SUPPORTING REPORT 2

CHONGQING 2035

A Regional Strategy to Increase Connectivity and Economic Integration

WORLD BANK GROUP

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1. Introduction

Cities can increase economic growth and participate in global economic flows by acting as hubs or gateways to regional corridors, that are supported by three dimensions of connectivity: physical (infrastructure) connectivity, digital connectivity, and economic integration. Integrating these dimensions increases economic output and generates more high-quality jobs. Connectivity integration also helps a city accumulate knowledge and has positive spillover effects for the broader economy.

Chongqing stands out for its well-developed infrastructure and digital connectivity, but it has yet to leverage these assets to promote regional economic integration.

BOX 1 **Regional Strategy Key Messages**

Current trends and key issues:

- By combining road, river, rail, subway, and air transport links, Chongqing has developed a world-class transportation system that will be further strengthened once the Southern Transport Corridor rail link to Singapore is completed.
- Digital infrastructure is also strong, with 70 percent of households having broadband Internet.
- However, Chongqing's physical and digital connectivity have yet to translate into regional economic integration. From an integrated regional development point of view, the fierce competition between Chongqing and Chengdu to become the logistics hub and gateway for China's southwest region could potentially result in suboptimal outcomes.

Benchmarking global cities:

- Chongqing's transportation network has almost reached global city standards and is on par with entire countries such as the United Kingdom or Republic of Korea. However, its airport connectivity and share of international air traffic are low compared to global cities.
- Chongqing has room to improve on its digital connectivity, particularly in connection speed and the adoption of 10- and 15-Mbps broadband.
- The experience of international cities suggests that ranking highly in all dimensions of connectivity and being part of a cluster of cities boosts economic growth.

Recommendations:

- Leverage existing transport infrastructure and supplement it with better integration between land, air, and water transport to build a major logistics hub.
- Strengthen cooperation with Chengdu, Sichuan, and other regional partners to promote regional economic integration.
- Improve digital infrastructure with faster Internet connection speeds and promote the wider adoption of digitization of services.

2. Current Trends and Key Issues

Chongqing has developed a world-class transportation system with five forms of connectivity: highway, subway, rail, port, and air. This has enabled the city to become a major gateway and transport hub for inland China (box 2). It is also a pivotal node on the Belt and Road Initiative, connecting the growing economies of South Asia and Southeast Asia with the rest of China (National Development and Reform Commission 2015). The Southern Transport Corridor, a new trade route between western China and Southeast Asia, is one of the most important projects within the Chongqing Connectivity Initiative, initiated by Chongqing and Singapore. Once completed, it will connect the Belt—the overland Silk Road—and the Road—the 21st-century maritime Silk Road. Providing major connectivity improvements, the Southern Transport Corridor will boost trade between Western China and Southeast Asia via Chongqing and Singapore, and it will act as a major link between the six economic corridors of the Belt and Road.

Chongqing is on the way to becoming an international aviation hub. Chongqing has continuously increased the number of its international and domestic air routes, which has brought about stronger connections between the city and major Yangtze River Economic Belt cities. In 2016, the city had direct flights to 158 cities and connections to 258 cities, and it also started direct flights to London, Dubai, Tokyo, and other international destinations.[1] By 2020, it is forecasted that about 100 international airlines will operate at Chongqing Airport, with an annual international passenger traffic reaching more than 5 million, or over 10 percent of the total passenger traffic. (Chongqing Municipal Government 2017).

Chongqing's ports have room to grow. Chongqing's ports have the potential to contribute more to its economic growth, but this depends on efforts to improve the efficiency of the maritime logistics chain between the city and Shanghai.[2] The completion of the second stage of the Three Gorges project and the first stage of the Jiulong and Cuntan ports are stimulating the development of the upper reaches of the Yangtze River's container transportation. Cuntan Port connects the Chongqing metropolitan region to domestic and international markets through inland waterway shipping along the Yangtze River and to Europe by rail. Located in Liangjiang New Area, the third "national development and opening area" in China after the Shanghai-Pudong and Tianjin-Binhai New Area, Cuntan is the largest operational inland port in China; it is 1,316 meters long and has nine piers, seven of which can be operated simultaneously. Despite handling only 46,000 containers in 2006, its first year, Cuntan Port handled 650,000 containers in 2014 (Chreod Ltd. 2014).

Multimodal linkage with rail connections to Europe, rather than the traditional maritime route through Shanghai, is the optimal way to develop Chongqing's ports (box 3). The new Guoyuan Port will stretch for 2,800 meters and have 16 piers. Its direct connection to the Chongqing-Xinjiang-Europe railway will allow container traffic between Chongqing and downstream towns along the Yangtze River as well as shipping by barge to Chongqing and Europe, and reduce the transit time to Shanghai, which at 47–48 days, is currently inefficient (Seo, Chen, and Roh 2017).[3]

BOX 2 **Road and Rail Infrastructure in Chongqing**

In 2016, the city's total length of roads—142,921 kilometers, which includes 2,828 kilometers of expressways—was ranked 10th in China and 1st in the country's western region.

The total length of railways in Chongqing was 2,231 kilometers, and the pace of railway construction has accelerated with the construction of the *mi* (米) high-speed railway, which will allow any part of Chongqing to be reached within two hours. This network will also allow commuters to reach the capitals of surrounding provinces in less than three hours and to reach Beijing, Shanghai, and Guangzhou in less than six hours.

In 2016, the length of high-speed railways in operation totaled 356 kilometers, with 184 kilometers under construction. However, based on the city's railway development plan, the total length of the railway network will increase to 5,800 kilometers by 2030, which includes 2,032 kilometers of high-speed railways. When completed, Chongqing will become an important transport hub, connecting Europe and Asia with other parts of China.

The Chongqing-Xinjiang-Europe Railway, a direct rail route from Chongqing to Germany, was established in 2010 and has brought Chongqing to the forefront of China's trade with Central Asia and Europe (map 1). The 11,179-kilometer overland journey from Chongqing to Duisberg takes about 14 days compared to 34 days by sea, and it is also safer and cheaper. Most goods transported using this route are from multinational computer companies in Chongqing. One of them is technology giant Foxconn, a major supplier of Hewlett-Packard, Acer, and Apple. By August 2016, over 2,100 trains were dispatched via this rail route, which provides regular rail services to more than 16 Chinese cities and 12 European cities.

In addition, the Southern Rail Corridor that links Chongqing to Guangxi in southeast China is expected to provide a shorter, more direct trade route between China and Southeast Asia. It will reduce the time needed to transport containers from Chongqing to Singapore to one week, compared to three weeks today, making it a cost-effective option for Southeast Asian companies to access western China, Central Asia, and Europe.

Source: Chongqing Municipal Government 2017; HKTDC 2016; Chong 2017.

MAP 1 **Chongqing-Xinjiang-Europe Railway**

Rapid Expansion: China–Europe Freight Train Service

2011 – Aug 2015
More than 900 trains

→

Sep – Dec 2015
About 400 trains

→

Jan – Aug 2016
More than 900 trains
(annual growth rate: +130%)

Source: China Railway Corporation.

Chongqing, like the rest of China, has a population with high levels of access to fixed line telephones, mobile phones, and the Internet. Broadband Internet penetration in Chongqing now stands at 51.6 percent, while 93 percent of the population have mobile phones. Internet penetration has grown steadily since 2000 at a faster pace than urbanization. Today, 70 percent of all households, both rural and urban, have broadband Internet connections. This figure represents a higher number than the total number of urban households. (CNNIC 2017).

Chongqing is leveraging its developed digital infrastructure to attract e-commerce. Chongqing Municipality has partnered with Alibaba and its financial subsidiary, Ant Financial, to test services in cloud computing and big data; the goal is to alleviate poverty through rural financing and the Rural Taobao project, and to enhance productivity through smart cities, online health services and hospitals networking, and smart logistics (box 4) (Sun 2017).

Such connectivity builds a foundation for regional economic integration. However, **physical and digital connectivity have yet to translate to economic integration**. A good example of efforts to change this situation is the Chengdu-Chongqing corridor (map 2). In 2014, as part of its new urbanization plan, the Chinese government began developing city clusters with the objective of breaking administrative barriers

BOX 3 **Constraints of Yangtze River Logistics**

Despite the rapid economic growth in the Yangtze River Delta region, the Yangtze River logistics chain lags in terms of the ratio of container volume to total merchandise volume. Transport on the Yangtze River is hindered by three major physical conditions—insufficient depth, height of bridges, and locks. The port capacity is uneven, with larger ports located downstream. Because of uneven economic agglomeration along the Yangtze River, container flows are also concentrated downstream. In addition, a cost analysis of alternative routes shows that shipping routes via inland waterways and seaways do not meet the shortest time required for products such as computers and laptops.

Sources: IFPRI 2017; Chen, et al. 2016; Pan 2012.

BOX 4 **Alibaba's Cooperation with Chongqing in Delivering Smart Services**

Chinese e-commerce giant Alibaba and retail giant Suning are investing RMB 1 billion in e-commerce in Chongqing. The joint project will serve as a pilot for Alibaba to explore new ways to contribute to the development of urban digital services in Chongqing and western China.

At the same time, Alibaba and Chongqing Municipality is planning a cloud computing and big data center in western China known as the Alibaba Innovation Center, which will provide a comprehensive service platform for start-ups and entrepreneurs in western China and drive innovation. In particular, Alibaba will develop Liangjiang New Area into "smart Lianjiang," with a major focus on the digital economy. It is expected that by 2020, the GDP of Liangjiang Digital Economy Industrial Park will exceed RMB 40 billion (US$6.17 billion), with more than 3,000 companies.

Alibaba plans also to combat poverty in China using e-commerce. Chongqing will work with Ant Financial to reduce poverty in rural areas through a creative model of financial services and Rural Taobao, an ambitious Alibaba project to turn China's 600 million rural residents into online buyers and sellers. Alibaba will provide Internet connections in rural areas of Chongqing, as well as purchasing and delivery services to help locals sell their agricultural products.

Source: Fan and Meng 2016; Sun 2017; China Daily 2018.

MAP 2 **The Chengdu-Chongqing Corridor**

Source: Chongqing Daily, http://district.ce.cn.

and integrating economic and social activities of large regions. The Chongqing-Chengdu corridor is one of most promising integration projects and will connect 31 districts and counties, and 15 cities in Chongqing Municipality and Sichuan Province. While improved transport infrastructure, such as highways and high-speed rail, has provided better connections between the two cities, economic integration is proving more challenging to realize. In reality, Chongqing and Chengdu are fiercely competing to become a logistics hub and gateway for China's southwest region. For example, Chengdu opened its own Chengdu-Europe Express Rail with a freight train in 2016, which directly competes with the Chongqing-Europe railway. The efficiency of these investments could be more optimal if they were undertaken with integrated regional development in mind.

The lack of integration is partly because of China's governance structure, which encourages the decentralization of decision making to local government entities. This tends to encourage competition among local governments for resources as well as among cities (World Bank and Development Research Center of the State Council, P. R. China 2014). While such competition has driven growth, the downside is that local governments tend to protect local companies.

The integrated development of the Yangtze River Economic Zone is still facing a number of challenges, such as the unbalanced development among regions along the Yangtze River, with a decrease in economic agglomeration when moving upstream, homogeneous industrial competition rather than complementarity, low efficiency in the waterway transport, competition from new direct rail links to Europe, and environmental risks. Moreover, challenges are exacerbated by the competition between local governments and by institutional barriers, resulting in market segmentation (Yang 2000).

3. Benchmarking and Lessons from Global Cities

Global cities are hubs and gateways of the world economy. Their economic might can be better understood in terms of their position in global networks. Global cities do not grow in isolation, but instead thrive by being part of transnational networks of cities.

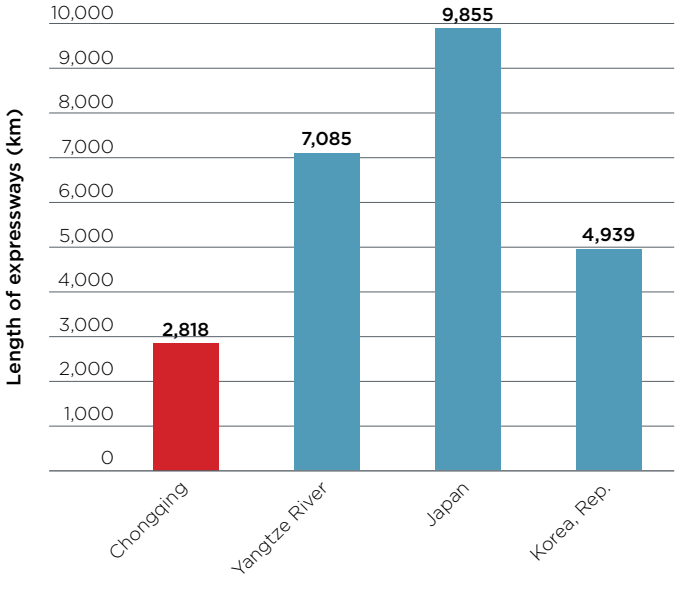
Chongqing's transportation network has almost reached the standard of global cities and is on par with that of entire countries (figure 1).

However, Chongqing's airport connectivity and its share of international traffic are low compared to those of global cities (figure 2).

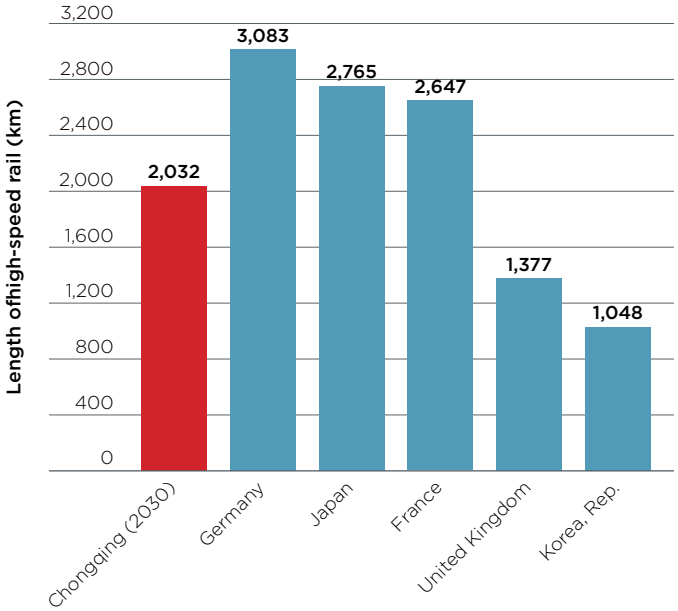
In addition, seamless and convenient transfers between various modes of local transport (rail, air, subway, bus, taxi, etc.) would enhance passenger connectivity, helping the city in its bid to become an aviation hub, especially for business travel and tourism. Most global cities have integrated transport infrastructure and local transport hubs that facilitate intermodal transfer and promote the use of public transport. Japanese cities are good examples to follow, as they have policies to ensure urban transport hubs provide a smooth transfer between different modes of transport. For instance, the number of passengers at Kokura Station increased

FIGURE 1 **Benchmark of Expressway and High-Speed Rail Length in Chongqing against Global Economies**

Length of expressways (km) in Chongqing and in global economies.



Length of high-speed rail (km) in Chongqing, once the *mi* (米) railway is completed, and in global economies.



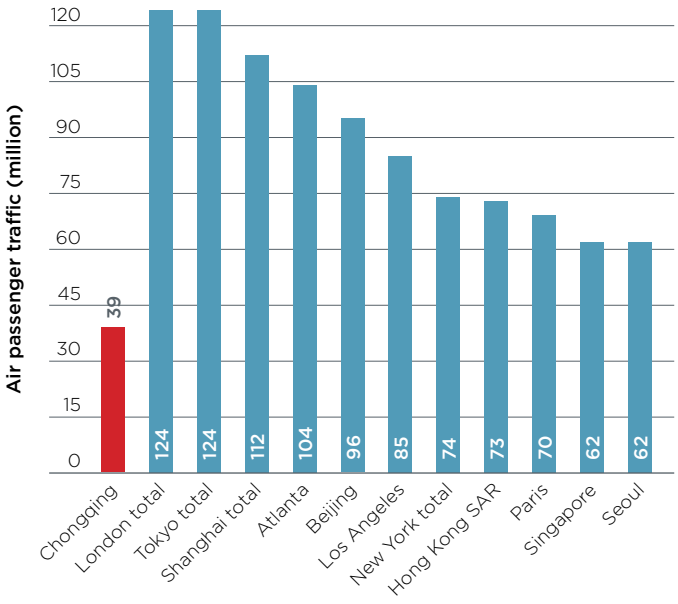
Source: Produced by the Urban Morphology and Complex Systems Institute for this report, based on Chongqing Municipal Bureau of Statistics and NBS Survey Office in Chongqing 2016; Chongqing Municipal Government 2017; Chreod Ltd. 2014; Migiro 2018; Japanese Ministry of Land, Infrastructure and Transport; and Korean Ministry of Land, Infrastructure and Transport.

significantly when a local monorail and a pedestrian deck were extended into the rail station building (Ministry of Land, Infrastructure, Transport and Tourism of Japan 2012).

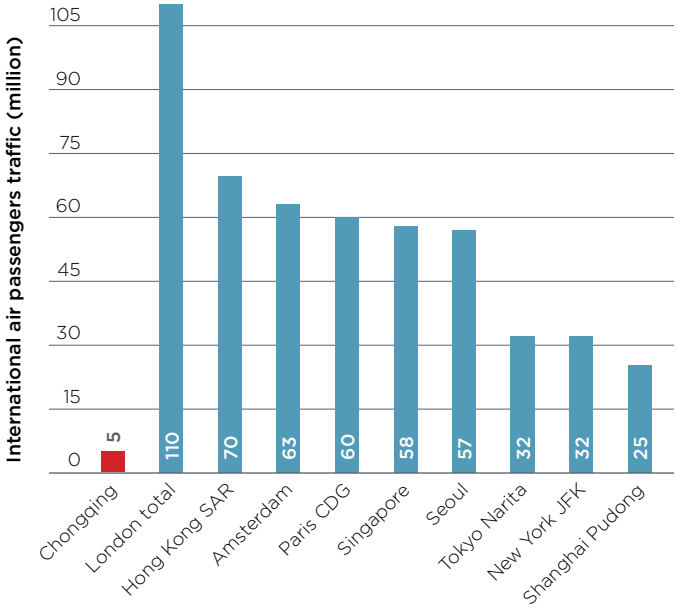
In terms of **digital connectivity, Chongqing, like the rest of China, lags global national and urban economies in terms of connection speed, broadband adoption (map 3), and** and in the adoption of 10 Mbps and 15 Mbps broadband (figure 3 and figure 4).

FIGURE 2 **Benchmark of Air Passenger Traffic in Chongqing against Global Cities**

Air passenger traffic in Chongqing (red) and in global cities.



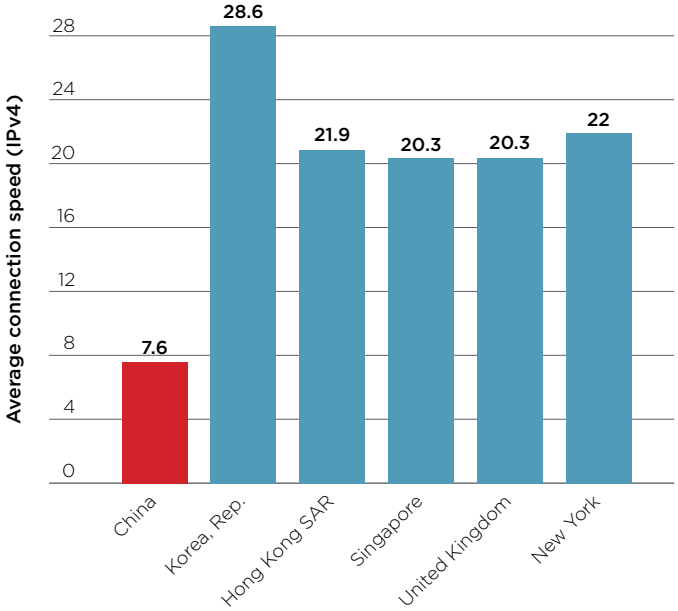
Projected international air passenger traffic in Chongqing in 2020 compared to that in global cities today.



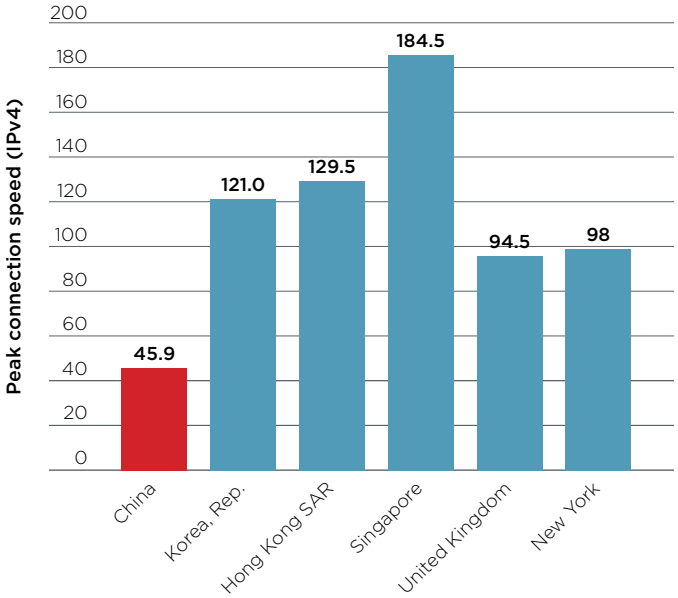
Source: Produced by the Urban Morphology and Complex Systems Institute for this report, based on data from Chongqing Planning Bureau and ACI 2018.

FIGURE 3 **Benchmark of Digital Connectivity in China against Global National and Urban Economies**

Average connection speed compared to global national and urban economies.

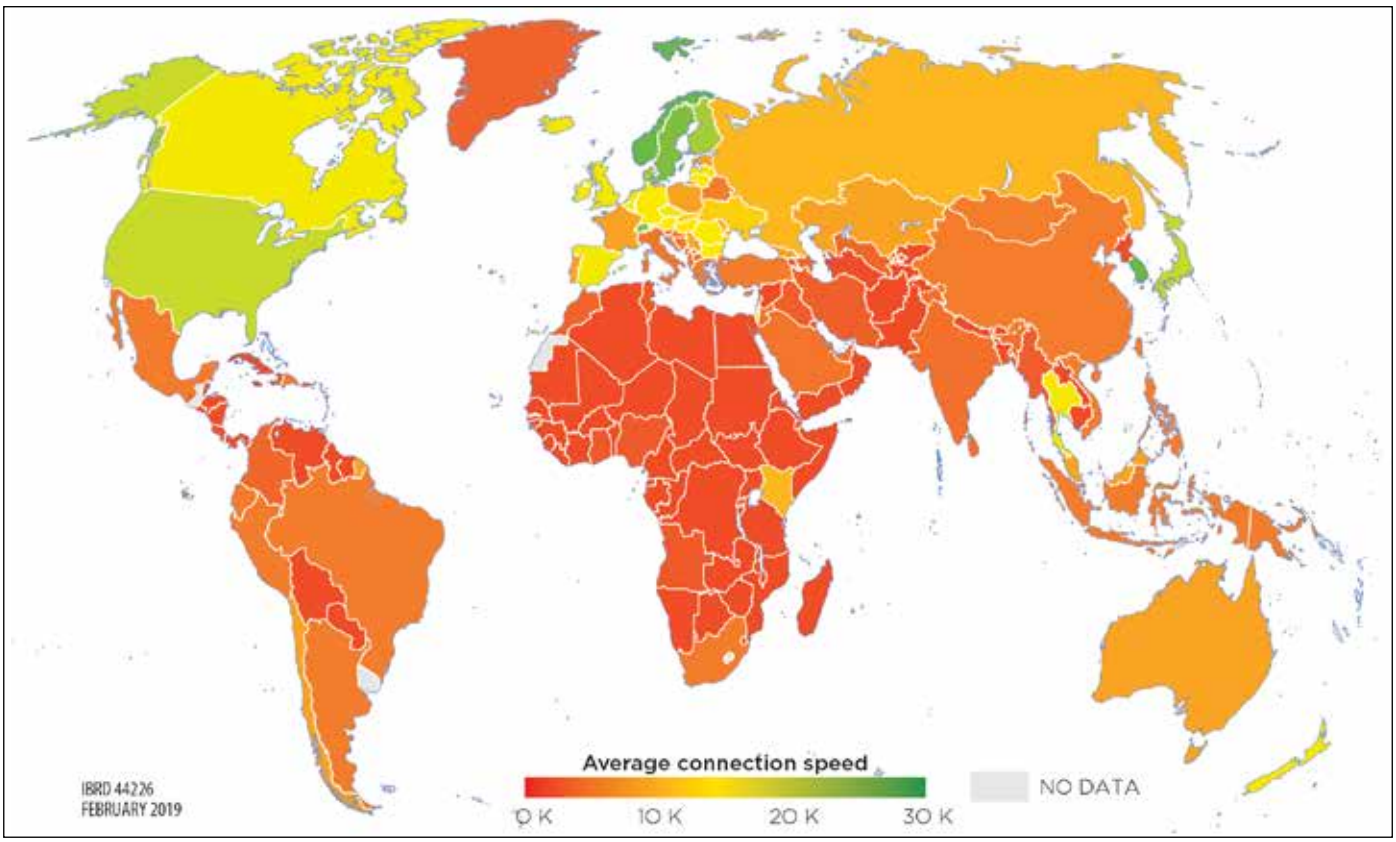


Peak connection speed (IPv4) compared to global national and urban economies.



Source: Produced by the Urban Morphology and Complex Systems Institute for this report, based on Akamai 2017.

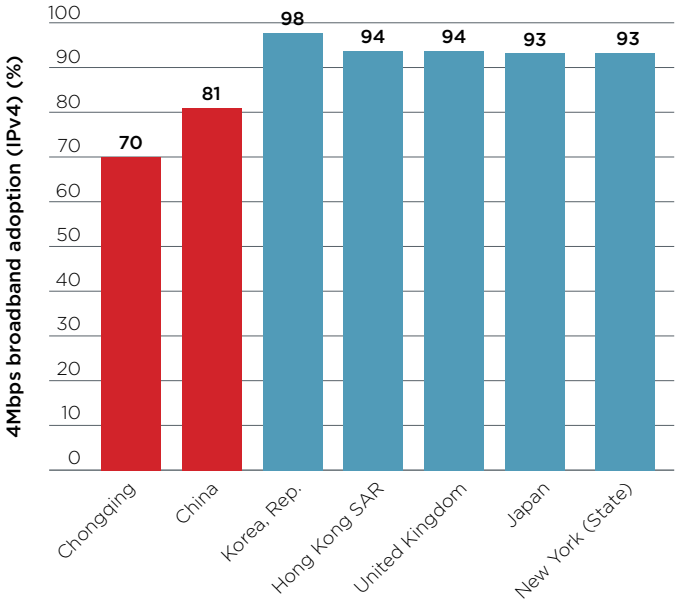
MAP 3 **Broadband Adoption Worldwide**



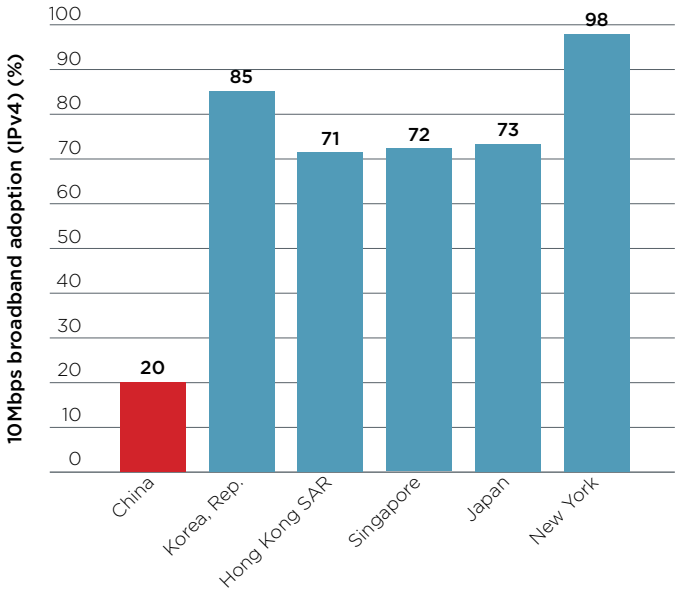
Source: Akamai 2017.

FIGURE 4 **Broadband Adoption Compared to Global National and Urban Economies**

Chongqing 4 Mbps broadband adoption (IPv4) compared to global national and urban economies.



China 10 Mbps broadband adoption (IPv4) compared to global national and urban economies.



Source: Produced by the Urban Morphology and Complex Systems Institute for this report, based on Akamai 2017.

The review and benchmarking of international cities suggest those that consistently rank highly in all dimensions of connectivity are part of clusters of cities, an arrangement that boosts economic growth.

Singapore and Hong Kong SAR, China, rank highly in all dimensions of connectivity. The combined financial flow value of Singapore and Hong Kong SAR is equal to that of Japan and represents about half that of the United States and mainland China (47 percent and 51.4 percent respectively). Singapore is a small country, but it punches well above its weight in world trade, mainly by mediating flows between other countries. Singapore ranks 11th in cross-border Internet traffic, which grew by 67 percent annually between 2005 and 2013, compared to the global average of 46 percent. Singapore also has one of the highest Internet penetration rates in the world at 88 percent, more than the average of 82 percent among developed economies. Singapore ranks second in flows of goods, third in services, fourth in finance, and fifth in data and communication, with flow values of US$1,198 billion, equivalent to the total value of Russian flows (Manyika, et al. 2014). Today, Singapore is a strategic gateway to the maritime belt route of the Belt and Road Initiative, a strategic partner of Chongqing in the Chongqing Connectivity Initiative, as well as a key investor in Belt and Road projects (PwC 2017).

International experience, particularly from megacity regions in Europe, reveals the importance of city clusters in enhancing cities' global competitiveness (Hall and Pain 2006).

In European knowledge-based urban economies, information flows continuously within and between enterprises. The most connected cities or city clusters, regionally and globally, eventually become global cities. An interesting example of a successful global cluster is the Randstad in the Netherlands, which consists of the country's four largest cities—Amsterdam, Utrecht, Rotterdam, and The Hague (the country's cultural, industrial, financial, and political centers respectively), as well as two of the country's main gateways, the Port of Rotterdam and Schiphol Airport. These assets are not located in a single city like London or Paris; they are spread over a number of historically distinct cities in the western part of the country. None of these cities is big, but the intensity of the links between them has created a powerful business cluster, highlighting the importance of intercity cooperation to gain scale and efficiency for achieving global status.

4. Recommendations:
Chongqing's Connectivity Transformation

Chongqing's massive investment in its transportation network has strengthened the city's strategic position as a gateway for inland China. To transition from being a waypoint for China and become an international hub and a base for the ASEAN region, Chongqing needs to further develop its connectivity and better leverage its transport network to promote economic integration. A strategy that prepares Chongqing to become a global hub will require three connectivity transformations.

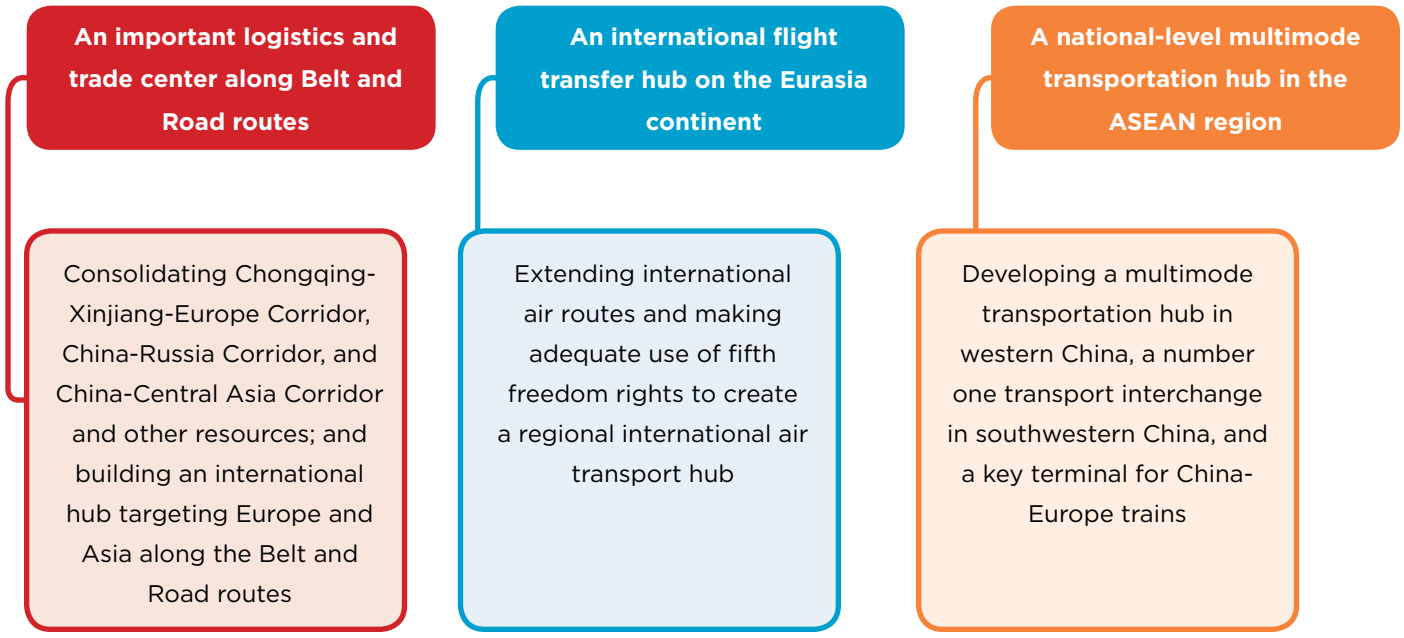
Connectivity transformation I

Build a major logistic hub supported by integrated transportation networks of land, air, and water

This transformation consists of a series of interventions that enable Chongqing to develop as an integrated multimodal logistics hub (figure 5).

Chongqing should work to better integrate its port to a multimodal logistics chain within its existing transport network. The inland waterway is a unique feature of Chongqing's freight transport. Despite the constraints of shipping goods using the Yangtze River, Chongqing should focus on the intermodal capacity of its port as a transshipment

FIGURE 5 **Interventions That Enable Chongqing to Develop as an Integrated Multimodal Logistics Hub.**



center, and as an inland link to the major downstream ocean ports. By combining river and sea modes, this route has the lowest total cost of transportation among all multimodal routes. To fully reap this cost advantage, interregional cooperation along the Yangtze River is needed to improve efficiency throughout the Chongqing-Shanghai waterway, including increasing the efficiency of the current service networks and the handling capacity in some intermediate ports. Moreover, linking Chongqing's ports to the rail route to Europe will strengthen its role as a hub for container traffic from the region to Europe, as well as to downstream towns along the Yangtze River.

Connectivity transformation II

Promote regional economic integration, including through the Chengdu-Chongqing corridor

Both Chongqing and Chengdu can benefit from their integration into an economic corridor that is supported by an efficient transportation system. A well-integrated corridor can create opportunities for all by building a much stronger and broader base for the ASEAN region and beyond. The transformation includes the following actions:

A. Develop a joint development strategy

It is important for Chongqing to lead a joint development strategy for the Chongqing-Chengdu corridor that includes economic planning, investment, spatial strategy, and transport. For example, to improve the accessibility of the region, a joint transport network plan should be developed to enhance economic activities, knowledge spillover, and efficiency.

B. Encourage spatial agglomeration in the corridor

The establishment of a cluster of satellite cities in the adjacent areas of Sichuan and Chongqing can promote the spatial agglomeration of industries along the corridor. This will accelerate the flow of goods, population, and information. A good example is the value chain that is being explored in Guan'an, Sichuan, which is located one hour away from Chongqing. Guan'an intends to use its low cost of labor and land to attract low-end industries such as automobile manufacturing, and to become a major supplier for Chongqing's leading industry (World Bank 2015).

C. Strengthen governmental coordination

To allow for more a coordinated development policy, it is important to strengthen high-level coordination between Chongqing, Sichuan, and Chengdu. Experience shows that economic activities and resources within the corridor should not be consolidated without coordination between Chengdu/Sichuan and Chongqing. Therefore, a high-level joint forum should be set to coordinate policies and decisions for major issues, which would include a three-layer mechanism for decision making, coordination, and execution. To ensure the strategy is effective, the top leadership's motivation for a mutually beneficial outcome is critical.

Connectivity transformation III

Strengthen Chongqing's digital infrastructure

Physical connectivity is not enough for cities to become high-value economies. A major force is the pervasiveness of Internet connectivity and the spread of digital technologies. The exponential growth of data is transforming every aspect of the economy. Investing in advanced infrastructure such as digital platforms and focusing on innovation in the economy is crucial for Chongqing to sustain economic growth and job creation in the next two decades. The digitization of industrial production will require Chongqing to invest in its digital connectivity.

Disruptive technologies are also quickly changing cities and their urban economy. Technologies such as autonomous vehicles, drones, big data, and artificial intelligence will transform how cities are managed and how services are delivered. Already "data-driven cities" such as Hong Kong SAR, Shanghai, Sydney, and New York are adopting smart systems for urban management, such as smart parking, air quality monitoring, and energy monitoring in buildings (Jha 2018). These technologies have the potential to enhance connectivity and productivity for cities. To stay ahead and remain competitive, Chongqing must be open and adaptable to their adoption.

References

ACI. 2018. "ACI World releases preliminary 2017 world airport traffic rankings." Airports Council International (ACI). April 9. https://aci.aero/news/2018/04/09/aci-world-releases-preliminary-2017-world-airport-traffic-rankings-passenger-traffic-indian-and-chinese-airports-major-contributors-to-growth-air-cargo-volumes-surge-at-major-hubs-as-trade-wars-thre/.

Akamai. 2017. "State of the Internet 2017 Report." Akamai. https://www.akamai.com/fr/fr/multimedia/documents/state-of-the-internet/q1-2017-state-of-the-internet-connectivity-report.pdf.

Chen, M., H. Liu, Y. Sun, and C. Xu. 2016. "Research on the Spatial Differences and Spillover Effects of Economic Development of Five Megalopolises in China." *Urban Development Studies* 23 (3): 57–63.

China Daily. 2018. "Alibaba, Chongqing work on smart city." *China Daily.* January 17. http://www.chinadaily.com.cn/regional/chongqing/liangjiang/2018-01/17/content_35529159.htm.

Chong, Koh Ping. 2017. "Southern Transport Corridor to boost western China-Singapore connectivity." *The Straits Times.* August 31.

Chongqing Municipal Bureau of Statistics and NBS Survey Office in Chongqing. 2016. Chongqing Statistical Yearbook 2016. Beijing: China Statistics Press.

Chongqing Municipal Government. 2017. *Advice on Accelerating the Development of International Transit Hub and Promoting the Holistic Development of Aviation Industry.* Chongqing, China: Chongqing Municipal Government.

—. 2017. *Chongqing Medium and Long-Term Railway Network Planning (2016-2030).* Chongqing Municipal Government.

Chreod Ltd. 2014. "Assessment of Urban, Industrial and Infrastructure Planning for Small City and Town Development in Sichuan Province." Final Report to the World Bank.

CNNIC. 2017. *Statistical Report on the Development of Internet Network in China.* Beijing, China: CNNIC.

Dobbs, Richard, Jaana Remes, James Manyika, Charles Roxburgh, Sven Smit, and Fabian Schaer. 2012. "Urban world: Cities and the rise of the consuming class." McKInsey Global Institute. June. https://www.mckinsey.com/~/media/McKinsey/Global%20Themes/Urbanization/Urban%20world%20Cities%20and%20the%20rise%20of%20the%20consuming%20class/MGI_Urban_world_Rise_of_the_consuming_class_Full_report.ashx.

Fan, Feifei, and Jing Meng. 2016. "Alibaba, Suning to set up e-commerce firm." *China Daily.* October 20. http://www.chinadaily.com.cn/business/tech/2016-10/20/content_27115883.htm.

Hall, Peter, and Kathy Pain. 2006. *The Polycentric Metropolis: Learning from Mega-City Regions in Europe.* London: Routledge.

HKTDC. 2016. "China-Europe Express Trains: On Track to Access Belt and Road Businesses." HKTDC Research. November 1. http://hkmb.hktdc.com/en/1X0A7UXL/hktdc-research/China-Europe-Express-Trains-On-Track-to-Access-Belt-and-Road-Businesses.

IFPRI. 2017. *Impact of Selected Policies to Promote Economic Integration in Yangtze River Economic Belt: A Regional CGE Model Analysis.* Draft final report submitted to the World Bank. Beijing: International Food Policy Research Institute (IFPRI).

Jha, Abhas. 2018. "Top 7 disruptive technologies for cities." World Bank (blog). April 12. http://blogs.worldbank.org/sustainablecities/top-7-disruptive-technologies-cities.

Manyika, James, Jacques Bughin, Susan Lund, Olivia Nottebohm, David Poulter, Sebastian Jauch, and Sree Ramaswamy. 2014. "Global Flows in a Digital Age." McKinsey Global Institute. https://www.mckinsey. com/business-functions/strategy-and-corporate-finance/our-insights/global-flows-in-a-digital-age.

Migiro, Geoffrey. 2018. "Countries with the Most High Speed Rail." Apr 19. https://www.worldatlas.com/articles/countries-with-the-most-high-speed-rail.html.

Ministry of Land, Infrastructure, Transport and Tourism of Japan. 2012. "Seamless Transport: Making Connections - Case Study Conpendium." Ministry of Land, Infrastructure, Transport and Tourism of Japan. http://www.mlit.go.jp/common/000230120.pdf.

National Development and Reform Commission. 2015. "Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road." National Development and Reform

Commission. March 28. http://en.ndrc.gov.cn/newsrelease/201503/t20150330_669367.html.

Pan, W. 2012. "Regional Linkage and the Spatial Spillover Effects on Regional Economic Growth in China." *Economic Research Journal* 1: 54–65.

PwC. 2017. "Repaving the Ancient Silk Routes." PwC. June. https://www.pwc.com/gx/en/growth-markets-centre/assets/pdf/pwc-gmc-repaving-the-ancient-silk-routes-web-full.pdf.

Seo, Young Joon, Feilong Chen, and Sae Yeon Roh. 2017. "Multimodal Transportation: The Case of Laptop from Chongqing in China to Rotterdam in Europe." *The Asian Journal of Shipping and Logistics* 33 (3): 155-165.

Sun, Hui. 2017. "Alibaba to cooperate with Chongqing on intelligent services." *China Daily.* March 6. http://www.chinadaily.com.cn/regional/chongqing/liangjiang/2017-03/06/content_28464832.htm.

World Bank and Development Research Center of the State Council, P. R. China. 2014. "Urban China: Toward Efficient, Inclusive, and Sustainable Urbanization." World Bank. https://www.worldbank.org/content/dam/Worldbank/document/EAP/China/WEB-Urban-China.pdf.

World Bank. 2015. "Competitive Cities for Jobs and Growth: What, Who, and How." World Bank, Washington, DC. http://documents.worldbank.org/curated/.en/902411467990995484/pdf/101546-REVISEDCompetitive-Cities-for-Jobs-and-Growth.pdf.

Yang, Guishan. 2000. "Major problems of sustainable development along the bank area of the Changjiang River." *Chinese Geographical Science* 10: 97-104.

Endnotes

1. On March 31, 2017, the first direct flight from Chongqing to Los Angeles was launched.
2. Ports are strong drivers of economic growth. In the early 20th century, New York was the main port of the United States and the largest one in the world. Singapore's investment in its port has made the city a waypoint and the first globally connected city for goods. Moreover, the capacity of ports to handle global container traffic growth between 2010 and 2025 needs to grow by more than 2.5 times the 2010 level to meet Srising consumer demand for products across the globe. McKinsey estimates that between 2010 and 2025, China will contribute to 28 percent of container global growth, equal to the total global capacity in 2010 (Dobbs, et al. 2012).
3. The total transit time from Chongqing to Shanghai for a regular liner is usually 15 days. The distance between Chongqing and Shanghai and the low efficiency of river transport across the Yangtze River make this route the longest to Europe (47–48 days), although it remains cost-competitive compared to routes using road or rail to Shanghai or Shenzhen and then sea transportation to Rotterdam, and compared to the air and overland rail route through Xinjiang (Seo, Chen, and Roh 2017).

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