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## *Special Feature*

### **ICT and End-of-Life Planning**

Manual for Handling Digital Assets Left by the Deceased

— Digital End-of-life Planning to Eliminate Problems When the Time Comes —

New Experiment in Preparing a Goodbye Gift

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### About ITU-AJ

The ITU Association of Japan (ITU-AJ) was founded on September 1, 1971, to coordinate Japanese activities in the telecommunication and broadcasting sectors with international activities. Today, the principle activities of the ITU-AJ are to cooperate in various activities of international organizations such as the ITU and to disseminate information about them. The Association also aims to help developing countries by supporting technical assistance, as well as by taking part in general international cooperation, mainly through the Asia-Pacific Telecommunity (APT), so as to contribute to the advance of the telecommunications and broadcasting throughout the world.

# Manual for Handling Digital Assets Left by the Deceased

— Digital End-of-life Planning to Eliminate Problems When the Time Comes —



ISEDA Atsushi

Japan Digital Shuukatsu (End-of-Life Planning) Association Representative

## 1. Introduction

In Japan, a declining birthrate and aging population is intensifying at a speed unprecedented in the world. The country is already a super-aged society (a society in which the ratio of elderly persons aged 65 years or older is greater than 21%) with its ratio of elderly persons to the total population reaching 28.1% in 2018.

Against this background of a super-aged society, the expression “end-of-life planning” has come into popular use to describe the making of advanced preparations or the putting of one’s affairs in order mostly by elderly people before one’s life comes to an end. Indeed, end-of-life planning has become a social phenomenon in Japan centered about the elderly. Given the declining birthrate and aging population, parents are increasingly saying, “I do not want to be a burden to my children,” and they are now less likely to live with their children and to have opportunities for exchanging information. These developments all lie behind increasing concerns about “end-of-life planning” in society.

In this way, it can be said that Japan, as a country that has clearly become a super-aged society, is seeing the gradual formation of a culture that anticipates and prepares for “death” in the form of “end-of-life planning” (at the same time, while the need for end-of-life planning is recognized, there are still many people who find the topic of death too difficult to handle and who cannot take the first step in making preparations).

Up to now, end-of-life planning has generally focused on matters associated with the funeral, gravesite, and inheritance. However, with the spread of digital devices such as personal computers and smartphones in the wake of the Internet boom, the issue of “digital assets” is attracting increased attention as they can pose problems when the user of a digital device dies.

In this article, I would like to explain what the term “digital assets” means with a focus on pre-death measures (end-of-life planning). I point out here that the processing of digital assets is a problem that becomes entangled not only with the inheritance system of each country but also with the legal system itself with respect to digital assets. Recent years have seen a growing movement in enacting or legislating laws in relation to digital assets in a variety of countries such as the Fiduciary Access to Digital Assets Act (FADAA) in the United States, but there has been no such legislation in Japan as yet. Given the inheritance system in Japan, I would here like to consider what kind of pre-death measures could be taken (end-of-life planning) in Japan where no legal system in relation to digital assets exists.

## 2. What are Digital Assets?

### 2.1 Definition and types of digital assets

Here, to differentiate from ordinary articles left by a deceased person, I would like to define a digital asset of a deceased person as “an intangible thing that can be understood, for the most part, only via a digital device.” Now, on the basis of this definition, digital assets can be divided into two types in terms of properties: offline data and online data.

Offline data, as the word “offline” implies, is a digital asset that can be understood or processed without relation to an Internet environment, or in other words, “data.” In more concrete terms, offline data can be thought of as a Word or Excel file stored on a personal computer or photos taken with a smartphone.

On the other hand, online data, as the word “online” implies, is a digital asset that assumes an Internet environment to be understood or processed, and in this sense, is an “account.” Specifically, online data can be thought of as an account on an Internet service such as a social networking service (SNS), Amazon, etc.

### 2.2 Inheritance of digital assets

#### (1) Introduction

Before I explain how digital assets should be handled, I would first like to describe how digital assets are inherited in the first place. Furthermore, as described below, it must be kept in mind that processing in relation to inheritance is completely different between offline data and online data.

#### (2) Inheritance of offline data

##### A Legal considerations of inheriting offline data

To begin with, can offline data be inherited? The answer is “no.” This may come as a surprise, but being digital data, no ownership or other property rights are recognized for offline data, so it is not, as a consequence, a target of inheritance.

I will explain this in detail below (the following includes somewhat specialized content and may be skipped if so desired).

First, from the perspective of Japan’s Civil Code, the object (target) of property rights including ownership is limited to tangible entities (things that occupy a part of space whether they be a liquid, gas, or solid). In short, no property rights including ownership are recognized for anything that is a not a tangible entity.

In this regard, it cannot be said that offline data (so-called

“data”) is a “thing that occupies a part of space,” so it is not a “tangible entity” (but rather an “intangible”).

As a result, property rights including right of ownership to offline data cannot be considered and any heirs (family of the deceased) cannot inherit ownership of the deceased’s offline data. (I here omit discussion on intellectual property rights.)

## **B Processing of offline data**

Now, given that the family of the deceased (heirs) cannot inherit offline data, can they process that data? The answer is “yes.” However, given that rights to offline data are not recognized and that offline data is therefore not the target of inheritance as explained above, why then is the family of the deceased able to process offline data itself? Constructing a theory to explain this presents a problem.

In this regard, while conceptualizing (creating) a new right similar to property rights can be considered, this problem can be solved by existing inheritance practices. I will explain this below.

Since offline data is stored in the memory portion of a digital device, it has no independent existence without that digital device. The offline data and digital device can therefore be called an integrated entity. Consequently, if it is understood that the owner of that digital device can process or handle any digital data (offline data) within the device, the problem that no one may handle that offline data can be avoided.

Furthermore, since it is quite rare in a will to prepare an article stating which persons will inherit which digital devices, then, in the absence of any wording to the effect of “all other possessions will be inherited by so-and-so,” each digital device will enter into a shared state among the heirs if no legacy division conference is held. As a result, it can be said that each heir can access that digital data on the grounds of Article 249 of Japan’s Civil Code.

## **C Summary**

No ownership rights are recognized for offline data, and it is therefore not a target of inheritance. However, it can be said that offline data in each digital device can be handled as desired by inheriting digital devices storing offline data.

## **(3) Inheritance of online data**

### **A Rights of online data**

In contrast to offline data, online data assumes the existence of an Internet environment as well as that of a third party. In other words, online data can be thought of as a relationship between a service provider and a user, which, in reality, is none other than a “contract.” This means that online data should be the target of inheritance in the usual sense.

### **B Online data and exclusive nature**

However, the presence or absence of “exclusive nature,” while not much of a problem in ordinary inheritance processing, is a problem in the case of online data. I will explain this below.

To begin with, “exclusive nature” is a property by which rights or obligations belong to an individual and are not transferable to a third party (including an heir) thereby excluding them from inheritance. An example that should clarify this property is the right to receive social benefits.

In general, the content of an Internet service account (contract) is specified in the user agreement for each service.

Most Internet services, moreover, include statements of the kind presented below in which contract content assumes an exclusive nature.

Consequently, if an exclusive nature as described above has been specified in the user agreement, that account (contract) is something that cannot be inherited.

## **C Summary**

Since online data is, in essence, a “contract,” it can be treated as a target of inheritance, but if the content of that data is judged to have an exclusive nature, it falls outside the scope of inheritance. Caution should therefore be taken in the case of online data.

## **3. Pre-death Measures for Digital Assets (Digital End-of-life Planning)**

### **3.1 Need for digital end-of-life planning**

#### **(1) Introduction**

Pre-death measures are essential in the case of digital assets. I will explain the need for digital end-of-life planning below.

#### **(2) Characteristics of digital assets**

I defined a digital asset of a deceased person as “an intangible thing that can be understood, for the most part, only via a digital device.” In short, if the inside of a digital device cannot be accessed and its content checked, it would be difficult to determine even the existence of that content.

At the same time, recent digital devices come equipped with a “password lock function” as standard. This function requests a previously set login password when someone attempts to gain access to a digital device thereby preventing a third party other than the user from accessing the content of that device.

It is not uncommon for a user of a password lock function to refrain from conveying that password to anyone else. Consequently, there are a very high number of cases in which a digital device cannot be accessed even if the device itself can be found.

#### **(3) Lack of a legal system surrounding digital assets**

There are no laws at present describing how to handle digital assets for protecting heirs, which means a situation with no legally established benefits in the case of digital assets.

Moreover, as for the accounts (the content thereof) of users of Internet services, there are not even self-imposed regulations by industry organizations, which means a situation in which the handling of such accounts relies on the discretion of each business operator.

#### (4) Importance of digital assets

In modern society, digital devices have made deep inroads into our daily lives. In fact, it is no exaggeration to say that a person could live their life with a single smartphone.

On the other hand, important information has come to be stored with digital devices. This important information in its entirety becomes “digital assets” on the death of the user.

The processing of digital assets looks to increase in importance from here on.

#### (5) Summary

As described above, the characteristics of digital assets are such that it can be extremely difficult to specify their existence without being able to gain access into that digital device. On the other hand, though password functions are installed in key digital devices and used by many people, the situation is such that access cannot be gained into a digital device when that need arises if no password is available to a third party such as the user’s family.

In addition, a legal system in relation to digital assets has yet to be legislated in Japan, so no means of relief exists if problems should arise with digital assets. At the same time, the processing of digital assets looks to become increasingly important in the years to come.

As a result, digital end-of-life planning is essential as a means of self-protection.

### 3.2 Specific methods for digital end-of-life planning

#### (1) Password sharing as the first thing to do

In digital end-of-life planning, the first thing to do above all else is to share one’s login passwords for each of one’s digital devices. This is because the capability of gaining access into a digital device significantly raises the possibility that the family of the deceased will notice the existence of the deceased’s digital assets.

However, while some people have no problem with informing someone else about their passwords just in case something should happen to oneself, the reality is that there are many people who do not want to share their passwords while still alive.

With this being the case, I recommend that the following methods be considered.

Method 1: Prepare an “ending note” (similar to a living will) and give it to one’s family

To begin with, we can consider the preparation of an ending note that includes the passwords of all of one’s digital devices. This ending note should then be placed in an envelope and sealed, and instructions should be left to one’s family to open the envelope if anything should happen to oneself.

An important point here is that, if the envelope should then at some time be opened, the situation with those digital devices can be easily understood, so some form of after-the-fact measures can be taken.

#### Column

### How to deal with data that you do not want others to see

On the one hand, there is a data in your personal computer or smartphone that should be passed on, but on the other, there is data that you do not want your family to see for a variety of reasons.

In the case of data not meant for others’ eyes, there are many people who simply say, “Just destroy all of your computers and smartphones.” However, it is also said that sacrificing data that should be passed on and destroying your digital devices is not only unrealistic but a huge loss as well.

If you have data that you do not want your family to see, I recommend that you ask them to physically destroy that data through a data erasure (data wipe) process on each hard disk after clearly specifying the data that you want to save and pass on to them (no doubt the readers of this article have a variety of technical knowledge in this regard). It could be argued that doing such a thing will arouse suspicion, but building human relationships with your family so that you can request such a thing and carry it through is part of digital end-of-life planning. It should be kept in mind that there is an “analog” aspect to digital end-of-life planning involving such human relationships with one’s family members since they are also obliged to perform some processing.

However, a disadvantage of this method is that the contents of those digital devices can be easily seen, so there are no doubt many people who would have absolutely no desire to use this method.

Method 2: Prepare a piece of paper listing each password and make it noticeable to one's family after death

The next method that should be considered is to prepare a piece of paper listing each password with an ending note included. Then, instead of passing the paper to one's family beforehand, it should be placed in a wallet or purse, bankbook, etc. that would probably be checked by one's family after one's death thereby making it noticeable to them at that time. Here, using pasteboard with the size of a credit or debit card should make it easy for a family member to notice.

However, compared with Method 1 above, the possibility of discovering such an item beforehand is low but not zero. To therefore lower the possibility of being discovered to the utmost limit, a method that places that paper in a bank safe-deposit box can be considered. However, care should be taken in this case since having one's family learn about one's passwords in a timely manner may be difficult since inheritance procedures must be firmly followed.

Method 3: Using other services

Recent years have seen an increase in software and web services related to digital end-of-life planning. The use of such services can be viewed as one approach to end-of-life planning.

## **(2) Measures that should be taken for offline data**

If, at minimum, one's computer and smartphone login passwords are shared, then the family of the deceased can check the contents of those devices and understand to some extent the nature of any digital assets.

In the end, however, this simply means that the inside of the deceased's digital devices can be accessed—it does not guarantee that any data that needs to be passed on will be transferred in a timely manner. It can be said that searching through data on the digital devices of another person is extremely difficult for the family despite being "family." This is because it is difficult for a third party to understand how the deceased organized and used what types of files.

For this reason, if one has time to spare, the family should be informed not only of passwords but also of the storage locations of data that the family will likely need when the worst happens (for example, information in the form of "folder with the name OOO on the desktop" could be provided). It would also be a good idea here to clearly indicate how each set of data should be processed (for example, this information could take the form of "I need the data in this folder to be passed on to client X (telephone number 090-XXXX-XXXX)"). This approach is particularly essential if the data used in one's business exists on one's digital devices since that data should be passed on as soon as possible after one's death. I would like managers of small and medium-sized businesses and sole proprietors in particular to give these measures special attention.

## **(3) Measures that should be taken for online data**

In the case of Internet service accounts, that is, online data, several dozens of contracts can be considered even for one individual if we include temporary accounts.

While it is not necessary to comprehensively process all such online data, accounts related to property (financial institutions such as Internet banks and online brokers, cryptocurrency exchanges, etc.) and accounts that charge fees should be handled in such a way that they can be reliably passed on to heirs or cancelled. As for the former, the names of the financial institutions in question and any methods for processing cryptocurrency (since there are probably many cases in which the family of the deceased has never used cryptocurrency) should be shared, and for the latter, IDs and passwords should be fully shared.

Additionally, I would recommend that one think about the way in which accounts with SNSs such as Facebook are to be handled after one's death (such as whether to use a memorial account).

## **4. Problems with Digital Assets**

### **4.1 Introduction**

The following describes problems that can occur if no digital end-of-life planning is performed as pre-death measures.

### **4.2 Unlocking the password lock on a digital device**

While it is desirable if passwords can be shared between the deceased and the family of the deceased through digital end-of-life planning, not doing so means that the family will not be able to access the inside of the digital devices of the deceased.

In such a case, the family can request a company specializing, for example, in data restoration to unlock any password locks. The table can be used as a reference for such purpose.

Compared with smartphones, password locks on personal computers can be unlocked (data can be restored) at a relatively low price with a high probability of success. This being the case, it would probably be best to leave data needed by the family on a computer rather than on a smartphone.

On the other hand, the flip side of enhanced security on smartphones is a low probability of success in unlocking passwords and a high price for doing that. In addition, there are many cases in which the deceased opted for a smartphone equipped with a security function that initializes the data on the device (wipes the data clean) if the wrong login password is entered more than a certain number of times. Consequently, while there is no problem in particular with the family of the deceased trying to guess the password to a certain device from the deceased's birthdate, for example, they should stop doing so if they fail two or three times in a row and think about requesting the services of an appropriate business. Note that when a function like the one described above is being used, failing to guess and input the correct password any number of times may, in the end, lower the probability of

successfully unlocking the login password lock.

#### 4.3 Problems with online data

##### (1) Introduction

In the case of Internet service accounts, determining the existence of online data is extremely difficult if it cannot be searched for inside of a digital device.

I would now like to introduce problems that have occurred when online data could not be passed on.

##### (2) Inheriting services of Internet financial institutions

The existence of accounts with Internet financial institutions (in particular, online brokers) is also entwined with establishing a comprehensive listing of the estate in inheritance proceedings, and as such, it is said to be a serious problem that can create difficulties in inheriting assets.

Additionally, if the deceased had been involved in foreign exchange (FX) transactions, significant fluctuations in the exchange rate could require the family of the deceased to make an additional margin deposit. (In one actual case, the family was required to deposit about one million yen.)

It is fine if the deceased had previously talked about trading stocks through an online broker, but it often happens that FX transactions are kept hidden from the family, so there are many cases in which such accounts had been established unknown to the family.

It can therefore be said that checking for the existence of online brokerage accounts is an absolute necessity for the family.

In this regard, it may be possible to identify any securities trading accounts of the deceased by making a request for disclosing registered subscriber information to the Disclosure Request Business Center of the Japan Securities Depository Center (JASDEC), so using this service should be considered.

##### (3) Internet services for business use

It appears that opportunities for using Internet services for business use have been increasing in recent years, and that many sole proprietors in particular have been contracting and using such services on an individual basis.

If it happens that the deceased had used such a service, it must be kept in mind that the account in question may not be transferable to the family because of its exclusive nature. For example, given that a contract had been made with a certain cloud service and data needed for business had been stored on the cloud, if the account then disappears due to the death of the user, it's possible that that data will never be retrievable again for business purposes.

For this reason, when using an Internet service for business purposes, a necessary measure to take is to store that data locally (offline) labeled with the name of the company.

In addition, there are many Internet services that will treat the data of a deceased user as exclusive in nature and process

it accordingly even if that data had not been used for business purposes. Consequently, when entering into contracts on an individual basis, it is advisable to check carefully whether any data can be passed on if anything should happen to oneself.

## 5. Conclusion

Most people on hearing the words “end-of-life planning” are likely to say, “It’s still too early for that!” and put off dealing with it until later.

They say, “I’m not going to die tomorrow, so tomorrow is fine to start planning,” but “tomorrow” keeps coming and going, and the day one one’s death is sure to come. “I should have taken care of this earlier!” ..... One day, it may be too late for regrets.

Before thinking about how to plan for one’s funeral, arrange for one’s gravesite, and other troublesome things, I would like you to put aside just ten seconds right now. Take a pen and write down your computer and smartphone login passwords on a piece of paper and give it to your family.

My sincere desire in writing this article is to eliminate the difficulty in dealing with digital assets for everyone.

### Cover Art



**Shinrei Yaguchi no watashi**

Utagawa Toyokuni III (1786~1865)

Collection of the Art Research Center (ARC)  
Ritsumeikan University  
Object number: arcUP2851

# New Experiment in Preparing a Goodbye Gift



**Jun Inoue**  
Chief Producer

Production 2, Tohokushinsha Film Corporation

## 1. Introduction

Tohokushinsha Film Corporation exhibited a prototype of TRUE MEMORY, a space-recording service using an interactive 360° movie format at South by Southwest (SXSW) in Texas, U.S.A in March 2019 and at CONTENT TOKYO, Japan in May 2019. This service records cherished memories associated with the rooms of a house in the form of video, audio, and images and stores those memories in Virtual Reality (VR) space. More than just watching 360° video, you can click on objects in the room to view, for example, your mother's recipes on a kitchen shelf or your father's book collection, or listen to the music that you enjoyed listening to. In this way, you can experience an entire house and its memories at your fingertips.

This is an experiment in using today's digital technology to meet the demand for new forms of end-of-life planning in an aging society as more people come to concentrate in urban areas away from their parents' homes.

## 2. Overview

This space-recording service begins by capturing an overall view of home interiors such as the living room using omnidirectional cameras. Much like the movies of Yasujiro Ozu

(a renown Japanese director known for his natural yet beautiful depiction of family scenes), everyday scenes unfold such as a mother preparing meals and a father enjoying those meals while engaging in casual conversation. These scenes are captured in 360° video, so the user can orient the view in the direction desired. In addition, the spaces shown include markers that can be clicked to view additional information. For example, clicking on a marker hovering above a kitchen shelf brings a New Year's recipe into view. Such markers can be seen at various locations within a room, coinciding, for example, with a shelf holding a DVD player or a framed picture or photo on a desk or wall.

The user can also move freely from one room to another. When moving, a point-of-view shot is inserted using normal video instead of a 360° view enabling the user to have a simulated experience of walking freely throughout the home.

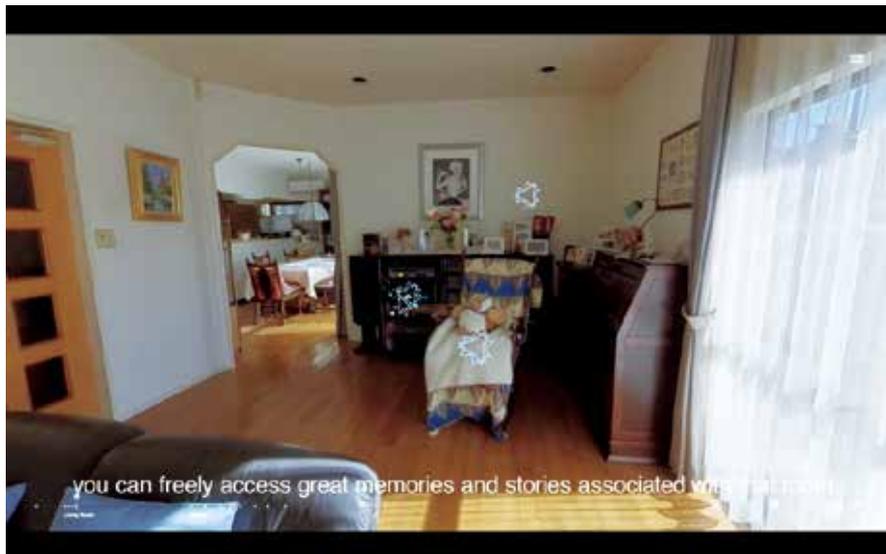
The end result is a picture book of memories in which all sorts of things become photos, audio, and video that can be selected at any time using the VR portion of a 360° view similar to a table of contents.

As for output, the VR video can be operated interactively. Moreover, to enable the entire family to experience these memories in the comfort of their living room, attention was given

■ Figure 1: Expanded view of 360° video of living room



■ Figure 2: 360° video of living room (showing clickable blue markers)



■ Figure 3: Mother's recipes  
(click on a shelf in the kitchen to view)



■ Figure 4: Usable devices



to enable viewing on a personal computer, television, smartphone, or tablet. In other words, the design of this service did not assume the use of head-mounted displays (although viewing by VR goggles is possible).

### 3. Shoot, Process, Implement

For this project, a 360° view of each room was captured by an Insta360 Pro 2 VR camera as 8K VR (7680 × 3840) video. In addition, a FUJIFILM X-T3 camera was used to capture all inserted video depicting movement between rooms and a Steadicam system was used to achieve smooth indoor movement.

Captured material consisted of video footage captured with six cameras that requires a stitching operation to achieve a 360° view.

However, if a smooth seam cannot be achieved despite this operation, the result is messy overlapping of individual camera footage making it difficult to achieve a sense of immersion when entering VR space. For this reason, we used Insta360 Pro Stitcher to perform base stitching in post-production and used software such as Cara VR plug-in for Nuke, Fusion from Blackmagic

Design, and Photoshop to make final stitch adjustments.

In addition to editing, post-shooting work included color correction and sound finishing by Ambisonics of 360° spatial audio. Ambisonics refers to 360° spatial acoustics in which a sound that can be heard from behind the listener is heard softly, but on facing forward, is heard as if it were localized in front of the listener.

Since the plan is to eventually implement this service on the web using a totally new system, the question arose as to what video and audio formats would be most appropriate. Finding the right ones required a trial-and-error process in collaboration with the web team.

Additionally, once all of the material was collected, the next step was to arrange it appropriately in the target home. At the stage three months prior to implementation work, Mr. Hiroshi Koike of IMG SRC Inc., a company excelling in interactive design, and Mr. Kazuma Harada of Huuman Inc., a company strong in creative production, joined our team. Mr. Koike of IMG SRC performed planning, management, and execution

in upstream processes and Mr. Harada of Huuman performed artwork, design, and production in on-site processes.

The technique used for implementation was to take 360° video broken down onto a surface and paste it onto a sphere prepared using Three.js software.

In the design scheme, Jun Inoue, Hiroki Mitsuyasu, Natsuki Takashima, and Yusuke Natsuka of Tohokushinsha Film Corporation reproduced the sensory values of the visual portion and interactive portion. Adjustments were made to reproduce high-resolution 360° video not envisioned by Three.js and data thinning was performed to facilitate handling of large-capacity video. To achieve smooth video connections, audio and video were read in separately so as not to apply an excessive load on memory, and time lag in reading video in excess of 100 GB was kept to 0.2 s or less. Takehiro Tokushige of OMNIBUS JAPAN INC., a Tohokushinsha company, together with Hiroaki Masuko, Yuuki Nagao, and Keisuke Tsukamoto of the same made it possible to adjust the sound and video environments in units of resolution and bit rate so as to concentrate more on video and keep interaction to a minimum.

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### Project Flow

(1) Design → (2) Build → (3) Implement → (4) Testing

---

#### (1) Design

##### Development design

###### Basic implementation design

Decided on a web-based development scheme that could reflect improvements in a relatively short time taking project progress and on-site debugging into account.

##### Various design work

###### Basic environment design

Performed environment design based on what kinds of users will be using the service in what kinds of environments. Made adjustments by holding discussions with the project group.

###### UX design

Performed environment and art design and selected/ devised the user experience (UX) starting with a basic configuration and user scenarios (US).

Unfortunately, there has been little progress in implementing 360° sound in web browsers, so this was exempted from the environment implementation requirements.

###### UI design

Studied and tested user interfaces in conjunction with UX. Made adjustments after deciding on a UI after finding in the test environment that goggles were not needed.

##### Development design

Designed rules governing key languages, framework, etc.

---

#### (2) Build

##### Design-scheme build

Decided on design direction based on Jun Inoue's production supervision.

##### Development build

Design direction was also based on language compliance and the future outlook for development

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#### (3) Implementation

HTML implementation → material implementation → CSS implementation → JSON implementation → JS implementation

---

#### (4) Testing

Operation testing → language testing → art testing

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##### Development support

##### Language versions

HTML: 5.1

CSS: 3.0

JS: Three.js R102

JSON: RFC 8259

SVG: 1.1

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## 4. Usage Scenarios and Target Users

- (1) The client is the family of the deceased that wishes to leave a record in addition to organizing articles of the deceased. This record can act as a family legacy and be made, for example, before a house that has been lived in for many years is torn down.
- (2) The client is a person who is still alive and who wishes to leave a record that includes messages to one's children and grandchildren and other descendants as an ending note. Additionally, if the person is residing, for example, in a senior residence away from home, such a record could be used to awaken memories.
- (3) The client is the group of children who will be left behind and who wish to provide such a record as a gift to their parents or grandparents. Additionally, since the service consists of 360° video as opposed to 360° still images, it can be used to record a variety of events, such as a ceremony marking end-of-life planning, your grandchildren's participation in Japan's Seven-Five-Three Festival, visiting a shrine dressed in a traditional kimono, the celebration of your seventieth or eighty-eighth birthday (as is customary in Japan), or New Year's Day when the whole family gathers together. As for 360° video, while people have been aware of the

technology (taken for granted in gaming, but here referring to live action that can be captured), they have not been aware of any opportunities to make actual use of it. However, as private recordings like the one's described above, 360° video can demonstrate this characteristic to the fullest.

## 5. Future Outlook: Memory Picture Book

We envision a function enabling the user to enter memories that come to mind for each of the diverse objects observed by TRUE MEMORY. This “memory recollection work” in which a user steadily enters memories for different objects helps to give importance and permanence to those memories. A TRUE MEMORY project completes when memories come to be entered for all sorts of objects. (However, TRUE MEMORY even on completion allows for updates to be made, since there are really no limits to the depth of one's memories. As long as the user has a desire to keep remembering, TRUE MEMORY can continue forever with even deeper memories). This function enables users for the first time to become proactively involved in creating a record, and in this sense, it can be seen as the core function of TRUE MEMORY. It is close to the idea of turning a certain time and space into a complete album.

Additionally, assuming multiple observations of a certain space over time, enabling video of those periods to be overlapped and viewed can highlight what has changed in that space from one generation to the next. If cleverly done, this can create a simulated experience of a spatial time leap. Assuming that this space-recording service can continue to progress and survive, we can envision people 1000 years from now watching these records to learn how people today (2020) worked, what they loved and how they lived, what they ate, and what they talked about. In short, the records produced by this service could be used as part of an anthropological archive.

Furthermore, on thinking about the business possibilities of this space-recording service, we of course envision its use by individuals, but we also consider that it could be an excellent technique for obtaining all kinds of primary information. For example, news stories or articles conveyed by newspapers, television, etc. attempt to provide a third-party objective view as much as possible, but when talked about by someone, they cannot help but be expressed in a subjective manner by that speaker. This space-recording service, in contrast, enables a person to examine a certain environment as if one was actually there as primary information while enabling additional information to be accessed via markers. These features have a high affinity with true journalism. In fact, applications in a wide range of fields can be considered, such as training videos for a restaurant chain that employs people speaking various languages such as in the United States, descriptions of complicated medical instruments in a hospital, preservation of an aging building as video content, introduction to a leisure resort, and portrayals of art museums,

and for that matter, an artist's atelier or a novelist's study. In other words, this service could be applied to anything that could be left as a legacy of the human race.

## 6. Conclusion

In the event that the head of a family suddenly passes away, sorting out the articles of the deceased can be a great hardship for the family left behind. For example, if the deceased had been a person with many hobbies and interests, the family can be overwhelmed with things that should be thrown out and those that should be kept such as records, books, cameras, and watches. Additionally, as children migrate to urban areas as the depopulation of regional areas progresses, there is also the question of whether to tear down the family house, a place that is full of family memories that no one wants to lose. Today, this is a common occurrence in Japan, a country with a declining population. As one gets older, one comes to notice the importance of childhood memories. Indeed, memories of a home where one passed one's childhood are likely to be warm and full of love. For children who have left the family home, that home is surely a place that they would like to return to at any time to awaken memories. What if a home full of memories could be left behind in its entirety? With this in mind, we created TRUE MEMORY.

Please use the URL below to watch a more detailed movie about TRUE MEMORY and other material.

■ Figure 5: Conceptual illustration of TRUE MEMORY

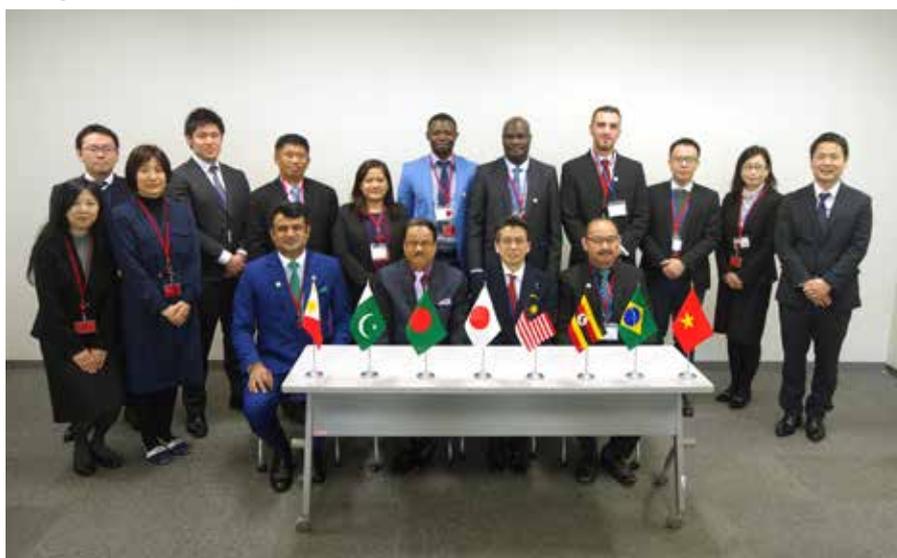


## FY2019 JICA Knowledge Co-Creation Program: Improving ICT Policy Promotion Skills Utilizing Standards

— Overcome challenges by deployment of ICT infrastructure corresponding to the situation —

International Cooperation Department  
The ITU Association of Japan

■ Figure 1: Courtesy visit to MIC



For two weeks from January 24<sup>th</sup> to February 7<sup>th</sup>, 2020, the ITU Association of Japan held a group training course on behalf of the Japan International Cooperation Agency (JICA). The course was implemented by the ITU Association of Japan with the support of the Ministry of Internal Affairs and Communications (MIC), as part of a three-year program from FY 2019 to FY 2021, and this was a new training course in the program.

In the training course, our aim was to support trainees, deepening their understanding of ICT standards and policies, improving their ICT policy planning and promoting skills for developing suitable ICT infrastructure to overcome challenges, incorporating standards and international trends.

This year there were nine trainees from seven countries: Brazil, Malaysia, Pakistan, Philippine, Uganda, Vietnam and Bangladesh.

The training started with a series of

lectures on Japanese government policies relating to ICT standardization, radio wave utilization and telecommunication business. These were followed by lectures and presentations on problem analysis methods (PCM), country reports, ITU standardization trends, activities of standardization organizations in Japan, related standardization activities at other companies and groups, and individual reports. There were also visits to related facilities. Program details are given below.

First, there were three lectures on Japan's communication and standardization policies from the MIC, on the topics of ICT standardization, radio policy, and telecommunications policy.

The trainees then received a lecture on Project Cycle Management (PCM) analysis methods, with the aim of using PCM to extract elements of standardization activities and to conduct a preliminary study of Japan's activities. They identified standardization-related

issues in their own countries and held group discussions to share knowledge and information among themselves. This PCM lecture was delivered before the trainees each presented their individual reports, and in group discussions each trainee had the opportunity to draw up problem-solving methods for standardizing ICT in their own countries. Through this active learning, the trainees were able to summarize the state of standardization activities in their own countries.

There were also two lectures on activities of Japanese Standardization organizations: *Standardization trends of ITU-T and TTC in ICT field* from the Telecommunication Technology Committee (TTC) and *Standardization of Radio Systems* from the Association of Radio Industries and Businesses (ARIB).

Standardization activities of communication business groups were presented in lectures including: *KDDI's ICT Service and R&D Technology Strategies* (KDDI), *Global Standardization of Mobile Communication Systems* (NTT Docomo), *Trends in Network Standardization* (NTT), *Standardization in ITU-T SG20 and Smart City use cases* (NEC), and *Standardization of Sensor Information Model for Infrastructure Monitoring Using IoT Area Network* (OKI).

Various companies and organizations conducted facility tours and lectures, which included a visit to TELECOM ENGINEERING CENTER (TELEC). There, trainees attended a lecture titled *Certification System for Radio Equipment in Japan* and viewed radio-equipment standard certification facilities, giving them an understanding of the importance of standard certification. At the National Institute of Information and Communications Technology (NICT), the trainees viewed an exhibition of NICT's latest research and attended

■ Figure 2: Group presentation after the lecture



■ Figure 3: Observation in NICT



a lecture titled *Standardization Activities in NICT*. At the Fujitsu Kawasaki Factory, the trainees visited the Fujitsu showroom (technology hall) and received a lecture titled *Rule-Making Activities to Solve Social Issues*. At the NHK Broadcast Center, the trainees were shown around the Technical Operation Center (TOC) and Cross Media Station, and received lectures titled *Setup of Digital Terrestrial Television Broadcasting Network*, *The role of broadcasting and telecommunication and their possibility for collaboration*, and *The Outline of NHK Digital Content Service*. At the HEMS<sup>\*</sup> Interoperability Test Center at Kanagawa Institute of Technology, the trainees were shown ECONET Lite equipment in an actual smart house, and received a lecture titled *Current Status of Smart-Houses*.

As a tour of Japanese culture for the trainees, we also arranged English-speaking volunteer guides for a visit to the Meiji Shrine and the Harajuku district (Takeshita-dori) at the end of the training course.

On the final day, each trainee presented an individual report. These

reports included a discussion of the current state and future prospects for standardization in each of their home countries. These were summarized using PCM and other methods, and resulted in lively discussions on the progress of ICT standardization in each country.

After the course, we asked the trainees for their evaluations, opinions and requests regarding lecture content,

textbooks and facility tours. We analyzed and examined the evaluation results, and identified improvements in the course implementation. The training course was rated highly by the trainees.

The ITU-AJ intends to further enhance this training course, to increase its value and make it more meaningful, by making improvements in the programs for the next year and beyond.

■ Figure 4: Closing Ceremony



\* Home Energy Management System

## = A Serial Introduction Part 4 = Winners of ITU-AJ Encouragement Awards 2019

In May every year, The ITU Association of Japan (ITU-AJ) proudly presents ITU-AJ Encouragement Awards to people who have made outstanding contributions in the field of international standardization and have helped in the ongoing development of ICT.

These Awards are also an embodiment of our sincere desire to encourage further contributions from these individuals in the future.

If you happen to run into these winners at another meeting in the future, please say hello to them.

But first, as part of the introductory series of Award Winners, allow us to introduce some of those remarkable winners.

### Welltool Co., Ltd.

hatsumi@welltool.co.jp <https://welltool.co.jp/>

Fields of activity: Multilingual real-time automatic translation



### Multilingual communication tool will help achieve SDGs

It is a tremendous honor to receive the ITU-AJ Encouragement Award. Thank you very much!

We have now presented Welltool services at several international conferences since 2017 including PTC and ITU, and we were shortlisted as an Innovation Award finalist at PTC 2019. We were also represented at the World Summit on the Information Society (WSIS) in April 2019, and received “Recognition of Excellence Certificate” at ITU Telecom World held in Hungary in September 2019.

The beauty of the Welltool system is that, by simply adding a *multilingual translation API Well translation tag* to an existing website, the page is immediately converted to a multilingual site! Welltool recognizes whatever language the viewer is using on his or her device, and instantly translates incoming data to the viewer’s language without changing any settings. Any errors or mistranslations can be

easily corrected and saved right on the screen.

Another service, *Welltool Chat*, gives monolinguals a voice by enabling them to communicate using their own native languages.

Then in March 2020, we rolled out a multilingual “Disaster Prevention System” in Kanazawa City that provides assistance to all city residents, regardless of their languages, in the event of a disaster.

A major challenge in pursuing international cooperation and sustainable development goals (SDGs) is how to overcome the language barrier in multilingual environments. Smooth communication and the ability to convey information in real time is critically important in medical and educational fields, in responding to disasters, and in a host of other situations. We believe that Welltool’s multilingual communication suite represents a major contribution from Japan to society and to the world at large.

### NTT Solmare

info@nttsolmare.com <https://www.nttsolmare.com/e/>

Fields of activity: Gaming industry, digital comic service



### Seeking to enrich people’s lives all over the world

It is a great honor to receive the ITU-AJ Encouragement Award!

NTT Solmare’s primary mission is to enrich people’s lives here in Japan and around the world by providing exciting, action-packed digital content.

After debuting our first title for English speakers in 2013, Solmare games are now available in 167 different countries, and most recently in December 2019 we released “Obey Me!,” a character-building game for female English speakers. This is a simulation game in which players receive text messages and phone calls from the characters, which allows players to develop a special intimacy with them. We have an exciting new game in the pipeline targeted towards English-speaking males that is scheduled for release in 2020.

After launching a digital comic service in 2004, we began editing and distributing our own original digital comics in 2011 through our

e-book service, *Comic Cmoa*, now the largest e-book provider in Japan. We then began distributing comics in Korea based on this content the following year in 2012, and then in Taiwan in 2019 so that the allure of Japanese comics could be experienced around the world.

In 2018, NTT Solmare joined four other e-book sellers in organizing the Japan E-Bookstore Association (JEBA) to promote a more robust e-book marketplace, to fight against pirated sites, and to raise awareness of the importance of supporting and purchasing legitimate copies of digital content.

We remain committed to our corporate philosophy through all of these activities, which is “to deliver new kinds of surprise and plenty of excitement to our customers, contributing to enrichment of our society.”

# “Transforming the APT for a New Era”

— Nomination for the post of APT Secretary General —

In the coming decades, the Asia-Pacific region will be a center of growth in many respects. At the same time, there are always challenges to tackle in order to utilize and leverage opportunities for this region.

Upon being nominated, Mr. Kondo announced his vision “Transforming the APT for a New Era”, which is comprised of three key pillars. These are “Proactive Service Delivery”, “Integrated ICT Hub”, and “Responsive Management”.

It is understood that there are many potential functions and roles the APT can play for the future, including practical coordination for effective policy and regulation among members. During his term as the Deputy Secretary General (2015 to present), Mr. Kondo has demonstrated his ability to make APT more transparent, and initiated several new activities to expand APT to new horizons.

The Government of Japan nominates him for the post of APT Secretary General and would like to seek your support for him.

## Curriculum Vitae

- Name • Mr. KONDO Masanori
- Present Title • Deputy Secretary General, APT
- Date of Birth • January 7, 1967
- Education
  - 1990 • Keio University, Japan (BS in Economics)
  - 1993 • The London School of Economics and Political Science, United Kingdom (MSc in Economics)



## Professional Career

- 2015 • Deputy Secretary General APT
- 2014 • Assistant Director General, International Affairs, MIC
- 2013 • Deputy Director General for International Cooperation Affairs, MIC
- 2011 • Deputy Director General for International Economic Affairs Division, MIC
- 2010 • Director, International Policy Division, MIC
- 2008 • Director, International Affairs Office, Postal Policy Division, MIC
- 2005 • Director of the Research Department, Institute for Information and Communications Policy, MIC
- 2001 • Deputy Director, International Organizations Office, International Policy Division, MIC
- 1996 • First Secretary, Embassy of Japan in the Hashemite Kingdom of Jordan
- 1990 • Joined the Ministry of Posts and Telecommunications (currently, MIC)

## Academic Career

- 2013 • Lecturer, Keio University, Japan
- 2006–2007 • Visiting Scholar, Rikkyo University, Japan
- 2006–2007 • Visiting Scholar, Obirin University, Japan
- 2005 • Lecturer, Waseda University, Japan
- 2004–2005 • Associate, Harvard University (Weatherhead Center), U.S.A

# KONDO MASANORI

Candidate for the Post of Secretary General  
Asia-Pacific Telecommunity (APT)

JAPAN