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Regulatory Assessment & FDI Review

The Digital Economy in Japan

Hosuk Lee-Makiyama ▪ July 2018



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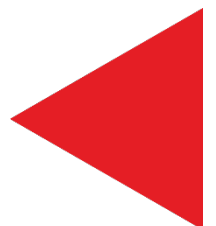
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1. An open digital economy

Ready for industrial and societal transformations

It is probably self-evident to talk of digitalisation as the biggest transformational force of our society since mass manufacturing. The internet has particularly transformed the economy, trade and commerce to create a global market place – and the ability to aggregate and service global demand via the internet has changed trade towards inclusiveness.

Nonetheless, the digital economy is set for an even bigger revolution than how the internet changed demand. The next generation will transform supply – the future factories of the 21st century. 5G networks offer 200 times faster speeds, 1,000 times better energy efficiency and 20 times shorter latency which will enable any object to be connected and transmit sensory readings from any location. 28 billion new devices (the so-called the Internet of Things, IoT) are expected to go online in just a couple of years,¹ and tie together production equipment, logistics and people seamlessly.

This virtualised and connected business is what Europe and the US call the fourth industrial revolution or Industry 4.0. But perhaps Japan is already one step ahead: Japan's new policy plans are built on the coming Super Smart Society – the Society 5.0 – that looks holistically to all societal interactions which will be augmented by automated decision-making of artificial intelligence (AI), robotics and other technologies.²

Digitalisation to support for economic reforms

Both technology and societal innovation is the next step in Japan's policy response to many of Japan's constraints with the ageing society and the need to revitalise the economy. However, in the short term, Abenomics has boosted corporate profits, and to some extent, also stimulated growth. At the time of writing, GDP numbers show eight quarters of consecutive growth, which the longest stretch of positive growth in Japan for 28 years.³

Emerging markets like China and India may show more impressive GDP numbers compared to the EU or Japan. However, not all of that growth is actually available foreign investors – as the digital economy is one of the most protected and regulated sectors in the trading system. Against this ominous background, Japan's offers a completely different narrative.

Japan – as the innovation hub of automation, sensory technologies and artificial intelligence (AI) – is at the nexus of this development. Europe is a standard-setting market leader in network technologies as the home for two of the three world suppliers. There are cross-investments, regulatory cooperation and a newly signed trade agreement between the EU and Japan which opens new opportunities.

¹ Gartner, Forecast: Internet of Things – Endpoints and Associated Services, Worldwide, 2016

² Cabinet Office of the Government of Japan, Society 5.0, accessed at: http://www8.cao.go.jp/cstp/english/society5_0/index.html

³ Bank of Japan, Quarterly Data October-December 2017, released February 14th, 2018

2. Market prospects

E-commerce

The internet has particularly transformed the economy, trade and commerce to create a global marketplace – and the ability to aggregate global demand through the internet has changed global trade policy towards inclusiveness. Academic research shows that internet usage had a measurable direct impact on economic growth, primarily by expanding trade.⁴ Market assessments estimate the value of all commercial transactions conducted between consumers (B2C), business (B2B) and peer to peer (C2C) to US\$ 2.3 trillion per year in 2017,⁵ and still growing at 25% per year – equivalent to the GDP of India or Russia, with a growth-rate four times higher than China.

Japan's e-commerce market is mature and accounts for US\$ 95bn (€ 77bn) in turnover.⁶ In addition, much of China's growing demand is supplied from overseas due to the restrictive nature of China's e-commerce market: Chinese consumers spent more than ¥1 trillion (US\$ 9.5bn or € 7.7bn) on Japanese merchandise in 2016 via cross-border e-commerce platforms, and projected to more than double in 2019, adding more than 20% to Japan's e-commerce turnover from Chinese users alone.⁷ Japanese e-commerce platforms with strong Chinese and pan-regional presence (such as Rakuten) have tripled their sales.⁸

China still considers operating an e-commerce service inside China (as opposed to cross-border) to be a telecom service which requires a license, and the only wholly foreign-owned entity to be approved by Chinese authorities is a Japanese retailer, Heiwado.⁹ This regional 'hub-ness' of Japan's digital economy follows the historical patterns in traditional sectors.¹⁰

Telecom and mobile markets

The internet and building of a mobile broadband (UMTS and 4G) infrastructure were essential to transform and aggregate customer demand on a global basis as in the past decade but is now today used for more than communication between people. Consumers use connectivity on multiple platforms, devices or vehicles and household items. Through IoT, the industry usage has also taken off, which is why the number of mobile subscriptions in an economy exceeds the number of people (figure 1a).

⁴ Meijers, H, Does the internet generate economic growth, international trade, or both?, International Economic Policy, vol. 11: pp 137-163, 2010

⁵ eMarketer, Worldwide Retail and Ecommerce Sales, 2018

⁶ Ibid.

⁷ Yamabata, Adways to expand analysis of China cross-border e-commerce, Nikkei Asian Review, March 13, 2017

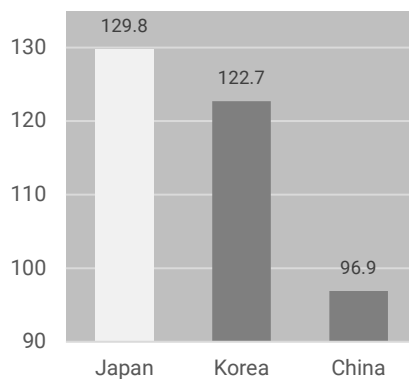
⁸ Yoo, How a leading Japanese e-commerce platform tripled sales to China, TechNode, July 18, 2017, accessed at: <https://technode.com/2017/07/18/japanese-ecommerce-giant-rakutens-sales-triple-thanks-to-chinese-consumers-cross-border-shopping/>

⁹ Lee-Makiyama, Ferracane, China's Technology Protectionism and its Non-negotiable Rationales, ECIPE, 2017

¹⁰ See Lee-Makiyama, Investment White Paper, 2018; Chow, 2012

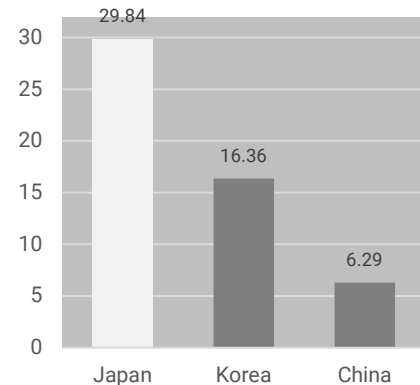
Moreover, the mobile usage and revenue (estimated average revenue per user, ARPU) are still considerably higher in Japan than rest of Asia. The revenue per user in Korea and China is still a half and a quarter respectively of European levels (figure 1b).¹¹

Figure 1a. Number of mobile subscriptions per 100 people



Source: World Economic Forum, 2018

Figure 1b. Average revenue per user (ARPU) in US\$, by the end of year 2017



Source: Kagan (S&P), 2018

With the difference in subscriptions and revenue taken together, China’s internet market is just twice the size of Japan’s, despite a population that is almost eleven times larger. On the bottom line, the gap in profits ought to be even narrower.

Preparedness for 5G, IoT and other emerging technologies

Although all of Asia-Pacific have seen a rapid emergence of infrastructure and online services, where will the next revolution, the one of Society 5.0 and Industry 4.0, actually take place first?

The question depends on the actual roadmap for deployment of underlying technologies, such as 5G and IoT where most market projections and commentary show that the US, Japan and Korea will see the first roll-out of 5G networks in late 2018 and early 2019.¹² Although China will take the lead in absolute numbers 3-4 years after deployment,¹³ Japanese network operators will rapidly invest ¥5 trillion (€40 bn) and complete a nationwide network service in less than four years.¹⁴

¹¹ Fuk, J, Steady Broadband ARPU Growth Expected Despite Fierce Competition In East Asia, March 13, 2018, S&P Global Market Intelligence, accessed at: <https://marketintelligence.spglobal.com/blog/steady-broadband-arpu-growth-expected-despite-fierce-competition-in-east-asia>

¹² See Scott, M, Mobile World Congress to show why Europe is the world’s 5G laggard, Politico EU, February 26, 2018; Reuters, Nokia CEO sees Europe lagging China, the U.S. in 5G roll-outs, February 25, 2018,

¹³ Weissberger, CCS Insight: China to lead global 5G adoption which will take longer than 4G, IEEE Communications Society, accessed at: <http://techblog.comsoc.org/2018/01/24/ccs-insight-china-to-lead-global-5g-adoption-which-will-take-longer-than-4g/>

¹⁴ Bushnell-Embling, Japan’s cellcos to invest over \$45.5b in 5G, TelecomAsia, June 8, 2017, accessed at: <https://www.telecomasia.net/content/japans-cellcos-invest-over-455b-5g>

Speed to market matters for the availability of innovative over-the-top services and industrial applications. Also, the market projections of ecosystems like Society 5.0 and Industry 4.0 depend on the availability of not just hardware, but also a more complex system of networks, software, services and a secure environment for user data.

The graph below (figure 2a) indicates that the availability of new innovative ICT technology is still quite low in emerging markets which are not yet opened to overseas investments and trade, such as China. Also (as the later section of this paper on R&D will indicate), there is still a considerable gap between Japan and China on R&D in non-manufacturing areas.

Figure 2a. Availability of latest ICT technologies (on a 1-7 scale)

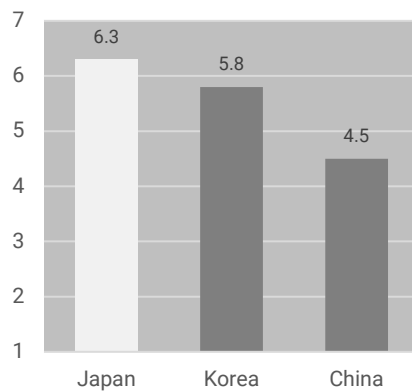
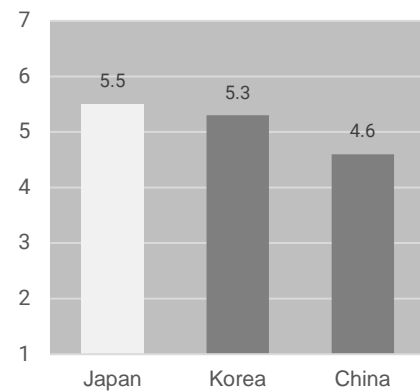


Figure 2b. Firm-level absorption of ICT technology (on a 1-7 scale)



Source: World Economic Forum, 2018

Building the first nationwide and 5G networks will continue to build Japan's lead over other Asian economies in innovation and service development. In contrast, in markets where competition is limited or economies where gains from labour productivity are still not fully exhausted, there may be fewer incentives for technology-driven productivity growth. In the emerging economies, companies are less incentivised to invest in IoT, AI or Society 5.0/Industry 4.0 applications and actually absorb them into their business processes.

3. FDIs and digitalisation

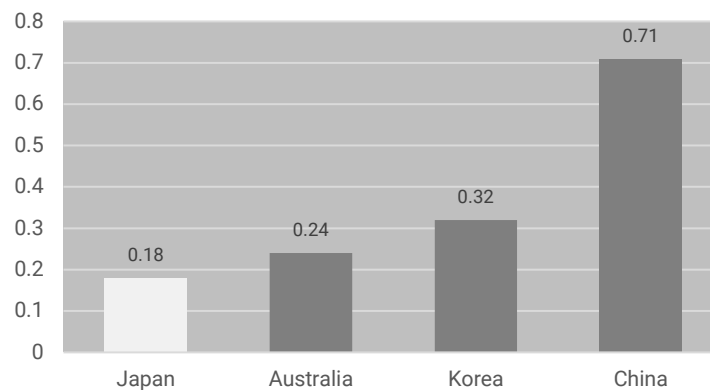
Internationalisation of the digital economy

At least half of all trade in services is supplied via the internet. Even trade in traditional offline services – typically outsourcing business, consultancy services, or logistics – can be severely hampered through data localisation and other regulatory requirements. Access to information online is conducive to not just trade, but all investments. Use of business data is fundamental to invest in another country, exploiting existing management functions and overheads.

As there are no binding global rules on online commerce, many countries have effectively rolled back on their openness to foreign investments. The balkanisation of the internet does not only block new services like social media but also hampers the industrial use of the internet.

The distinct difference in openness and free trade in the ICT sector is noticeable in the ECIPE digital trade restrictiveness index which measures the restrictiveness and discrimination of foreign entities in the digital economy as well as the discrimination of online businesses against their offline equivalents (figure 3).

Figure 3. Digital Trade Restrictiveness



Source: ECIPE, 2018

These results show how the major economies take a distinctly different approach to foreign participation in the digital economy. The EU Digital Single Market Strategy is, by and large, an industrial policy package to counter the paradigms of Silicon Valley’s platform economy or to safeguard EU privacy rights.¹⁵

In most of the Asia-Pacific region – perhaps notably in China, platforms and other over-the-top (OTT) business are restricted by censorship. Government procurement is restricted to companies with local ownership. Performance requirements force foreign investors to localise their servers on their territory. Inadequate enforcement of IPRs or coerced joint-ventures with local competitors drain the foreign-invested firms of algorithms, source

¹⁵ European Commission, Digital Single Market Strategy, May 2015

codes and drain Europe of its future competitiveness.¹⁶ In contrast, the Japanese government has adopted the Fifth Science and Technology Basic Plan with the aim to achieve more internationalisation, not less. Openness to foreign ideas and capital is a prerequisite for a ‘super smart society’.

Investor openness

The difference in investor openness and restrictiveness is striking across some field relevant to the development of the digital economy. Japan scores near-zero results in restrictiveness across all aspects of the digital economy, from electronics, online media, engineering and communication. Meanwhile, some of the market clusters highly interesting for foreign investors, such as over-the-top services and social media, or e-commerce are *de facto* closed for foreign investments in China.

Figure 4a. FDI restrictiveness on electronics and other instruments

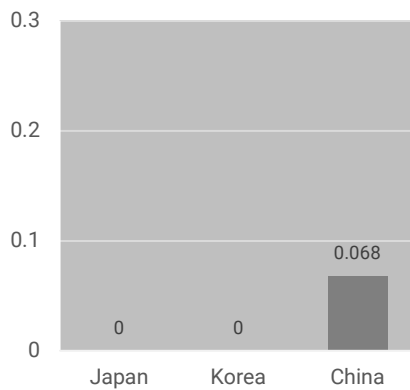


Figure 4b. FDI restrictiveness on engineering services

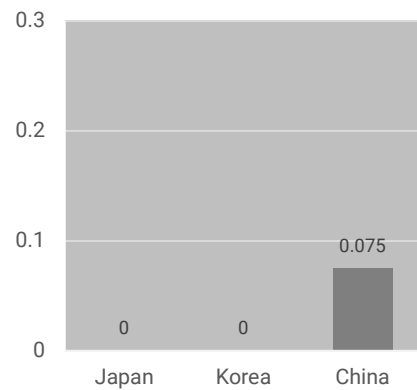


Figure 4c. FDI restrictiveness on communication (mobile and fixed line)

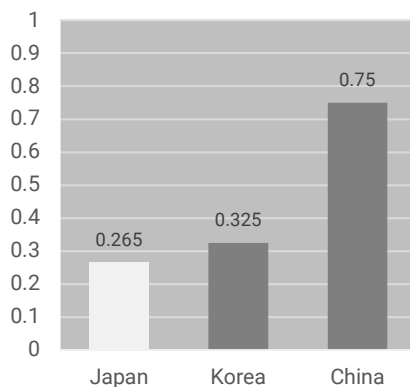
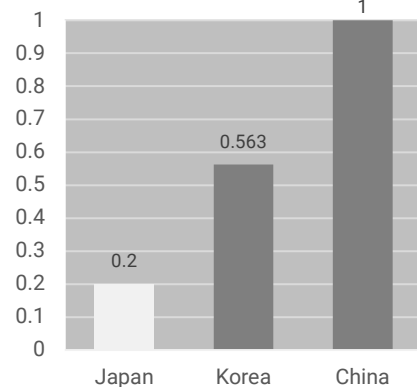


Figure 4d. FDI restrictiveness on media



Source: OECD, 2016

¹⁶ Lee-Makiyama, Ferracane, Diverging incentives for reforming China’s restrictions on digital innovations, *Journal of Chinese Economic and Foreign Trade Studies*, Vol. 10 Issue: 3, pp.259-280, 2017

In addition to openness to the actual openness on FDIs, Japan scores higher than the other Asian economies on indirect factors that is determinant to investor climate, such as the rule of law,¹⁷ non-discrimination and least-restrictiveness of product and market regulations.¹⁸

It is important to bear in mind that Japan's incentives for attracting FDIs are not for liquidity, but a more competitive and connected business environment, and for the structural reforms of the economy. FDIs benefits the host country through increased competition, new know-how and linkages to overseas markets. Despite investments being a major part of Japan's economy, overseas capital has consistently played a marginal role to date. At just 0.7% of GDP, the levels of inward FDI are disproportionately low compared to other developed economies.

However, the share of FDIs in the economy is not always a measurement on how open it is for foreign investments, but rather indicates the demand for capital. As Japan is world's most liquid capital market, it had little incentives to import investments from overseas, but rather exported its surplus capital as investments in other economies.

The return of investment of EU investments in Japan across all sectors is at 6.6%, which exceeds by far both intra-EU investments (3.4%) or the average returns from non-EU markets (3.9%).¹⁹ The combined net income of EU investments in Japan's digital economy is already 632 million euro per year, whereas the net income from China is strongly negative.²⁰

In addition, the combination of yen appreciation and undervaluation of corporate assets in the past have lowered cost of market entry, while boosting profit remittances back to Europe, while Japan's corporate tax environment is also overall advantageous to investors. At 23 to 30%, corporate income taxes have been lowered by ten percentage points in the past fifteen years, and now the lowest amongst the major Asian-Pacific economies with more than US\$ 1 trillion in GDP.²¹

¹⁷ World Justice Project, Rule of Law index, 2017

¹⁸ OECD PMR, 2013

¹⁹ Eurostat, 2016

²⁰ Eurostat, net income on outward FDI, 2015. Includes electronics, information and communication, publishing, computer programming and consultancy, information service activities, telecommunications, scientific R&D. Net income on EU FDI in China is € -3.9 bn.

²¹ Deloitte, 2018, accessed at: <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-corporate-tax-rates.pdf>

4. The impact of trade agreements on the digital economy

Comprehensive liberalisation

Liberalising for international trade and investment is a cornerstone in the ‘third arrow’ of the Abenomics policy package aiming at structural reforms. Japan aims to conclude two of the largest trade agreements ever undertaken: The EU-Japan EPA and the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP) despite the US withdrawal from the latter.

However, there are no incidences of expropriation, foreign equity caps, forced licensing or performance requirements imposed on foreign investors in Japan – including growing sectors like data centres and cloud services where wholly-owned foreign subsidiaries are forbidden in China. Japan is also issuing guarantees in the EPA that it will not do so in the future against European investors.²²

In addition, Japanese tariffs are already amongst the lowest in the industrialised world even before these trade agreements are implemented. Japan applies no tariffs on 55% of its tariff lines, which is the highest share of duty-free trade amongst the G20 economies. In addition, both the EU and Japan are signatories to the WTO Information Technology Agreement (ITA), providing duty-free access to a majority of ICT goods.²³

Japan’s duty-free regime goes beyond WTO commitments, and is the most ambitious amongst the G20 economies. Japan’s commitment to open international market standards have contributed to the openness of Japan’s regulatory environment, which has the lowest regulatory (non-tariff) barriers in this sector amongst the leading ICT economies, e.g. the EU, the US, China and Korea.²⁴

Fighting data protectionism

The cost-cutting impact of the EPA is not on trade in today’s ICT goods but on future products and services and digital innovations. For example, the EPA contains strict provisions preventing governments to require disclosure on source code, where businesses and foreign investors are required to surrender their code for software, apps, or algorithms in exchange for market participation or public procurement.

Also, as a general principle, no prior authorisation should be required to set up online services in Japan – in stark contrast to the system of ‘license raj’ that prevails in much of Asia. Mandatory government license application is becoming the norm for operating an e-business in Asia. For example, a government-issued telecom license (so-called value-added services license) is required to operate an e-commerce service in China.

Another key issue between the EU and Japan that is dealt separately from the EU-Japan negotiations is the recognition of the privacy legislation which will allow full, the two-way

²² EU-Japan EPA, chapter 8 section B

²³ WTO, Information Technology Agreement, 1996; 2015

²⁴ Lee-Makiyama, Future-proofing the world trade in technology, ECIPE, 2011

cross-border data flow of personal information between the two economies. In other words, European investors and multinationals may use a common data platform for and continue to host enterprise software, employer and customer systems and databases in just Europe or Japan, without the need to run duplicate systems.

To date, the EU only recognises four jurisdictions outside of Europe as adequate for free flow of personal and user information in addition to Japan – namely Canada, New Zealand, Uruguay and Argentina.²⁵ Moreover, the EU is also reforming its data privacy rules,²⁶ which will considerably strengthen the rules and conditions imposed on businesses moving data across borders, with sanctions up to 4% of global turnover.²⁷

In addition to the openness assured by the mutual bilateral adequacy decisions issued with the EU, Japan is also bound by the CPTPP provisions that ban governments from requiring investors to localise their data and servers.

Japan's data openness is unique in not just East Asia, but globally: Japan has the lowest level of restrictiveness in the use of data in the Asia-Pacific region and in the OECD, while also maintaining modern and adequate protection for personal information following its recent update of privacy rules.²⁸ In combination with an open society that provides open access to information and data content from overseas, as well as limited intermediary liability for platforms and OTTs: Japan scores an exceptionally low on data restrictiveness.²⁹

In combination, this provides a unique environment for investments in application development and data processing, including fintech, AI and text-based data mining (TDM).

Aside from specific rules on the use of data, the general approach of the coming EU-Japan agreement is to ensure that their standards and technical regulations are based on international standards to the greatest possible extent, including any new coming standards on the digital economy, including permissions to use methods for electronic authentication and e-signature. Also, the EU and Japan have already signed a mutual recognition agreement (MRA) that recognises certification bodies on electronics as well as radio and telecommunications terminal equipment (R&TTE).³⁰

²⁵ See Lee-Makiyama, *The economic importance of getting data protection right*, US Chamber of Commerce, 2013

²⁶ General Data Privacy Regulation, 2016/679

²⁷ Ibid.

²⁸ See amendments made to Japan's Personal Information Protection Act (PIPA): Amendment to the Cabinet Order to Enforce the Act on the Protection of Personal Information, 2016; Enforcement Rules for the Act on the Protection of Personal Information, 2016

²⁹ See ECIPE, *Digital Trade Estimates*, 2018 (forthcoming)

³⁰ Agreement on mutual recognition between the European Community and Japan, OJ L 284 29/10/2001

5. Innovation

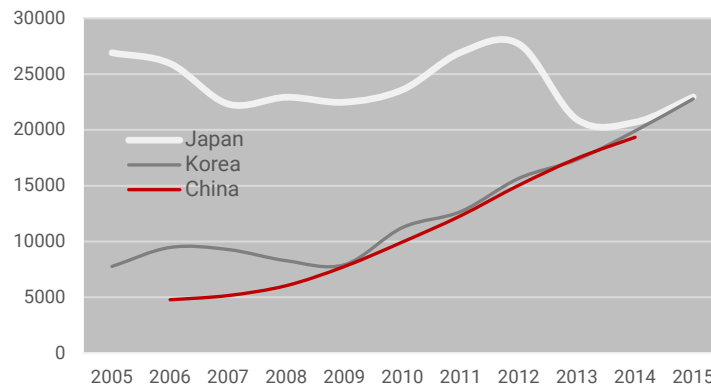
High-end R&D capabilities

An objective of foreign-invested firms entering the Japanese market is not solely for market access, but to benefit from the high-end R&D in the digital economy. Innovating for the next industrial and societal revolution requires connectivity as well as advanced development and commercialisation of automation, sensory technologies, software and services. An open economy is a precondition for a convergence of many innovations involved.

This is clearly exemplified by Japan’s R&D on next-generation of smart robotics,³¹ or Japan’s lead on virtual and augmented reality (VR/AR) which draws on Japan’s comparative advantages on hardware, software and content –³² which is combined with openness to foreign components, expertise, content or data.

Moreover, as evident from figure 5, the Japanese business R&D spending in the ICT manufacturing, software and services segments and is still high, and stably increasing discounted for the exchange rate effects and still larger than other economies in the Far East.

Figure 5. Business R&D spending on ICT manufacturing, software services, million €, 2005-2015



Source: European Commission, PREDICT, 2016

Aside from creating a favourable regulatory and policy environment for not just R&D but also utilisation of digital technologies, the Japanese government has also national subsidies for foreign firms in the IoT fields for setting up innovation centres or conducting experimental or feasibility studies in Japan up to two-thirds of the costs.³³

³¹ JETRO, Market Report, Smart Robots, January 2018

³² JETRO, Market Report VR/AR (Industrial Solutions), October 2017

³³ JETRO, Attractive Sectors: ICT, July 2016

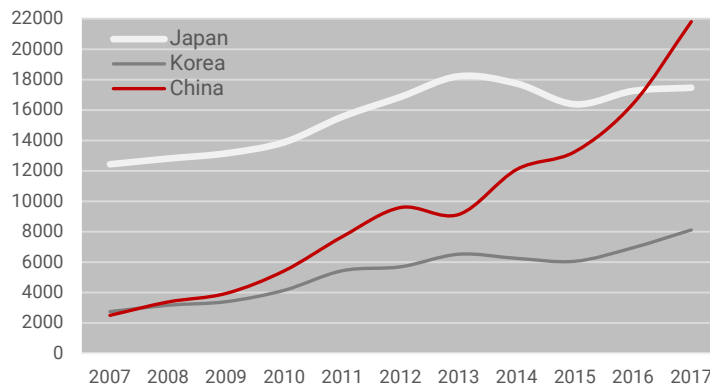
Patent applications

The resulting output from private sector R&D activities is evident in the international patent application according to the WIPO PCT treaty, which can be converted into individual foreign patent applications in multiple jurisdictions where patent protection is to be sought.

As the PCT system neither examine patent applications fully nor grant patents, some of the applications are 'junk patents' where low quality (and unexamined) patents are often filed to discourage market entry. In 2014, China's patent office (SIPO) received nearly 2.4 million patent applications, 93% filed by domestic applicants. China has also climbed to third place regarding international applications, as applications costs (even for junk patents) are subsidised by the Chinese state.

Despite this distortion in the international patent statistics, the clear difference in the number of international applications indicates the productivity and commercial viability in various branches of the digital economy, such as computing, telecoms, audiovisuals and digital communications. The number of Chinese international PCT patent applications did not eclipse Japan until 2017 – a development which was primarily driven by one firm, Huawei, with a heavy concentration of R&D into telecom related technologies, rather than an economy-wide innovation capability.

Figure 6. International patent registrations (PCT publications) in the digital economy 2007-2017



Source: WIPO, 2018

6. Conclusion

The digital economy and evolution towards Society 5.0 play a pivotal role in Japan's societal transformation and economic reforms. Technology has always helped Japan to overcome its natural detrimental factors – and digital technologies will continue to secure GDP and productivity growth for Japan in the coming business cycle.

High profitability per user, rapid absorption and availability of new technologies (especially with the rollout of 5G within just four years) make Japan an interesting market and laboratory for new applications.

Moreover, the Japanese digital economy has a unique feature for East Asia – which is openness. It has one of the world's lowest data restrictiveness and the highest level of investor openness across all sub-sectors of the digital economy. Japan does not apply foreign equity caps, mandatory licensing and restrictions on online access or cross-border data flows. The EU-Japan EPA will also secure the investor and innovation climate for the foreseeable future with non-disclosure protection on source code, regulatory harmonisation and bi-directional data flows with Europe.

As it is well known, the digital economy and innovation thrive on openness and internationalisation. There is also a political commitment to them both in Government of Japan's policy response to digitalisation in Society 5.0 – a much broader societal concept than Europe's Industry 4.0. The commitment to digitalisation with new e-government services will improve the investment climate further with simplified and simplified procedures. Moreover, Japan also promotes commercialisation, absorption and usage of digital technologies – not just its production or innovation. This is already evident in the business surveys, which makes Japan's real market size for digital products and services larger in comparison to other countries.



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