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"Geo-Political Economy & Culture" and Connected Life in Asian I&CT Markets

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“Geo-Political Economy & Culture” and Connected Life in Asian I&CT Markets

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Abstract

Since the East Asian Miracle report was published by the World Bank in 1993, East Asian countries have achieved economic development with the “flying geese pattern” respectively, as well as advancements in informatization based on each political and cultural context. In particular, the revolution in information and communications technology (I&CT) drives commercial and social usage of the Internet throughout multiple devices such as personal computers, tablets, and smart-phones. East Asian cultural contexts thereby create commonalities over their territories, and maintain their distinctive characters as well. While telecommunications and media industries are under governmental control, with government regulations in most Asian countries, platform businesses, such as social network services (SNSs) have expanded across borders, demonstrating the principle of network externality and economy. In addition, cultural and/or social contents easily expand with identity and universality as high culture and with popularity as pop- and/or sub-cultures among younger generations within areas.

This paper examines the potential of East and South East Asian markets including not only China, Korea, and Japan, but also Taiwan, Hong Kong, and Singapore, for mobile and wired communications, their technologies, services, content, and applications. It also describes the dynamism of networking among interested players over the next generation of information and communication technologies and their applications, such as SNSs and “FinTech”, including mobile payment and e-commerce, as well as content including audio and visual content, and game software; in the context of the “Ecosystem” of I&CT business and the path-dependency of social shaping of technological trajectories as enhanced in each political and cultural territory. There may be a dramatic change occurring in the structure of the industry affecting not only telecommunications network components, terminal equipment vendors and software developers, but also network operators and service providers located in Asian territories. Therefore, our analysis places emphasis on the dynamic formulation of multi-tiered and multifaceted frameworks of “Geo-Cultural Informatics,” which encapsulates the geo-politics and geo-economics associated with cultural informatics, within industrial clusters over Asian marketplaces.

This paper also suggests a new framework of market structure with some hieratic layers and trust-based geographic areas, e.g. living sphere 「生活圏」, commercial area 「商業圏」, economic zone 「經濟圏」, where common currencies are available with electronical and/or physical money. These areas/spheres are composed with cultural and political inherence

based on geography and history respectively as well as path-dependency on technological and institutional trajectory. Especially, electronic commerce (e-commerce), which is not only the trade of digital contents and services, but also online shopping with digital payment/settlement, e.g. electronic money and credit card authorization including PayPal, reflects cultural contexts and/or political institutional frameworks, even if the compatibility and settlement system between nations has been ensured. In the e-commerce facilitated by FinTech, we can see the battles and/or alliances between Internet service providers, e.g. Amazon.com (US), Alibaba (CN), Tencecnt (CN), Kakao Talk (KR), LINE (JP), Facebook (US), Twitter (US), Instagram (US), local providers, and financial providers including credit card companies, banks, insurances and securities companies, for customer's accounts and records of their preferences and assets. We finally discuss the geo-political economic issues of the digital economy in Asian living/commercial/economic areas/spheres within the ecosystem of ICT, based on each cultural context which builds trust with creditable institutions.

Key words: Evolution of Technology, Ecosystem of industries, Geo-political economics, "Geo-cultural informatics", Path dependence of technology and institution, Social Networking Service (SNS), FinTech, Trust-based areas

1. Diversity of Network Connectivity in Asian Countries: Economy, Population, Urbanization, Language and Ethnical Culture in Digital Age

Geo-politics is part of human geography and helps to understand how international politics and geography are related. Geo-economics is another approach to geopolitics, one that focuses upon the role of economics in creating geopolitical actions and theories. While geo-politics is generally seen to be similar to international relations as, "practices and representations of territorial strategies" (Gilmartin and Kofman, 2004, p.113), it is necessary to understand global society from the viewpoint of the networks across borders, because of economic relationships characterized by wide and deep interdependences. This is also a shift from full-set domestic economies as a value chain has developed globally. In that sense, the industry could be regarded as one ecosystem in a global environment. In particular, information and communication technology (ICT) forms a group of industries supporting the distribution of people, goods, money and information through a global network, so a global perspective is indispensable. The concept of a network is a collection of nodes that linked together and are seen as means to transcend territory in geo-politics and geo-economics.

Today, there is an Asian region in place that symbolizes the geo-political economy of ICT. In the Asian region, which had been attracting attention with the "Flying Geese Model" in 1990s, Japan has advanced, followed by the rise of Korea, Taiwan, Hong Kong and Singapore, so-called "Four Tigers," labor-intensive industries have shifted to Southeast Asia, and China has launched a reform and opening policy, and taking advantage of the special zone, it has rapidly developed while capturing foreign capital, and has been called "the factory of the world". This trend is expanding to Vietnam and Myanmar along with the expansion of the

ASEAN region.

Table 1. Economic and Social Data, and ICT Indicators of Advanced Countries and Asia (2017)

	GDP per capita, current prices (dollars)	Population (Millions)	Fixed-broadband subscriptions per 100 inhabitants	Mobile-cellular telephone subscriptions	Mobile-cellular telephone subscriptions per 100 inhabitants		GDP per capita, current prices (dollars)	Population (Millions)	Fixed-broadband subscriptions per 100 inhabitants	Mobile-cellular telephone subscriptions	Mobile-cellular telephone subscriptions per 100 inhabitants
[Europe]						[East & South-East Asia]					
Austria	50,035.22	8.815	18.37	14,924,340	170.85	Japan	42,818.69	126.746	31.79	172,789,990	135.54
Belgium	46,754.95	11.352	38.31	11,961,089	104.65	Korea	39,548.07	51.454	41.58	63,658,688	124.86
Denmark	50,642.58	5.749	43.67	6,978,348	121.71	Taiwan Province	50,592.56	23.571	24.18	28,777,408	121.80
Finland	44,492.19	5.503	30.95	7,307,800	132.31	Hong Kong SAR	61,528.64	7.413	36.09	18,394,762	249.76
France	44,167.92	64.618	43.72	69,017,000	106.21	Macao SAR	110,592.42	0.653	29.88	2,047,000	328.80
Germany	50,804.00	82.657	40.47	#####	133.59	Singapore	95,507.83	5.612	25.85	8,381,900	146.82
Greece	27,811.86	10.768	33.86	12,937,106	115.93	China	16,682.42	1,390.08	27.97	1,469,882,500	104.28
Iceland	53,834.34	0.338	39.87	410,662	122.58	[South-East Asia]					
Ireland	73,215.14	4.825	29.43	4,898,872	102.88	Indonesia	12,433.77	261.356	2.35	435,193,605	164.85
Italy	38,357.54	60.589	27.94	83,871,543	141.29	Malaysia	29,144.30	32.023	8.50	42,338,500	133.88
Luxembourg	103,297.91	0.591	36.78	794,000	136.09	Philippines	8,360.35	104.92	3.24	115,824,982	110.40
Malta	42,531.98	0.46	42.09	604,759	140.37	Thailand	18,330.33	67.65	11.89	121,530,000	176.03
Netherlands	53,933.01	17.14	42.33	20,532,000	120.52	Brunei D.	78,970.83	0.429	9.61	544,732	127.07
Norway	72,169.56	5.29	40.64	5,724,801	136.00	Vietnam	6,927.79	93.643	11.80	120,016,181	125.62
Portugal	30,622.43	10.3	34.60	11,764,106	113.89	Lao P.D.R.	7,381.66	6.68	0.40	3,711,813	54.12
San Marino	58,624.39	0.033	31.44	38,000	113.77	Myanmar	6,258.87	52.645	0.21	47,946,665	89.84
Spain	38,319.56	46.408	31.64	52,506,928	113.27	Cambodia	4,011.86	16.013	0.83	18,572,973	116.04
Sweden	51,180.28	10.12	39.01	12,519,313	126.32	[South Asia]					
Switzerland	62,131.39	8.42	46.13	11,088,472	130.82	India	7,287.46	1,316.90	1.33	1,168,902,277	87.28
U. K.	44,364.90	66.04	39.31	79,104,201	119.53						
[Emerging Europe]						[North America]					
Czech Rep.	35,559.83	10.579	29.63	12,636,359	119.01	United States	59,895.00	325.326	33.85	391,600,000	120.69
Estonia	32,130.29	1.317	30.90	1,904,425	145.42	Puerto Rico	39,388.62	3.3	18.02	3,389,402	92.53
Latvia	27,685.49	1.95	26.99	2,464,122	126.39	Canada	48,342.23	36.489	38.02	31,693,000	86.54
Lithuania	32,462.51	2.825	27.64	4,361,329	150.90	[Oceania]					
Slovak Rep.	33,041.50	5.435	25.79	7,117,753	130.66	Australia	50,609.09	24.775	32.40	27,553,000	112.69
Slovenia	34,419.59	2.066	28.93	2,443,172	117.46	New Zealand	38,775.97	4.844	33.64	6,400,000	136.00

(Source: International Monetary Fund, World Economic Outlook Database, April 2019, and International Telecommunication Union, Indicators, 2018)

It can be said that this Asian economic development is in a way brought about by Asian diversity. For example, although there are differences in political systems, the Asian region absorbs knowledge, as well as capital, through foreign direct investment, mutually complementing differences in economic development stages with cultural differences such as population size and nationality. This is achieved through export-oriented industrial policy. In that case, we cannot ignore the existence of the US market as an export destination. Above all, in the ICT industry, the accumulation of technology through manufacturing services such as OEM to EMS, and the establishment of unique brands such as Samsung, LG Electronics, Foxconn, ZTE and Huawei, has captured a large portion of the international market share of mobile communication terminals from mobile phones to smart phones. Furthermore, today we are showing the development of geopolitical and economic issues that extend beyond the US-China trade war as well as security concerns over next-generation 5G technologies for mobile communications.

On the other hand, if we look at cultural regional exchanges, on the interconnected networks supported by ICT, the formation of social networks across borders and the

commercial culture of content businesses driven by the rise of urban culture in the Asian region has been becoming popular. Specifically, along with the “Korean Boom” and “Kawaii” culture, idol culture such as K-Pop and J-Pop, and cultural integration in the entertainment industry such as animation and games have been revealed in each Asian country, especially for the younger generation.

Furthermore, cultural convergence in the Asian region has increased mutual trade of goods, content and services, especially for young people, and e-commerce for this purpose has expanded to domestic as well as cross-border businesses. However, in e-commerce, the underlying currency payment method is indispensable, and the spread of e-money as a payment method in e-commerce is unique in each "living sphere", "commercial area" and "economic zone" in each region while having a mechanism to support the border crossing is being developed.

2. Expanding E-commerce and SNSs in Asia

While mobile communications have rapidly expanded in Asia, electronic commerce (e-Commerce) has dramatically increased through their devices. The platform competition over the API (Application Programming Interface) for has intensified, and the services and contents provided through the application have become enormous and diversified. In particular, e-Commerce and SNSs, as the symbolized GAFA (Google, Amazon, Facebook, and Apple), have expanded the market while amplifying people's desires.

Table 2. Major Application Service & Content Providers in Selected Asian Countries

	USA	Japan	Korea	China	Indonesia	Thailand	Vietnam
Online Shopping	Amazon	Amazon (Alibaba)		(Amazon)*3 Alibaba	Alibaba- PT Tokopedia Lazada	Alibaba- CP group Lazada	<Amazon> Lazada
		Rakuten Yahoo! Merkari	Coupang	JD.com	Bukalapak Shopee		Tik/ Sendo/ Lamido (Facebook)
Search Engine *1	Google Yahoo!	YahooJapan Google	Google	Baidu	Google	Google	Google
SNS*2	Facebook, Twitter, Pinterest Instagram	Facebook, Twitter, Mixi, Instagram	Facebook, KakaoStory Twitter	Qzone, Sina Weibo, Baidu Tieba, Tencent Weibo	Facebook, Google+	Facebook, Google+, Instagram	Facebook, Google+,
Messenger and Chat app*2	Facebook Messenger	LINE, Facebook Messenger	Kakao-Talk, Facebook Messenger	WeChat	BlackBerry Messenger (BBM), WhatsApp, Facebook Messenger	LINE, Facebook Messenger	Zalo, Facebook Messenger, Skype

Electronic Money	PayPal	<i>Suica, Waon,</i>	<i>'Chocos',</i>	UnionPay	Flazz Card,	Rabbit,	momo
	VISA/	<i>T-Point,</i>	<i>'acorns',</i>	'Alipay'	Espay	E Payment,	
	MasterCard	<i>Ponta,</i>	<i>T-money, eB</i>	WeChat	(Emtek)	TrueMoney	
	<i>'Apple Pay'</i>	<i>nanaco,</i>	<i>Card</i>	Payment			
	<i>'Google Pay'</i>	<i>Rakuten Edy</i>	<i>(chashbee)</i>				
		<i>(NTT)</i>					
		<i>'Apple Pay'</i>					
		<i>'Google Pay'</i>					
		<i>LINE-Pay</i>					
		<i>Pay-Pay, etc.</i>					

注) *1 StatCounter GlobalStats [<http://gs.statcounter.com/>]

*2 we are social, "Digital in 2016" restricted online from [<http://wearesocial.com/uk/special-reports/digital-in-2016>]

*3 Amazon Gives Up on Chinese Domestic Shopping Business, *The New York Times* (April 18, 2019)

[<https://www.nytimes.com/2019/04/18/technology/amazon-china.html>]

Google, Facebook and Twitter originated in the United States and spread worldwide, with penetration is also seen in Asian countries, featuring unique APIs which are drawing out the characteristics of each country. The most popular chat and message service in Japan is LINE, and Korea also has Kakao Talk. Also, in Japan, unique online shops such as Rakuten and Yahoo are competing with Amazon. In Korea, "Coupang" dominates online shopping. In China, the government does not allow the use of Google and Facebook from the United States, and so Baidu and Weibo have an enormous number of users for their equivalent services, and Alibaba is achieving market dominance in the online shopping.

In Southeast Asia, Lazada has won the largest share in online shopping, but Alibaba in China is developing the market, aiming to acquire Lazada in Indonesia, and cooperating with the CP group in Thailand. Indonesia's message and chat service is distinctive, and the BlackBerry Messenger (BBM) from Canada is dominant. Vietnam's own Zalo service is also spreading. It can be said that each country is developing and spreading its own API reflecting their communication culture.

In addition to these major API services, the ICT businesses that have incorporated financial services deserve attention. Apple intends to introduce "Apple Pay" into Suica, which has the most popular electronic money function in Japan. Alibaba looking to capitalize on the huge market in not only China, but also South-East Asia, has developed "Alipay" and is trying to put it in customers' wallets. Alibaba has also sought to introduce its e-money "Ally Pay" to the Japanese market for Japanese customers, but Japanese banks refuse to cooperate on the grounds of privacy protection for their customers.

GAFAs has expanded the market by expanding the network of people's desires while capturing the characteristics of each Asian region. *The Four GAFAs* author S. Galloway (2017) shows that Google fulfills a desire for knowledge, Amazon drives consumption (owned), Facebook stimulates love (relationship desire), and Apple reveals a desire (Living desire) amplifies. In contrast to these global platforms, Asian countries have acquired their commercial areas by regional platforms that take advantage of regional characteristics. In

addition, while straddling these spheres, consumers belong to the regional living spheres.

And, the media linking these economic areas, commercial areas, and living areas is "electronic money". Electronic money is supported by the credibility of desires and relationships with others. Therefore, circulating electronic money cannot be established as a means of exchange (transaction) without credibility to connect people and overcome "information asymmetry" for both parties. In other words, it can be said that the whereabouts of electronic money supporting this relationship prescribes the relationship with others. The cashless development mentioned above depends not only on technical feasibility but also on the trust formation (credit provision) regarding what kind of money is to be used to settle debts (payment) in society.

On the other hand, there has been a lot of fighting about information technology and services between China and the U.S. Under the control and regulation of the Chinese government, the entry of U.S. companies into this sector in China was restricted; e.g. Facebook has not been available since 2009. In addition Twitter, Google search and maps, and YouTube have also been unavailable on the Chinese mainland since 2010, while Apple set up the base for its cloud service in China and sold the VPN application, but transferred its operation to a Chinese company in 2017 after the enforcement of the "Cybersecurity Law of the People's Republic of China".

In addition to the main API services, the ICT business incorporating financial services is also worth noting. When Apple introduced its "Apple Pay" to Japan, it incorporated the most popular JR East Japan FeLiCa *Suica* into the iPhone. As Alibaba develops its online shopping business not only in the Chinese market but also in Southeast Asian countries, it is trying to squeeze its electronic money Alipay into the customer's smartphone wallet. Alibaba is also aiming to enter the Japanese market, but was refused cooperation with electronic payment via the bank account of Japanese customers, as there were concerned about the outflow of personal information from Japanese banks. Electronic payment services using electronic money by these APIs reflect their own developmental routes, reflecting the institutional currency system based on the business practices of trust relationships in Asian countries. What would we choose as a method of settlement? Will it be paid by cash or debit card for quick payment? Should we pay with a prepaid pre-paid card or a coupon card? Or will we choose to post-pay with a credit card? The difference in culture is "mental software", defined by G. Hofstede et al. as the "rules of the game of society" as manifested in the choice of payment method (Hofstede, G., GJ Hofstede, and M. Minkov, 2010). Furthermore, there are institutional factors, like credit card, in a credit giving system for withdrawal from a bank account, the payment method is limited depending on whether credit is established for the ability to pay. Automated teller machines (ATMs) and contact payment systems (such as FeLiCa technology) require their own terminal systems, the use of these cash withdrawals and

prepaid add-on payments is theirs, and it depends on the location of the device. In order to use a prepaid card including coupons (discount service), a separate system for withdrawal from a bank account is required.

Regardless of the location of a dedicated system for this purpose, the use range of the smart phone as a portable terminal device that is already widely used may be rapidly expanded. That is, mobile payment systems using QR codes promotes an increase in the amount of electronic money held in the electronic wallet. In fact, in China, cash systems have not been sufficiently distributed due to problems with counterfeit bills, currency exchange systems, and filthy money themselves, and it has been recognized that costs via banks have been high for remote settlement of accounts. “Alipay” of the online shopping *Taobao* of Alibaba and "WeChat Payment" of SNS chat service WeChat of Tencent by using QR codes along with its own payment service in the electronic wallet require the registration of the subscriber's bank account and credit card. Their use for settlement in other industries and as a remittance service for friends and families is also expanding, and now a cashless system is rapidly spreading in QR code settlement. This also means that, in China, which has a huge commodity market and a huge SNS market, it is possible to know, through the net, the reality that the real existence of various products could not be recognized and confirmed by the shop itself. Since it is possible to make settlements promptly, it also made consumers more motivated to buy. In the SNS market, interaction with various acquaintances and friends is realized by using WeChat for Chinese users. The interesting thing here is that when they try to share information with friends using WeChat's “Moments” function, comments with other than common friends and information about “♡Like” buttons are not shared, like on the Japanese LINE, so there is no point in sharing information except with common acquaintances, similar to sharing information in group settings and Facebook timelines. In other words, friendship in China respects the diversity of individuals. In this way, competition in the online services market is being developed, reflecting the diversity of communication cultures and business practices of each country in the online shopping and SNS markets.

In Japan, there is also a government cashless promotion policy (such as exemption from the increase in consumer goods tax for cashless payments), and not only SNS businesses, but also telecommunications carriers (NTT DoCoMo's d-pay, KDDI's au-pay, Various cashless payment services ranging from SoftBank Group's PayPay's own system to transportation system's prepaid card business and financial institutions) are raging, and at present the dominant system has not been established.

On the other hand, the competitive relationship of information and communication technology also projects the policy stance of Asian countries in depth concerning the issue of intellectual property rights over advanced technology and the problem of possession and management of big data related to personal information protection. In particular, there is fierce pressure between China and the United States. Under the Chinese government's

management control and regulation in this area, entry of US companies into this area of China is restricted. Specifically, Facebook will not be available in China after 2009, and Twitter, Google's search engine and maps, and YouTube for video distribution services will no longer be available in mainland China from 2010. In addition, Apple has a Clyde, this is contrary to the computers service base in China and sells virtual private network (VPN) applications. However, the "Chinese Cyber Security Law" (hereafter referred to as "Cyber Security Law") of 2017. After coming into effect in June, the business was to be transferred to a Chinese company. Meanwhile, the US government imposed sanctions on China's ZTE and Huawei for violation of the Iranian sanctions. As a result, the two Chinese companies' telecommunications equipment transactions were banned due to violations of trade export controls and the threat of copyright violations using "backdoor" and "kill switch" programs. The problem is not only the current US-China trade war issue but also the closure of Huawei and ZTE with the introduction of 5G (fifth generation) mobile communication facilities by the Australian government and allied states of the United States, including Japan.

As ICT markets have developed through technological advances and competition for global standards has spread, a requirement has arisen to understand the unique socioeconomic, political and cultural features within each geographical region. In other words, the field of ICT has expanded from a technical global standard to a "glocal (global+local)" strategy based on the cultural and socio-political contexts.

3. Mosaic Diagram of "living sphere", "commercial area" and "economic zone"

Technology pursues universality and versatility, and is globalized with standardization, but cultural economy may evolve in its own way in the region. While the information economy is technology-based, the uniqueness of the region is also demonstrated by content and applications. There is a shift from attention to technology to interest in culture. The "Galapagos" phenomenon is not a problem in technology strategy, but a cultural phenomenon.

On the other hand, in the service sector, companies that dominate the business that has established a universal position as a platform have also emerged (Evans and Schmalensee, 2016, Parker, et al., 2016, McAfee & Brynjolfsson, 2017, and Moazed and Johnson, 2016). On the other hand, why did Japan become a "Galapagos" in the mobile phone business? If we look only at the technical side, we will miss the core issue. The fact that the Shinkansen has not been adopted abroad is a cultural factor rather than the result of technical or economic (cost) issues. Is it possible to operate a system like *Shinkansen* in countries other than Japan? The preciseness of Japanese culture is hampering global business. The same thing can be seen in the mobile phone business. As a symbolic model of feature phones facing smartphones, in

Japan, a model dedicated to a specific Japanese company has spread, and as an example of becoming a technological Galapagos, "*Galaque*" has been taken as short for "Galapagos Mobile Phone." The element technology of mobile terminals technically, it is popular in Japan for *Galaque* which is second to none, and has gained strong popularity in Japan. There, the technologies, services, and content that make up the network system tend to reflect the cultural value of each region and country, and the "fineness" of one-key numeric input in Japan is a society accepted by Japanese users (culture).

Such socio-cultural acceptance is the next generation of technology that attracts attention to AI (Artificial Intelligence), IoT (Internet of Things), Big Data, our "living sphere" (individuals with regional characteristics) How to penetrate from "business area" to "commercial area" (business area based on customer characteristics), and "economic zone" (having an economic base that transcends regionalism-by establishment of platform-trade area) are also considered in terms of their social factors.

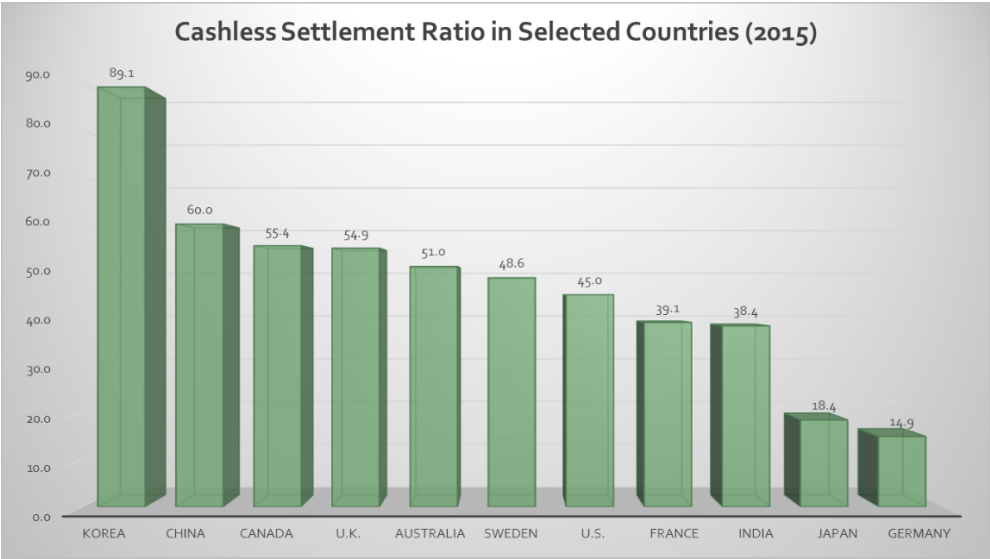
As shown in "Table 1. Major applications, services & content providers in Asian countries, and electronic money", there is "Apple Culture" created by Apple Inc., "Google Empire" established by Alphabet capital G bootcamp, the "Amazon Economic Zone" of online shopping, and Facebook of SNS (in the case of a business as an advertising medium) which have expand the business globally as a platform and "the economic zone" has been extended. Alibaba and Tencent in the Chinese market facing these American companies across the border have expanded the "economic zone" to the Southeast Asian market while making a huge domestic market the "commercial area". In Japan's special domestic market, online shops Rakuten and Yahoo, as well as Mercari have established each "commercial area", and LINE has become the most popular chat application and has extended its reach into Thailand and Taiwan. One of the things that cannot be missed in these trends is the introduction of electronic money, and while Amazon is based on credit card payment, it pools its own customer's funds through gift cards, and Apple Inc. and Google each have ApplePay, and AndroidPay has been introduced. China's Alibaba and Tencent store have their own electronic money, namely Alipay and WeChat Payment from the Internet business to the real retail industry in a registered wallet for smartphones (subscriber). Japanese Internet business players are also rushing to introduce and disseminate their own electronic money, but they are just getting started.

Based on these developments, the progress of the cashless economy can be a touchstone to determine the offensive and defensive status of the "commercial and economic zones". Figure 2 shows the cashless payment rate (2015) in major countries. According to the Ministry of Economy, Trade and Industry (METI), Japan, Korea is the most cashless country, China is the second-largest, while Western and advanced countries follow, while Japan and Germany are less cashless countries compared to other advanced economies.

Korea, which experienced the Asian economic crisis in 1997, is promoting a credit

card disseminating policy, and along with David Card, has become the most cashless country, with a focus on credit card use. In addition, the penetration of the My Number System ("Resident Registration Number") and the progress of digitization may be the basis for promoting the use of credit cards. On the other hand, in China, as mentioned above, the credit check and credit information were underdeveloped before the rapid spread of QR code settlement, and the use of the UnionPay card as a debit card promoted cashless and economic development and brought about the expansion of consumption. After that, the US and European countries follow, but Japan and Germany are listed as developed countries that are not becoming cashless. Institutional and cultural factors can be considered. Industrialization needs to establish a production system systematically with the stability of the currency, and such a successful experience gives credibility to cash. However, in the case of Japan, in view of the situation where my number system is not sufficiently available, it can be said that the consumption behavior is separated by various payment methods. Above all, while cash settlement with anonymity is the norm, the spread of point card systems is expressed by the expectation of point redemption bonuses ("good feeling") in micro-transactions showing the national character.

Figure 1. Cashless Society: Where is advanced society?



Source: Ministry of Economy, Trade and Industry (METI), Japan, *Cashless Vision*, 2018

The cultural characteristics found in life build up mosaic-like multi-layered segments in the market. Here, while preferring the "commercial area" service area that makes use of regional characteristics while focusing on the "living sphere", the more selective products and services provided by the platforms as their areas It is enjoyed by being taken into the economic zone. And culture is formed by the system which has the historicity of each area. In

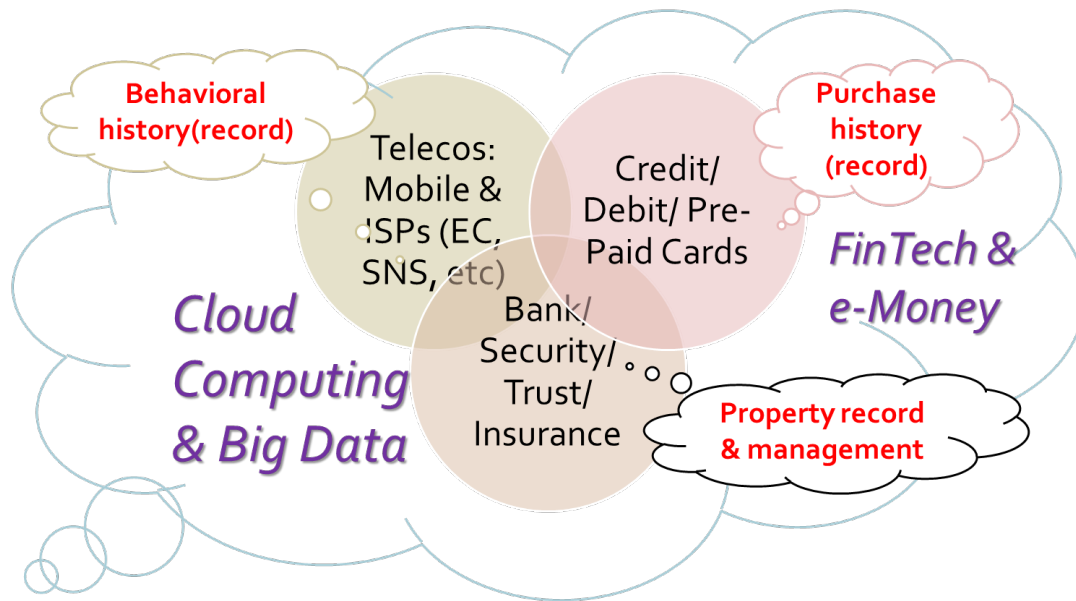
the case of the adoption of electronic money, as with the technology trajectory, it will depend on the system of trust formation, business practices, and the route based on customs. For example, in Japan, in a culture that respects cash, electronic money and credit cards are complementary payment methods in the country, credit cards are expensive payments, and prepaid and coupon-using electronic money are for small payments, value judgement. By contrast, Korea has strategically developed leading-edge information policies with the My Number System, which has led to the use of credit cards in domestic e-commerce, even at small-scale transactions at convenience stores. On the other hand, in China electronic money, with smartphone payment such as Alipay and WeChat payment, has become an alternative payment means to cash to avoid problems of forged money and currency exchange, and at the same time debit card's credit is used as a means of payment for shopping not only domestically but also abroad. Furthermore, an affiliated company Ant Finance of China's Alibaba Group has developed a system to determine whether "Zhima Credit" (Sesame Credit) is a credible party in the transaction, and the indicators shown their credit is provided. As in these situations in East Asian countries, it can be seen the path dependency of institutional changes that are influenced by the cultural context, in particular the way of forming trust in payment instruments. In other words, Japanese people tend to believe in cash that is accurate and reliable within the logic of their inner circles, as a highly anonymous means of payment where purchase history is not specified, and Koreans are given to credit, and prefer to post-pay on credit card systems, while Chinese people tend to voluntarily provide their information in cyberspace, thereby assessing their creditworthiness and wishing to receive services based on that assessment.

However, if we look at the trend toward cashless transactions along with the expansion of the e-commerce (on-line shopping) market and the digitization of the financial market, cash-based transactions may become a bottleneck in future economic activities.

4. Trust Structures under the New Digital World in Asia

In anticipation of the expansion of “living spheres”, “commercial areas” and “economic zones” into cyber space and the increase in transactions via electronic money, the foundation is the reliance on personal information as well as accumulation, management and operation of customer data, e.g. their property records, behavioral records, and purchase records. In these respects, cultural factors across borders have also portrayed movements in business and communication services and financial services as well as mosaic-like and multi-layered geopolitical economics. Figure 2 illustrates the Big Data battle over account authentication.

Figure 2. Battles in Account Authentication

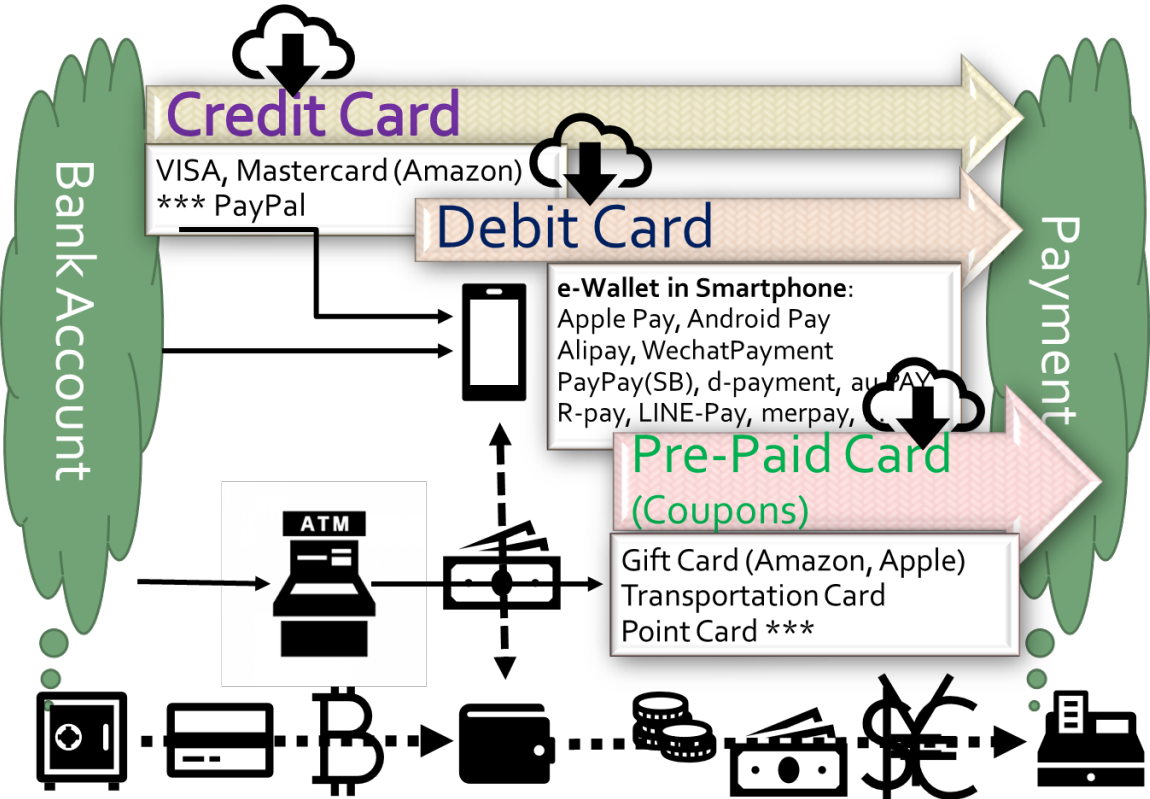


Personal authentication in cyberspace can be followed by personal identification by opening an account (which would be an account in the case of a bank). A history of various services is accumulated as electronic data through this account. Specifically, in financial services such as banks, securities companies, trust banks, insurance companies, etc., assets are managed by customer account numbers (accounts). Then, various card companies such as credit, prepaid, debit, etc. are entrusted with debits from the payment account in the card subscription registration and hold and manage the purchase history data of the card holder. On the other hand, an information communication service provider in cyber space (from a communication provider to an Internet service provider, or a service provider through an application) acquires user's action history data related to a provided service. The business of owning and utilizing various data also leads to the identification of these individuals as big data links the consumer (buyer) "life sphere" with the supplier (seller) "commerce area" by taking it into the platform of the "economic zone", advantages can be gained. Specifically, Amazon and JP Morgan have partnered in lending and banking, Apple has announced a partnership with Goldman Sachs in payments and lending, and Amazon will set up its own bank. The story has become a topic as it relates to FinTech development. Alibaba and Tencent have also shown movement forwards launching their own financial businesses.

Considering the system of providing credit in financial services from the user's payment (payment) procedure, the development of today's electronic money is based on the "e-wallet" (including the system of transportation cards and point cards). It will be as shown in Figure 3, with electronic money users (holders) generally depositing with financial institutions as deposits and investment funds unless they hold their own assets in cash. This asset is to store cash or electronic money in its own wallet (electronic wallet) in order to turn

it into consumption expenditure as needed. Here, electronic cash and a wallet (specifically, an electronic data passbook stored through a smartphone, a contactless card or the like) are important starting points for physical cash and a wallet. For example, although it is physically used as cash utilization that secures anonymity, electronic money will be tagged with other electronic record data, and where such information is comprehensively accumulated it is possible to develop a business with FinTech that utilizes big data (when, who, what, where, for what, how, in whom relationships).

Figure 3. Whereabouts of Money and Credit



Then, in the consumer behavior, credit (authority of electronic information) is confirmed at the time of settlement and processed. In addition, it is one of the roles of the platformer that the credit is provided in the card and the wallet here. In the information management of consumers, whether they trust the platformer or financial service provider is also the core success factor in the service is spread.

Traditionally, the banking system has been performing credit rating, such as credit rating by debtors and for loan transactions based on the accumulation of credit risk in the past and credit data, etc. Based on big data, such as the customer's purchase and action record, it is intended to score an individual's creditworthiness. In addition, as a credit system, escrow service, which is a system for a bank to conditionally settle the transfer amount as a third party through a seller and a buyer as a third party, has been provided by auction and free

market app providers on the Internet.

As above mentioned, Alibaba has already provided a credit scoring service “Zhima Credit” to its customers Tencent also recently started to provide the same service, named “WeChat Pay Points”. The former is a service that analyzes the following five factors and numerically indicates the creditworthiness of individuals through artificial intelligence:

- (1) Identification attributes: Academic background, work history, identification card information,
- (2) consumption behavior: shopping and service usage history,
- (3) personal contacts: friendship and acquaintance's credit status,
- (4) credit history: credit card repayment history, and
- (5) payment ability: real estate, etc. asset status.

The latter consists of following credit scores calculated based on WeChat Pay’s pool of data, particularly on personal consumption behavior and the ability to keep obligations:

- (1) identity traits: basic information such as name,
- (2) consumption characteristics: WeChat Pay consumption behavior, and
- (3) compliance history: usage trends of services¹.

Besides the above scores and points, the following can be considered as evaluations that are emphasized on/off the Internet;

- (1) review by authority including influencers,
- (2) reputation including word of mouth,
- (3) terrestrial ties/blood relationship, and
- (4) affiliation (position/title).

In a word, the world of the cloud computing through the Internet is from the evaluation of attributes such as the previous status and position to the personal identification evaluation from data science accompanying the emergence of big data related to personality formation based on behavior history. It may be shifting the importance of trust information (Botsman, 2017).

However, it is necessary to show that there is an open / closed system of political and cultural personality certification of geopolitical and economic trust formation over "living sphere", "commercial area" and "economic zone." Ultimately, the common base that enables the independence and interconnection on those mosaic of societies is the currency system depend on the degree of mutual trust and sharing of personal data. The spread of electronic money cannot be combined with cultural and political conflicts and coordination along with technological competitive advantage.

¹ Nicole Jao, “WeChat takes on Ant Financial with new, integrated credit scoring system,” *Technode*, Jan 11, 2019

[<https://technode.com/2019/01/11/wechat-credit-score-sesame-credit/>]

5. Concluding Remarks: Inner Circles vs. Open Networks

Yamagishi (1998), a social psychologist, conducted an empirical study of how Japanese people and Americans trust other people in a book entitled *The Structure of Trust*, in which Japanese people are against the affiliation of their partners in contrast to trusting, Americans have suggested that personal qualities are corroborated. Generally speaking, the Asian society, emphasizes a “connection” in societies based on land and blood ties, and the ties between the inner ring and the rivalry against the outer ring have been made clear. However, the rapid progress of globalization has expanded the area of the outer ring unrelentingly, technology continues to innovate to support those activities, and systems (the protection of cross-border data, taxation system, management of data management / operation) is also in the process of being developed accordingly.

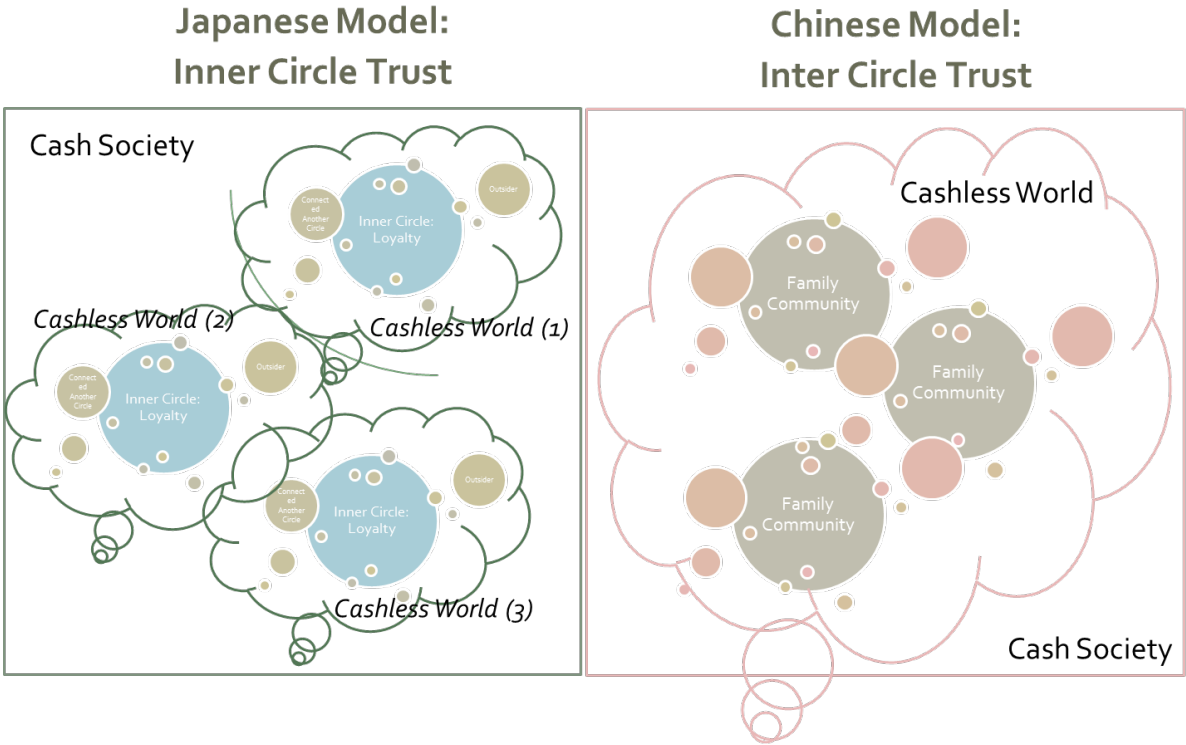
However, it is clear that there is more diversity (network of division and connection) in the framework of the net society than the globally in common, due to the difference in cultural social structure formation and political control structure. In particular, in securing mutual trust among various parties, it is a big issue as to where the duty of data management and management of trust formation is held.

If Japan and China are taken as an example, the difference is deeply reflected in the development of electronic money and credit rating, even though both computers are located in East Asia. Figure 4 is a conceptualization of the relationship between electronic money development and trust formation in Japan and China. Japan is a vertical society that builds a hierarchy within an authoritarian organization based on the "inner circle" logic. The hierarchy promotes competition between groups as symbolized by “affinity”, and is driven by uniform competition among individuals horizontally. On the other hand, in China, although it is authoritarian, its scale is covered by the central government's governing system on the uniqueness of each province and has a structure similar to that of a federal country. In such a structure, although common characters are used in Chinese, their pronunciation varies from region to region, and it is not always the case that conversation is possible, even though they have the same written language in common. Although they have a common base, their operation is diverse. Although this is in each "living sphere" of each region, the "economic zone" of a platform extends the "commercial area", which is the foundation of the business, and integrates various commercial areas online. This highlights the differences between Japan and China in developing e-money, and a cashless society.

Japan does not build confidence on the logic of an "inner circle" and adheres to the "trade area" within the group, but cannot build trust anywhere in the "economic zone", with anonymity under the framework of faith of the state. It can be said that it is a cash society based on consumer behavior. In the case of China, if it is possible to form trust in a common system with various others beyond various commercial areas, an electronic payment system

by QR code is in an effort to build preferences in consumption behavior and to build trust from consumption behavior. It spread rapidly to replace cash.

Figure 4. E-money and Trust Relationship



The method of acquiring trust in the Internet space where the other party can not be identified directly may differ depending on the cultural basis of trust formation cultivated in the real space. Economics suggested that sources be sorted by "signaling" (sending) and "screening" (sorting) under asymmetric information conditions. Gaining understanding and trust by "signaling" (sending) where the group with information reveals private information to the group without information. On the other hand, a group without information performs "screening" (sorting) in order to make the group with information reveal information, and identifies whether a certain partner is reliable. The process and scope of trust building will form a mosaic-like multi-layered segment from “living area” to “commercial area” and “economic area” in the Asian market. In such a case, there is a question of the user history of electronic money and cash as a means of consolidation, and the credit rating is not a logic of exclusion by ranking, but provided by M-PESA in Kenya and Grameen Bank in Bangladesh. It is also required to function as an “inclusive” financial and monetary system that also incorporates a credit provision system for redress and support such as microcredit (unsecured small value loans). The realization of interconnected life zones will be shaped by electronic money facilitated by trust formation.

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