established. It was there that we encountered YONOMI, Inc., which was providing a cloud-based IoT platform specializing in smart-home technology.

There are many smart-home platform developers in the USA, but the particularly unique point with YONOMI, Inc. is that, rather than developing their own applications, they provided developers with know-how and an environment (service) able to connect with a wide range of devices, like the YONOMI ONE IoT collaboration platform. It provides IoT device API control for implementing automation that others do not allow easily. The shock when I first saw multiple manufacturers’ IoT devices operating together in their offices is unforgettable. It convinced them that “this is essential technology for implementing UX not seen before in Japan,” and triggered the start of more collaboration.

In that moment, the established notion of smart-home technology in Japan, which did not go beyond simple operations

through an infrared remote control and could only achieve space productions such as lighting using high-end, wired devices, was smashed resoundingly. Thus, the HOMETACT project came to life based on the theme of “Producing new smart-home experiences in Japan through API collaboration.”

5. Start of negotiation toward API collaboration with manufacturers in Japan

YONOMI, Inc. is expanding collaboration with many major international manufacturers of IoT appliances and devices that already announced collaborations with HOMETACT, including Philips Hue, SONOS, and Roomba, the robot vacuum cleaners from iRobot Inc., and we expect such collaborations to continue to expand in the future. This is an extremely important aspect for HOMETACT extensibility in the future. It will be important for the company to build a network for API collaboration with major Japanese device manufacturers, to utilize this strength in the future.

As you know, there are still few examples of platform or device API collaboration among domestic manufacturers in Japan, and when we actually began negotiations, several major manufacturers refused for various reasons such as, “we cannot move forward on providing an API,” or “we have not adequately organized our API.” In spite of this, HOMETACT has currently announced collaboration with several manufacturers, who sympathize with the HOMETACT vision of “creating new smart-home experiences in Japan through API collaboration,” and we have a history of promoting joint development through steady collaborative effort (Figure 3).

■ Figure 3: HOMETACT supported devices/participating company list



So why did domestic and international manufacturers approve API collaboration and decide to participate with HOMETACT? It became clear in discussion with each manufacturer that their real intention was to increase use of their IoT devices. Although each manufacturer was building cloud services and developing applications, provision of these products was scattered and ultimately, user registration rates were low and in many cases the functionality they had created was not being used.

Manufacturers were not able to obtain adequate usage data either, and they were not able to expand potential business models utilizing IoT. Of course, developers using the devices also could not get feedback on user satisfaction, so in many cases users did not continue using the IoT devices. In fact, the smart-home market in Japan was caught in a negative spiral.

With HOMETACT, users simply log in, and they can immediately start using the IoT devices already installed and configured in the residential space. By using “Scenes” and “MyRules” as described below, they can configure their smart home as they like within a matter of minutes. We do not think a better UX exists from a user perspective. It has been implemented at HOMETACT Lab Akasaka (a laboratory providing experience of HOMETACT device linking and space production—details below) and in our Group properties (The Parkhabio series of Mitsubishi Estate Residence leasehold apartments), and provides a smooth home-automation experience like never before. The following sections describe “Scenes” and “MyRules” supporting home automation, which are key features of HOMETACT.

6. Get familiar with home automation using “Scenes” and “MyRules”

HOMETACT has two functions: “Scenes” and “MyRules”; that form the core of home automation.

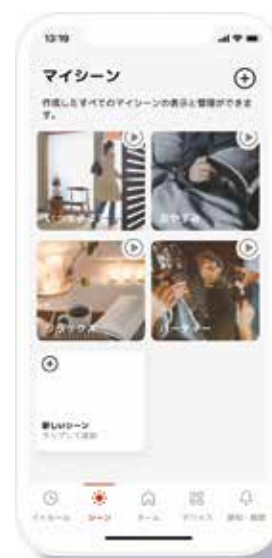
As its name implies, a “Scene” is a function that allows simple linked control of IoT devices for a scenario in everyday life, such as “Good morning,” “I’m going out,” “I’m home,” or “Relax mode.” With HOMETACT, residents can freely combine “installed devices” that were provided with their apartment with “bring-your-own devices” that they have purchased, such as SONOS Wi-Fi audio speakers, Philips Hue smart lighting, or a Roomba robotic vacuum cleaner, and configure linked operations easily. In addition to operation from the app, Scenes can also be initiated with a voice operation, by linking with Google Assistant or Alexa.

A “MyRule” adds a trigger (condition) to device operations without requiring an app or voice command, such as “When I arrive at the nearest train station in the evening, turn on the air conditioner cooling, start the bath, and turn on the lights and music,” (using the smartphone location and time as the trigger) or “Open the curtains and start the air conditioner cooling at sunrise” (starting multiple devices triggered by sunrise). This function is what implements “real” home automation (automated control). Compared with “Scenes”, which can control groups of IoT devices for a given scenario in daily life, “MyRules” are for somewhat more-advanced users, but they are very effective for blending the smart home into the user’s own life.

During the service launch, we considered including preset Scenes and MyRules (for example, creating a typical “Good Morning” setting, etc.), but when we conducted user testing, younger participants in particular were able to create their own within one or two minutes, even without explanation, so we

decided to provide the service without presets and assume users would create their own freely. For both Scenes and MyRules, users can select behaviors of the associated device intuitively (Figure 4), and there is no need to jump to the apps provided by each manufacturer. A major feature of HOMETACT is that all configuration can be completed within it.

■ Figure 4: Concept screen-shot of a “Scene” list



In considering the HOMETACT UI/UX, we also designed the operation buttons for each device to be simple and minimized the linked functions as much as possible. For example, a hot-water heater remote control has a simple one-button design with a bathtub icon beside it to fill the bath automatically, which is the button that we would push each day (Fig. 5). Each device operation button is separated into a title and detailed functions (two or three levels), but supporting every function provided by the manufacturer could be confusing for users, so we did not hesitate to pare down the linked functions to make function selection easier for users when creating Scenes and MyRules as described above. Although manufacturers put effort into creating their function set, they tend to include functions users will not use. To design the HOMETACT UI/UX from a user perspective, we also collaborated with a team from an overseas design firm, and we have had success with this type of implementation.

Of course, this UI/UX needs to be improved constantly. Often in Japan, application services are not updated after they have been launched, but users interact with their smart homes every day so there is much feedback that must be collected carefully, and an agile organization for improving functionality is essential. It is now almost one year since the service began and we have been issuing monthly updates of varying size to continuously improve the service.

■ Figure 5: Concept screen-shot of Rinnai “Bath remote control”



7. Next generation space infrastructure

HOMETACT is currently being provided as a smart-home service focused on home automation, but it can also provide solutions to various social issues in the smart-home domain.

One such area is extensibility in the field of real-estate tech. There is little need to explain linking with smart locks as digital transformation (DX) for real-estate management work. The inefficiency of managing physical keys is a heavy burden on management companies, so use of smart locks is spreading as companies work seriously on DX, and this is definitely a factor in the increasing popularity and use of smart locks. HOMETACT implements linking with smart locks, which enables developers and real-estate management companies to increase property value and customer satisfaction with smart-home technology, and it can also be used for DX of management work. The global trend toward smart locks is already irreversible, so we can expect it to continue to increase. Combining smart locks and smart-home technology is also already becoming main-stream as a new residential device in the USA. HOMETACT can also link with the Linough Inc. “Smart Preview” service, which supports un-staffed previewing of properties, so by using HOMETACT with that company’s smart lock (Ninja Lock M), management companies can support keyless management and previews.

A second area is as an point of entry for lifestyle-related services. Smart-home technology can make life more convenient with home automation, but it can also have the role of connecting with lifestyle-related services within the home. For example, a smart lock could be used to allow lifestyle-related services to enter the home, such as for deliveries, for domestic help, or for nursing care visits, and could provide opportunities for services such as

monitoring or health care for users (residents), based on data detected by sensors and other devices.

Lifestyle-related services using IoT, like those described above, will continue to spread, and considering that both hardware and software IoT support will be needed in the residential space in the future, developers providing residential spaces will not simply be required to install the latest devices and appliances, it will be important for them to introduce services that have ongoing expandability in software. As software in the residential space, HOMETACT is driving extensibility within the home by expanding API linking with lifestyle-related services.

A third area is linking with the energy-management domain. So far, HOMETACT has expanded its ecosystem with API linking, but we are also considering linking with ECHONET Lite, in anticipation of linking with Home Energy Management Systems (HEMS) in the future. The trend to reduce CO2 emissions is recently considered to be an urgent issue by developers, and user awareness of ecological issues has increased dramatically, so contributing to reducing CO2 is recognized as an extremely important theme in this domain. We have received a range of industrial and academic support in studying this theme, and as a company, we are working hard in this area to spread HOMETACT as lifestyle infrastructure in the residential space for the future.

8. Conclusion — Building an ecosystem —

We have described HOMETACT from various perspectives, and we hope that if you are an organization or enterprise desiring to spread smart-home technology, you will make full use of HOMETACT. Even internationally, it is very rare to see developers starting smart-home platform services, and to the contrary, one could say that the Japanese market has been instrumental in establishing such services. To develop the smart-home market in Japan, we cannot depend on the conventional approach, in which developers combine and assemble functions that manufacturers develop in fierce competition. A new ecosystem must be built with collaboration among developers, manufacturers and lifestyle-related service providers, as has been put into practice with HOMETACT. To do so, collaboration among industry, government and academia will also be essential, and we plan to continue developing HOMETACT as next-generation lifestyle through many and various types of collaboration.

[Reference: HOMETACT installation example]

Installation is complete on three Parkhabio Series properties: The Parkhabio Yoyogi Hatsudai, The Parkhabio Azabu Juban, and The Parkhabio Koishikawa.

■ The Parkhabio Yoyogi Hatsudai**■ The Parkhabio Azabu Juban****■ The Parkhabio Koishikawa****[HOMETACT Tours]**

Reservations are required for the “HOMETACT Lab Akasaka” showroom, where HOMETACT can be experienced (in the Mitsubishi Estate Home Akasaka Housing Gallery, Tokyo, Minato-ku, Akasaka 7-5-5). This is a laboratory where people can have a smart-home experience like never before, as described in this article. For a tour, please do not hesitate to inquire as indicated below.

■ HOMETACT Lab Akasaka

Inquiries: Yoshihiro Tachibana, Residential Business Planning Dept., Mitsubishi Estate Co. Ltd.
smarhome@mec.co.jp