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# CHINA'S DIGITAL ECONOMY

DEVELOPMENT, IMPACTS, AND POLICIES

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China is now a significant player in the digital economy, due to its stunning growth in this area over the past decade. The digital economy sector in China further advanced during the pandemic and became a new engine for the country's economic growth and a policy priority for the coming years. With China's increasing influence on the global digital economy and technologies landscape, it is imperative to understand the recent developments and trends for China's digital

economy and, more importantly, the risk factors behind the rapid expansion that may undermine its sustainable growth. This will also help political leaders, firms, and researchers in Canada identify challenges, risks, and opportunities when dealing with China in the digital economy domain, especially amid the escalating US-China technology competition and domestic regulatory storm the sector has just undergone.

## China's Fast-Growing Digital Economy

China's digital economy has leapfrogged to a global leading force at an exponential rate in the past three decades. China is now the world's second largest digital economy following the U.S.; China's digital economy, estimated to be worth US\$ 7.1 trillion in 2021, increased by 16.2% from 2020, and accounted for 39.8% of China's total GDP in 2021. Three digital economy giants, Baidu, Alibaba, and Tencent, (A.K.A. BAT), with their smaller counterparts such as Jingdong, Xiaomi, TikTok, Pinduoduo, and iQiyi, are creating a multifaceted and multi-industry digital ecosystem that comprehensively accommodates the needs of Chinese consumers. In particular, China's digital economy further expanded amid the COVID-19 pandemic, driven by the increasing use of online shopping and food

ordering, remote education, telecommuting, and online healthcare from the crisis. The NBS (National Bureau of Statistics) data shows that the digital economy has contributed to more than 30% of China's GDP in 2019 and 40% in 2021, helping China's economic recovery from the COVID-19 crisis.

China has the world's largest e-commerce market with transactions worth USD 1.5 trillion (RMB 42.3 trillion) in 2021, up 20% from 2020. The total value of China's e-commerce transactions is estimated to be larger than those in France, Germany, Japan, the United Kingdom, and the United States combined. China is also the world's largest mobile payment market with a revenue of RMB 2,976 trillion in 2021, an

increase of 9.8% from 2020. In addition, China is also a leader in many other cutting-edge technologies such as big data, Al, fintech, 5G, autonomous vehicles, robots and drones, and one of world's largest investors and adopters of these digital technologies. With a strong venture capital industry focusing on fostering advanced digital technologies and innovations, China is home to one third of the world's unicorns, defined as a start-up company with a value of over USD \$1 billion, most of which are digital-related.

Several factors have contributed to China's digital economy advancement. First, the rise of internet technology and data provides a solution for China to upgrade its traditional growth model which is highly dependent on cheap labour and intensive capital investment and has appeared to lose momentum in the past decade. China is facing serious challenges, such as an aging population and rising financial risks, and seeking new drivers to spur its economy in the future. Meanwhile, since joining the WTO in 2001, China has benefited from late-mover advantages such as lower imitation cost and knowledge spillover in digital innovation. The global trend of digitalization and increasing connectivity with the world's top digital players make technology transfer much easier and more efficient. In this circumstance, data as a new element entered China's growth model and was soon strengthened as a new growth engine for the economy.

The Chinese government sits on top of the digital economy ecosystem and plays a leading role in guiding policy and instituting regulatory measures. Before 2020, China's economic and industrial policy provided an open and supportive environment for firms exploring digital technologies and innovations. China's major policies and strategies which aim to boost and facilitate its digital transformation include the "Internet+ Plan" and "New Infrastructure", policies developed under the national campaign of "Indigenous Innovation", a broad plan officially unveiled in 2006 to decrease reliance on foreign technology and turn China into a technology powerhouse by 2020 and a global leader by 2050. These government policies are playing a key role in actively powering China's digital economy in global competitiveness. China's digitalization follows an enterprise-led model in which technology companies, represented by BAT, are building an all-encompassing digital ecosystem covering retail, finance, transportation, food delivery, and entertainment.

The large and burgeoning Chinese market consisting of a rising young middle-class population eager for life-changing technologies also provides a solid foundation of demand for the success of digital businesses. These young internet users have incredible enthusiasm for mobile-based transactions which facilitate the rapid commercialization of digital technologies and business models. According to MGI (McKinsey Global Institute) data, China's mobile

share of e-commerce sales is around 70% vs. 30% in the United States; its share of internet users making mobile digital payments is around 68% vs. 15% in the United States.

Nevertheless, China's digital economy is showing signs of weakness, despite the continuous and fast growth. Digital economy penetration remains small, relative to developed economies. China's digitalization rates in the three sectors (Primary, Manufacturing, and Tertiary) are 8.9%, 21.0%, and 40.7%, respectively, in 2020, in contrast to 23.1%, 45.3%, and 60.4% in Germany in 2019, according to the estimation by the China Academy of Information and Communications Technology (CAICT). Also, the economic digitalization in China is unevenly distributed across industries, with a higher-level of digitalization in service-related industries than in manufacturing and agricultural industries. Geographic imbalance is also hindering the sector's growth and leading to a national digital divide within China. The digital economy penetration was high in Eastern provinces and large cities such as Beijing, Shanghai, Guangdong, Jiangsu, and Zhejiang, and low in central and Western provinces and rural areas.

On the other hand, headwinds gathered after the longstanding relaxed policy environment in the past two decades. Policy support on information technology and internet economy had been the theme of China's economic policies for a long period until large tech

companies breakneck and wild growth raised the authorities' concerns over the monopolistic power of this industry, as exemplified by the aforementioned BAT. China's recent clampdown on tech firms (e.g., Alibaba, Tencent, and Didi) has pointed towards a shift of its digital policies which will significantly impact its digital economy sector. Moreover, the digital economy and core technologies have also been the frontline of the technology competition between China and the U.S., as China was looking to enhance global influence in this area. Therefore, while navigating the Chinese digital economy landscape, companies should be mindful of the challenges and perhaps avoid high risk areas, yet not lose sight of the opportunities in specific areas, such as cross-border e-commerce, digital service trade, and Fintech.

## Policy Evolution, Milestones, and Implications

China has an ambitious "Digital China" strategy aiming to turn China from a follower into a leader in the domain of global economic digitalization. Recognizing the role of data as a new factor to boost productivity, the Chinese government has continued to encourage the sector's growth through lax regulation and easy access to funding. This has also been supported through government toleration of the corporate behaviour of tech giants. With this policy support, China's digital economy has reaped exceptional growth and is now a leading force of technological advancement. China's internet giants such as Alibaba, Tencent, and ByteDance are also among top digital technology companies in the world. However, the tech industry has experienced a change of policy direction in late 2020. The central government suddenly moved to exert tight control over the once freewheeling sector, battering Chinese tech firms with thinning profits and a shrinking workforce.

#### **POLICY EVOLVEMENT**

The policy evolution of China's digital economy can be classified within three phases:
"information infrastructure" in the 1990s,
"internet economy and e-commerce" in the 2000s and early 2010s, and the comprehensive "digital China" after 2015. In the 1990s,
China's policies focused on the construction of information infrastructure, which has

been considered the foundation of the later fast-growing digital economy. Major policies included "the Notice of Accelerating the Growth of the Telecommunication industry" in 1999 and "the Notice of Promoting the National Space Information Infrastructure" in 2021. The 2000s and early 2010s marked an unprecedented period of rapid development of China's internet economy represented by e-commerce, driven by the advancement of communication technology and lowered cost of communication equipment. China's policy priority in this sector was to facilitate the further development of internet technology and e-commerce. The key policy documents include: "the Notice of Advancing the Software Industry", issued in 2002, "the Opinions on Accelerating E-commerce", issued in 2005, and "the Guide of Promoting Internet+ from the State Council". After 2015, China accelerated towards the goal of "Digital China" and entered the third phase of the digital economy. In this period, China's policies focused on the integration of traditional industries with the internet, the so-called 'Internet Plus' initiative, pushing the application of information technologies (cloud computing, big data, and Internet of Things) in more industries including manufacturing, banking, agriculture, health, government, and many others. The goal of Internet Plus was not only to fuel economic growth but also to link China's industries to others around the world. In order to achieve this objective, China rolled out the

following policies: "the Guide of Deepening the Integration of Manufacturing and Internet from the State Council" in 2016, and "the Guide of Accelerating Internet + Government Service" in 2016. China's digital economy policy framework was believed to have been established and the digital economy was included in the Central Government Work Report in 2017 for the first time.

#### **POLICY MILESTONES**

## DOMESTIC DIGITAL POLICY DEVELOPMENT

#### 1. INTERNET PLUS INITIATIVE

This concept and strategy were proposed by China's prime minister Li Kegiang in his government Work Report in March 2015, referring to the application of the internet and other information technologies, such as cloud computing and big data, in conventional industries including manufacturing, energy and agriculture. The strategy signified that China had started to seek a new economic driver to replace cheap domestic labour and capital investment to sustain high growth. Digital transformation in all industries was believed to be the right formula for economic transformation in China as China's economic outlook appeared bleaker than it had in the previous two decades. The national big data strategy was also announced in 2015, highlighting data as a strategic resource

for the Chinese economy. China's ultimate goal of constructing a digital China took several key steps around 2015 and the road map for China's digital economy sector was drawn by then.

## 2.14TH FIVE YEAR PLAN FOR DIGITAL ECONOMY

Since the digital economy has become a key source for economic growth in China, the central government has prioritized it as a key component in the country's recent policy agenda. China's instructive 14th Five Year Plan (FYP) incorporated digital economy as one of the top economic goals during the 2021-2025 period and also one of the 2035 longrange objectives. The digital economy was also highlighted as important to China's agricultural economy and industrial economy, China's two fundamental economic forms defined by the authorities. More recently, in January 2022, the State Council released the 14th FYP particularly for the digital economy, the first-ever FYP for digital economy in China. The Plan confirmed that China's digital economy should be in full expansion mode, with the value added by core industries of the digital economy accounting for 10% of the country's GDP by 2025 and significant progress having been made in the integration of digital technologies with the "real economy". Following the central government's Plan, provincial and city-level digital economy plans of this kind were also launched responsively to grow the local digital economy.

## 3. NEW INFRASTRUCTURE INVESTMENT

China initiated the "New Infrastructure" Plan in 2018, aiming to boost the country's digital economy sector through creation of new types of high-tech infrastructure such as 5G, Al, industrial internet, and Internet of Things (IoT). Since the COVID-19 outbreak, the New Infrastructure Plan has been positioned as a key policy pillar of China's economic strategy. However, notwithstanding speculations focusing on digital technologies, the scope of the New Infrastructure Plan was not clearly defined until early 2020. In April 2020, China confirmed that the Plan included information infrastructure, the integration of information technologies with traditional industries, and innovation through supporting science, technology, and R&D. Recently, China has taken steps to spur domestic demand, economic transformation, and growth sustainability by advocating for the construction of "new infrastructure". As China's fiscal policy turns from contraction to expansion in 2022, the new infrastructure investment is expected to accelerate to shore up the economy, amid the rising concerns about China's slowing economic growth in the second half of 2021.

# 4. DIGITAL ECONOMY IN THE 20TH PARTY CONGRESS REPORT

The narrative of the digital economy appeared in the chapter "Modernizing the Industrial System" in President Xi's 20th Party Congress

report, indicating the elevated role of the digital economy as a new growth engine in China's economy in the next five years. China will intensify promotion of the integration between the digital economy and the real economy, and advance digitization in manufacturing, aerospace, and transportation to achieve quality growth. The <a href="report">report</a> also proposed an avenue to achieve the goal by "building internationally competitive digital industry clusters", as new growth engines such as next-generation information technology, artificial intelligence, biotechnology, new energy, new materials, highend equipment, and green industry.

#### **GLOBAL DIGITAL STRATEGIES**

#### 1. DIGITAL SILK ROAD AND NEW B&R

The "Digital Silk Road" (DSR), the digital dimension of China's "Belt and Road" Initiative (BRI), involves investments in e-commerce to telecommunications, scientific cooperation and smart economy in countries along the BRI. Launched in 2015 with a vague mandate, DSR is China's most prominent global initiative in the digital economy, with the goal to deepen global connection and cooperation in the digital domain. DSR-related investments amounted to USD 79 billion in 2018, half of the total investment in BRI countries. The DSR incorporates macro-level sectors, such as telecommunication, big data, and space technology, and micro-level businesses, such as e-commerce, fintech, telecommuting, and online education.

Aligning with the goals of the BRI to mitigate China's dependence on the U.S. economy, the DSR is deemed not only an infrastructure project but also a solution for China to build up a China-centric global digital order, as opposed to an US-centric order. The plan reflects China's intention to improve influence in Asia, Europe, Africa, and Latin America, areas where China has perceived opportunities to strengthen connections by delivering digital technologies such as e-commerce, fintech, and 5G. Nevertheless, the DSR has engendered controversy over issues relating to China's accelerating expansion in those markets, such as security, IP, and data privacy. As a result, digital infrastructure has become a key frontier in the U.S.-China competition over nextgeneration technologies.

# 2. THE REGIONAL COMPREHENSIVE ECONOMIC PARTNERSHIP (RCEP)

The China-ASEAN economic ties have strengthened after the RCEP was signed in late 2020. During the COVID-19 pandemic, ASEAN has become China's No.1 trade partner with the largest value of imports and exports combined, surpassing the U.S. Digital economy sits among the three key components (i.e. trade, investment, and digital economy) of the regional economic cooperation between China and ASEAN countries, as both sides see the digital economy sector as the growth engine for the future economy. The pandemic accelerated cross-border e-commerce and

digital service trade between China and ASEAN countries. China, with advanced communication and internet technologies, has shown a rising presence in ASEAN's vast digital market, projected as one of the fastest growing digital economies in the next few years. China's tech giants, such as Huawei, ZTE, and the BAT, have built 5G businesses, cloud computing and data centres, and e-commerce and e-payment platforms in many ASEAN countries. Now they are eyeing smart cities as the next key business area.

# 3. DEPA (DIGITAL ECONOMY PARTNERSHIP AGREEMENT)

In 2022, China has applied to join DEPA, initiated by Singapore, Chile and New Zealand to foster digital trade and tackle issues related to the digital economy. China has been proactive in exploring opportunities to make its voice heard in the digital economy world, especially in developing multilateral relations with middle-power countries to counter the effect of decoupling from the U.S. and its allies. However, concerns remain due to China's highly restrictive data and cybersecurity regime, which shields its domestic data from outside influences and recently elevated requirements concerning data cross-border transfer.

#### **IMPLICATIONS**

The recent digital economy policy development in China has several implications.

First, China has prioritized the digital economy as its leading driver of economic growth in the coming decades and emphasized data as a new factor of production, joining land, labour, capital, and technology. With favourable policies, the sector is expected to maintain a high growth rate at least in the next few years and attract investment, talent, and other resources.

Second, China's digital economy policies focus on revamping its digital infrastructure including 5G network, inter-city bullet railways, artificial intelligence, data centres, and the Internet of Things. Facing an increasingly gloomy economic outlook induced by lockdowns in many cities, Chinese leaders pin their hopes on the new infrastructure construction in shoring up the flagging economy and employment.

Third, promoting deep integration of digital technologies in traditional industries and organizations is a vital part of China's digital economy policies. This can be considered, in part, a response to the uneven level of digitalization across different industries and organizations. Manufacturing and agricultural digitalization, digital government, and smart cities have been given priority in governments' digital economy policies.

Fourth, China has been seeking greater roles in setting international rules for the digital economy and increasing global influence in the sphere. China has actively engaged in global cooperation in the digital economy, especially with ASEAN, Africa, and some European countries. Nevertheless, the escalating competition with the U.S. and its allies in the digital technologies frontier has aroused concerns and influences China to cultivate multilateral cooperation with other countries.

## Impacts, Challenges, and Future Trends

#### **IMPACTS**

Not only has digitalization made fundamental changes in business models, product innovation, lifestyle, and social development in China, it also affects China's economic connections with the rest of the world, especially in global trade and investment. As the world's largest manufacturer, China's digitalization in a wide range of domestic economic sectors is also significantly affecting the pattern of global trade and foreign investment.

First of all, emerging digital trade platforms help to facilitate products and service trade in a cost-saving way. This is particularly important for international trade when the global supply chain has been severely disrupted by the pandemic since 2020. Digitalization is also creating new trade opportunities for Chinese firms to sell more products in a broader market. We have also seen a surging number of Chinese brands expanding their footprints to overseas markets in the last two years. More importantly, internet companies have led the trend in recent years, with their technology advantages and government policy support. Moreover, China's trade digitalization also increases trade connectivity with its trade partners and has introduced more products and services to Chinese consumers through e-commerce channels and innovative online retail formats, such as livestreaming sale.

With the fast-growing digital sector, China is not only an important market that has attracted a sizable number of global investors, China is also a major global investor in the digital sector. Chinese digital companies are active in driving global M&A activities. According to MGI, China's top three internet companies made 35 overseas deals during 2005 to 2007, compared with 20 by the top three U.S. internet companies. China has also been exporting digitally-driven business models, most of which concentrate in e-commerce and fintech.

#### **CHALLENGES**

Not surprisingly, as China expands to the global digital market, it faces escalating head-on competition with the Western world. In many OECD countries, economic competition with China is increasingly playing out in the digital domain and new technologies. All players of the digital game are keen to seize the commanding heights in the competition of digital frontier, an area with immense opportunity. US-China competition in the digital economy and key technologies are at the core of the global digital competition. Escalating technological rivalry, as well as intensifying friction over the digital technologies, between Washington and Beijing was in the spotlight during Trump's presidency. Since 2017, the geopolitical significance of key digital technologies has taken the centre

stage in a global competition between the U.S. and China. Huawei and ZTE well exemplified the worsening situation and the U.S.' switch to a more aggressive approach in the digital confrontation. Likewise, the U.S. also sees the Digital Silk Road as a challenge and threat to the U.S.' economy, technologies, security, and global influence, just like its parent BRI initiative. For example, Brian Harding, an U.S. Southeast Asian expert, claimed that Chinese tech giants, such as Huawei, ZTE, Alibaba, and Tencent have been able to deliver high-quality products at low cost with Chinese government support. Meanwhile, Facebook, Google, and Twitter, albeit with a massive presence in Southeast Asia, have not been as aggressive as Chinese tech companies in competing in mobile-payment, cloud computing, and the building of 5G networks. Chinese leaders' bullish rhetoric on promoting China's digitalization goal and strengthening its global influence in this sphere accelerated American confrontation and triggered the technology decoupling between the two digital economy super powers. Issues such as forced tech transfer, corporate espionage, IP, national security, and data privacy continue to plague China's overseas development of digital technology. China's top internet companies, including Tencent and TikTok, were hit hard as the U.S. tightened its grip on Chinese digital technology companies.

Moreover, beside the competition of the world's dominant digital players, the new inequality generated by the widening gap between major economies and less developed economies is worth noting. In particular, the global digital divide continues to worsen as the U.S. and China are locked in a zero-sum competition, with little joint efforts between the two countries to help combat the global digital divide. Instead, cutting edge technologies are accused by critics for leading to technological polarization in the world.

#### **FUTURE TRENDS**

After the introduction of sweeping regulation by the Chinese authorities, the governance of the technology sector is becoming more centralized, with enhanced oversight from the Chinese governments. The platform companies, especially those focusing on consumer service, including fintech, e-commerce, social media, video game, food delivery, and ride hailing and sharing, are under tighter scrutiny and saw their revenue and market value shrunk sharply since the regulatory storm. They will likely be more prudent with their business expansion and investment plans, especially in expansion to other business areas and in the overseas market. This will also affect global investors' confidence in Chinese technology companies and make them more cautious while making investment decisions. This being said, China has recently signalled its intention to wind down its crackdown on big tech companies amid the worries about the economic slowdown. However, the authorities' rhetoric should not be interpreted as a reversal of state policy. The long-term outlook remains unclear until more

specific measures are unveiled in the future. In the short term, the policy ease suggests China's technology sector is still expected to play a leading role in boosting the ailing economy, bringing possible opportunities for global investors in specific areas such as information infrastructure.

Technology decoupling has been a key theme in US-China relations in recent years and will persist in the foreseeable future.

Decoupling from the U.S. is challenging China's technological progress and impeding China's

journey to become a world leader in science and technology. To reduce the costs of decoupling, China will continue to strengthen technological connections with middle-power countries including the ASEAN countries and those along the BRI. Proclaiming scientific self-reliance in the 14th FYP, spending on basic research and key technologies should see a big leap in the coming years. Although China has been focusing on technology regulation since 2020, forward movements were seen in some specific digital technologies, such as China's digital currency—e-CNY.

## Implications for Canada

Canada also saw an accelerating digital transformation in its economy during the pandemic when the digital economy sector helped support the resilience of the Canadian economy. Before the COVID- 19 pandemic, the Canadian Internet Use Survey by Statistics Canada showed that 91% of Canadians aged 15 and older were internet users in 2018 and 94% of Canadians had home internet access, compared to 74.4% of the population in China that are internet users. The digital transformation in Canada extends beyond ITrelated industries; companies in sectors such as retail, healthcare, manufacturing, and energy, are also shifting their business to data and technology-driven models.

With decades of economic collaboration in trade, investment, and science and technology, the two countries also saw expanding interaction in digital economy in recent years, including cross-border ecommerce, digital service trade, digital technologies, and platform economy. Since the outbreak of COVID-19, China has been committed to advancing digital trade to fuel economic growth, and trade digitalization will remain a key priority for China's long-term economic goals.

Cross-border e-commerce has become a new bridge linking businesses between China and its trading partners, including Canada. New statistics from AliResearch ranked Canada in 7th place among the G20 member states in terms of its e-commerce connectivity with China. While China-Canada total digital trade volume remained veiled, Statistics Canada noted that, up to 87% of Canada's in-scope service exports to China was digitally delivered. The International Post Corporation survey showed that in 2018, 30% of Canadian shoppers purchased goods from China, compared to 53% from the U.S. and 4% from the U.K., and the percentage changed to 42% versus 49% from China and the U.S., respectively, in 2021. Additionally, an increasing volume of Chinese capital flowed to Canadian digital technology firms in the past five years. World-renowned tech giants and unicorns, such as Alibaba, Tencent, Netease, and TikTok, have all invested in the Canadian digital sector in forms of green field or M&A. The COVID-19 pandemic has accelerated the transition of many businesses and economic transactions, such as retail, trade,

and labour migration, to the digital format,

prompting a reconsideration in digital economic

policies among world powers. Recently, Canada

and China have both signalled interest in seeking

global expansion and cooperation in this domain

by joining DEPA. In this context, engaging with

China in the digital economy is key for Canada to navigate Canada-China economic relations

that have been challenged by geopolitical

complexities.

Although science and technology competition has intensified between China and Western countries, Canada and China can still find common ground and nurture cooperation in

the digital economy. In recent years China has vowed to double down on providing a stable and supportive policy environment to global investors in the digital economy sector. A raft of national and provincial policies has been introduced to attract global capital to its digital market since 2020. More recently, China indicated it would further open-up its market to the world in areas such as digital trade, financial market, and advanced technologies, and remain appealing to overseas investors amid growing headwinds. Notably, the new infrastructure plan is expected to create opportunities for global investors in the digital technology sector. Given the longstanding trade relations between Canada and China, expansion in digital trade is a real possibility. The cross-border e-commerce market is expected to continue to gain momentum in China. E-commerce sales in China are projected to increase by 50% and hit USD\$ 2 trillion by 2025. The boom will also likely bring benefits to Canadian consumers, workers and business; numerous e-commerce platforms, such as Ali's Tmall and Jingdong's Worldwide, provide avenues for Canadian brands to reach Chinese consumers. The "new retail", referring to a combination of online and offline retail models, live streaming through digital platforms such as online retailers and social media is thriving and leading consumption in China. Services in telemedicine, online education, digital entertainment and other services are projected to have great growth potential in the Chinese market in the post-COVID years. Canada's well-established service industry can

complement China's service sector and see further growth.

Payment via mobile phones continues to rise in both the online and offline point-of-sale (POS) in Canada, especially during the pandemic. As the leader in mobile payment, Chinese mobile payment apps have also expanded business in Canada, especially in the Chinese-Canadian community. There is also an opportunity for Canada to capitalize on its growing population of mobile payment users including domestic consumers and international tourists. Along with the opportunities in digital trade and technologies, major risks remain including privacy infringement, national security, potential labour disruption, as well as some financial risks. China's centralized governance of the digital economy sector also produces hazards for investors seeking to enter China's digital market. The uncertainties could hinder the growth prospects of the sector, but the Chinese government has signalled the possibility of returning to more supportive measures. As a top trade partner with China, Canada should take advantage of the opportunities offered by China's booming digital economy, especially in areas such as those we have identified as to have the greatest development potentials in the coming years.