



Great leapfrog by emerging countries

Those with technological advantage kept accumulating new technologies.

But today accumulation of past analog technology became a burden.

Emerging countries are becoming advantageous by embracing digital transformation.

Where are the developed countries in the digital age?

Japan is a technology advanced country. In the example of communication technology. The i-mode and Ezweb, announced in 1999, are the world's first internet services using mobile phones. It can be said to be the first prototype of today's smartphone. In addition, Japan is the first country where 3G, the large capacity communication line necessary for such mobile phones, was introduced. In this way, Japan has formed the social infrastructure of technologies ahead of other countries.

However, the situation is changing in recent years. Even in Japan, smartphones are spreading to young people, but elderly people who tend to shy away from changing familiar devices continue to use feature phones even in Japan. According to the Ministry of Internal Affairs and Communications, about 30% of Japanese citizens still have feature phones. In other words, even the state-of-the-art technology was born, the old technology still remains in society.

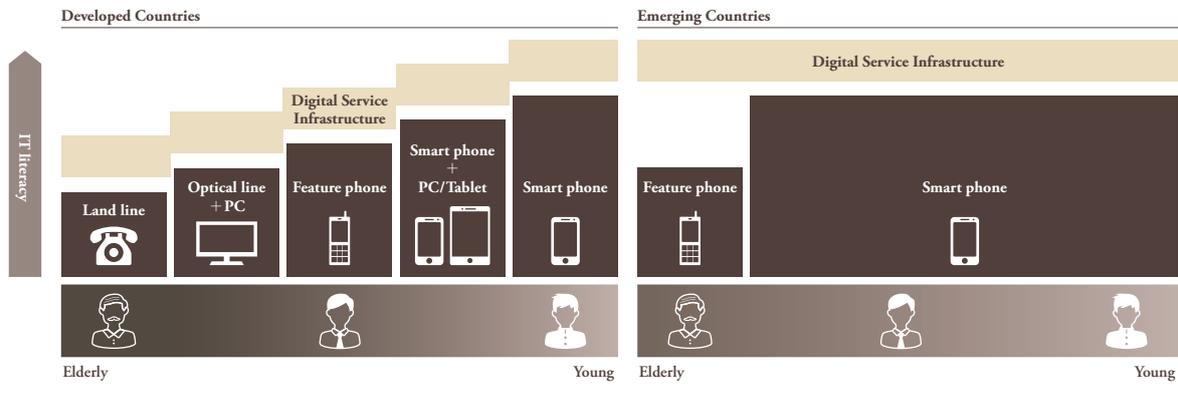
Meanwhile, emerging countries are accelerating the introduction of technologies such as smartphones. The penetration rate of smartphones in major cities in 2016 was 99% in Shanghai, Beijing, Guangzhou



Technology infrastructures - Developed vs. emerging countries

Chart 1

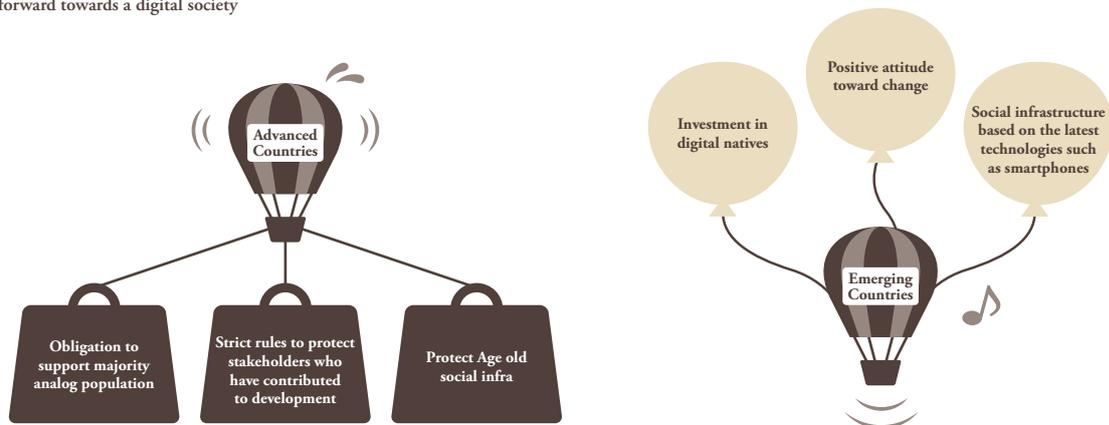
Developed countries infra is complex due to availability of age old analog and slow embracing of digital infra whereas emerging countries with lack of analog infra are embracing cheaper digital technologies faster.



Growth image – Advanced vs. emerging countries

Chart 2

Developed countries growth is stagnant due to averse to change. Whereas, emerging economies are speedily incorporating digital technologies and leaping forward towards a digital society



and Hong Kong in Greater China, 97.8% in Kuala Lumpur and 87.4% in Tokyo. The average penetration rate of Bangkok, Ho Chi Minh and Mumbai is also 75%, and they will also overtake Tokyo within 2 to 3 years if this growth continues. A digital society is already being formed by jumping over the steps such as feature phones and 3G passed by developed countries such as Japan.

In those developed countries, service providers are also affected by a society due to a mix of old and new technologies. Especially Japan is a society, where elderly people generally with low IT literacy account for 30% of the population and about 60% of personal

assets. Therefore, when companies create new services, they cannot ignore the customers who prefer the older technologies. As a result, it is hard for a company/ business to invent innovative digital services that fully utilize advanced technology for the digital generation.

In addition to such social culture, policies and regulations tend to be conservative. Even if we could overcome such cultures and regulations and invent innovative services, there remains a social technology infrastructure consists of older generation technologies, which are usually a big challenge and need to be rebuild and reconstructed.

On the other hand, emerging countries have low barriers. Because people were inconvenienced by the lack of social technology infrastructure until today, every generation has great expectations for the newer digital society. Also they are open to change. Regulations such as protection of personal information, which is a headache for the developed countries, will be created from now in emerging countries that it is easier for emerging countries to be more flexible to the upcoming trends and opinions of the world.

In the future, digitization of society will accelerate more and more. Existing operations polished by developed countries will be replaced by emerging technologies. Specifically, the production know-how of sophisticated factories through Kaizen will be replaced by robotics and 3D printers, the work of hospitality-rich operators will be replaced by AI and RPA, and punctual public transportation praised from the world will be replaced by autonomous vehicles.

While these advanced technologies are becoming social technology infrastructures, what are the growth scenarios for each of advanced countries with old assets and emerging economies without them?

We would like to analyze the dynamics of emerging countries' rapid growth and advocate actions that Japan should take.

Source of growth of emerging countries

Generally, emerging countries are defined as BRICs, countries in Southeast Asia and the continent of Africa, and its potential is very large. If we define all the other countries except for North America, EU member countries and Japan are emerging countries, it will be about 85% of the world population.

There are two common factors in these countries that will drive growth;

1. Concentrated investment in business for digital generation
2. Rapid departure from regulation and distress under strong leadership

① Concentrated investment in digital generation

As it is known, Japan is an aging society. Approximately 40 million elderly people have assets of about USD 9,900 billion. It is natural for governments and companies to recognize this generation as an important customer in such a society. Unfortunately, however, services focused on this generation are far from digitalization.

Let's see an example of money transfer. To cover all customer segments, channels for transfer requests are widely prepared from analog channels to digital channels, such as physical branch offices, ATMs, telephones, the Internet, and mobile applications. In addition, there are various authentication methods such as a user ID and password, a random number table on a dedicated card, an OTP (one-time password) displayed on a dedicated device or application, and biometric authentication. There are over 20 patterns of channels and authentication methods. Slightly some aggregation/ integration, such as the random number table replacement by OTP is beginning, but there are still methods based on the old technology infrastructure, assuming various customer segments.

Cambodian bank aiming to throw away existing methods and to fully digitize all branches

~ For the walletless Society ~

However, in Asian countries the situation is totally different. In Cambodia where elderly people are only 4% of the total population, banks are stepping up to Fintech fast. In Cambodia's leading ACLEDA Bank, in principle, the registration of fingerprints is compulsory for users. Today there are still multiple authentication methods such as PIN for ATM, user number, password etc, but in the future they will use fingerprints as the only authentication information. In May 2018, the company's vice president So Phonnary announced that "we will eliminate face-to-face service and aim for complete digitization of all 262 branches over the next five years." They intend to completely eliminate old ways.

In addition, the company jumps over credit cards and is trying to disseminate smartphone settlement.



They commenced consumer credit card services in February 2016, but only a year and a half later in 2017 they launched the settlement service "Aceda Unity ToanChet". This is a service where the payment is completed by reading the QR code at the affiliated store through the application, and the amount of money is directly deducted from the account. In Cambodia, the credit score settlement is not maintained at present, and domestic credit card issued is about 50,000, which is only 0.3% of the population. Meanwhile, this Aceda Unity Chat payment service is acquiring more than 100,000 users in three months after release, which is more than twice the credit card user. Furthermore, it continues to increase at a pace of 1,000 people a month thereafter. Right now, Cambodia is jumping into the digital society.

It is difficult to ignore the elderly market in Japan even from a demographic as well as economic viewpoints. It is necessary to target the elderly in order to earn short-term revenue. However, it is now the young generation that will become the core of society after 10 to 20 years. Therefore, from now on, it is essential to consider investing in services focusing on the young generation.

②Rapid departure from regulation and distress under strong leadership

Evolution of technology is always a fight against regulation. There is a "risk" to try new things, and "regulation" exists to mitigate "risk". In emerging countries, it is easier to control the balance between this risk and regulation and to take on new challenges. Political systems are often centralized, and few companies have financial strength at the national level. Therefore, it is easy for the government to demonstrate strong leadership.

Japan will start by solving all problems. Foreign countries resolve problems found along with execution.

In developed countries that have long history and economically developed, there are stakeholders who have the power to control both public and private sectors. For some new challenges, some players will say "wait". It is still remembered that the demonstration experiment of ride sharing such as

Uber suffered from industry backlash and stopped.

Also, conservative culture is rooted in Japan. A sheep-herd mindset such as "The stake that sticks out gets hammered in" is felt by many people everywhere in Japan. Such conservative culture tends to appear in rules and regulations. While Japan is carefully considering regulations, many foreign countries start out first and then regulations are often tightened afterwards. For example, once in Singapore, the drone under 7kg was possible to fly without approval, but now the license system of the pilot was introduced taking an account of the accident risk etc. However, while the regulation was lax, many companies were able to enter the drone business. As a result, in February 2018 the Government of Singapore and Airbus announced jointly to begin a field experiment of delivery service by drone.

The difference is noticeable also in autonomous driving technology. California state in the United States was noted as one of the most tolerant states in the world with its lax regulation. And in 2016, 92 companies have already implemented public road autonomous driving demonstration experiments totaling about 650,000 kilometers. In Japan, the area and the period (approximately one week on average) of the field trials on public roads are often limited. The difference in mileage between the US and Japan is quite large. In fact, in California state, in April 2018 the driving of autonomous vehicles in perfect unattended mode became legal, and they can be considered as one step ahead.

Do not relax regulations easily

That does not mean that we should ease regulation easily. In March 2018 the first death accident caused by an autonomous car occurred. The car developed by UBER collided with a pedestrian crossing the street at a place without crosswalks. Various opinions are raised about the cause of the accident.

There is an opinion pointed out that there was a problem with the UBER radar that detects the fault. However, there are voices that it is a matter of software setting that instructs to put brakes after detection. On the other hand, there is another opinion that the driver was careless in order to

Cases of advanced service model

Chart 3

Advanced players are looking beyond their home countries to test new technologies faster and “Go to market” faster

Research areas	Main regulations and barriers	Advanced cases		
		Organizations	Countries	Description
Drone	<ul style="list-style-type: none"> Prohibition of flying in the sky that can affect transportation Prohibition of flying densely populated areas, Etc. 	Zipline		<ul style="list-style-type: none"> Medication and blood delivery service by drone Zipline creating social value through life saving services in Africa's Rwanda where regulation is loose and service can be started in only six months
Unstaffed store	<ul style="list-style-type: none"> Acquisition of necessary information for sufficient security assurance Risks of conflict with the Personal Information Protection Act, Etc. 	Jing Dong Group		<ul style="list-style-type: none"> Fully unattended automatic settlement is realized by customer face and product recognition technology With Shandong Province as a testbed, Jing Dong Group is targeting to open more than 500 stores in one year
Autonomous driving	<ul style="list-style-type: none"> Guaranteed safety for people and existing cars Ambiguity of liability when accidents occur like Driver, car etc. 	Shanghai Anting Area		<ul style="list-style-type: none"> The entire city of 100 square kilometers has been designated as a testbed for automatic driving and technology promotion Anting uses the entire town as an testbed, reducing the subject's risk. Moreover, by combining with urban development with high demand in emerging countries, they are planning a business model to export the whole readymade town
Big Data	<ul style="list-style-type: none"> Ambiguity of personal information definition and acquisition acceptance Risks that information-based judgments encourage discrimination, human rights, Etc. 	Xinjiang Uighur Autonomous Region		<ul style="list-style-type: none"> The government collects security cameras data, communication history, and surgical information, and finds out and restrains criminal reserve forces based on the data Although criticized by human rights organizations, the government is practicing forcibly to maintain security

prevent accidents. In addition, a policeman who examined the accident commented that "avoiding pedestrians was difficult with either human beings or autonomous driving in a timely manner." The implication from here is that all the rising voices are intertwined in a complicated way and it is difficult to conclude one cause. And in the future, it will be impossible to completely eliminate the accident.

We can never give up on human lives. However, the demonstration experiment is a process necessary for the advancement of technology. In order to minimize the risk of accidents, we would like to strongly propose information sharing among subjects, nationalities and local governments, as well as experimenters. In the state of Arizona where the accident happened this time, the British newspaper Guardian pointed out that this autonomous driving experiment was not well known to the residents. Certainly, there is no law stipulating that the demonstration experiment must be publicized. However, it is a terrible story that the subject does not know about it. Perhaps the victim of this time may have been acting more carefully if she knew that an autonomous driving car was running. It is important that not only the experimenter but also the subjects are aware of the risk of the experiment.

Learnings from China

Given these regulations and risks, in fact there are many points to learn from China. For example, Guangzhou City announced a draft stipulating management rules for conducting demonstration experiments of automatic driving vehicles in June 2018. They are recruiting opinions from the public, actively collecting the voices of the subjects and increasing the satisfaction of the experiment.

Furthermore, the Anting district is pursuing even bigger efforts. The area with 100 square kilometers is regarded as a special zone dedicated to automatic driving, and the entire city is a site for demonstration experiments of automatic driving. Foreign companies also pay attention to this city. More than 60 companies, including Mobileye of Israel, who holds image recognition technology indispensable for automatic operation, are participating in this project. In this district, autonomous driving coordinating with social infrastructure is experimented, and in the future, there is a business strategy to export whole town with know-how. Demand for urban development is very large in emerging countries including China.



China's method of looking to future business while considering residents as subjects is very advanced.

What actions should Japan take?

Start outside Japan and aim for “reverse” import of best practice

Unfortunately, we must admit that Japan is not suitable environments for digital services trial. In addition to the population dynamics, Japan has developed too much to make the dynamics move, such as making a whole city experimental place like China. There are too many players to persuade.

The approach that can be taken in such circumstances would be “reverse importing” of business. Japan also has the ability to think about new services and supporting technologies. It is the lack of experimental site to build up a novel service. If so, we should consider using emerging countries as a place for such trials. It would be best to eliminate regulations and barriers in Japan with the achievements, then realize it in Japan.

New service models starting in emerging countries

In fact, multiple overseas companies set emerging countries as a place of demonstration experiments and are setting up new services.

A good approach by advanced companies is that they link their business with the local social issues. For example, Zipline from the United States, which operates a drone's delivery service, knows that distribution networks are not maintained in Rwanda and that blood and medicines have not been timely delivered to domestic hospitals. The government also recognizes this as a major social problem. “We gained tremendous support from the government and hospitals,” said Keller, founder of Zipline. In fact, they have realized the service release in just five months from the project announcement. In addition, in May 2018 the company won one of the

ten frames of the Drone Integration Pilot Program (a system permitted to demonstrate drone services in the US). While Amazon spends time to build the logistics network concept, they realized the reverse import of business.

Win “the invisible hand” of digital

beginning to launch innovative digital services one after another with new technologies and mass data. A lot of companies are strongly conscious of speed, because unlike traditional businesses, they can no longer take a “follower strategy” in new digital services. Because it is extremely difficult for a follower to catch up with a leading company that has repeatedly carried out many demonstration experiments, sent out services to the world quickly, accumulated usage data of consumers, and refined the algorithm of judgment. As soon as a company starts offering innovative services, the world changes completely. And then the company can acquire further user data with overwhelming market share. That data will become “the invisible hand” of the digital, which will keep the company as an absolute leader.

Because you cannot become a follower, you only have to become number one. The important thing for that is “do not fear failure, and solve problems while practicing”. It is also important to expand our horizons to the world. Zipline also said that the positive attitude of the Rwandan government “to try first” made the project successful. The spirit of “Yatte Minahare (Give it a try, or you do not know anything)” from Japan is now in the peak period in emerging countries. We must regain our spirit of challenge like emerging countries so that Japan will not be looked down as a “digitally undeveloped” country after 10 to 20 years.

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