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Embracing Innovation and Economic Development: A Policy Perspective for the Asia-Pacific Region

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Key digital strengths of the Asia-Pacific Region



Young and tech-savvy population supports rapid digitization. Median age in the Asia-Pacific is ten years younger than in Europe, and the region's young generations drive an e-commerce market that grows twice as fast as Europe and the US.



"Mobile-first" culture drives fast growth in online content and a world-class community of app-developers. The Asia-Pacific represents more than half of the global mobile population – and its share is rising fast.

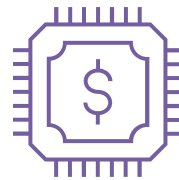


Strong economic growth attracts digital investors and innovators to the region. With expected growth to be three times as fast as in Europe and the US, digital innovation is naturally pulled to the region.

Key digital opportunities for the Asia-Pacific region



Huge potential to grow the number of Internet and smartphone users. In the next few years, China and India will add about 470 new mobile subscribers and raise Internet use by more than 500 million people.



Rapid investment in ICT infrastructure create new capacity for digitizing business and government. The region has countries – like Korea and Japan – with the best network capacity in the world.



Growth in digital entrepreneurship can boost the business sector and raise productivity. Digital innovation creates better opportunities for the region's SME's to access finance and new customers.

Suggestions for policies to support the digital economy



Shortage of digital skills in some regions holds back the pace of digitisation. Raising digital skills would redouble the positive economic impact of the investments in ICT infrastructure and raise economic opportunity



Policies that keep the Asia-Pacific open to the world economy and increase the space for digital innovation and entrepreneurship in all sectors would give the region a strong economic boost



Policies that keep up with the speed of digital innovation – and cuts the time for regulatory and market adjustment – would accelerate digitization and the spread of its positive impact on growth, choice and equality

EXECUTIVE SUMMARY

Great Opportunities for Asia-Pacific Economies to Prosper through the Digital Economy

- The Asia-Pacific region has great opportunities to increase its prosperity through the digital economy. With an annual global growth rate of 10 percent between 2010 and 2015, the digital economy has already helped to shift the world’s centre of economic gravity towards Southeast Asia. Investors and entrepreneurs across the world are pulled to the region because of its high rates of economic growth. Moreover, consumer spending in the region has expanded 30 percent faster than global growth, making the region attractive for every business.
- The region’s digital ecosystem is supported by good technological readiness and a “mobile-first” culture that have been a vanguard of digital entrepreneurship and experimentation. The app market is growing two times as fast in Asia compared to Europe and North America – and new digital platforms have supported the emergence of a vibrant community of app developers. If the region gets its policy right, the positive economic impact of digitization can redouble.
- Importantly, a greater space for the digital economy in the Asia-Pacific region would help to raise productivity growth and increase the long-term prospects for sustained prosperity generation. Productivity growth determines how fast that material wealth in a society will expand, and – recently – several Asia-Pacific countries have seen a decline in how fast they expand their productivity frontier. Worryingly, countries like New Zealand have seen their productivity growth declining – by little more than 0.6 percent per year – and would do well with greater technological dynamism in the economy.
- Success in the digital economy does not happen by default. Just like everywhere else, it is not inevitable that digitization will lead to big improvements in consumer benefits and general welfare. For the digital economy to deliver on its huge potential, there has to be a supportive policy environment that incentivizes investment, innovation and competition. As Asia-Pacific economies ponder the right set of policies for their digital transitions, this White Paper sets out a perspective for how the region could raise the positive economic impact from digitization.
- A first takeaway point is that improving the rate of economic growth on the heels of digitization requires investment in basic ICT capacities – network equipment, hardware, skills. Investment in digital skills is key for hardware investment to generate new business growth, consumer choice and welfare. While Singapore and Hong Kong are the countries with the best individual digital skills in the world – closely followed by other Asian countries like Taiwan and Malaysia – emerging Asia would get an economic boost if its digital human capital improved.
- A second takeaway point is that digitization can lead economic growth and raise economic opportunity if market and regulatory policies allow space for new technologies to effect real change in firms and markets. For consumers and citizens to really benefit from digitization, there has to be a high degree of market and regulatory openness to new ideas, technologies, services and business practices.
- There are plenty of best-case examples to learn from in the Asia-Pacific region. ICT investments in Korea, for instance, have generated a vibrant and rapidly growing software and online-content sector, making the country not just a champion for hardware technology. The high degree of general market openness in countries like New Zealand and Australia have supported growing entrepreneurial dynamism in the high-tech sector.
- Asia-Pacific economies can also consider the learnings in Europe from investment in ICT networks and skills, and efforts in that part of the world to open their economies for more digital innovation and competition. A key positive example in Europe is how the removal of roaming charges encourages cross-border data exchange and use. Moreover, other reductions in cross-border regulatory restrictions have enabled consumers to use their services – like their online music library or subscription – in other countries than their home market. On the less positive side, it has taken Europe a long time to reduce such barriers and

there are still restrictions in place that prevent consumers from using audiovisual services when they are abroad.

A Supportive Environment for Growth in the Asia-Pacific Digital Economy

– The Asia-Pacific region has many underlying social and economic factors that will help drive growth in the digital economy. Asia-Pacific economies are open to business and have gone through periods of profound economic reforms that have integrated countries with the world economy. They are deeply connected to each other – and the world economy – through corporate value chains that rely on substantial amounts of cross-border investment, trade and data flows. In 25 years time, Vietnam's trade sector has expanded from 80 percent to 180 percent of the country's Gross Domestic Product. Thailand's trade ratio – trade/GDP – is four times the size of the US trade ratio.

– The region's outlook for economic growth is strong – much stronger than in other parts of the world. With substantial additions to the economy every year, innovators and investors across the globe are naturally pulled to the region and its opportunities for business. Several countries are expected to grow by about 5-7 percent a year in the foreseeable future – including China, India and the Philippines – and will outperform most other countries in the world.

– Consumer spending in the region is expected to grow even faster. Consumption is boosted by an emerging middle class in Asia whose consumer spending will go from 10 trillion US dollars in 2015 to 35 trillion US dollars in 2030. In China and India, the number of mobile subscriptions is estimated to grow by 470 million between 2016 and 2020, leading to an even faster rate of growth in the use of apps and online services.

– The region is already a pioneer in e-commerce and app-development. With the rapid middle-class growth, Asia-Pacific economies are transforming to a design hub, a factory floor and an online shopping mall of the world. The region host some of the world-leading companies in e-commerce – e.g. Alibaba. Chinese consumers now import, through e-commerce platforms alone, for 40 billion US dol-

lars a year. Importantly, these platforms have created new opportunities for small and medium-sized enterprises to expand faster and reach niche customers on a global scale. Female entrepreneurship has grown important throughout the region and there are plenty of successful women entrepreneurs – from Indonesia's online payments market to Singapore's job-search market – in the digital sector that inspire younger women to set up new companies. Countries in the Asia-Pacific region score high in rankings of female entrepreneurship – New Zealand is at the top.

– A young population drives faster rates of technology adoption. Asia-Pacific countries like India and Indonesia have a high share of young people in their populations – a third of their population is young. For the region as a whole, the median age is ten years lower than in Europe. Younger people have shown far greater readiness to “go online” and to use the opportunities offered by a digital economy. They adopt technologies faster than other generations. In China, the “young generation”, those born in the 1980s and 1990s, grow their online shopping twice as fast as people born in the 1970s and 1960s.

– Countries in the Asia-Pacific region have some of the best ICT infrastructure in the world. Several countries like Singapore and Korea top the rankings of ICT quality and the readiness to capture the opportunities of digitization. Other countries are catching up fast and emerging economies in the region have a good chance to improve their ICT infrastructure radically in the next decade.

Learnings in Europe from its Digital Expansion

– Asia-Pacific economies could use learnings from Europe's position in the digital economy and its efforts to raise its positive economic impact. Policy reforms opening up for digital innovation in the economy is important. Regulations may slow down the pace of digital change and delay the benefits of digitisation to reach the economy – restrictions against Uber being a case in point. The company recently had to close down its business in Denmark, preventing consumers to get more choice. In contrast to the Asia-Pacific region - where Uber, Grab and other transport platforms have success-

fully used technology to increase consumer benefits - many countries in Europe have tried to restrict the openness of the market to digital innovation.

– Importantly, to redouble the economic impact of digitisation, policy development should aim to create an environment for innovative products and services to become available to consumers. In that process, time is of essence - and it has often been proved that regulations encouraging innovation and new competition deliver better outcomes for consumers at a faster pace. The implementation of regulations is key to their success, and governments with the desire to establish granular regulations before innovative products and services are allowed, often slow down the rate of positive change. In Europe, the Digital Single Market - an initiative to reduce barriers to digital enterprise and exchange - is an example of both the benefits that come by creating more space for digitisation and the challenge of shaping up those policies in a timely manner.

– Substantial investment in telecom infrastructure gives a solid foundation for digital growth. Several European countries have among the best telecom infrastructure in the world; it is predominantly the same countries, especially the Nordics, that have been able to spur digital entrepreneurship and “digital deepening” by high broadband and smartphone penetration rates. Countries that have raised their digital skills – like Belgium and Spain – have also seen a higher rate in digital entrepreneurship. Higher rates of ICT capital in different sectors generally lead to better economic outcomes and higher business productivity.

– Policies to improve the positive impact of the digital economy also need to take aim at restrictions in non-digital sectors that slow down the diffusion of new digital technologies. Countries in Europe with lower regulatory barriers in sectors like retail and business services have also seen a faster expansion of online competition and output in that sector. For instance, lower entry barriers to professional and network services in the Netherlands and the UK have generated faster output growth and ICT penetration in these sectors than in countries like Italy with higher barriers to entry. The great economic promise of digitisation is that it will improve the performance of all sectors -

and countries that have made efforts to open sectors for entrepreneurship and competition have delivered on that promise.

Driving Digital Growth in the Asia-Pacific Region

– Asia-Pacific economies could redouble the positive economic impact of digitization. Just like in Europe, there are great disparities between countries in the region and many countries can boost the economy by investing more in digital skills and high-quality digital infrastructure. Some Asia-Pacific economies are already at the frontier of skills and hardware, and the tightly knitted value and supply chains in the region could improve substantially if other economies converged with the frontier countries.

– All Asia-Pacific economies would benefit from policies that promote the digital economy and enable innovation from new and existing firms - big and small, domestic and foreign. They share with Europe the need to get the digital economy to influence non-digital sectors deeper and faster. If countries continue developing policies that make it easier to trade, invest and compete in their economies, the Asia-Pacific region will sustain its high rates of economic growth, not least through faster digital deepening.

– Generally, there is a clear and optimistic forward-looking agenda for Asia-Pacific economies seeking to expand innovation, productivity and the digital economy. If policies are directed towards removing the barriers to digital innovation and their diffusion into the economy, digitisation will bring remarkably strong benefits. The digital economy comes with a great promise for the region: it will help many countries in the region to sustain its trend of doubling GDP per capita for every generation, if not faster. Businesses and governments have all the tools they need to make that promise real.

Introduction

Reaping the Benefits of the Digital Economy

Asia-Pacific economies have come a long way in their economic transformation. Now the expansion of the digital economy presents great opportunities to continue raising prosperity and generate faster technological dynamism in the Asia-Pacific region. Crucially, the digital economy can help to boost new companies and raise the productivity of economies, ultimately benefiting the region's consumers. Governments and businesses in the region should embrace these opportunities and support innovation, digitisation, and consumer choice.

THE DIGITAL ECONOMY IS the fastest growing economy in the world. Its annual rate of growth has been estimated to be above 10 percent between 2010 and 2016. It is also already a large economy: The Organisation for Economic Cooperation and Development (OECD) reckons the online world represents about 13 percent of all global output¹. In a short period of time, the way that consumers and businesses use information and communication technology (ICT) goods and services have changed remarkably and enabled new ways for people to do business and economies to grow. Ten years ago, the ICT revolution was still one about new methods for people to communicate with each other – often bilaterally. We were still living in the age of emails, text messages and calls. These services are still central to our private and professional lives, but the world has now made another big leap into the digital future. Our current change is rather about a great renewal of the commercial ecosystem for entrepreneurship, innovation and consumer choice. It is a change that already has provided new opportunities for new entrepreneurs and innovators, but it harbours a greater promise for a faster rise of prosperity, freedom and equality.

Countries in the Asia-Pacific region are no exception. In fact, many of them are leading the way into the digital future with their “mobile-first” consumer culture, high penetration rates of advanced telecom infrastructure like LTE, and booming e-commerce. App-sales, for instance, grew two times faster in Asia than in Europe and North America in 2015. Singapore is the top performer in the world in the World Economic Forum's Network Readiness Index, ranking the technological and transformative capacity of economies. Even if the region has significant economic disparities, the digital economy is expanding fast in virtually all countries. Many countries in the Asia-Pacific region are also at the frontier of the digital economy – either because they are the sources of cutting-edge technological breakthroughs or for their capacity to quickly adopt new technologies. Moreover, economies in Asia have spurred fast expansion of new digitally-based services such as online video. Most countries in the region have solid foundations of both digital hard and software.

The region's corporate sector is also championing the digital future. Just like Europe and the United States, there is growing dynamism among the region's digital entrepreneurs. Large multinationals like Huawei and Samsung are at the frontier of digital experimentation. Equally important, new services are breaking into markets, sometimes at a pace that is higher in some Asian countries than anywhere else in the world. India's e-commerce champion, Flipkart, grew sales by almost 45 percent in its last fiscal year – and they are not alone. Digital services have enabled new and small entrepreneurs to scale up and compete in ways that previously was difficult, if not impossible. The key point is that the digital economy is helping to reshape the Asia-Pacific structure of business and markets for the benefit of innovation, entrepreneurship and – ultimately – consumers.

What are the next steps for the region's economies to power the digital economy and general prosperity? The quest for faster digitisation and economic growth is at the centre of this White Paper. Asian and Pacific economies, just like everyone else, are considering what policies that could accelerate their digital transformation and improve its economic impact. There is a set

¹. OECD, 2015.

of policies for them to follow and, in this White Paper, a key conclusion is that many of the inspiring examples of positive policy development can be found in the Asia-Pacific region itself. Improving the rate of growth on the heels of digitisation requires both investment in basic ICT capacities (network equipment, hardware, skills, et cetera) and market policies that allow new technologies to effect real change in firms and markets. The latter point is all too often forgotten when policymakers around the world ponder policies for the digital economy. However, it is crucial: real improvements for consumers and citizens will only materialize if there is a high degree of market and regulatory openness to new ideas, technologies, services and business practices.

Countries in Asia-Pacific could use learnings from other parts of the world – positive and negative. Europe, for instance, has wrestled with the same policy challenges for quite some time. The European economy has been at the frontier of the ICT hardware revolution for many decades, and many firms that came to dominate the era of telecom equipment and handsets had their origin there. In recent time, however, several parts of Europe have struggled to move the competitive advantage from hardware to software, and to create the space necessary for new digital services to grow fast. Some European countries, especially the Nordics, are among the top countries in the world in terms of the penetration of the digital economy. However, as the World Economic Forum's Klaus Schwab has noted, "many European economies are performing well below average in terms of how they employ digital technologies and innovation to drive growth."²

At the centre of the European Union's efforts to spur the digital economy stands the idea of a Digital Single Market (DSM), an initiative by the the European Commission to cut the barriers to digital exchange and enterprise, and allow data and digital service to move around in Europe as freely as capital, goods and other services. In a Digital Single Market, for instance, there would not be any restrictions on cross-border e-commerce or the portability of data services like an on-line music library. Undoubtedly, the DSM comes with a great potential – estimates suggest that this initiative alone could raise the European Gross Domestic Product (GDP) by four percent in just a few years times³. Investments and productivity would improve – and consumer prices would fall. Despite good efforts, however, Europe remains pretty far away from goal of having built a fully united single market for the digital economy.

Part of the challenge in creating better market and regulatory conditions for the digital economy relates to Europe's regulatory development, which sometimes have delayed necessary business and market adjustment. Behind Europe's choice of policy stands a broader economic and societal development that have slowed down the pace of digital change. For instance, Europe is challenged demographically by an increasingly old population with less taste for rapid technological change. Low economic growth has made resources scarce for necessary telecommunication investments; the Boston Consulting Group estimates the current telecommunication investment gap in Europe to exceed 100 billion euro⁴. Most markets in Europe are mature. The average age of companies is going up as firm entry and exit rates have declined: the rate of new company-creation has declined for at least a decade and people stay longer at jobs today than before. All these factors reduce the potential of the digital economy to create real economic renewal. Declining business churn rates, the European Central Bank recently argued, distort the allocation of resources in the economy as fewer new firms at the frontier of technology that is created and attracting capital and skills from other companies⁵.

² Schwab, 2014.

³ Copenhagen Economics, 2010.

⁴ BCG, 2015.

⁵ Importantly, economic evidence clearly suggests that a greater rate of technological adoption and diffusion in the economy depends on the business churn rate. At the outset of a new digital transformation, most economies in the world for which there is data show that the differences in technology adoption and productivity is higher within a sector than between sectors. Higher rates of firm entry and exit – and, thus, greater market dynamism – would allow the gap within sectors to be significantly reduced. For supporting evidence, see for example Syverson (2004) and Bloom, Sadun, and van Reenen (2012).

Studies show that the top 10 percent of firms are at least two times as productive as the bottom 10 percent of firms. ECB President Mario Draghi argues correctly: “Greater economic dynamism, from competition to higher rates of business entry, plays an important role in incentivising firms to adopt new technology.”⁶

Most Asia-Pacific economies are in a very different position: their social and economic conditions rather suggest that there should be a continued increase in innovation and the pace of general market renewal. For instance, in countries like India, Indonesia and Malaysia the share of young people in the total population exceeds 25 percent and younger generations show every sign of being quick to embrace new technologies and use the new services they herald. Furthermore, there is an increasing degree of entrepreneurial dynamism in the region, with increasing opportunities for existing small and medium-sized enterprises to grow bigger. Market concentration outside the sectors that are government-controlled seems to be declining – and has been doing so for quite a while as economies have increasingly integrated with the rest of the world. Finally, some Asian economies still has a good distance to the technological frontier in the world, and are making efforts to close that gap, and they can learn from other economies in the region that are already top performers and part of pushing that frontier. Converging technological capacities with those countries that are at the frontier will continue to be a huge force of economic dynamism over the next decades.

Consequently, Asia-Pacific economies can look forward to great opportunities to expand the digital economy and generate better economic outcomes. However, opportunities will not improve the economy by default: it is crucial for these countries that they continue to globalise their economies and improve the conditions for technological dynamism, especially in countries where digital openness trails behind the leading economies. Moreover, it is important that they reduce remaining product and services-market regulations that are restrictive. In this White Paper, we will conclude that they should conduct policies that embrace an open internet, innovation, technological change, global economic integration, and new forces of competition. We will also argue that there are good conditions for such a policy. Digitisation creates opportunities to leap-frog in the league tables of prosperity. While other countries struggle with sunk investments in old technologies, systems and behavior, many Asian economies attract high levels of new investment and can start afresh with new high-tech solutions, both in business and government.

This White Paper is organized in three main sections. In the next chapter, we will outline the factors that create good economic and social conditions for the digital economy in Asia-Pacific countries. In chapter 3, we will draw learnings, positive and negative, from policy developments in Europe. In Chapter 4 we will set out the next steps for the region’s quest to digitalise their economies and improve the economic impact of new technological opportunities.

⁶ Draghi, 2017.

A Future of Digital and Societal Dynamism in the Asia-Pacific Region

Countries in the Asia-Pacific region have very good opportunities to power innovation and economic growth by expanding the digital economy. There are several economic and societal “forces” that naturally push the region to adopt new technologies fast and attract investment and entrepreneurship based on digital opportunities. If these “forces” can be harnessed by a policy that opens markets and sectors up for faster digital penetration, Asian economies will redouble the positive economic impact of digital innovation.

THE ASIA-PACIFIC ECONOMIES have good reasons to be optimistic about lifting their prosperity through digital technologies and innovation. In fact, there should be an expectation that there will be a rapid increase in digital investments – creating better digital endowments – and the market penetration of digital services, helping to spur economic dynamism. There are several supportive economic and societal “forces” behind that expectation, and the purpose of this chapter is to put them in a wider perspective.

- First, the Asia-Pacific region is “open for business” and the place to go for any business with digital aspirations. Its rapid globalization has connected it to a global ecosystem of technology, investment, skills and corporate networks that are naturally pulled to the region.
- Second, continued fast growth of the economy and consumer demand – supported by the remarkable emergence of a large middle class in Asia – will make it irresistible for entrepreneurs, innovators and creators of new digital business model to grow in the region.
- Third, with a high share of young people in many Asian countries’ total population, the region has vast number of people that are tech savvy and ready to use new digital technologies and services.
- Fourth, the general digital readiness in the region is solid – and has been improving fast in recent years, not least on the back of the “mobile-first” culture.
- Fifth, there is a brewing entrepreneurial culture in the digital economy that helps to support the growth of SMEs and, by encouraging female entrepreneurship, reduces the gender gap in the corporate sector.
- Sixth, the ICT infrastructure in Asia-Pacific countries and cities is of high quality and can support fast digitisation.

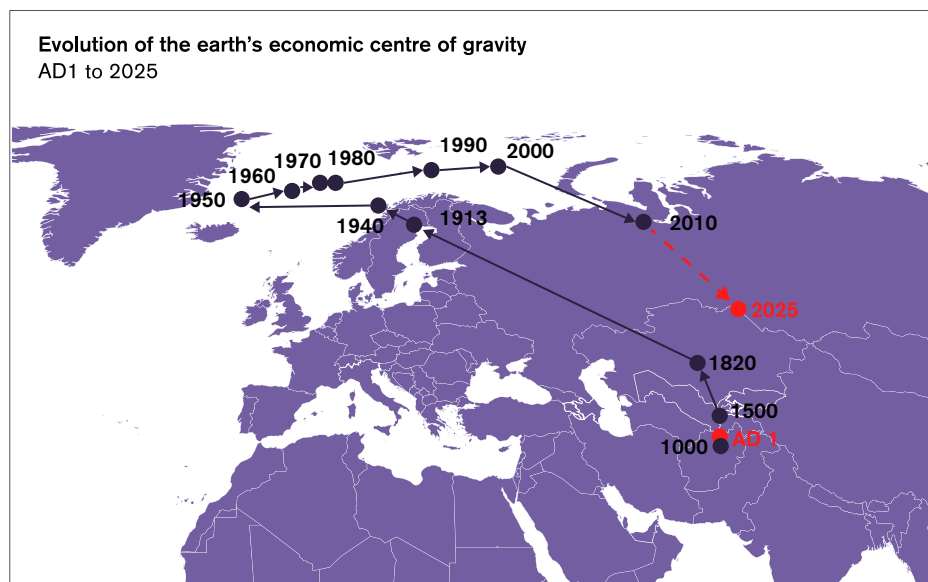
While some of these “forces” set the Asia-Pacific region apart from other parts of the world it is not inevitable that they will generate very positive economic outcomes. Just like for other parts of the world, the capacity of digitisation in the Asia-Pacific to support innovation, growth and better consumer choice will equally depend upon regulations and the extent to which governments will create good market conditions. These forces of natural growth are not an invitation to policy complacency; they are reasons for Asia-Pacific governments to put a high economic premium on economic and market policies aiding competition and entrepreneurial experimentation.

1. THE ASIA-PACIFIC REGION – OPEN FOR BUSINESS AND ECONOMIC GROWTH

The world economy is moving to the Asia-Pacific region. For observers based in Europe, the biggest change in the world economy over the past 30 years is that it has moved eastwards. In 1950, the centre of economic gravity in the world was close to Iceland, firmly in the Transatlantic region. While it historically has taken centuries for the economic centre of gravity to move

substantially, its journey eastwards since the last mid-century has been extraordinarily fast. By 2010, suggest the McKinsey Global Institute, the centre of economic gravity was in the northern part of Russia. By 2025 it will be in southern China, reflecting the simple fact that it is moving in the direction of Southeast Asia and that the Asia-Pacific region will dominate the world economy by its scale of population and economic output.

CHART 1: SHIFTING CENTRE OF ECONOMIC GRAVITY

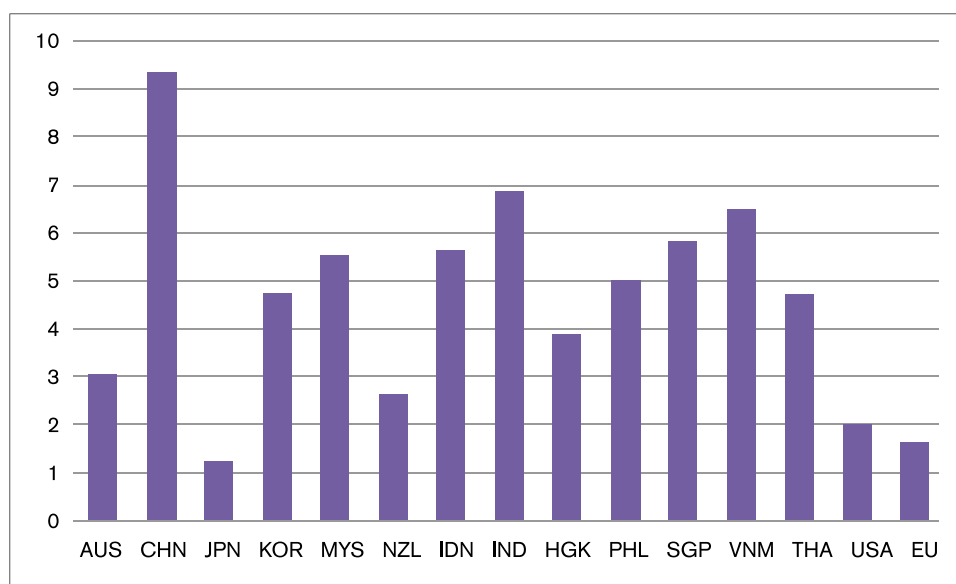


Source: McKinsey Global Institute

The world economy is moving towards the Asia-Pacific region. With a significant share of global population and economic output, the region is about to become the centre of economic gravity in the world.

The relocation of the world economy's centre is a powerful transition for every economic actor and one that will continue to pull business and investment into the Asia-Pacific region. It is particularly powerful as it reflects sweeping economic reforms over the past half century that have made Asia far more open to business, investment – and the world at large. Therefore, the rise of the Asia-Pacific region did not happen by default. For a long time, its rapid population growth was considered a handicap for economic modernisation, not an indication of economic strength. Levels of poverty were high and Asian economies in particular looked stagnant. The economic rise of the region began in the mid 1900s with a turn to outward-oriented policies supporting trade and foreign direct investments. Importantly, a growing acceptance of new technology took hold and replaced age-old views of technological change as disruptor of cultures and incumbent structures of political and economic power.

Largely, the entire region has embraced an outward-oriented trade policy. Japan began reforming its economy in the 1950s and 1960s, leading to gradually increasing prosperity and business success. The so-called NICs, or “newly industrialised countries”, took off in the 1970s. On the heels of rapid economic reform that created new space for competition and entrepreneurship, the four Asian Tigers – Hong Kong, Singapore, South Korea and Taiwan – enjoyed decades of rapid industrial growth and trade. Australia and New Zealand went through a period of profound economic reform and growth in the 1980s. Many countries in South and Southeast Asia opened their economies up from the 1980s onwards, including Thailand, Malaysia and Indonesia. In South America, countries like Chile followed suit. In the 1990s, China accelerated the pace of reform and, after its accession to the World Trade Organisation, experienced a period of remarkable trade and investment-led economic growth. A similar development has taken place in Vietnam. Recently, countries like India and the Philippines have ranked high in the league tables of economic growth in the world.

CHART 2: AVERAGE ANNUAL GDP GROWTH IN SELECTED ECONOMIES, 1990-2015 (IN %)

Source: World Bank, World Development Indicators Database

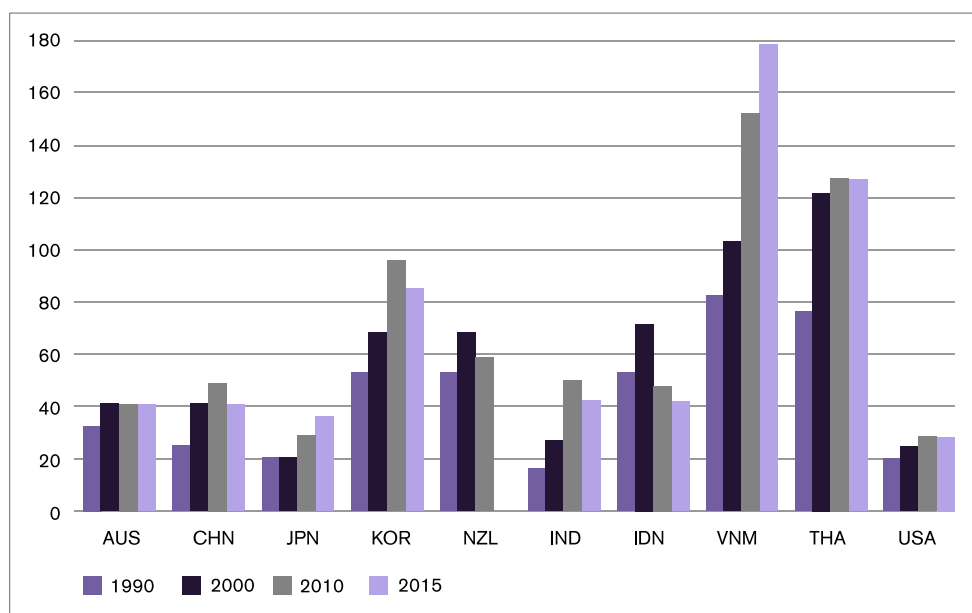
In the last quarter century, economic growth in the Asia-Pacific region has been high and, in some economies, remarkably high. Countries like China, Malaysia, Indonesia, India, the Philippines, Singapore and Vietnam have had an annual average growth of Gross Domestic Product (GDP) exceeding 5 percent.

The period of rapid economic growth has continued in recent decades (see chart 2). With the exception of Japan, Asia-Pacific economies have had sustained faster rates of economic growth than the United States and the European Union. In that quarter of a century, China had an average annual economic growth above 9 percent. India's economy grew by approximately 7 percent per annum and Vietnam by 6.5 percent. The rates of growth have been far higher than in the United States and the EU, where average annual economic growth in that period was 2 and 1.6 percent, respectively.

Globalization was critically important for the generation of high rates of economic growth. Increasing levels of trade and Foreign Direct Investment connected Asia-Pacific economies to a larger base of resources and consumers. Importantly, foreign investment and enterprises empowered production in the region by creating far better access to skills, management, and technology. Equipped with modern technology, businesses in the region could upgrade their productivity and new entrepreneurs were given new opportunities to compete with domestic and foreign firms. Workers and consumers increasingly adjusted to these opportunities, which led to a wholesale change in the way markets operate. Workers and consumers in the region went global and started to enjoy the fruits of an open world.

Chart 3 tracks the so-called trade-ratio for selected economies in the region and, as a point of comparison, the United States. There have been annual variations in the trade ratio, but most economies have experienced a trend rate of trade growth that has been extraordinary high. Moreover, the story of globalizing Asia is not just one about trade; the high levels of Foreign Direct Investment have been equally important. Take the case of Malaysia, an average performer in attracting FDI over the past decades: the annual rate of growth for inward FDI was 8.5 percent between 1970 and 2012, with most of the growth emerging in the past quarter century.⁷

⁷ Mugableh, 2015.

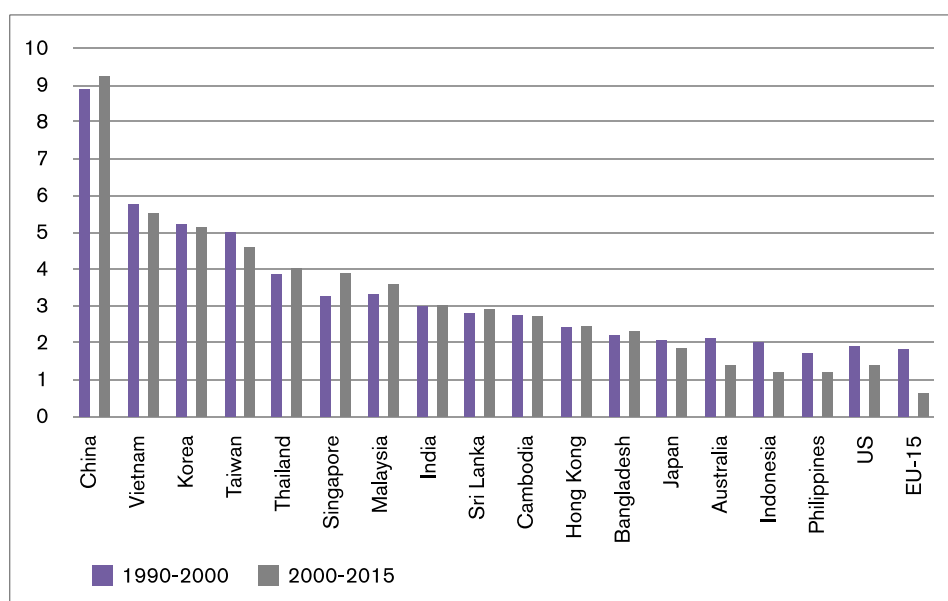
CHART 3: TRADE RATIO (TRADE/GDP) IN SELECTED ECONOMIES 1990-2015 (IN %)

Source: World Bank, World Development Indicators Database

Trade and openness to the world are critical parts of the economic ecosystem in the Asia-Pacific region. Most of its economies trade far more intensively with the world than countries like the United States and their growth is dependent on being "open for business".

Crucially, the period of economic reform and trade-FDI growth in the region spurred growth in productivity. By connecting its economic arteries to the global economy, the region could get better access to technology and skills. That matters a lot because, in the long run, that drives productivity growth, the chief determinant of a society's wealth creation. For a long period of time, countries in Asia and the Pacific region suffered from low or negative levels of productivity growth, reinforcing the economic hardship felt by many citizens. In the past decades, however, productivity growth has consistently been above the rates of growth in the United States and the European Union. As a consequence, Asia-Pacific countries have moved closer to the technological frontier – as defined by the productivity rate of an economy.

Chart 4 shows the labour productivity growth, divided in two periods of time, for selected Asia-Pacific economies. It is a measurement of how much output that is generated by one unit of labour (say, one hour of work). In China, the rates have been close to – or above – 9 percent since the 1990s. Asian Tigers like Korea and Taiwan have sustained their high levels of labour productivity growth and, in emerging Southeast Asia, a country like Thailand have increased labour productivity by an average of four percent for every year since 1990.

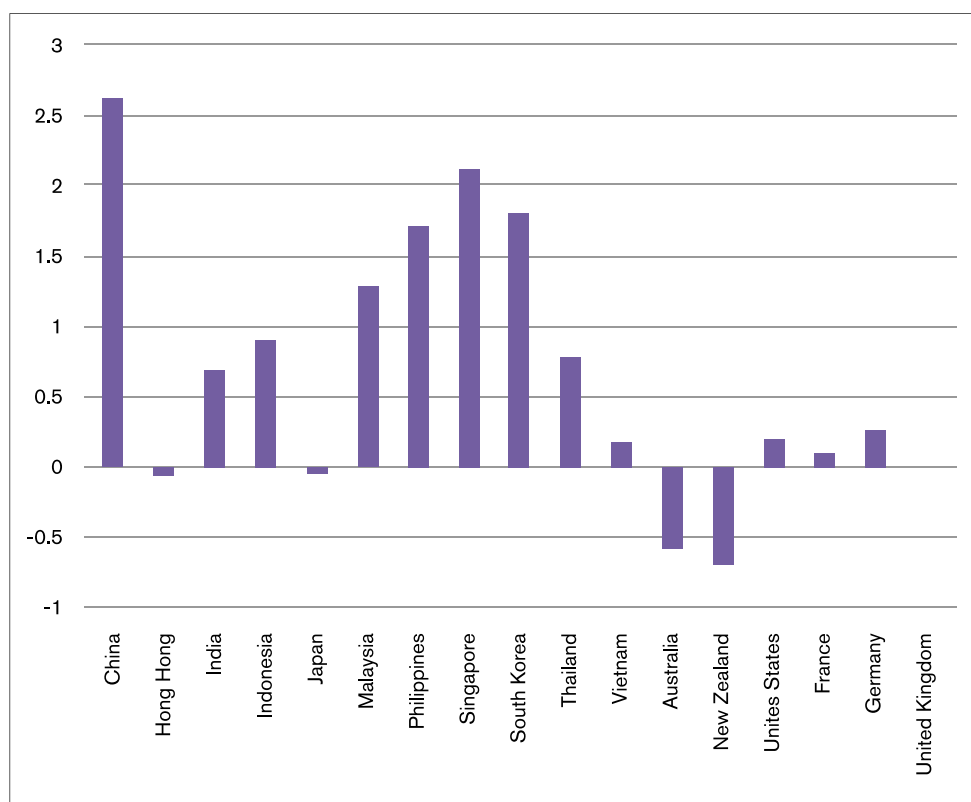
CHART 4: LABOUR PRODUCTIVITY GROWTH IN SELECTED ECONOMIES (IN %)

Source: World Bank, ECIPE calculations

Asia-Pacific economies have grown their labour productivity fast in the past quarter century. Most of them out-perform the United States and the EU – and behind the success are a combination of factors, including the reduction of barriers to skills, technology and capital from abroad.

Past success is no argument for pausing economic modernization. There is still some distance to the frontier and, for most economies in the region, a renewed focus on productivity has become a central part of the economic agenda. Part of that agenda is to make sure that more sectors are open to digitisation, by reducing various business, product-market and services regulations. If we use a measure like GDP per hour worked in the economy, for example, a country like Australia is at about 85 percent of the level of U.S. productivity and the corresponding figure for South Korea is approximately 40 percent.

Added to that is the region's lower rates of Total Factor Productivity Growth (TFP) – and that they have slowed markedly in several economies. TFP growth is important because it gives a rough indication of the role played in the economy by technological dynamism. While Asian economies show a high degree of variation, both between economies and over time, there is a case to be made for deepening the role of innovation and technological change for the region's economic future. For most emerging Asian economies – such as China, Malaysia and the Philippines – TFP growth has been at decent levels over the past 25 years. Countries with a higher economic development have rather grown at par with the TFP rates in the United States and European countries, and they have been historically poor. Worryingly, the annual average rate of TFP growth has been negative (with the actual level of productivity declining) in countries such as Hong Kong, Japan, Australia and New Zealand. In New Zealand, for instance, economic growth has been good for quite some time, but the government is increasingly worried that the gradual decline of its Total Factor Productivity growth is a harbinger of falling economic growth in the future.

CHART 5: ANNUAL AVERAGE GROWTH IN TOTAL FACTOR PRODUCTIVITY, 1990-2015 (IN %)

Source: ECIPE calculations

Total factor productivity growth – a measure of technological dynamism – has been high in some (but not all) Asia-Pacific countries. There is obviously potential for raising the rate of technological dynamism – and it should be a target for the region’s economies as they move closer to the digital economy.

Case: The Mobile Economy in the Asia-Pacific Region

The Asia-Pacific’s mobile economy can show the way for spurring faster technological dynamism. The use of mobile phones in the region has grown very fast in recent years. In 2011, there were about 2 billion mobile phones users in the region, but that number has grown by about 700 million since then. As a consequence, Asia-Pacific’s share of the “global mobile population” has grown from 36 to 51 percent between 2010 and 2015. The type of mobile phones has also changed, with an even faster growth of smartphones. There has been a particular “Android effect” in emerging Asian economies: with the use of a platform technology like Android, there has been a growth in competition between smartphone makers that have driven to costs. While there is a top-end market for iPhones, producers like China’s Xiaomi and India’s Micromax have become some of the region’s top smartphone brands alongside other stalwarts like Samsung. There are now more smartphones than PCs in use in Asia. Japan was the first country where mobile queries surpassed desktop queries online; now it is the norm throughout the region. Many Asian economies are now “mobile first” economies, meaning that the mobile phone is central to personal communication and engaging online.

These indications are surprising neither for emerged nor for emerging economies. They show, however, that Asia-Pacific economies should direct their economic and business focus at lifting total factor productivity through faster innovation and greater dynamism induced by technology.

With the decline over time, in the rates of both economic and productivity growth, it is important to put more attention on the degree of innovation in the economy and how firms and market respond to new technological opportunities. Just like in the region's mobile economy, faster rates of technological deepening in the economy would spur innovation and productivity (see box below). While many Asian economies need further investment in digital infrastructure and to raise their ICT endowments, most of them have reached a maturity and capacity in their basic capacities that should prompt policymakers to put their focus on changes in markets. It is crucially important for the growth of technological dynamism that new competition and entrepreneurship are encouraged.

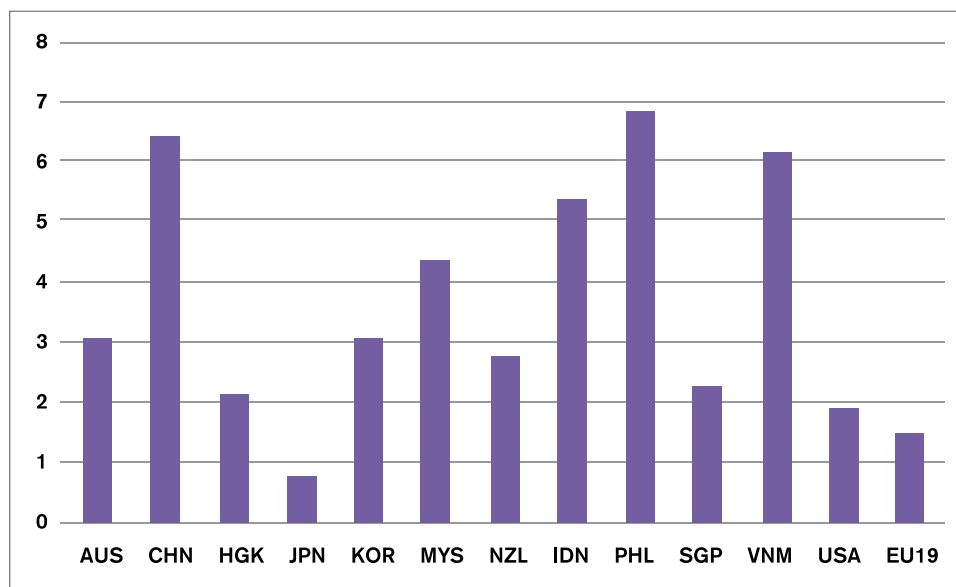
Case: Technology Driving Market Change

New technology creates opportunities for firms to innovate and improve consumer access and choice – also for new entrepreneurs to compete. Asian countries like Hong Kong have developed many digital solutions that enable smartphone users to plan their daily lives with the mobile phone. Indeed, some countries like Singapore are at the frontier of the global development for services. Asia is the largest region in the world for machine-to-machine (M2M) connections. Korea has been the most advanced 4G economy for several years, enabling a highly sophisticated mobile economy. Together with Japan, Korea has the best adoption rates for Near Field Communication in the world, enabling the use of e-tickets and mobile payments. On the back of these ICT capacities, a new service economy is now emerging through innovation and market change. That economy is also growing fast in the region's less developed economies. For instance, the Philippines has been a late-comer in digital banking, but has lately seen changing patterns of consumer behavior, pushing banks far harder to offer better online services. For many years, the Philippines has had the lowest digital-banking penetration with only 12 percent of customers using online services (compared to 28 percent for the Asian region). Customers, however, have started to change as broadband and smart-phone use have increased. McKinsey recorded recently that two-thirds of all adult smartphone users are prepared to switch bank if they were given a good digital offer. Online search for banking services have also gone up markedly in the Philippines. Finally, new competition has come on stream in online banking.

2. PROSPERITY AND CONSUMER DEMAND WILL GROW STRONGLY

High economic growth rates attract investors and innovators that want to experiment with new technology and drive market change. And many countries in Asia are expected to enjoy high rates of economic growth in the foreseeable future. While some economies like Japan struggle with low rates of growth – or, like China, with a structural slowdown in growth from the previously supersonic rates – many economies are both on the rise and record fast economic expansion. Countries like Malaysia and Indonesia, for example, are expected to grow in the region of 5 percent per annum. Better still, Vietnam and the Philippines are expected to grow by more than 6 percent in the next few years.

CHART 6: EXPECTED RATES OF ECONOMIC GROWTH IN SELECTED ECONOMIES
(AVERAGE ANNUAL RATE 2016-2020, IN %)



Source: World Bank, Global Economic Prospects 2017

Economic growth is expected to remain at high levels in many Asian economies in the forthcoming years – and high growth will drive market dynamism and greater space for new entrepreneurs offering consumers more choice.

High economic growth is a boon for economies in a technological transition – like the current digital renewal of the Asia-Pacific economy. Economic growth means that markets and consumption are growing, leading to greater opportunities for different types of businesses. By contrast, technological transitions in stagnating economies often become a zero-sum game, where the benefits for some means losses for others. If policymakers are close to specific industry groups, policies are then often at risk of favouring incumbents at the expense of new companies and entrepreneurs stepping into market with other business models. Under high economic growth, the character of the transition resembles more of a plus-sum game, where new entrants can compete at the same time as old business are depreciating old capital, learning from technological pioneers, and moving into new business structures.

Furthermore, Asia's pull factor for digital entrepreneurs is even stronger because consumer demand is expected to grow substantially faster than the economy at large. Consultancy PWC, for instance, has noted that consumer demand in the period 2017-2019 will grow about 30 percent faster than economic growth. In China, reports the World Economic Forum, China's consumer economy is about to grow by 50 percent between 2015 and 2020⁸. In real numbers, that means a spending increase of 6.5 trillion US dollars – the equivalent of adding a consumer market 1.3 times larger than Germany's. And the high rates of growth in consumer demand is likely to continue beyond that time frame as Asia generally shifts its model of economic growth away from a high reliance on investments to a greater role for consumption. With a large and rapidly rising middle class that wants to consume rather than save their earnings, economic growth will become less dependent on adding more capital to the economy, which is usually the dominant type of growth during periods of industrialization. Many emerging economies in Asia will enjoy income growth for broader income groups that are higher than in the past. By increasing the content of technology and skills in jobs, the economic return to labour is likely to be favourable as well.

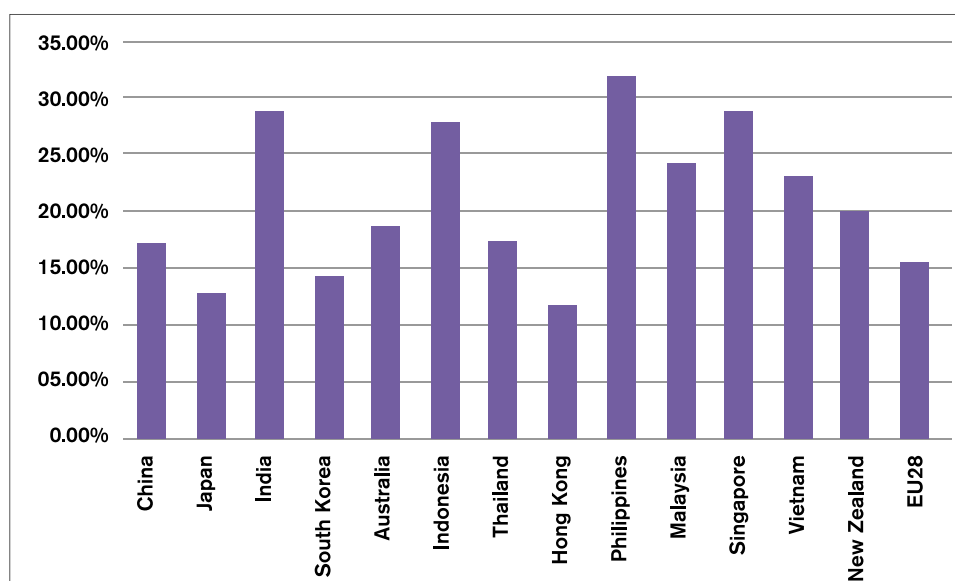
⁸ Kuo, 2015.

Case: Asia's Middle-class Growth

The Organisation for Economic Cooperation and Development (OECD) estimates that the global middle class will grow from 1.8 billion people in 2009 to 4.9 billion people in 2030. By 2030, two thirds of the global middle class will live in Asia, compared to 28 percent in 2009. In a few decades time, the biggest middle class in the world will be in India – and the rise of billions of people in the region with a disposable income to spend over 10 US dollars a day will have a very strong impact on every consumer market. Remarkably, annual middle-class consumption expenditures in Asia is estimated by the Brookings Institution to grow from about 10 trillion US dollars in 2015 to more than 35 trillion US dollars in 2031⁹.

3. THE ASIA-PACIFIC POPULATION IS YOUNG AND ADAPTIVE TO NEW TECHNOLOGIES

A young population is an asset for technological modernization and the Asia-Pacific region is, with some notable exceptions, a region of young generations. Southeast Asian countries in particular have high shares of young people in their total population (see chart below). The young population in Vietnam, for example, is about ten percentage points bigger than in the European Union. In the Philippines, India and Indonesia the share is even higher, reaching as high as about a third of the population in the Philippines. While the median age in Europe is 41.9 years, it is more than ten years lower (30.7) in Asia. Asia's population also keeps growing – albeit not at past rates (between 1960 and 2015, Asia's population grew by 3 billion). Population growth has declined as a consequence of increasing affluence and longevity, but the region will continue to have good growth of young people.

CHART 7: YOUNG POPULATION AS SHARE OF TOTAL POPULATION

Source: World Bank, World Development Indicators database

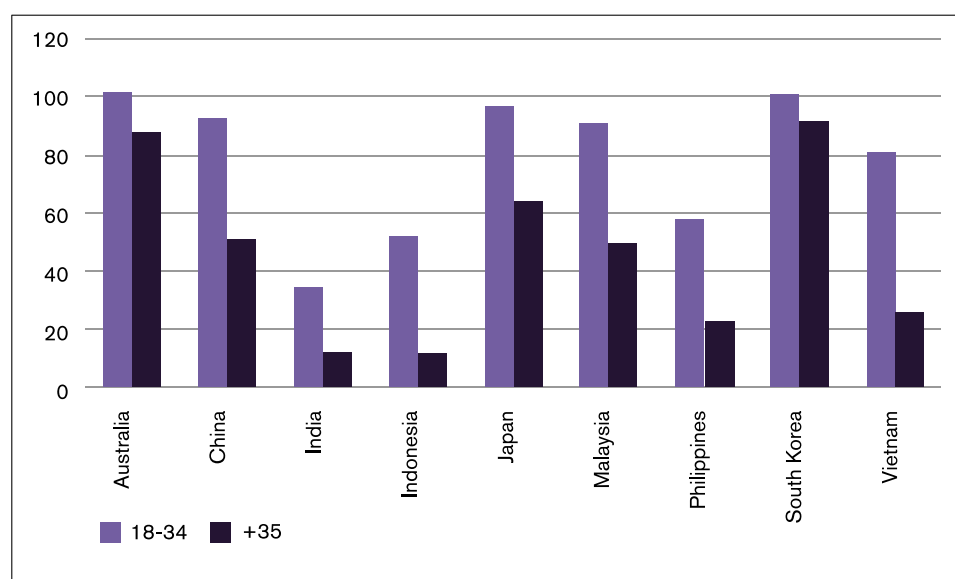
A young population is a boon for the capacity of an economy to adapt to new technologies. Many Asia-Pacific countries have large shares of young people in their population, creating good opportunities to speed up the digitisation of the economy.

⁹ Kharas, 2017.

A young population is also an economic advantage. If the population is comparatively young, it means that dependency ratios are low, or even declining, and – consequently – that a larger share of national income can be consumed by the working population. Countries like Malaysia, India and Indonesia will experience declining dependency ratios up to 2040, with a smaller share of the population paying for the old. However, other countries like Singapore and Thailand are at the tail end of their “demographic window of opportunity” and, without substantial immigration, will have growing dependency ratios in the next three decades.

Young people usually break new ground for technological use. While older people generally have higher income and more assets, it is usually the young population that first adopts new technologies and lead the way in changing markets and consumer demand. There is an age-based technology adoption lifecycle – and the digital economy is a case in point. Independent of income, people in the age of 18-29 years old have a significantly higher penetration of smartphones than older generations. A Pew Research Center survey in 2015, for instance, showed that the “demographic digital divide” in smartphone ownership is substantial in Asian countries¹⁰. In Malaysia, for instance, 88 percent of people under the age of 34 owns a smartphone compared to 46 percent among people older than 35 years. Likewise, there is a significant difference in many Asian countries in the use of Internet between different generations. In the Philippines, 58 percent of people aged 18-34 use the Internet while only 23 percent of people aged 35 and more do it.

CHART 8: THE DEMOGRAPHIC DIGITAL DIVIDE: USE OF INTERNET IN SELECTED COUNTRIES (% OF AGE GROUP THAT USE THE INTERNET)

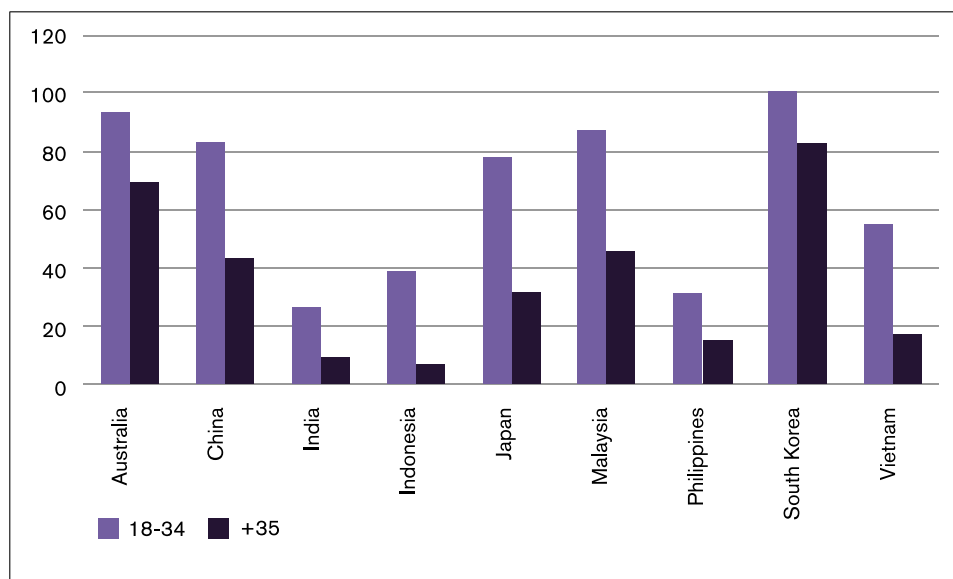


Source: Pew Global Research

The demographic digital divide is real in many Asian economies. The young population is more tech savvy and a higher share of young people use the Internet compared to older generations.

¹⁰ Poushter, 2016.

CHART 9: THE DEMOGRAPHIC DIGITAL DIVIDE: OWNERSHIP OF A SMARTPHONE IN SELECTED COUNTRIES (% OF AGE GROUP THAT OWN A SMARTPHONE)



Source: Pew Global Research

The demographic digital divide is real in many Asian economies. The young population is more tech savvy and a higher share of young people own a smartphone compared to older generations.

The type of technological use also differs. While the age-based “digital divide” has narrowed as far as general Internet use is concerned, it remains the case that young people are using the Internet differently from older generations, both in terms of frequency and purpose of use. Importantly, when older generations have caught up with younger in generation in one particular element – e.g. time spent on the Internet – the younger generation has usually moved on. Younger generations are today ahead of older generations in many services that are using online business models. E-commerce is a case in point. Younger people are more at ease with storing payment details online and use mobile payment solutions, which means they are using e-commerce proportionally more than what their incomes would suggest. Take the case of China’s e-commerce. The growth of online shopping for people born in the 1980s and 1990s – China’s so-called “young generation” – is twice as fast as for people born in the 1950s-1970s.¹¹ For Chinese people with high incomes, people under the age of 35 average 40 percent higher spending than their older income peers. The “young generation” also buys more services online – and is driving the migration of many services online.

Younger generations are also more at ease in engaging with foreign e-commerce suppliers. It is partly an issue about language: younger generations generally have better language skills than their older peers and, importantly, they are more comfortable using English, the dominant language of online services. Young people in emerging economies have usually the standard knowledge required to buy something online from a foreign country and their general propensity for global engagement also inform their behavior relative to other generations. Moreover, they have better skills than older generations to work in environments that require a combination of skills in English and readiness to adjust to new technology. While there are 390 million Chinese that have studied English, only 82 million are proficient users and the lion share of those got a university degree in the past two decades. There is a significant economic premium for English proficiency, partly because those jobs have higher capital and technology content. And to return to China’s world of e-commerce: with the high share of young generations in the country’s

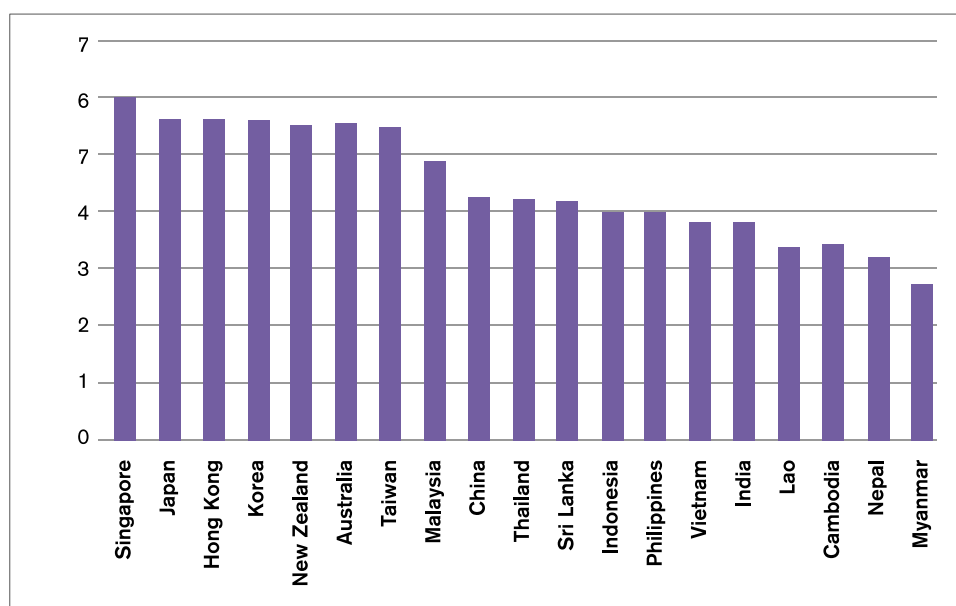
¹¹ Kuo, 2015

e-commerce, it is not surprising that cross-border e-commerce purchases now represents a market larger than 40 billion US dollars.¹²

4. DIGITAL READINESS AND EXPERIENCE SUPPORT GROWTH

There is a broader point to be made about digital readiness and the achieved digital endowment of Asia-Pacific economies: even the emerging economies in the region have surprisingly solid readiness for the digital economy. Take, for instance, the World Economic Forum's Network Readiness Index, a ranking of the preparedness of 143 countries to exploit ICT technologies. How countries perform in this index generally reflects their level of economic development: affluent countries perform better than less-affluent countries. Singapore tops this index and has done so for several years. In the top-20 category other Asia-Pacific countries can also be found, e.g. Australia, Japan, Hong Kong and Taiwan. But not far after comes countries like Malaysia. That country's network readiness is, for instance, better than Italy's, despite Italy's GDP per capita being substantially higher than Malaysia's. Likewise, countries like China, Thailand and Sri Lanka perform better than Greece in these and other indexes, suggesting that the region is well-positioned to expand the digital economy fast in the future.

CHART 10: THE NETWORK READINESS INDEX 2016 – ASIA-PACIFIC SCORE AND RANKING



Source: World Economic Forum

Singapore tops the Network Readiness Index and many Asia-Pacific economies have good scores, showing the growing capacity of economies in the region to put their ICT capital and skills to use.

Asia-Pacific countries also come out well in the part of the index that measures individual readiness - that is, the human digital skills required to capture the opportunities of the digital economy. Singapore and Hong Kong are at the top of the global ranking, and among the 20 countries with the best individual readiness are also China, Taiwan, Malaysia, Indonesia and Korea. Other countries in the region are behind - sometime with a great distance - and points to an area where improvements are needed. Without better digital skills, some emerging Asian economies will have difficulties to get a greater economic impact from the investments they make in ICT infrastructure.

¹² Xia, 2016.

Case: E-readiness in the Asia-Pacific

It is difficult to exaggerate the role of online platforms and e-commerce in Asia-Pacific economies. Asia – not America or Europe – is the region with the highest growth in online content businesses. And much of that readiness comes from actual use or experience. Mobile gaming, for example, is about three times as common in China as in Germany (64 percent of mobile users in China play games on their mobile compared to 20 percent in Germany). The dating app Tinder, with the US and the UK as main markets, has about ten million users – compared to the 35 million users of its Chinese peer, Momo. WeChat, Kakao and Line are the three fastest growing messenger apps, and they are all Asian. In the Philippines, people send more text messages than any other country. Behind this development stand several factors: one concerns the digital readiness of the region. E-companies have managed to get the trust of many consumers and has become a growth business partly because traditional retail has been slow to adapt to new market realities. Online providers give customers a new level of choice and open up for opportunities in product selection that previously did not exist. Hence, there are supportive supply-side factors. However, consumers have also shown willingness to jump on e-commerce and store payment data online that rival the proclivity of, for instance, Europeans. The typical Asian online consumer, for instance, search for more information about the supplier and demand different services than their peers in Europe. For general e-readiness, that is a hard currency.

The digital readiness of the region can also be expressed in a different way. Over 50 percent of today's mobile-broadband subscribers are from Asia. Southeast Asia, for instance, has the fastest growth in the world in Internet users. While there is an obvious explanation behind the huge difference in such growth between Southeast Asia and, for instance, Europe – Europe has already achieved a higher penetration rate – there is a corollary that is less obvious. Southeast Asia will also have faster growth of the e-commerce market than their more developed peers. By 2025, the e-commerce market of Indonesia, for instance, is expected to represent more than 8 percent of the total retail market. The growth rate from now until then will be about 40 percent CAGR, compared to the estimated growth rate of about 13 percent in Europe.

Case: E-commerce in the Asia-Pacific Region

Asia-Pacific economies are fast adopters of online retail - and e-commerce has generally been a good way for small firms to connect with new consumers. Regional success stories include Lazada, which attracts more visitors than eBay and Alibaba's AliExpress in several countries. Likewise, India's leading e-commerce company, Flipkart, has grown remarkably fast and now has a valuation of 10 billion US dollars. Along with Snapdeal, Flipkart has a higher market share in India's e-commerce than Amazon. E-commerce in China remains a particular case because the sheer size of the market. China will soon be the largest e-commerce market in the world, then surpassing the United States. In contrast to many other countries, a significant part of e-commerce is with foreign online retailers; estimates suggest that half of China's e-commerce spend is with foreign providers. What particularly drives Chinese people to both e-commerce retailers and foreign e-commerce suppliers is choice, price and search for product authenticity. Surveys also show that Chinese people generally trust e-commerce providers more than they trust traditional retailers. Alibaba is a pioneer in the entire global e-commerce market. It has more sales than Amazon – in fact, Alibaba's revenues are bigger than the combined revenues of Amazon and eBay – but what is less known about its success is the degree to which they have connected small companies with customers. Behind the Alibaba brand hides a B2B and B2C marketplaces for small customers that otherwise lack the resources and scale to reach customers.

Case: Australia – From the Commodity Super-cycle to Fast-growing Digital Startups

Australia grew rich partly through an extensive mining sector but is increasingly the scene for fast-growing digital startups that succeeds in the Asia-Pacific region and the world. Canva, for instance, is an Australian company in online graphic design that has become a market leader in a short period of time. Launched in 2012, it has more than 10 million customers worldwide. Melbourne-founded Nitro, to mention another niche example, is about to become a challenger to Adobe in enterprise document and workflow productivity. It has already more than 500 000 customers and is growing sales about 40 percent a year. There are many other small start-ups in the field of professional services – e.g. translation or legal services – that have their origin in Australia. With a combination of an entrepreneurial culture, language skills and solid digital endowments, Australia has developed a “thick” digital startup scene with many companies, operating in different sectors.

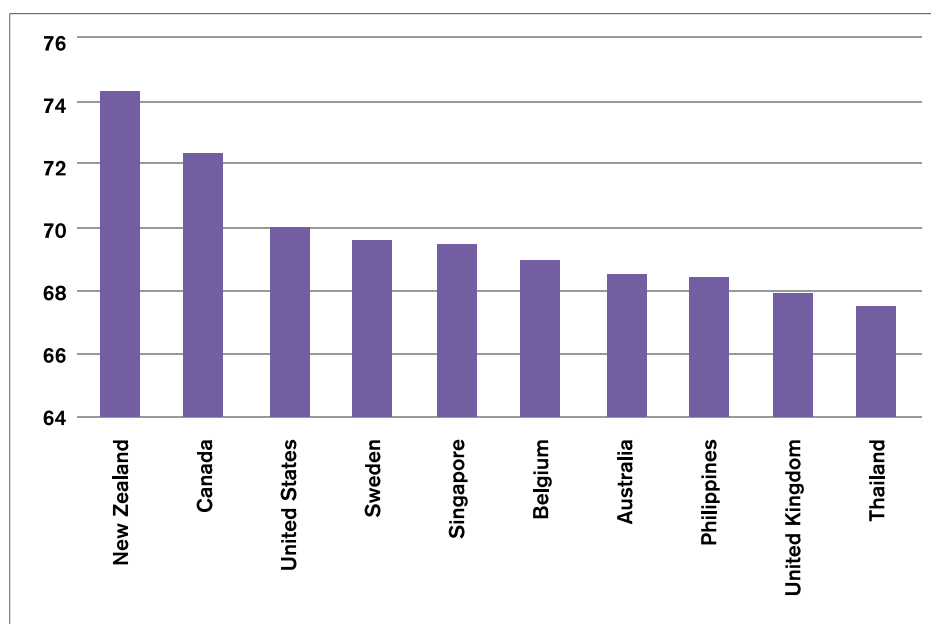
5. ENTREPRENEURS AND SME'S WILL POWER MARKET RENEWAL

New entrepreneurship sets the tone for technological dynamism. Digital change is not just about technology; equally important for digital renewal is the economy's openness for new entrepreneurs to contest markets with new business models. With a large and vibrant SME sector, Asia-Pacific economies have a good foundation for the digital economy to grow by entrepreneurial competition.

Just like in other countries, SMEs are by far the most dominant form of enterprise in Asia-Pacific economies and, with some exceptions, also represents the dominant form of private employers. In the Philippines, for instance, 99.6 percent of all companies are SMEs and they employ about two thirds of all employed people. The latest data from 2013 suggests that the number of SMEs grew by more than 15 percent in the previous year and that SME employment went up by 27 percent. Likewise, SMEs represent 99.9 percent of all companies and 97 percent of the total workforce in Indonesia. What is equally interesting in these economies is that there is a qualitative shift underway in the SME sector. There is a growing ecosystem of go-getting and fast-growing SMEs that have a taste for becoming bigger.

An entrepreneurial culture is handmaiden to the expansion of the digital economy. Like every technological shift, the digital economy thrives on innovating the real economy: introducing new technologies, products and business models. Part of its economic appeal is that the digital economy pushes the productivity frontier. While the digital economy comprises both big and small companies, the potential it brings for increasing prosperity is tied to the space that exists for new entrepreneurs and innovators to experiment and actually contest markets – just like Lazada, Flipkart and Snapdeal have done in the retail sector. That process is significantly aided if there is a high degree of openness to entrepreneurs. While large companies have the capacity to roll out new technologies fast by investing in diffusion and their sales network, they are seldom the companies that break new ground. As Asia-Pacific economies have witnessed in e-commerce or online content, new digital services also allow small entrepreneurs to quickly create their own channels to the consumer.

Growing women entrepreneurship in the region is another reason to be optimistic. While women have only represented less than 15 percent of all entrepreneurs in the past, economic reforms and institutional changes have created opportunities for faster growth in female entrepreneurship. In Mastercard's Index on Women Entrepreneurs, New Zealand comes out on top. Singapore, Australia, the Philippines and Thailand are also among the top-ten countries in supporting female entrepreneurship.

CHART 11: TOP-TEN COUNTRIES IN MASTERCARD'S INDEX ON WOMEN ENTREPRENEURSHIP 2017 (SCORE)

Source: Mastercard

New Zealand is the best country in the world for female entrepreneurship. Three other Asia-Pacific countries are among the ten best performers in the index.

Closing the gap between male and female employment is a key target for many Asian economies. More entrepreneurship is good for the economy and, obviously, raising female entrepreneurship to the level of male entrepreneurship would improve the chances of countries' creating more successful companies. The digital economy aides that development. In countries like Singapore, there is already a higher rate of female entrepreneurship in the digital sector than the economy at large. Close to 20 percent of all Singapore's startup founders in technology are female, which can be compared to 24 percent in Silicon Valley. Furthermore, in countries where access to finance has traditionally been a major restriction on women entrepreneurship, the digital economy offers opportunities by new methods to access consumers at a lower cost. That is also the conclusion drawn in Dell's Women Entrepreneur Cities Index. Singapore tops that ranking and, concludes Dell's Margaret Franco, "has established a robust ecosystem to support women entrepreneurs with a strong focus on cultivating home-grown entrepreneurship and promoting digitisation across all verticals."¹³

The same conclusion holds true for female entrepreneurship in less developed Asian economies. Take the case of India. There are about 3 million companies in India that are fully or part-owned by women. 98 percent of them are micro-enterprises – small-cottage firms that predominantly work in the services sector. The number one barrier to expansion is access to finance and, given the lack of access to formal finance, 90 percent of all financing is done through informal sources. digitisation, however, gives these entrepreneurs new opportunities to access finance, and setting up better payment solutions. Moreover, e-commerce platforms are a cheap way for micro enterprises to reach customers that otherwise are beyond their local reach¹⁴. Concludes Chanda Kochhar, the CEO of India's ICICI bank, about the country's big task of closing its entrepreneurial gender gap: "There are so many new e-commerce opportunities around very small cottage entrepreneurship, which can enable more and more women to participate."¹⁵

13. Channel News Asia, 2016.

14. IFC, 2012.

15. Vijayakumar, 2015.

Case: Women Entrepreneurship in the Asia-Pacific Region

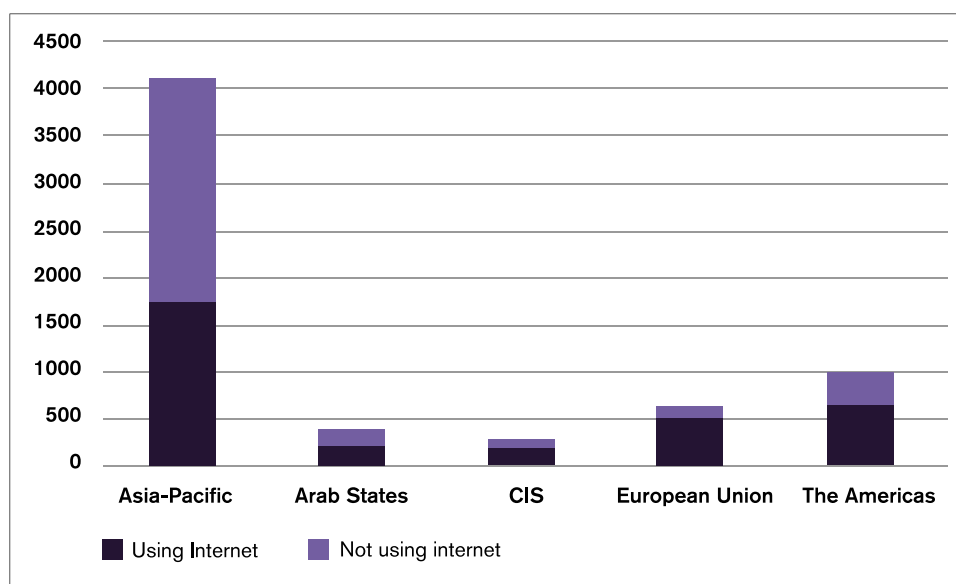
The digital economy has generated many new and successful female entrepreneurs in the the region – and they inspire others. Take, for instance, Nabilah Alsagoff, the founder of and CIO of Indonesian firm Doku. She started by developing a website for Bali tourists, but her company is now the leading online payments firm in the country with 22 000 merchant customers transacting more than a billion US dollars. The Malaysian company GrabTaxi is one of the unicorns of Southeast Asia and it was founded by female entrepreneur Hooi Ling Tan. Operating in 28 cities in six countries with 11 million users, it was valued at 3 billion US dollars in its latest round of financing. WhatsNew, a fast-growing e-commerce company in Thailand that merged under name of Orami with Indonesia's Bilna, was founded and later sold by Sarah Huang. Thuy Thanh Truong is a serial digital entrepreneur in Vietnam that started her entrepreneurial career by opening a frozen yoghurt store in Ho Chi Minh City and that later developed several mobile and app companies, e.g. gaming and social media. JobsCentral, a leading online jobs portal in Singapore, was created by successful female entrepreneur Huang Shao Ning. She sold JobsCentral to CareerBuilder and is now an angel investor in 15-plus startups. The list could me made far longer. But the basic point is simple: the digital economy brings opportunities for companies and entrepreneurs that want to build and offers something different from incumbent firms. There are lower barriers to entry in the digital economy and, though platforms, companies can access niche markets on a global scale. All that means it is an economy that fosters diversity. Therefore, it is particularly suited for the growing generation of young female entrepreneurs, who now have many examples to draw inspiration from.

6. MORE INVESTMENT IN HIGH-QUALITY TELECOM INFRASTRUCTURE

A high-quality telecom infrastructure is central for the expansion of the digital economy. Undoubtedly, the telecom infrastructure in many Asia-Pacific countries is already among the best in the world. Most countries in the region have made huge investment in improving the infrastructure and paved the way for growing digitisation. ICT maturity is generally advanced across the region – and the best telecom infrastructure in the world, according to the International Telecommunications Union's ICT Development Index , is to be found in South Korea. As a consequence, the region has the largest number of Internet users in the world.

There is space for new growth in telecom infrastructure – and the use of it. The Asia-Pacific represented more than 40 percent of all telecom capital expenditures in 2016 – and that share is expected to grow¹⁶. Given the size of the region's population and income disparities, the Asia-Pacific is also the region with highest number of individuals not using the Internet (see chart 12). The number, however, is estimated to be reduced by close to 50 percent in the next ten years. Likewise, China and India are the two economies in the world with the highest estimated number of new mobile subscribers in the foreseeable future. Between 2016 and 2020, China and India are estimated to add 158 million and 310 million new mobile subscribers, respectively.

¹⁶. GSMA, 2017.

CHART 12: USERS AND NON-USERS OF THE INTERNET (2016, NUMBER OF PEOPLE)

Source: International Telecommunications Union

The Asia-Pacific region has the highest number of Internet users in the world. It has also the highest number of non-users. However, a significant share of the latter group is estimated to become Internet user in the near future.

With a high urban density, the telecom capacities for a large part of the Asia-Pacific population is very good. In rankings over the capacity for ICT connectivity - like Ericsson's Networked Society City Index - many cities in the region stand out. Some of them are pretty obvious: Singapore, Tokyo, Seoul, Taipei and Hong Kong are all among the top 15 performers in the world. Sydney, Beijing and Shanghai are also cities that have among the best ICT capacities in the world. Perhaps more surprising is that several Southeast Asian cities also perform well in these rankings. Jakarta, for example, is among the top 30 cities, just after Beijing.

This is no coincidence. In recent years, Jakarta and national authorities have made huge efforts to improve not just the telecom infrastructure but also its use. Smartphone and mobile broadband penetration have grown remarkably fast in the past years, with the former growing from 36 to 47 percent in 2016. Jakarta is now the world's leading city for tweets. A smart city plan for Jakarta has helped to increase the use of new capacity. In that plan, Jakarta launched several mobile apps for accessing information and services in the city. In one of the apps, for instance, city residents can easily access and share information about traffic conditions.

The example of Indonesia and Jakarta follow several other examples of how the telecom infrastructure has improved substantially after a combination of government investments and market liberalization. In Taiwan, for example, the telecom market was opened up in the 1990s after series of attempts by the state-owned telecom monopoly to meet the growing demand by increased supply. That company had made significant investment in improving the country's telecom infrastructure but in 1996 the government decided to open up the market for other companies and to privatize significant parts of the old monopoly, especially the fixed-line part where the company has been the dominant actor. These changes of the market were followed by a rapid rise in telecom investment and product innovation. Taiwanese firms that previously had been constrained by the monopoly started to flourish under the new regime and became important international suppliers of network and computer technology.

There are several examples of how improved governance of the telecommunication market in Asian economies have generated more investment and entrepreneurial dynamism. For several years, the new technological development spurred innovation-intensive companies in the IT

hardware sector, but Asia-Pacific companies have gradually moved into software and content production. Take online content as an example. Between 2016 and 2021, the online video sector is expected to grow from 13 billion to 35 billion US dollars, which can be compared with the 20 billion US dollar market for online video in the United States in 2016. Online video advertising in the Asia-Pacific region is set to experience a similar growth rate – from 9 to 22 billion US dollars in the same period.

Case: The Rise of K-pop

Korea is an interesting example of a traditional hard-ware focused ICT nation that gradually has become a leader in generating online content. The story of K-pop gained recognition after the immense success of “Gangnam Style” by the Korean artist Psy, the first Youtube video to get a billion views. But that viral hit was not the start of the Korea’s rise as a content provider; nor is Korea’s success limited to music. There has been a broader development involving several cultural sectors that have become skilled at using the Internet and social network services as the platform for promotion and sales. At the heart of the success of K-pop, K-films and K-dramas stands the combination of high-quality telecommunication infrastructure, new digital platforms and a well-balanced policy regime based on openness in audiovisual services. In addition, Korea has a balanced policy on copyright that is less stringent than in many other countries: while it allows for strong copyright protection, the duration of protection is shorter and allows for experimentation and development of the creation by others to start a earlier than in most other countries. Generally, such regulatory policies are different from the ones that are usually favoured by governments that want to promote national audiovisual services. They are usually a combination of national quotas (e.g. restrictions on foreign content on Netflix and other vendors) and subsidies. While such policies may have an effect on the margin – both positive and negative – the example of Korea’s successful audiovisual sector is to a large extent based on rapid digitisation and use of new commercial opportunities online.

CHAPTER CONCLUSION

This chapter has pointed to several positive “forces” of economic and societal changes that will help to drive the expansion of the global economy in the Asia-Pacific region. Many of them are the envy of the rest of the world as many countries struggle to spark economic and technological dynamism into the economy.

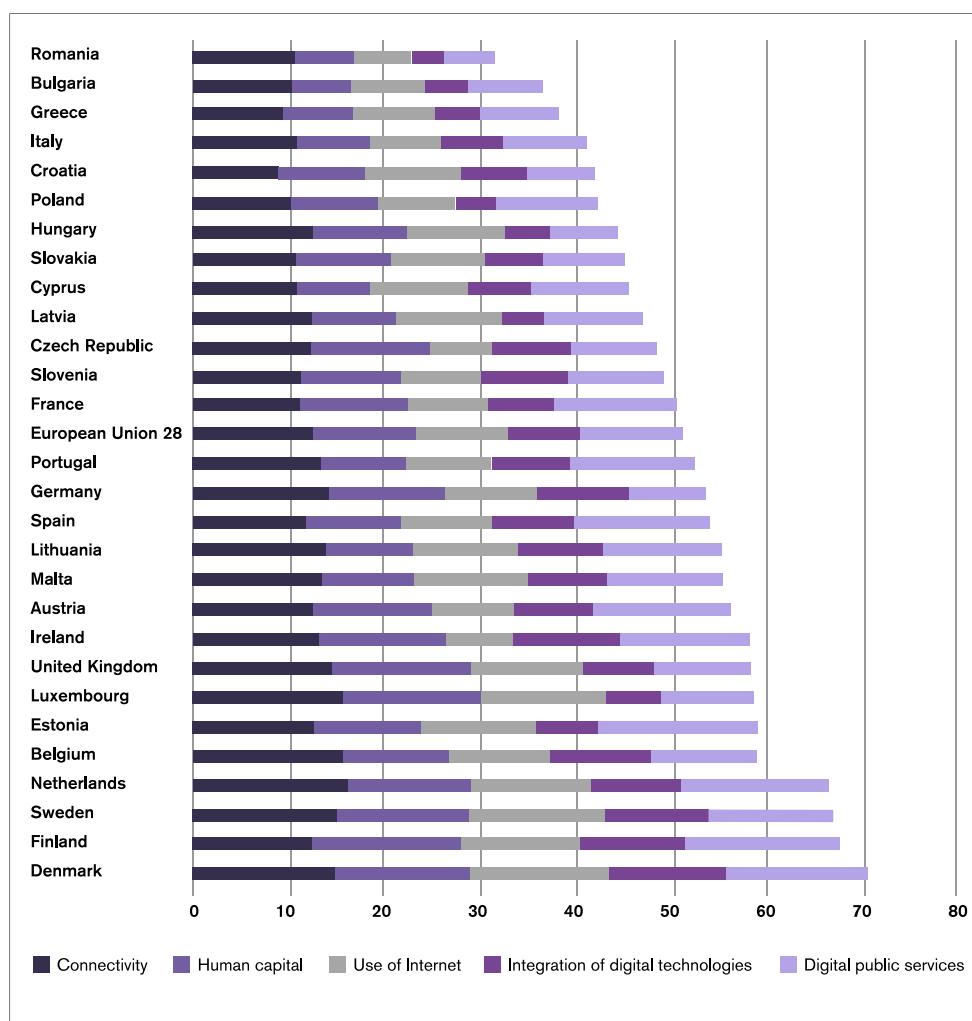
- The Asia-Pacific region is “open for business”: with supportive market and regulatory policies, the highly globalized economies in the region can thrive faster by deepening their technological capacities. The region is open to competition for both domestic and foreign – small as well as big – firms.
- Rapid growth in the economy and consumer demand makes Asia the centre of attention for many companies striving to build the digital future.
- The Asia-Pacific region has big generations of young people that adopt new digital technologies and services quickly.
- The region’s digital readiness is strong, partly because of the experiences of the many using digital services, platforms and e-commerce.
- There is a growing entrepreneurial culture in the digital sector that generates new innovation – and help other SMEs to grow fast in non-digital sectors.
- Big investments in high-quality telecom infrastructure creates better ICT capacity to spur digitisation and the commercialization of new businesses.

The Fits and Starts of Policy to Promote Europe's Digital Economy

Europe has great aspirations for expanding its digital economy. While digitisation accelerated its pace and provided new opportunities for innovation and consumer choice, there is a case to be made for new policy development to get the digital economy to expand faster into new sectors. Europe needs to both invest more in digital infrastructure and open sectors up for digital competition and innovation. That is also very relevant to the Asia-Pacific as the region's governments consider new policy strategies for growth. On the back of its positive underlying trends supporting digitisation, the great economic impact of the digital economy comes when restrictions on digital technologies and services to ripple through the rest of the economy are removed.

THERE IS GREAT POTENTIAL FOR the digital economy in the Asia-Pacific region, but for digitisation to generate a greater impact on innovation and prosperity, it is important that governments in the region chose the right policy approach. New digital technologies and services create opportunities, but for them to power economic growth and renewal, there needs to be a supportive policy environment. What constitutes a supportive policy environment – and what type of policy model would help businesses and governments in the region to deliver on the promise of faster creation of new prosperity?

In this chapter, we will start by drawing on the experiences of the policy environment in Europe. Countries in Europe have benefited greatly from the growth of the digital economy. European countries have some of the best ICT capacities in the world – seven of the top-ten countries in the World Economic Forum's Network Readiness Index are from Europe – and have exploited the potential for digital renewal of their economy. There are significant differences between Internet use and general digital penetration in Europe – while 95 percent of people in Luxembourg use the Internet, the corresponding figure for Romania remains below 50 percent – but the Nordic countries are at the global top of connectivity, digital human capital, and e-commerce (see chart 13). Just like in the Asia-Pacific region, differences in digital endowments and penetration generally (but not entirely) reflect variation in general income and wealth.

CHART 13: DIGITAL ECONOMY AND SOCIETY INDEX (DESI) 2016

Source: European Commission

Some European countries are digitally advanced and compete at the top with other global leaders in digital endowments and network readiness. Other countries lag behind and need to boost their ICT infrastructure as well as their skills and use of new digital services.

Undoubtedly, new digital platforms and services have boosted entrepreneurship, innovation and economic growth. While the big brands of the digital economy typically do not have a European birth certificate, Europe is the home of several so-called “unicorns” – start-up companies valued at more than one billion US dollars – like BlaBlaCar, Rocket Internet, Spotify and TransferWise. There are vibrant tech start-up areas around cities like Berlin, London and Stockholm. Europe is also similar to many countries in the Asia-Pacific region in the tech-savvy and go-getting culture that has grown up in those regions that have embraced digitisation. Even countries that generally do not have the best enabling environment for the digital economy have boosted digital entrepreneurship. Countries like Latvia, Poland, Lithuania and Slovenia are 50 percent about the EU average in a measurement of the ICT startup rate.

Europe’s openness to the world economy has boosted the digital economy, both by giving European companies a larger digital market and its consumers access to technologies, services and platforms. Importantly, the European economy - like Asia-Pacific economy - proves that the real power of innovation and the digital economy has less to do with the creation of new technologies and far more about the speed of diffusion and imitation of technologies. New digital services can be offered by companies from abroad, but the economic impact of them will crucially

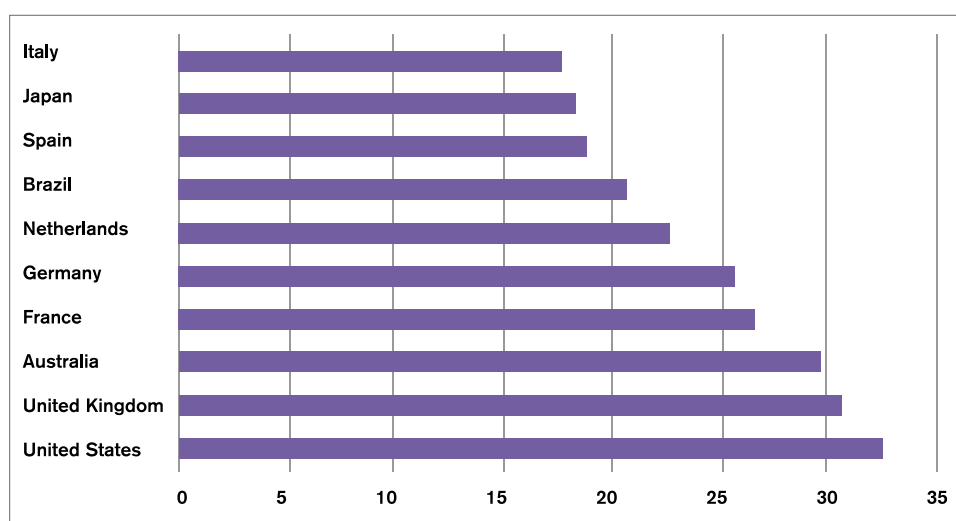
depend on how the rest of the economy employ these services in order to perform smarter and more efficiently.

Online platforms are a case in point: regardless of their origin, they have greatly supported business growth and consumer choice in Europe. While platforms with multi-sided markets have given rise to new patterns of economic collaboration between consumers, they have also drawn the attention of some regulators that have feared these platforms to restrict competition. New technological breakthroughs often require a re-think in the methods analysts and regulator use to gauge the benefits of innovation, and the network effects given by platforms is a good example. Their contribution to competition and output has been substantial. The US-based platform Airbnb, for instance, was recently valued at 31 billion US dollars, but that money is marginal compared to the economic value created across the world for its 100 million users and 650 000 hosts. It has given consumers much more choice. Search engines like Google, Bing and Yahoo! are all based in America, but their value for Europe comes predominantly by offering Internet users good access to knowledge, information and commerce. They just not compete with each other; they also compete with offline providers for access to information and marketplaces. Platforms are in that way a great contributor to Europe's level of competition and productivity.

DRIVING THE DIGITAL ECONOMY IN EUROPE

The digital economy has been a boon for Europe and, undoubtedly, many countries perform in the global top league as far as digitisation is concerned. Accenture, the consultancy, estimates that the digital economy already represents about 25 percent of Europe's total GDP – or 3.6 trillion euros – and, consequently, that the share of digital output in Europe's GDP is higher than the global average at about 22.5 percent (see chart 14¹⁷). Already achieved growth has emerged on the back of sizeable investments in creating good ICT capacities and endowments – telecom networks and digital skills among them. Governments have also promoted policies that have opened sectors up to new digital innovation. Recently, leading digital economies have also backed the flagship policy initiative for the digital economy in Europe – the European Union's so-called Digital Single Market (DSM) agenda.

CHART 14: THE PERCENTAGE OF DIGITAL OUTPUT AS A PROPORTION OF GDP



Source: Accenture

Europe's digital sector is already big and exceeds the global average. Important, it adds significant amounts of output and jobs to the economy.

¹⁷ Accenture, 2016.

For Asia-Pacific countries, the DSM agenda is an interesting policy initiative to examine – both for its priorities, the policy debate, and the need for a region that is tightly integrated through trade and FDI to reduce the barriers cross-border digital exchange in order to drive economic growth.

Case: Europe's Digital Single Market

Europe would benefit substantially if barriers to the digital economy – and cross border digital integration – would be reduced. Ever since its start, the core of Europe's Single Market has been to diminish market and policy barriers between economies. With the growing prospects for digital renewal of economies, it has become important for Europe's economy to take away digital barriers. A study by Copenhagen Economics suggests that a Digital Single Market in Europe would add more than 4 percent to the region's Gross Domestic Product by 2020¹⁸. The total addition to Europe's value-added would equal approximately 500 billion euros, or 1000 euros per citizen. Productivity and competitiveness would increase, and consumer prices would fall. A Digital Single Market would also create jobs. In Germany, it has been estimated that a Digital Single Market could add close to 430 000 jobs to the economy.

There is a history to this initiative – and one that shows how policymakers are struggling to marry ambitions with political realities. On the basis of the positive contributions to trade, productivity and economic growth from Single Market reforms from the early 1990s onwards, the Digital Single Market has aimed at freeing up the European market from internal barriers to digital integration. In 2015, the European Commission identified digital technologies and digital business models as key components of Europe's internal and international competitiveness. Following up on the objective of a previous strategy to become the “most dynamic and competitive knowledge-based economy in the world”, the Digital Agenda for Europe was conceived as one of the seven top initiatives of the Europe 2020 strategy. Released in 2010, the Europe 2020 strategy set out the importance of information and communication technologies to achieve a Digital Single Market. Accordingly, the Commission highlighted the need for a reliable European legal framework in order to stimulate investments in a competitive high-speed Internet infrastructure and in related services. In addition, the Commission stated the aim to create a true Single Market for online content and services governed by clear European rights regimes. Shaped by the objectives of the Europe 2020 strategy, the DSM Strategy – adopted in May 2015 – sets out 16 initiatives that aim to address three primary objectives (see Table below).

¹⁸. Copenhagen Economics, 2010.

TABLE 1: THE EU'S 2015 DIGITAL SINGLE MARKET (DSM) STRATEGY

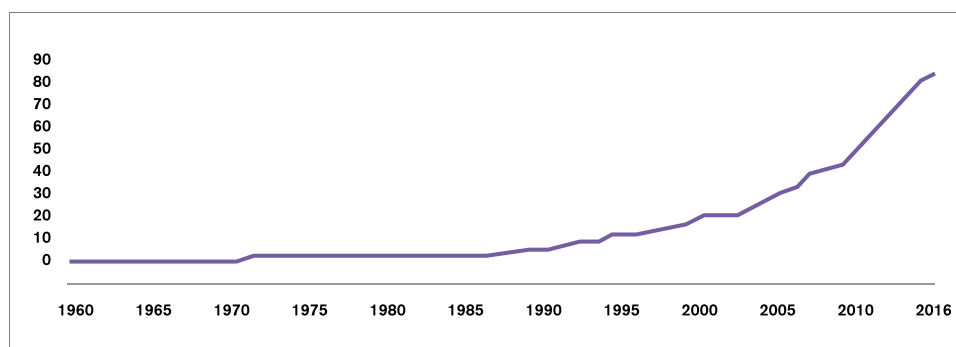
Pillar	Policy Initiative
Objective I: Better access for consumers and businesses to digital goods and services across Europe	<ul style="list-style-type: none"> - Rules to make cross-border e-commerce easier including consumer protection rights - Better enforcement of consumer rights - More efficient cross-border parcel delivery - To end discriminatory practices in geo-blocking - The renewed approach to apply anti-trust law in the e-commerce sector - A reform of European copyrights legislation - To increase the access of broadcasting services across Europe - A reduction of the administrative burden of complex VAT procedures in cross-border sales
Objective II Creating the right conditions and a level playing field for digital networks and innovative services to flourish	<ul style="list-style-type: none"> - An ambitious modernisation of EU telecoms legislation - A review of the audio-visual media framework - An inquiry of online-platforms as dominant player in digital markets from the perspective of competition law - A modernisation of the EU data privacy legislation (e-privacy Directive) - Measures on cyber and network security
Objective III Maximising the growth potential of the digital economy	<ul style="list-style-type: none"> - The promotion of the free flow of data by a European 'Free Flow of Data Initiative' and a 'European Cloud Initiative' - The definition of interoperability standards in various areas of the Digital Single Market, e.g. e-health, transport planning or energy - An inclusive digital society

Source: European Commission

Obviously, the objectives tied to the DSM strategy are laudable. Several of the initiatives in the strategy are also merited as they free up the market in Europe for cross-border portability of data and create better conditions for e-commerce. There are clear linkages between Europe's agenda and ambitions in the Asia-Pacific region to drive faster growth in the digital economy and create new opportunities for innovation and entrepreneurship. For instance, VAT rules and differences in copyright have consequences for the ease of doing business across borders. For regions like the Asia-Pacific, where economies have become ever more tightly knitted, it is crucial to create supportive conditions for the free flow of data across borders. Restrictions on data have negative consequences that go substantially beyond expectations.

Take the case of data-localisation requirements, stipulating mandatory storage of data within a certain jurisdiction. They damage the ability of countries to prosper on the back of cross-border data flows and they are particularly damaging for countries like India that has a large sector for business IT services. EU as well as Asian countries like China, India, Indonesia and Vietnam have experimented with or proposed data-localisation requirements in the past decade. Their experience, however, show how restrictions on cross-border data portability are particularly pernicious in parts of the world with substantial intra-regional trade integration. Such measures reduce trade and investment – and distort value chains. As a consequence, they damage GDP and welfare. In China and the EU, for instance, a study found that recently enacted and proposed data-localisation measures would cut GDP by 1.1 and 0.4 percent, respectively, and that the welfare loss of economy-wide requirements would equal 63 billion US dollars for China and 193 billion US dollars for the EU.¹⁹

¹⁹. Bauer et. al. (2014).

CHART 15: DATA LOCALISATION MEASURES, 1961-2016

Source: ECIPE Digital Trade Estimates Database

Both Europe and Asian economies have experimented with data-localisation measures. They are highly distortive for trade and economic growth, especially in regions with substantial intra-regional trade and FDI through value and supply chains.

A Digital Single Market that supports openness to data and data services should take away such requirements - and prevent new restrictions in the future. A fully integrated market for the digital economy would support the economy in many ways, and help producers and consumers to make the best of their limited resources. Rightly, EU leaders have used the example of e-commerce to drive home the point that the digital economy need fewer regulatory barriers. For instance, the European Commission found in a study of a basket of 100 goods that consumers could save up to 745 euros (or 16 percent of total expenditures) if they purchased them online across the EU. In 6 out of 10 cases, however, such transactions could not be completed because of various barriers. If policies clogging the arteries of e-commerce were eliminated, total consumer welfare gains would exceed 200 billion euros per year.

Just like in Europe, new policy initiatives in the Asia-Pacific should aim to establish policies and rules that open the economies for more digital competition and innovation, from home or abroad. Such rules are important because, cross the world, there is always a temptation to introduce detailed and granular restrictions, many of which fails in the implementation. Part of the temptation comes from the undeniable fact that some issues around the digital economy have been politically controversial and sometimes prompted opposition because of fears that the digital economy may erode the competitiveness of some of its leading firms. Obviously, hesitant reactions often reflect the unpreparedness for digital renewal in non-digital sectors. While sectors and companies close to the digital frontier have been quick to embrace new opportunities to raise competitiveness and productivity, others have been lagging behind, especially in countries with a high share of SMEs that are struggling to catch up with the technological frontier.

A fully integrated digital market in Europe would help SME to profit on the back of digitisation. In countries like Italy, for instance, there is a high share of non-frontier SMEs - more than 50 percent of all firms are non-digital and just a little more than 1 percent of all firms are fully digital - and it is important for economic development that they get closer to the technological frontier. All too often, such SMEs find that it is difficult or costly to access necessary technologies and skills, especially when there are restrictions on platforms or cross-border access to digital services. The Digital Single Market would help to converge SMEs to the frontier by easing the diffusion of digital technologies and services in the economy and make it easier for smaller firms to access the digital technologies and skills they need to compete.

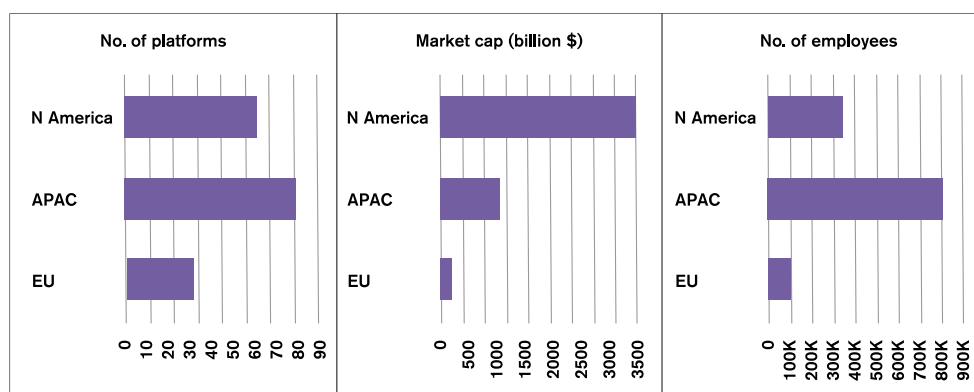
TABLE 2: PERCENTAGE OF FIRMS ACCORDING TO THEIR TECHNOLOGIES ADOPTION

	Non Digital	Digital Beginners	Digital Followers	Digital Mature	Fully Digital
UK	26,8%	38,8%	23,7%	8,0%	2,6%
France	28,7%	36,9%	25,9%	6,1%	2,1%
Germany	31,5%	41,3%	21,1%	4,2%	1,9%
Italy	52,3%	28,7%	14,4%	3,3%	1,2%
Spain	28,6%	41,6%	25,6%	3,0%	1,2%

Source: European Commission, Digital Entrepreneurship Scoreboard 2015

Many firms in Europe remain unprepared for the digital renewal. There are significant variations between countries and they reflect firm size, structure and tradition.

Reducing the barriers to the digital economy would also boost Europe's platform economy and create better conditions for domestic platforms to grow. In recent years, the rise of online platforms have been viewed by some in Europe as problematic, partly because restrictions to digital business in Europe are high. Europe trails behind both the US and the Asia-Pacific region in encouraging successful platform enterprises. While 27 digital platforms, with 109 000 employees and a combined market capitalization of 181 billion US dollars, were created in Europe, the Asia-Pacific has seen the creation of 82 digital platforms with close to 350 000 employees and combined market capitalization of 930 billion US dollars. Both regions do not come close to the combined market capitalisation of US-based digital platforms – about 3 trillion US dollars²⁰.

CHART 16: THE PLATFORM ECONOMY IN THE EU, THE ASIA-PACIFIC AND NORTH AMERICA

Source: Center for Global Enterprise

The EU trails both the Asia-Pacific and North America in the number of digital platforms, their market capitalisation and number of employees.

Just like in the Asia-Pacific, Europe's technological transformation has led to some market disruption and firm exits – and there is no guarantee that current industrial (or digital) stalwarts will be competitive and profitable in the future. The music industry is a classic example of a sector that got disrupted by technological change. First came technologies that enabled customers to share music with each other. Later, however, new business models emerged that allowed customers to legally buy and store music online, and to access music and other audiovisual services in new ways. Now, for example, one of the world's leading providers of digital music is a European unicorn - Spotify. In Europe, like the rest of the world, spending on music did not move at all for several years - and, hence, digitisation did not initially grow this particular sector. But with new business models, the online music market have lately taken off and the compound annual growth rate in expenditures between 2015 and 2020 is expected to be 2.5 percent, leading to more commerce and jobs in the sector.

²⁰ Evans and Gawer, 2016.

There is a very strong positive case for innovation and technological change that sometimes get lost in the debate: Technological transformations also create new firms and jobs. Accenture estimates that Europe's digital economy will have grown by one trillion euro by 2020, leading to new business creation and jobs. The European Parliament Research Service argues that the Digital Single Market will lead to 4 million new jobs in Europe²¹. In France, to take just one country example, the Internet has delivered over a 15-year period 700 000 new jobs net, according to McKinsey Global Institute.²²

Europe's exposure to digital innovation in other parts of the world is a key part of this success. Not only are many European innovators and companies supplying services to the American digital firms, but access to the services offered by these firms have helped to create a more productive European economy. While it is impossible to distinguish the effects of foreign ICT firms on Europe's productivity growth, ICT sectors have represented between 35 and 50 percent of Europe's total factor productivity growth in the past 15 years. Furthermore, foreign ICT providers give European firms greater capacities to compete and raise revenues. For Europe's businesses, having uninterrupted access to digital services is key to their ability to compete. Closing Europe off from the digital world would have serious consequences. And for Europe's community of small and medium sized firms – that cannot afford to build up own digital services – many of these digital companies originating elsewhere supply services that allow them to compete and grow.

Europe's digital challenge is neither about low digital competition nor stagnant digital innovation. For anyone versed in the modern digital economy it is obvious that we are talking about a European economy that generally have seen tougher competition as well as an acceleration of digital innovation. It also sees a high degree of concentration in many narrow segments of the market. Europe's digital challenge is rather that too many policies have slowed down the adoption of new digital services or technologies. And most of these policy flaws are not to be found in digital, platform or Internet policy. They are rather generic market and regulatory policies.

DIGITAL CHANGE IN EUROPE'S NON-DIGITAL SECTORS

These “fits and starts” of European policies to support growth in the digital economy have slowed down the pace of market change. All too often, the digital economy is viewed as one particular sector, made up of software and, perhaps, ICT hardware forms. Yet the big economic value of the digital economy is not the output created by firms specifically classified as digital companies. The real and dominant value comes from the way that digital technologies and services spread throughout the rest of the economy and provide new opportunities to raise productivity and innovation in non-digital sectors.

Europe's unimpressive record in promoting productivity growth through digitisation (see chart and analysis below) is directly related to the slow opening up of non-digital sectors for new innovation. The large problem is that Europe's approach to the digital economy has failed to give priority to removing the barriers that have hindered digitisation to infuse the rest of the economy.

Generating higher digitally-induced productivity growth should be a chief priority for Europe. While other developed economies also suffer from productivity problems, Europe's productivity problem is more alarming since it does not come on the heels of a productivity surge during the ICT boom from the mid 1990s till 2004. Europe's productivity decline has been steady over time, gradually reducing its rate of growth. Moreover, Europe's productivity performance remains substantially behind U.S. productivity growth. Recent statistics suggest that Europe is, at the aggregate level, much less productive than the U.S. When measured in output per hour

²¹. EPRS, 2015.

²². McKinsey, 2011.

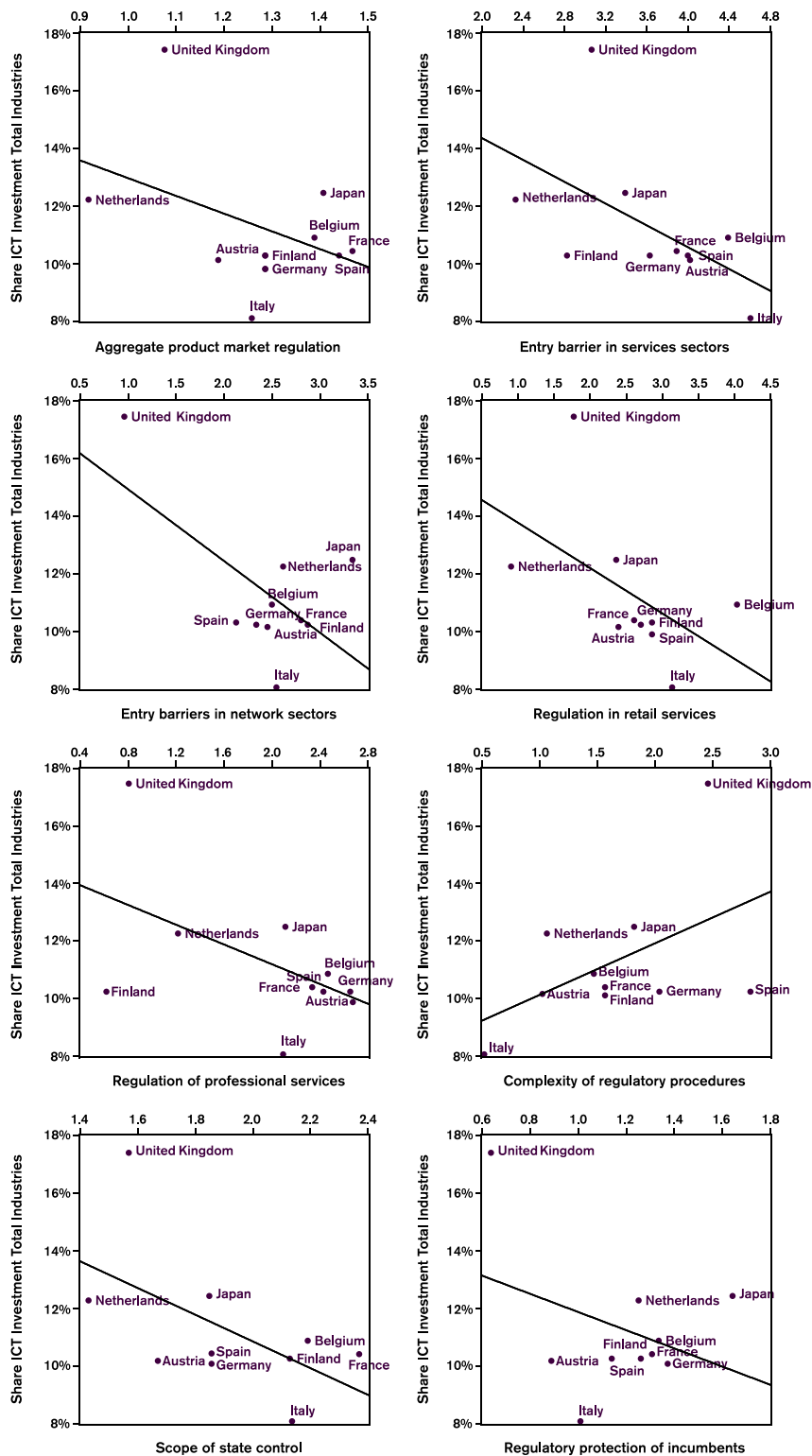
in purchasing power U.S. dollar, Europe's level of productivity was just 70 per cent of the U.S. level in 2014, a gap of 30 percentage points. By comparison, the Eurozone area (the countries sharing the currency) stands at 84 per cent of U.S. productivity.

The contribution of digitisation to non-digital sectors has also been lower in Europe than, for instance, the United States. About one third of the rates of total factor productivity growth between 2001 and 2011 can be attributed to the scale and adaptation effects to new ICT technologies in the economy at large. In the United States, the same period witnessed at least twice the effect on productivity growth.

What explains the gap in productivity growth rates between the U.S. and EU countries? The extensive use of ICT is a significant determinant of the American lead in productivity growth, and it was the chief reason behind the surge in productivity growth in the 1990s. Similar gains from ICT adoption cannot be observed for all developed economies, and Europe in particular is falling behind. In European countries for which data is available, there is a clear positive relationship between productivity growth and the use of ICT in production, as expressed by the share of ICT capital investment in total investment. However, it is not only that productivity growth lags behind the U.S.; it is also concentrated in a few sectors where ICT as an input for production has always been central. In the past decades, annual productivity growth was particularly strong, for example, in finance and insurance and telecommunications. This explains, for instance, why the United Kingdom (where the financial services sector is an important source of economic output) was amongst the fastest growing economies before the financial and economic crisis, with above-average productivity growth rates. The UK's financial services sector showed high absorption rates for ICT capital investment. After the crisis, however, ICT capital investment weakened considerably in the UK, as did the country's productivity growth. The sectors, unfortunately, is a representative example of the entire European economy.

Productivity growth in other sectors than finance, insurance and telecommunication has been much lower and – remarkably – often negative for many EU countries, especially in the services sector. Those sectors that are characterised by a relatively high degree of policy protection – such as public services, professional services, construction and network industries – show negative or comparatively low productivity growth rates and do not respond positively when new ICT capital is added to their production. This is a highly damaging because it cuts the potential to raise productivity and prosperity by ICT and digital deepening of these sectors.

CHART 17: TOTAL FACTOR PRODUCTIVITY GROWTH AND ICT CAPITAL INVESTMENT



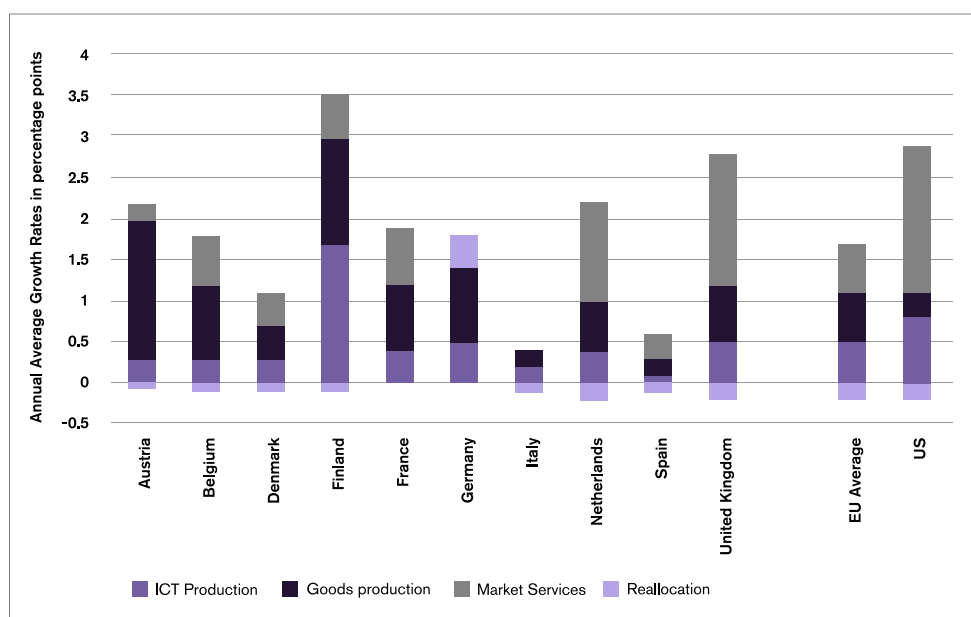
Source: EU KLEMS database

A higher share of ICT capital investment generally drives digitisation and productivity growth. In Europe, however, several sectors respond differently – with declining productivity growth when ICT investments have gone up. A key explanation is policies protecting especially services sectors from competition and, therefore, from digital innovation.

Benchmarking the general composition of productivity growth in the EU with the U.S., which has a similar balance between manufacturing and services in its economy, is instructive, and gives further indication about how the European economy fails to grow faster through an expanding digital economy. It is not just a matter of investment in ICT, but also what happens in the broader services sector when the economy gets transformed. Obviously, the European services sector growth has trailed the expansion in U.S. services. The same is true for productivity growth, and what contribution the services sector gives to general productivity growth.

The McKinsey Global Institute has estimated the productivity gap in business services²³ between the EU and the U.S. to be as high as 43 percent. The chart below gives further evidence to that observation. It shows the contribution of major industrial sectors to aggregate productivity growth in the U.S. and the EU for the period 1995 to 2007. The difference between market service contributions is striking: 0.6 percentage points for the EU against 1.8 percentage points for the U.S. Similarly, other estimates show that between 1995 and 2005, business services contributed 0.7 percent annually to productivity growth in U.S. commercial services and -0.1 percent annually in the EU. It should be noted that business and commercial services include a wide range of highly diversified ICT services, such as programming, data facilitation and storage, and digital marketing services.

CHART 18: MAJOR SECTOR CONTRIBUTIONS TO PRODUCTIVITY GROWTH IN SELECTED ECONOMIES, 1995-2007



Source: Timmer et al. (2011). In this study, "market services" include a wide variety of economic activities, ranging from trade and transportation services, to financial and business services, but also hotels, restaurants, and personal services.

The advantage of the digital economy is that it expands productivity in other sectors, not least in services. Market services in Europe have only marginally helped to drive productivity growth, representing about a third of the productivity growth that the same sector has generated in the US. The chief explanation is too slow ICT and digital penetration of Europe's services sector.

²³. Business services include not only professional services (accountancy, legal, engineering, marketing, tax and management consultancy, architects), but also IT, software services, technical testing, and labour search services etc. Business services are mainly used as inputs by other firms.

CHAPTER CONCLUSION

Asia-Pacific economies could find, and use, some of the learnings in Europe about its position in the digital economy and its efforts to raise its positive economic impact:

- Policies opening up for digital innovation in the economy are important. All too often, regulations slow down the pace of digital change and delay the benefits of digitisation to reach the economy. The point is that regulations should be used only when they are needed and benefit the consumer. They should be designed in a way that does not create obstacles to innovation and competition. All that, however, is easier said than done. The implementation of regulations is key to their success, but it is a part of the regulatory process that often distorts the intention of a regulation.
- Substantial investment in telecom infrastructure gives a solid foundation for digital growth. Several European countries have among the best telecom infrastructure in the world; it is predominantly the same countries that have been able to spur digital entrepreneurship and “digital deepening” by high broadband and smartphone penetration rates. Higher rates of ICT capital in different sectors generally lead to better economic outcomes and higher business productivity.
- Policies to improve the positive impact of the digital economy also need to take aim at restrictions in non-digital sectors that slow down the diffusion of new digital technologies. The great economic promise of digitisation is that it will improve the performance of all sectors - and for that to happen there should be a higher degree of sectoral openness for new digital competition and innovation. This is Europe’s greatest digital-economy challenge; the reform process in too many countries has been too slow and prevented great benefits of digitisation to reach many entrepreneurs and consumers. This is a great challenge for Asia-Pacific economies too.

Next Steps for Asia-Pacific Policies to Promote Innovation, Competition and the Digital Economy

THIS PAPER HAS OUTLINED the optimistic case for growth in the Asia-Pacific’s digital economy. With the region’s strong digital and economic foundations, it could play a leading global role in fostering digital innovation and competition that will provide consumers with new products and services. There are many positive tailwinds that will help businesses and governments in the region to deliver on the promise of new innovation and prosperity to follow on the heels of increased digitisation. The policy culture in the region is “open for business” and supportive of innovation. Rapid growth in the economy and consumer demand sets the framework for a plus-sum atmosphere of competition between incumbent firms and new digital challengers. The rise of a large middle class will pull substantial investments and innovation to Asia. Inexorably, the world economy will be moving eastwards. Furthermore, a high share of young people in the population bodes well for technology adoption rates. Digital readiness is good – and continues to improve. Digital entrepreneurship is powering the economy – and traditional SMEs. Big investments in high-quality telecom infrastructure lays the foundation for new digital services to grow.

Asia-Pacific economies could risk these digital dividends if they turn complacent. There is nothing inevitable about the growth of the digital economy and improving its economic impacts require policy action. In this White Paper, we give three broad recommendations for future efforts in the Asia-Pacific region to spur digital innovation and growth:

- Renewed focus on market and regulatory policies, opening the economies up for more digital innovation and competition in the economy at large – for foreign and domestic, big and small, enterprises.
- Many Asia-Pacific economies should continue to deepen their ICT capital by investing more in digital infrastructure and digital skills.

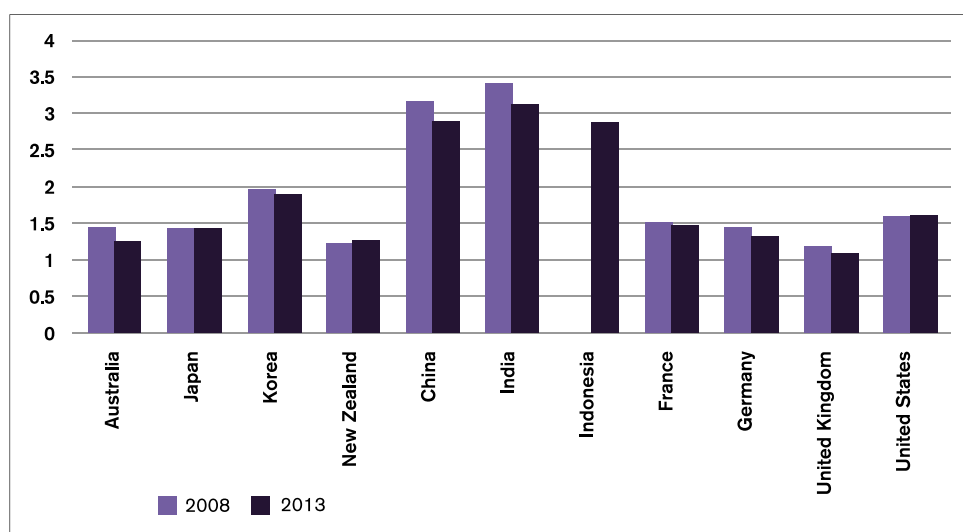
- Asia-Pacific economies should learn from their own past experiences of economic and policy development – and from other countries in the region that are at the top of various international ranking of digital performance.

RENEWED FOCUS ON MARKET AND REGULATORY POLICIES

Spurring greater technological dynamism and higher productivity growth is a policy priority throughout the Asia-Pacific region. That require policies that remove specific barriers to digital trade. Using indicators on digital policy openness and protection in 40 countries in the Digital Trade Barriers Database, it is striking to find several Asia-Pacific economies like New Zealand and Hong Kong and to be among the most digitally-open countries in the world. They are also making plans to prosper on their openness. New Zealand's Trade Agenda 2030, for example, sets out economic diversification as a clear objective and, to achieve that, the government has identified the digital economy as a driver for trade growth. There is great scope for other Asia-Pacific economies to converge with the region's leaders. Closing the gap between leaders and laggards in the performance of the digital economy is generally important for the entire region to prosper on the back of the digital economy.

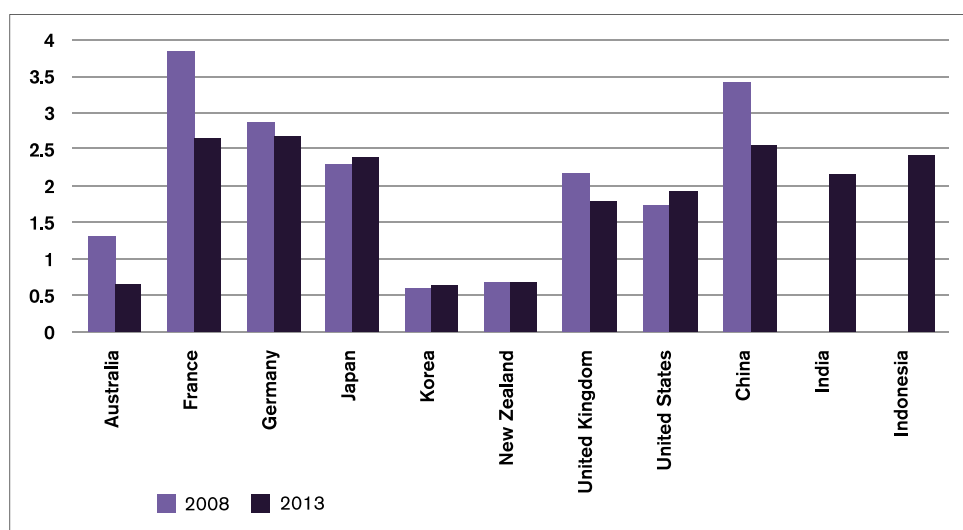
The policy challenges facing both the Asia-Pacific and Europe are shared: creating more space for digital entrepreneurship and innovation in non-digital sectors. It is important to remove the barriers to greater digital penetration of non-digital sectors, especially in services sectors. Product and services market regulations - such as complex registration, licensing and approval procedures; legal barriers to entry in specific markets; and state protection of certain companies - remain comparatively restrictive in several Asia-Pacific economies. They are barriers to new competition both from domestic entrepreneurs and foreign firms. Additionally, restrictions on foreign ownership, data storage, and transfers of data hold the digital economy back and prevent consumers from exploiting new opportunities.

However, there is a high degree of variation in the restrictiveness of regulation in Asia-Pacific economies. Some of the most open economies in the world can be found in the region (as the charts 19 and 20 show). Countries like New Zealand offer a generally supportive environment for new entrepreneurs that want to step into a market – and that substantially improves the condition for new digital commerce. It is no surprise, therefore, that the country has seen a sharp increase in inward investment to the technology sector, with early-stage funding for tech-entrepreneurs in New Zealand tripling in the past year. Such countries also offer examples to learn from because they show that an enabling environment help countries, companies and consumers to reap the benefits of the digital economy.

CHART 19: PRODUCT MARKET REGULATIONS IN SELECTED ECONOMIES

Source: OECD // Product Market Regulation (PMR) measure the level of commercial restrictions: the higher the PMR score, the more restrictive are the regulations. While some Asia-Pacific economies have high PMR scores, some of the most open economies in the world are from the region.

The retail sector is a good example of both positive change in the region – and remaining restrictions on competition from e-commerce platforms (see chart 20). While e-commerce has boomed because consumers in the region value price competition, access and quality, it is still the case that retail restrictions in several countries hold the sector back from greater success. Korea and New Zealand, for example, have lower restrictions on retail and, generally, offer consumers better competition. Policies in other Asia-Pacific economies that would emulate these countries would help them to reap the untapped potential for retail market dynamism and lower prices.

CHART 20: MEASURING REGULATORY RESTRICTIVENESS IN RETAIL IN SELECTED ECONOMIES

Asia-Pacific economies show a high degree of variation in their regulatory restrictiveness of retail trade. These restrictions affect both online and offline retail trade – and countries with lower restrictiveness have a better enabling environment for e-commerce. / Source: OECD

DEEPEN THE ROLE OF ICT CAPITAL AND DIGITAL SKILLS IN THE ASIA-PACIFIC ECONOMY

Greater investments in ICT capital would boost digital innovation and growth in many Asia-Pacific economies. While several countries already have impressive records of ICT infrastructure and digital human capital, there are wide differences between countries in the region. Those countries that are catching up on others will invest proportionally more in ICT capital in the foreseeable future, but that is neither inevitable nor a reason to refrain from accelerating investments.

TABLE 3: DIGITAL SKILLS IN SELECTED COUNTRIES: THE WORLD ECONOMIC FORUM'S NETWORK READINESS INDEX 2016

Country	Rank	Value
Singapore	1	6.5
Finland	2	6.5
Switzerland	3	6.4
Belgium	4	6.4
Qatar	5	6.4
New Zealand	7	6.2
Hong Kong	10	6.1
Australia	13	6.0
Japan	14	6.0
Taiwan	23	5.8
Sri Lanka	32	5.7
Korea	35	5.6
Malaysia	46	5.4
China	47	5.4
Bulgaria	52	5.4
Philippines	54	5.3
Spain	57	5.3
Greece	58	5.3
Indonesia	65	5.1

Source: World Economic Forum, The Network Readiness Index 2016, 5th pillar measuring skills and the ability of a society to make effective use of ICT because of basic skills

A particularly important task in improving the productivity of the economy is to ensure that the large SME economy gets better access to ICT capital. The SME sector in many Asian countries represent the lion share of all firms and private employment. Many of them are micro-enterprises that have found it difficult to expand beyond their local geography. Access to finance is a considerable constraint – but another one is the lack of digital skills and human capital, depriving a large part of all entrepreneurs to use new digital opportunities to compete and grow.

Moreover, a greater penetration of digital technologies and services in the public sector would help to support the performance of public services. In many Asian countries, the public sector is not exposed to normal rates of digital intensity and, as the public sectors grows, it is important that all parts of the economy are influenced by digitisation. A programme to raise digital penetration in the public sector would naturally include investments in digital human capital. Countries like Singapore and Korea have shown very good results from such investments.

LEARN FROM EXPERIENCE AND BEST CASES IN THE ASIA-PACIFIC REGION

A great experience from the past ten years of digital change in the Asia-Pacific region is the positive role played by digital platforms. They are crucial to speed up the digitisation of the

economy. Asia's "mobile first" development, spurred by significant innovation offered by mobile platforms like Android, is a case in point. Without this digital platform, several new digital and non-digital enterprises would never have expanded as fast as they did. Perhaps they would not have been started at all.

Digital platforms allow old entrepreneurs to change business models and new entrepreneurs to bring choice to consumers in sectors where traditional models have been restrictive of competition. Platforms have increasingly become the "go-to" market for many entrepreneurs because they offer opportunities to reach customers at a faster pace and at a lower cost. App-developers, for instance, are greatly aided by online platforms where they can sell their creations. While there has been a tendency in some parts of the world to confront digital platforms with policy restrictions, the reality for producers and consumers is that they have brought new opportunities for more and better competition. Without digital platforms, the pace of market penetration by digital services would have been severely reduced. The task now should be to encourage the creation of new digital platforms.

Finally, there is a vast reservoir of best-case examples in the region that others can learn from. Several economies are top global performers in network capacity and the readiness to spur fast digital expansion through current ICT capacities. Some of them, like Korea, have led the way of moving from equipment production to online content. Others, like Singapore, have demonstrated that business services can grow successfully when they are aided by digital innovation and skills. Furthermore, many cities in the Asia-Pacific have positive experiences of ICT investment and policy development to offer other cities – and they include metropolises like Jakarta that are in the less developed parts of the region. ■

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