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The Impact of the Belt and Road Initiative Investment in Digital Connectivity and Information and Communication Technologies on Achieving the SDGs

Sen Gong
Centre for International Knowledge on Development

Jing Gu
Institute of Development Studies

Fei Teng
Centre for International Knowledge on Development

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About this report

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For any enquiries, please contact helpdesk@k4d.info.

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Abbreviations

BRI	Belt and Road Initiative
EEC	Eastern Economic Corridor
eWTP	Electronic World Trade Platform
FOCAC	Forum on China–Africa Cooperation
GICA	Global Infrastructure Connectivity Alliance
ICT	Information and Communication Technologies
MOU	Memorandum of Understanding
NDRC	National Development and Reform Commission
SDG	Sustainable Development Goal
SME	Small and Medium-sized Enterprise

1. Abstract

The lion's share of the "Belt and Road Initiative (BRI)" investment in infrastructure from the Chinese investors has gone to the energy and transportation sectors, and only a very small share to the information and communication technologies (ICT) sector. However, the ICT sector has attracted growing investment not only from the public sector but also from the private enterprises in China, and stronger interests from the stakeholders in the BRI-related countries. The existing Chinese literature shows that the current investment in ICTs as well as digital connectivity and digital economy has had some positive influence on the implementation of the Sustainable Development Goals in those recipient countries. It has helped to facilitate economic growth of the least developed countries and rural areas of middle-income countries, to promote development of small and medium-sized enterprises, to encourage digital transformation of traditional industries and green growth, to narrow down the digital gap, and to enhance digital inclusion.

2. Introduction

> *The One-Belt-One-Road initiative has enormous potential to contribute significantly to the 2030 Agenda for Sustainable Development. It has five pillars, and they focus on policy, connectivity, trade, financial integration and people, and these areas of focus are directly in line with all the seventeen Sustainable Development Goals. The initiative has a broad span across the Silk Belt from the continents of Asia to Europe and across to Africa, and this enables it to have significant global influence.*
>
> Dr David Nabarro, Special Adviser on the 2030 Agenda for Sustainable Development, United Nations Executive Office of the Secretary-General

The global development landscape has changed rapidly in recent years. Traditional approaches to development have been increasingly questioned by governments, practitioners and academics alike, and coupled with the emergence of new actors, there exists a space to enquire whether development policy and practice may move "beyond aid". The UN Sustainable Development Goals (SDGs) and China's Belt and Road Initiative (BRI) both have a global reach on the current and future landscape for international development. But what is the relationship between them – in promise and in practice? Will the BRI fulfil its potential to contribute to the SDGs – and what needs to happen for it to do so?

The increasing influence of China has generated significant debate and discussion. China is regarded by some in the West quite critically. There is a tendency to see all Chinese activity, even if purely by private agencies and companies, as an extension of the power of the Chinese state, especially after witnessing the present global controversy about the Huawei electrical giant. China is criticised for not working with "civil society" enough in the development process. In particular some say it cooperates too exclusively with BRI state authorities. This report aims to take seriously these concerns. The paper demonstrates the general receptivity experienced by the Chinese private firms with both BRI states and civil society. The overall impact of the Chinese private sector is positive and its relations with local conditions are interactive with SDGs.

3. Ambition and intent: Chinese theoretical policy goals

Chinese investment in digital infrastructure, e-commerce, among others, and potential linkages with the SDGs

China has always stressed that the development promised for the BRI would be for mutual benefit and built upon commonly agreed goals for collaboration. When Chinese President Xi Jinping visited Central Asia and Southeast Asia in September and October of 2013, he raised the initiative of jointly building the Silk Road Economic Belt and the 21st-Century Maritime Silk Road (hereinafter referred to as the Belt and Road Initiative, or BRI). In March 2015, with State Council authorisation, the National Development and Reform Commission, Ministry of Foreign Affairs, and Ministry of Commerce of the People's Republic of China, jointly issued a policy framework paper for BRI (Xinhua, 2015), entitled *Vision and proposed actions outlined on jointly building Silk Road Economic Belt and 21st-Century Maritime Silk Road.* Investment in digital connectivity and ICTs was incorporated into this policy document. Afterwards, the front-line government ministries concerned and top Chinese leaders, in particular President Xi, proposed detailed design and action plans for the investment in digital infrastructure.[1]

The framework document, *Vision and proposed actions* (Xinhua, 2015)*,* argues that countries along the Belt and Road have their own resource advantages and their economies are mutually complementary and thus there is great potential and space for cooperation. It proposes five priority areas for cooperation: policy coordination, facilities connectivity, unimpeded trade, financial integration and people-to-people bonds. In other words, China has always seen development in terms of the actual impact upon populations, not upon bureaucratic structures, which it recognises have the potential for corruption.

Facilities connectivity is a priority area for implementing the BRI Initiative. Besides transportation connectivity and energy connectivity, the framework document has also put great emphasis on digital connectivity. It recommends that BRI countries *should jointly advance* the construction of cross-border optical cables and other communications trunk line networks, improve international communications connectivity, and create an Information Silk Road. It further proposes to build bilateral cross-border optical cable networks at a quicker pace, to plan transcontinental submarine optical cable projects, to improve spatial (satellite) information passageways, and to expand information exchanges and cooperation.

In November 2016, the State Administration of Science, Technology and Industry for National Defense and the National Development and Reform Commission (NDRC) jointly issued a guideline paper (Xinhua, 2016) to facilitate the construction of spatial information passageways and their utilisation. It would be a comprehensive system to provide integrated services between the internet and spatial information. This system is composed of key spatial facilities for communication, remote sensing and navigation, and aims to support network and facility connectivity on the ground.

[1] There are a good number of Chinese language documents as well as some English literature for this topic. For the BRI ambition and intent in investing in digital connectivity and ICTs, please see Xinhua (2015, 2016, 2017, 2018); for the potential linkages with the SDGs, please see Guterres (2017), Cao (2016), Xue and Weng (2018), Xiang (2017), Li (2017), Choi and Yi (2009), Czernich et al. (2009), and Chinese Academy of Sciences (2017).

At the Belt and Road Forum for International Cooperation held in Beijing in May 2017, President Xi put great emphasis not only on information facility connectivity but also on information sharing (Xinhua, 2017). He proposed to pursue innovation-driven development, to intensify cooperation in frontier technological areas such as digital economy, artificial intelligence, nanotechnology and quantum computing, and to advance the development of big data, cloud computing and smart cities so as to turn them into a digital Silk Road of the 21st century. President Xi also proposed to seize opportunities presented by the new round of change in energy mix as well as the revolution in energy and information technologies to establish global energy interconnection for achieving green and low-carbon development. Moreover, he has promised to pursue the new vision of green development and a way of life and work that is green, low-carbon, circular and sustainable, and to work together to achieve the goals set by the 2030 Agenda for Sustainable Development.

More recently, in President Xi Jinping's keynote speech (Xinhua, 2018) to a national conference on information development in April 2018, he expanded the areas for cooperation among the BRI countries further to cyberspace security. His speech has called for those countries taking full advantage of BRI and strengthening cooperation in internet infrastructure, digital economy, and cyberspace security to build a digital Silk Road of the 21st century.

Potential linkage between the digital Silk Road and the SDGs

At the 2015 Hangzhou G20 Summit, the G20 members recognised the potential of the digital economy to facilitate the implementation of the 2030 Agenda (Cyberspace Administration of China, 2015). It is generally agreed that there could be synergies among BRI countries, in particular between the digital Silk Road and the SDGs.

At the political level, as reviewed above, President Xi has strongly recommended that BRI initiatives should not only incorporate the new vision of development, i.e. green, low-carbon, circular and sustainable, as one of the most important objectives, but also take the momentum of the emerging industrial revolution on the basis of digital technology, as one of the major means for development. This Chinese project has received the highest endorsement from the United Nations itself. When addressing the opening of the Belt and Road Forum for International Cooperation, Secretary-General António Guterres also stated that the BRI and the 2030 Agenda could and should align with each other:

> While the Belt and Road Initiative and the 2030 Agenda are different in their nature and scope, both have sustainable development as the overarching objective. Both strive to create opportunities, global public goods and win–win cooperation. And both aim to deepen "connectivity" across countries and regions: connectivity in infrastructure, trade, finance, policies and, perhaps most important of all, among peoples (Guterres, 2017).

Academically, several Chinese scholars have also argued for the importance of strong links between the BRI and the 2030 Agenda. Cao (2016) argues that alignment between these two standards could be an external constraint on Chinese enterprises going abroad and could push them to practise higher-level social obligations in accordance with the new development vision attaching to SDGs. Xue and Weng (2018) show how incorporating individual BRI projects into a host country's framework for SDG implementation could facilitate the implementation of BRI projects in local contexts. Both articles argue that as a result such a strong link could strengthen the positive impact of China abroad.

More specifically, several scholars argue for the possible contributions of digital connectivity to the SDG implementation of participating countries along the Belt and Road. Following Metcalfe's law, which states the effect of a telecommunications network is proportional to the square of the number of connected users of the system, Xiang (2017) suggests that the Chinese approach to digital economy and digital Silk Road would provide more universal benefits for all participants in terms of its openness, and would help narrow down the digital gap among BRI countries while at the same time providing good value for money. Based on the national panel data of BRI countries from 1996 to 2014, Li (2017) finds that internet coverage could make positive contributions to per capita GDP. The effect would be that 10 more percentage points of coverage would increase GDP by 0.9 percentage points. Such findings are quite similar to those of Choi and Yi (2009) and Czernich et al. (2009) in different contexts. Li (2017) also suggests that digital infrastructure would be more acceptable than transportation infrastructure because of the lower costs, lower risks and higher benefits of the former.

Besides the possible influence of a digital Silk Road on all the three dimensions of sustainable development, the Chinese case shows that *spatial information passageways could provide supplementary information to monitor and evaluate the progress of participating countries along the Belt and Road on sustainable development.* The Chinese Academy of Sciences (2017) published the *Report on remote sensing monitoring of China sustainable development 2016*, which could provide data on several indicators relevant to SDGs such as land use, air conditions, forest coverage, sea protection, grain growth and water reserves All of this goes to show that far from aiming to increase the potentiality for oppressive state power, Chinese assistance in the development of a digital Silk Road will inevitably lead to more open and just public administration.

4. From theory to practice: BRI activities in practice to date[2]

Introduction

This section notes that until April 2017 the extent of investment in digital infrastructure had been relatively low. This is partially due to the lower cost of this type of investment and also because it is from this date onwards that a concrete international institutional framework for digital activity was set by the Chinese government. At the same time, it is essential to recognise that its primary role in the actual development of the digital economy has been made through the Chinese private sector. Unlike other aspects of Chinese infrastructure development in infrastructure, this does not seem to be an unloading of excess Chinese capacity, but instead the replication of Chinese private sector best practice from home to abroad, with such a positive reception as to encourage the Chinese private sector to continue much further.

[2] We have reviewed some Chinese literature for this topic. For BRI activities in practice to date on digital connectivity and ICTs, please see Zhou and Fang (2018), Chu and Li (2018), Cyberspace Administration of China (2015), Wen (2017), Ren (2017); for the impacts on the SDGs, please see Cheng (2017), Cao (2016), Xue and Weng (2018), Xiang (2017), Fu (2018), Liu (2017), Han (2018), and Gong (2018).

Levels of investment until April 2017

Until April 2017, according to Zhou and Fang (2018), ICTs have not been so important compared to other sectors in outward Chinese direct investment in the infrastructure field. In terms of project number, the top three most important sectors were transportation, construction and energy, which accounted for 29.3%, 22.6% and 20.0% of total projects respectively, while the ICT sector only accounted for 2.7%. In terms of capital investment, the ICT sector accounted for an even lower share of the total, roughly 0.1%. This research also finds that most of infrastructure investment has been concentrated in South Asia and Southeast Asia.

There are two major reasons for the lower proportion of investment in digital infrastructure. First, a single project in the digital sector on average costs less than the investment in other sectors, as mentioned earlier. Second, the digital economy is itself an emerging sector in China. However, since the digital Silk Road has become a renewed impetus to the progress of BRI and a new consensus among participating countries along the Belt and Road route, much more investment could be expected for digital investment (Ren, 2017; Chu and Li, 2018).

Stages in the development of the digital economy

Government framework initiatives[3]

By April 2017, the Chinese Ministry of Industry and Information Technology had signed a letter of intent with the International Telecommunication Union to strengthen cooperation in the ICT sector within the BRI framework. The Ministry had signed bilateral memoranda of understanding (MOUs) with the government departments of Cambodia, Iran, Bangladesh, and Afghanistan respectively. Also, it had signed agreements with the five member states of the East African Community, Ethiopia and the International Telecommunication Union to co-build the information highways in East Africa. In addition, it had made an action plan to strengthen a partnership for joint development of ICTs between China and ASEAN.

Chinese private sector initiatives with foreign governments

Besides various cooperative mechanisms launched by the Chinese government, there have been some other mechanisms initiated by the governments of other countries with Chinese enterprises. Alibaba, for example, signed MOUs with the Pakistan Trade Development Bureau in May 2017 to promote the development of small and medium-sized enterprises (SMEs) in Pakistan, and with the Thai government in April 2018 which would establish an intelligent data centre in the Eastern Economic Corridor (EEC) to help the digital transformation of SMEs located in the EEC to build a digital platform for tourism in Thailand, and to enhance capacity of local e-commerce workers. Another example is the Inspur Group, which initiated the “B & R” Digital Economy Strategic Alliance in November 2017 together with Cisco, IBM, Diebold and Ericsson in partnership with the Export–Import Bank of China, China Development Bank, the China Export & Credit Insurance Corporation, and the China–Africa Development Fund. This was the first cooperative mechanism launched by enterprises, which would provide world-class data centres, as well as cloud services and solutions to smart cities and smart enterprises.

[3] Wen (2017).

Acceleration of cross-border infrastructure and export of Chinese services on the initiative of the Chinese government in collaboration with Chinese technology companies

By April 2017, China had established 34 cross-border optical cables and a good number of submarine optical cables to connect 12 countries. In addition, the Chinese government has been assisting three basic telecom enterprises to participate in the construction of a “China–ASEAN Information Harbor”, as well as “six vertical and six horizontal” key optical cables in Africa. Last but not least, China has launched a collaboration with Laos and Algeria on satellite communication, and has promoted collaboration with ASEAN on the BeiDou Navigation Satellite System. The obvious effect of this is to promote broadband network coverage and improve service capacity and quality.

The Chinese government has urged three basic telecom enterprises to expand their international communication businesses. In 2016, China Mobile Communications Corporation, China Unicom and China Telecom invested about 800 million USD in overseas markets, and started their business operation in many countries and regions including Pakistan, Thailand, and Singapore. At the same time, many private enterprises have also forced the pace of cooperation in BRI countries. Huawei Corporation, for example, has built more than half of the wireless towers, 70% of the Long-Term Evolution (LTE) mobile broadband network, and more than 50,000km of optical cable networks in over 50 African countries.

This has been an example of Chinese companies exporting services abroad for the promotion of digital transformation of public services such as medical services. In Urumqi (capital of Xinjiang autonomous region), for example, a cross-border remote platform for medical services has been established connecting big hospitals in Urumqi, China and neighbouring countries including Kyrgyzstan and Georgia with Chinese metropolitan cities such as Beijing, Shanghai and Shenzhen that have advanced medical services.

A similar example of export of best Chinese practice has been to engage in the construction of smart cities. Both Huawei and Alibaba, for example, have engaged in the construction of Smart Dubai. The initiative was launched in 2014 with the aim of building the smartest city in the world. In addition, Alibaba Cloud Computing has been involved in the data analysis of the EZ-Link Card in Singapore and the digital transformation plan of Saudi Arabia.

A final example of outstanding Chinese practice exported abroad is Alibaba’s scaling up internet finance abroad and encouraging e-commerce cooperation. After successful innovation in China, Alipay has taken some share of fin-tech markets through M&A in India, Singapore, Korea, Russia, and Thailand. Such a distribution of cross-border exchange and accounting systems has laid a very solid foundation for Alibaba cross-border e-commerce cooperation. Paytm was the largest mobile payment and commercial platform in India but one year after being taken over by Ant Financial, it became the fourth biggest electronic wallet globally. By the end of 2017, Paytm had 215 million users, of which nearly 200 million were new users following the cooperation with Ant Financial. Alibaba’s idea of the electronic world trade platform (eWTP) has been embraced by some countries such as Argentina (Chu and Li, 2018). In May 2017, for example, the President of Argentina stated that the Government had reached a strategic agreement with Alibaba regarding eWTP.

5. Actual impacts of Chinese ICTs on the SDGs

To facilitate economic growth of the least developed countries and rural areas of middle-income countries

From 2014 to 2015, the annual GDP growth rate was 8.7% in Myanmar, most of which could be attributed to the investment in ICTs (Cheng, 2017). The Thai government is very keen on developing its digital economy and *has been aiming to attract Alibaba and Huawei* to invest in the EEC. According to Rookie Network Technology Co., Ltd (Fu, 2018), the key Chinese network for smart logistics controlled by Alibaba, it has established a fast track for fresh agricultural products including *Durio zibethinus* Murr from Thailand to many major cities in China. Huawei established an open lab in Bangkok in June 2017, a collaborative and innovative platform for local customers and entrepreneurs. The total investment of the lab was 15 million USD. In this way Chinese companies are, at the request of a foreign government, facilitating a foreign country to increase its exports to China by integrating it into Chinese marketing mechanisms.

To promote the development of small and medium-sized enterprises (SMEs)

Alibaba

Cloud Computing for EZ-Link could provide timely and useful information about potential customers for more than 50,000 SMEs in Singapore. The first overseas pilot zone of Alibaba for its eWTP was established in Malaysia, and it had attracted over 2,600 SMEs to operate on this platform by the end of March 2018, which opened up access to the Chinese market and even the global market (Fu, 2018). Tmall Global, a platform for purchasing overseas goods, controlled by Alibaba, has helped several Spanish brand products such as 5J Ham to expand into the Chinese market through a small team and at very low cost. This is another key example of how cooperation of Chinese private companies in the digital economy is helping foreign countries and companies to integrate into the vast Chinese domestic market.

To promote digital transformation of traditional industries and green growth

In China, the digital transformation programme of Alibaba Cloud Computing for Hangzhou City has achieved some positive results (Han, 2018). For example, the digital transformation of a traffic project has increased the average speed of vehicles in the city by 11%, and the digital transformation of a manufacturing project has yielded one percentage point higher of good quality products than a normal manufacturing process.

Going abroad, for example, Liugong Machinery, a leading company in the engineering machinery sector in China, has been quite successful in pushing through its internationalisation plan (Gong, 2018). Informatisation or intelligentisation is one of the concrete strategies to translate their plan into overseas practices, including the use of intelligent equipment, intelligent manufacturing, and intelligent post-sale services.

Narrowing the digital gap and thereby narrowing inequalities in African and other societies

Han (2018) estimates that levels of informatisation of participating countries along the Belt and Road route increased by 2.78% in 2016 compared to the previous year, while the average global growth rate was 2.1%. Arguably, the better performance of the Belt and Road countries was attributed to the rapid construction of ICT network infrastructures and technical cooperation between China and the participating countries. The Tanzania case demonstrates this: China Telecom has helped the country to complete the construction of a key optical fibre transmission network. As a result, the level of informatisation in Tanzania has been upgraded from “no internet application” to “world class” level, which has also promoted the development of local ICTs and internet industries. Thanks to this achievement, the local telephone rate has decreased by 60% and internet use fees have decreased by about 50%. Tanzania has become one of the most important communication hubs in East Africa.

To enhance digital inclusion and encourage thereby the democratisation of and participation in public administration

Huawei established an overseas training centre in 2012 for global talents. By the end of March 2018, more than 40,000 technicians and experts had participated in the “future seed” programme at the centre. This has expanded the reputation and influence of some beneficiary countries such as Malaysia in the ICT field (Fu, 2018).

According to Xu (2017) from CRI Online, the Inspur Group has helped the informatisation of the taxation administration of Zimbabwe. The engineering team from the Inspur Group stayed with their counterparts in Zimbabwe over the past four years and provided hands-on tutorials to the local technicians and engineers. Moreover, it did not charge the customers on a daily or even hourly rate basis. The success of the Inspur Group’s work in Zimbabwe has attracted other taxation bureaus in more than 10 African countries to learn these Chinese best practices. In response, the Inspur Group has organised more than 500 overseas events about cloud computing and big data, and has trained over 10,000 informatisation professionals for Egypt, South Africa, and Vietnam.

6. Policy implications for traditional donors in partnering with China on BRI investment in infrastructure

As already mentioned, in May 2017, Secretary-General António Guterres encouraged the participants at the Belt and Road Forum for International Cooperation that there could be and should be a strong linkage between BRI and the SDGs in a rapidly changing world. He argued:

> Our world is multipolar. But that by itself is no guarantee of prosperity and peace. A multipolar world needs multilateral cooperation to face common threats and seize shared opportunities.
>
> The Belt and Road Initiative has clear echoes of the ancient Silk Road. Today, we must take that spirit to new heights, for the benefit of all.
>
> As a Chinese saying goes, “building the road is the first step towards prosperity”. The United Nations system stands ready to travel this road with you in order to achieve the

> Sustainable Development Goals and to fulfil our promise to leave no one behind (Guterres, 2017).

This report argues for some positive links between the digital Silk Road and the SDGs, but much more needs to be done to keep the promise to leave no one behind.

In September 2018, the European Commission issued a report entitled *Connecting Europe and Asia: Building blocks for an EU Strategy* (EEAS, 2018). While supporting the growing connectivity between Europe and Asia, the report attempts to establish consistent and aligned rules, standards, and practices to promote market access and the movement of goods, services, capital and people across borders. On one hand, the report provides an encouraging message because it argues for connectivity and cooperation. It could also mean more investment from the European side for the infrastructure financing required across the continent, and for the SDG financing globally. On the other hand, however, it is a slight cause for concern that the European approach to expanding connectivity may be different from that of the Chinese. The report maintains universal rules and standards as well as best practices, but the Chinese approach to BRI prefers to employ practical standards and most-fit practices. However, the Chinese think both sides could work together to increase overlapping areas for cooperation, and to maintain some marginal differences for comparison.

This means, as always, controversy about China's commitment to a so-called rules-based international order and to the development of democracy, which are seen as attached, in the West, to the development of civil society. It has to be appreciated that these are hugely ideological concepts which offer little possibility of clear resolution through empirical field research. They are speculative and rest upon anxieties which are themselves political speculations. As we see in this report, there is no evidence that the Chinese companies are actually reinforcing the capabilities of the state rather than other stakeholders. For instance, the use of night-time satellite images through the construction of road, energy, and digital capacities and networks in Africa and elsewhere, provides a timely injection of confidence that China's development cooperation priorities and methods are having an impact on poverty reduction and inequality (Bluhm et al., 2018).

China's large private ICT firms are driving China's digital revolution at home and internationally, including Africa. Huawei has located in Africa and put in place a large proportion of Africa's backbone digital infrastructure in close association with both African governments and private telecom operators (IDE-JETRO, 2009). It also locates extensive R&D centres in Africa and its extensive training programmes for engineering staff.

Of course there is a danger that China's non-interference principle is being exploited by individual African actors to undermine the integrity of their countries, particularly in financing infrastructure. However, China has recognised in the Forum on China–Africa Cooperation (FOCAC) action plan that it needs to have transparency and mutual responsibility in complex development operations. China's policy banks are now the largest source of official development finance, intermediated from China's bond markets as well as public funds and they have to have regard to debt exposure and reputational risk (Gu & Kitano, 2018). So it is not surprising that Chinese banks work closely with the World Bank as part of the Investing in Africa Forum, and the first joint publication (with China Development Bank) was *Leapfrogging: The key to Africa's development* (Blimpo et al., 2017). Indeed, the work of the Global Infrastructure Connectivity Alliance (GICA) connects China and the World Bank. There is in all of this evidence a common interest in the hostility to corruption and arbitrariness as principal barriers to human development.

7. Lessons for the future[4]

Lessons for achieving complex development goals

The picture is not completely clear. As has been seen, Chinese private companies offering digital technology have been well received in Africa and Southeast Asia. The companies have encouraged digital literacy and inevitably more democracy with – what the Chinese would regard as – "the danger" of an "Orange Revolution". In addition, this new knowledge about Chinese digital technology increases the possibility of access to Chinese markets.

Firstly, Chu and Li (2018) argue that participating countries have made very strong demands for Chinese digital investment, especially after seeing how this has led to the substantial improvement of transportation and energy facilities. As reviewed above, a digital Thailand is a good example. In fact, as Fu (2018) points out, almost all countries in Southeast Asia have welcomed Chinese digital products, a mobile "payment and sharing" economy as new driving forces for bilateral cooperation.

Secondly, the Chinese digital products and services are more relevant for the socioeconomic and political contexts of developing countries. For example, the Western e-commerce services are usually not suitable for a social context with rather low credit, but Alipay could address this problem. For another example, the Chinese digital enterprises could win more trust politically than their competitors from the West because the former are more likely to respect local characteristics, laws and religious cultures than the latter. The development of the digital economy has facilitated the openness of the ICT and internet fields in developing countries.

Thirdly, there is quite a lot of synergy between the government and state-owned enterprises as well as private enterprises, and between the ICT sector and traditional industries (Cheng, 2017). While a single investor may have a very low return, the overall return of all Chinese investors working together may be quite reasonable.

Fourthly, the Chinese market is huge and rapidly growing, which could drive overseas development. As pointed out already, digital literacy by China's neighbours in the BRI encourages the possibility of exports to the Chinese domestic market.

Fifthly, there are very complicated issues for the Chinese private digital investors arising precisely out of the unstable political situations in BRI countries. These countries are not attractive for large Western multinational companies because of the factor of political risk. At the same time, the Chinese companies are traditionally only used to dealing with governments and economic organisations, not with the media or non-governmental organisations.

So there are common challenges of governance, political, financial, market and operational risks. The distinctive fact, however, is that this situation attracts rather than repels Chinese ICT investors, as it does to other Chinese investors. Many Chinese investors are risk-prone and they believe that higher risks could bring bigger opportunities and higher return (Gu et al., 2015, 2016). As Zhang (2017) argues, the multinational companies are not willing to invest in countries

[4] There is not much literature for this topic. For the lessons learned, see Chu and Li (2018), Cheng (2017), and Zhang (2017); for policy implications for the BRI, see Zhang (2017).

with higher risks, so there is little competition in such countries. So Chinese companies will face the challenges of the media and civil society and it is hard to see how this will have a negative effect on the political and social development of these BRI countries. Of course, more evidence-based research is needed to capture the changing dynamics of this complicated relationship.

While widely portrayed as another 'win–win' of China–Africa collaboration, questions have been raised as to the implications of China's deepening involvement. The recent assessment by Iginio Gagliardone (2018) explored the question of whether China is imposing its information society model on the continent. Gagliardone's evaluation was that, while Chinese involvement was contributing some positive gains for Africa, such involvement was usually set by the framework dictated by host states and directly or indirectly gave succour to them whether they be authoritarian or democratic in character. Nevertheless, this important caveat notwithstanding, at the core of this issue remains Africa's need and Africa's potential.

In the foreseeable future, when the Chinese enterprises have changed from being a follower into a leader or even a regulator in an industry, the biggest challenge for Chinese investors would be the capacity of adaptation to the new roles. By then, the Chinese enterprises would have to be more forward looking and need to take more responsibility (Gong, 2018). In this respect, there is no evidence so far that they are under any all-embracing surveillance eye from the Chinese state, which is not directly involved after it has set up the multilateral and bilateral frameworks mentioned at the beginning of this report.

Indeed, on the contrary, the dynamic and attraction of BRI investment comes from local demand, trust and collaboration from stakeholders (Renwick et al., 2018). Comparatively, support for investment in the digital Silk Road is proving easier to get from local communities in participating countries. This is because the Chinese business solutions and practices are more appropriate for developing country contexts. Still, although Chinese solutions and technologies may not be the most advanced, they meet the needs of developing countries (Zhang, 2017). The Chinese practice of capacity building is very important to establish and consolidate cooperation with counterparts in participating countries. All the major Chinese actors in the ICT sector have put great emphasis on training, symposiums, and capacity promotion, which is a very good means of improving understanding, trust and effectiveness of South–South cooperation.

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