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JAPAN CYBERSECURITY INNOVATION COMMITTEE

Policy Proposals for Realizing a True Digital Society in the Post-Coronavirus Era ～ Building a Better Japan～

Introduction

The spread of new coronavirus infections continues to pose a significant threat to the world. On the other hand, the use of digital technology has made great strides. Many companies have encouraged remote work and are using video conferencing—the mindset of office workers who once thought that going to the office itself was their vocation, has been transformed. In addition, telemedicine, which has been a longstanding point of controversy in Japan, has started to spread more widely; telemedicine in the form of remote initial consultation has come to be accepted, albeit as a temporary measure.

Those examples suggest that in the post-coronavirus era, online activities will take root in many fields and that the realization of Society 5.0 will come one step closer. However, social systems refined in the real society have been well-established to some extent, and thus we take the existing processes for granted. Looking at the prevalence of remote working, we can find some interesting examples as follows:

・Installing clock-in/out applications for time management in employees' PCs for remote working, and holding morning/evening meetings in work-from-home environments
・Sustaining weekly department meetings at the fixed time through videoconferencing
・Sustaining the route of report circulation (starting from assistant manager ⇒ manager ⇒ deputy director), and preparing official digital seals

From those cases, we can see that the processes of real society still exist. We need to be fully aware that the transition from a real society to a digital one should not be superficial, but it should be regarded as a paradigm shift. The examples from remote work environments outlined above indicate that society has failed to become a digital society in a true sense and remains a pseudo-digital society.

A common pitfall we face in the quest for DX (Digital Transformation) is simply trying to digitalize individual processes that exist in real society at the current time. It is certainly easy just to focus on individual processes, but for a true DX, we must review the whole process itself. We need to go back and rethink what we want to do and what our goal is. Rather than replacing existing processes, we need to review the entire procedure and eliminate what is unnecessary or integrate existing processes with new ones.

Taking the COVID-19 pandemic as a momentum, the Japan Cybersecurity Innovation Committee (JCIC) has made the following proposals for the creation of a foundation enabling our country to transition to a true digital society.

(*In this article, “DX” is positioned as one of the means for digitalization. “Go online” refers to connecting to the Internet.)

Policy Proposals for Realizing a True Digital Society in the Post-Coronavirus Era

Proposal 1: Japan should improve an environment that allows all citizens to access the Internet

Since the beginning of this century, the Japanese government has been trying to popularize Internet infrastructure by setting various goals, including increasing the number of broadband subscribers. In the future, it will be necessary to promote the further penetration of infrastructure and to improve an environment in which all citizens, rather than as a unit of businesses, organizations or households, have online access as a means of exercising their fundamental human rights,.

An IP address in the digital world is like a physical address in the real world. In order to present a solution to the question of what to do with citizens who do not have an address (IP address), a system that supports or works as a substitute for access in the local community, both economically and technically, should be built. To achieve this, it is necessary to establish a multilayered support system that draws on the power of private companies, NPOs, and civic organizations as well as the government and public institutions.

Proposal 2: Japan should establish a scheme for personal authentication in the digital society

In Japanese society today, there are different identity authentication tools for different situations such as a certificate of residence, a bank account cash card, a personal seal, an insurance card, and so on. Rather than using these tools as-is in the digital world, two or three types of authentication schemes should be defined and made available to institutions across the country. Options would be individual number cards and biometric authentication.

Proposal 3: Japan should allocate sufficient human resources and budget to manage the operation of the entire digital social system

In addition to the communication system and personal identification system that support the above two proposals, entities that operate social infrastructure such as administrative services and financial services have a responsibility to maintain stable operation. To fulfill this responsibility, the government and such entities above must secure sufficient human resources and budget, including capacity for handling of unforeseen situations.

Proposal 4: Japan should ensure the right of all citizens to user education

There are some rules that we, as users, must follow, such as keeping personal devices including smartphones as social system components up to date and strictly controlling cards and biometric information, which are the keys to authentication. It is the responsibility of the government and other related organizations to ensure that people understand the rules and act accordingly. It is necessary to establish a scheme in which all citizens can enjoy the opportunities of user education which is provided on a repeated basis.

Proposal 5: Japan should avoid the pitfalls of pseudo-digital society

Renewal of real social systems, to which we are fully accustomed, often ends up with mere digital migration of individual processes rather than a paradigm shift of the whole system. However, the desired results cannot be achieved merely by digitalizing and piling up each process. When designing a system, it is necessary to review the entire process with a clear purpose for the system and have a big concept that includes operation. When designing the system, it is advisable to have a national discussion with the participation of stakeholders from various fields.

Advantages and Considerations of Going Online in Various Fields

In the following sections, we will discuss the advantages of going online, the effects of identity authentication schemes, and what to keep in mind in DX in some areas. Not everything in each field can be settled 100% on a digital-online basis, but rather it must be used in conjunction with processes in the real world. Therefore, we will reconsider the process itself and suggest how to separate digital processes from real world processes.

(1) Medical field

Telemedicine, mentioned as an example at the beginning, is a temporary measure at the moment. Still, we welcome the fact that discussions are beginning for it to take place on a permanent basis. Let us review the process using the example of internal medicine practice. Among the main objectives of internal medicine practice are the following:

・To estimate the patient's condition;
・To identify the cause of illness and take remedial measures;
・To explain points to keep in mind to the patient;
・To prescribe medication, etc.;
・To keep records and contact the relevant agencies as necessary for further treatment.

The cases where going online is likely to be more effective are:

・Optimization of the frequency of follow-up care for chronic diseases;
・Elimination of the need for patient visits simply for receiving medication;
・Elimination of the need for patients to carry communication documents to other medical institutions and insurance companies.

Patient identification (identity authentication) will not only streamline administrative procedures, but also make it easier to perform diagnoses based on past symptoms. Concerning remote initial consultations, the system would also contribute to the management of illnesses that are easy to diagnose and to decisions regarding which specialist to consult.

(2) Judicial field

We are aware that in some civil cases, the representatives of the plaintiffs and defendants are conducting their negotiation sessions through videoconferencing. In terms of criminal cases, with

regard to cases such as relatively minor traffic violations, penalties can be decided based on the situation. Moreover, as long as there are no significant issues, it is not difficult to go online. Even in a critical case that may become a trial with lay judges, the objectives of the trial could be considered as follows:

・To fully reveal the facts regarding the case;
・To determine the truth about the defendant's involvement;
・To establish correct sentence in light of the laws (if guilty);
・To compile the developmental record of the case.

If the four purposes above can be achieved, it could be envisaged that judicial professionals alone could come to conclusions online. For example, the following cases could be assumed:

・Conducting pretrial proceedings online with only judges, prosecutors, defense lawyers and defendant;
・In cases with fewer issues, such as where the defendant admits the charge, the defendant can choose to be judged in a summary trial;
・Concluding summary trials in a short period of time with the presence of judges, prosecutors, defense lawyers and defendant;
・Conducting summary trials online as a basic format, and the sentence is reduced in comparison with lay judge trials.

In cases where a defendant claims his/her innocence, a normal lay judge trial will be conducted in a real court. As stated above, it is advisable to introduce online judicial proceedings after reviewing the entire judicial process.

(3) Educational field

Universities with online courses and learning as the primary teaching format have existed for more than a decade. Let us consider primary and secondary education, and in particular primary school education online. Although the role of primary schools in educating children is diverse and has a wide range of purposes, these four points could be seen as the main purposes:

・To achieve academic progress;
・To cultivate imagination and creativity;

・To maintain and enhance health;
・To provide protection (depending on the home environment).

Among these purposes, it will be possible to go online for the purpose of academic progress under the condition that the development of digital contents progresses and teachers become accustomed to using them. The development of standardized contents (including textbooks as supplementary reading material) would allow them to be utilized on a repetitive basis, reducing the burden on teachers to some extent. Pupils may also have more freedom to choose a course. For example, a child who is equivalent to a second grade but good at arithmetic could take a third or fourth-grade course. The best pupils would be able to even skip a grade. It would no longer be restricted to starting school in April and graduating in March in terms of academic progress.

Elementary schools would transform into places of communication rather than places to learn, and it would be expected that the role of teachers could be that of acting as regional coordinators or counselors to guide children's growth.

(4) Civil rights field

We will first focus on online election/voting which some countries have already implemented. Things should be done and purposes to be achieved at time of election could be summarized as follows:

・To inform voters of the target posts, as well as the timing and conditions of an election;
・To disseminate the candidates' information (background, political opinions, points of view, etc.) to voters;
・To compile voters' opinions (in the form of a vote) and publicize the results.

With the above in mind, there would no longer be any need for various election-related activities, including putting up posters, touring the electoral districts on campaign trucks, presenting joint-campaign speeches in public, mailing the polling station admission tickets, assignment of witnesses at polling stations, and preparing ballot boxes and papers, if online election/voting is realized. It would also shorten the time it takes to get the results of the voting and reduce the chance of errors in the vote count. The public notification period may be much shorter than currently stipulated.

Most of the problems in this field seem to be connected to proper dissemination of candidate information. One fear is that better-funded political groups will release more information to advance their campaigns, and the other fear is that candidates will be unfairly undermined by fake news. To

prevent this, media integrity and literacy of citizens are a must, which is why user education is necessary.

(5) Town management field

Even today, a significant number of cameras and sensors are installed around major roads and urban areas. Nevertheless, the government is adopting manual flow measurement, which seems to be a significant waste of labor force. In normal situations, the purpose of managing the city's resources (roads, bridges, various buildings, etc.) are as follows:

・To detect whether a resource is capable of functioning;
・To measure the extent of the resource's usage;
・To judge whether or not measures such as repair are necessary and take measures as needed.

In the state of emergency such as a natural disaster, however, the following additional purposes exist:

・To determine the necessity of evacuation and set up evacuation routes;
・To disseminate information, including the resources that should not be used.

It is possible to achieve the above-mentioned objectives, even in the case of disasters, by integrating the digital data which both the government and private sectors hold. There are cameras in vehicles as well as on the roadside, and the proliferation of connected cars will enable real-time detection of resource conditions (road surface images and tire vibrations). Such scheme can be utilized not only for situations such as wide-area disasters, but also for crime prevention, which is a problem closer to citizens' daily lives.

Values of Our Proposals

We have discussed the advantages and other matters in the specific fields above with examples; at the end of this proposals, we present a supplementary discussion of the reasons why it is necessary to implement Proposals 1 to 5.

Needless to say, Proposal 1 (online access rights for all) is a prerequisite for building a digital society.

Regarding the identity authentication scheme outlined in Proposal 2, there is the issue of "people" in digital society. The objects that form physical society are commonly defined as "people, goods and

capital". When we think about reconstructing a digital society with these objects, in terms of "capital", cashless payment has already become widespread, particularly in the area of BtoB payment, while the majority of BtoC payment is cashless on an amount basis, that is, in the digital space. In terms of "goods", we find that the majority of things have their projected image in digital society, even though there are some inadequacies such as the fact that multiple entities have different ID systems for the same goods. The remaining issue is that of "people". In the medical field, for example, doctors need to verify that a patient is actually the person in questions, and the patient needs to confirm whether the person who diagnoses and prescribes him/her is really a doctor or a family doctor. This is where the scheme for personal authentication is essential. This is also true in the judicial, educational, and civil rights fields.

The human resources and budget to manage the operation of the entire digital social system, outlined in Proposal 3, is a proposal from the perspective that the system which supports the foundation of digital society is now the social infrastructure itself. Just as the supply of energy, such as electricity, is indispensable as social infrastructure in modern society, the networks, servers, and devices connected to them are all parts of social infrastructure in digital society. As the power grid, which has multiple routes to prevent loss of function resulting from a single wire break so that it can quickly switch in the event of a failure, the IT systems that support the operations in the areas presented as examples must be robust and resilient against various kinds of risks. In order to cope with these risks, including natural disasters, accidents, failures, or cyber-attacks, it is necessary to build multi-layered systems and develop human-resource allocation that proactively and immediately responds to the risks. All possible measures should be taken to avoid system failure during medical treatments or operations.

As for Proposal 4 (user education), damages or losses may be caused even if the system itself is robust, due to problems on the part of those who utilize the system (the users). Even though banking ATM systems are strong, there are still cases where the victims of phone scam send money to criminals via an ATM. This kind of crime has existed since the era of the barter economy and will never be eliminated from our society. To address this, every citizen in the digital world must be aware of the threat. When lack of system resilience or user awareness causes damage in the digital world, public opinion will move toward returning to the real world, especially if such problems are highlighted. To prevent this, the damage caused by lack of awareness among users must be minimized. Therefore, the user education mentioned in Proposal 4 for all citizens must be thoroughly implemented. Conversely, from citizens' viewpoint, they have the right to receive user education so as to avoid damages and losses.

Proposal 5 (avoid the pitfalls of pseudo-digital society) warns against the kind of superficial digitalization mentioned at the beginning: maintaining the same practices as a routine, such as conducting morning meetings online in the work-from-home environment and introducing applications to clock in/out. A pseudo-digital society built on satisfaction with superficial digitalization will deprive us of a valuable opportunity for a paradigm shift, and will also be spreading a false perception among citizens that this is what digital society is all about. This could even lead to a more prolonged stagnation of society as a whole.

We have discussed five proposals for promoting digital society in the post-coronavirus era, and their backgrounds, values and benefits. Here we would like to add one more point: promoting digital society yields the effect of reducing social costs. Essentially, such effect should be utilized as the source for the further promotion of digitalization. This should allow for a greater spiral of social innovation.

The Basic Policies on Economic and Fiscal Management and Reform 2020, recently approved by the Cabinet, calls for “concentrated investment in and implementation of digitalization, which is the driving force toward the construction of the ‘New Normal’, and improvement of the environment (Digital New Deal)”. Indeed, the five proposals form the foundation for the promotion of this “Digital New Deal”. In the Basic Policies, the text states that “Rather than simply introducing new technologies, the DX of society as a whole will serve as the driving force for the ‘New Normal’ by also transforming the state of systems, policies and organizations, etc.”. and our proposals will also be its major premise.

The objective of true digitalization is to improve people's quality of life and realize a better society, seeking not only to increase the size of the economy but also providing a public good, including the reduction of social disparity. We earnestly hope that Japan will recover from this national crisis as soon as possible and build a more robust society through true digitalization.