

Economic support online-technology: a comparison between China and Indonesia

Andri Pranolo ^{a,b,1,*}, Zalik Nuryana ^{b,c,2}, Sularso ^{b,d,2}, Dani Fadillah ^{b,d,2}

^a Hohai University, Nanjing, China

^b Universitas Ahmad Dahlan, Yogyakarta, Indonesia

^c School of Education Science, Nanjing Normal University, China

^d Association for Scientific Computing Electronics and Engineering (ASCEE), Yogyakarta, Indonesia

¹ andri.pranolo.id@ieee.org, ² zalik.nuryana@pai.uad.ac.id, ³ sularso@ascee.org, ⁴ dani.fadillah@comm.uad.ac.id

* corresponding author

ARTICLE INFO

Article history

Received January 3, 2023

Revised February 18, 2023

Accepted February 24, 2023

Keywords

Economy

Online Technology

China

Indonesia

ABSTRACT

This paper undertakes an analysis of the economic disparities between China and Indonesia, with a specific emphasis on the domains of technology and transportation. China is currently positioned as the second-largest global economy and holds the distinction of being the leading exporter. In contrast, Indonesia's economy and technological advancements lag behind in comparison. The unique challenges faced by each nation are unveiled through an examination of their geographical and climatic elements. This essay further investigates the intricate economic relations between China and Indonesia, emphasizing the imperative for more collaboration in order to maximize economic advantages. Alipay and WeChat, the two leading payment platforms in China, facilitate online and offline transactions, yet frequently impose delivery fees. In Indonesia, an additional fee is imposed for delivery services, necessitating that buyers retrieve their purchases from designated delivery stations subsequent to getting a notification by text message. China's self-service, technologically advanced transportation system establishes a benchmark for operational effectiveness, but Indonesia's transportation system is deficient in terms of amenities, infrastructure, and intermodal integration. This comparative study examines the impact of technology and transportation on economic prosperity and explores potential avenues for collaboration amongst divergent economies to foster a more promising future.

This is an open-access article under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



1. Introduction

People's Republic of China (PRC), located in Southeast Asia along the coastline of the Pacific Ocean, is the third world's most extensive area country after Russia and Canada. PRC has a total area of 9,596,960 km², with 9,326,410 km² of land area and 270,550 km² of water area. As administrative geography, PRC has 2 Special administrative regions, 4 Municipalities, 5 Autonomous Regions, and 23 provinces [1], [2] (Fig. 1). In addition, PRC Government has recognized 56 ethnic groups in PRC.

PRC has a variety of climates. In winter, the season is freezing in the northern area and mountains and plateaus, whereas mild in the South. When the summer season comes, the weather is hot ahead of China, omitting mountains or other highlands. Furthermore, summer is a rainy session, except in vast western desert areas with irregular and rare rainfall. The southeast is part of the rainiest area while the Northwest has few times rain [3], [4]. For example, the quite cold winter in Nanjing is from December to February. Next, from March to May is the spring season with moderate cold or mild and continuously warmer. In the summer (June to September), the weather is humid and scorching, while in October and November is autumn when the weather is mild and becomes more relaxed. The last, on November night, is cold.

China is the second-largest economy globally (after the United States) and exporter of goods worldwide [5], [6]. The economic growth in China is divided into three phases [7]. Firstly, the economy before New China (PRC) (Pre-1949). Secondly, the economy in the first 30 years of the PRC (1949-1978). Currently, the economy is in the reform and opening of PRC (1979 – present).



Fig. 1. Administrative divisions of the People's Republic of China (PRC) [8]

For sustainable economic development, the Chinese central government adopts “five-year plans” to guide economic development [9], [10]. This project was started from the first plan in 1953-1957. The second plan was in 1958-1962, the third was in 1966-1970, and the thirteenth plan (2016–2020) is currently being implemented. In addition, China has been doing strategies for the moderately poorer areas to anticipate extending disparities (Fig. 2) [9], with four section projects: 1) China's western development, 2) revitalize northeast China, 3) rise of the central China plan, and 4) Third Front.



Fig. 2. Map of Chinese economic regions; Purple = China Western Development, Blue = East China (with existing development programs), Magenta = Northeast Area Revitalization Plan, Green = Rise of Central China Plan [11]

China's Western Development is the development of natural resources and capital investment to improve and increase the economy in the western provinces. This project includes six provinces (Gansu, Guizhou, Qinghai, Shaanxi, Sichuan, and Yunnan), five autonomous regions (Guangxi, Inner Mongolia, Ningxia, Tibet, and Xinjiang), and one municipality (Chongqing). Revitalize Northeast China builds the three provinces in Northeast China, such as Liaoning, Jilin, and Heilongjiang, in addition to the five eastern prefectures of Inner Mongolia. This project focuses on industrial reconstruction. Rise of Central China Plan holds six provinces: Henan, Shanxi, Hubei, Anhui, Jiangxi, and Hunan. This project deals with advancing its central region's growth. Third Front involved large-scale investment in national defense, technology, basic industries (including manufacturing, mining, metal, and electricity), transportation, and other infrastructure investments. The project holds southwestern provinces with 13 provinces and autonomous regions along its essential area in the Northwest (such as Shaanxi, Ningxia, Gansu, and Qinghai), and Southwest areas such as Chongqing, Sichuan, Guizhou, and Yunnan).

This paper contains two sub-sections: the geography and climate of China and Indonesia, and the economics between China and Indonesia. The economic topic focuses on comprising technology and transportation from the economic viewpoint.

2. Geography and Climate in China and Indonesia

China and Indonesia have some differences according to Geography and Climate. Firstly, based on Geography, Indonesia is located at 6°LU - 11°LS and 95°BT - 141°BT as a tropical country. China is located at 180°LU - 540°LU and 730°BT - 1350°BT in the sub-tropical region. Secondly, Indonesia is the largest archipelagic country globally crossed by the equator. Indonesia has a variety of reliefs and is traversed by the Pacific and Mediterranean, which cause Indonesia to have many volcanoes (Fig. 3). In addition, Indonesia is flanked by several large plates, which cause the area to be earthquake-prone.

China's terrain is mostly mountains, high plateaus, deserts, plains, deltas, and hills. The Southern coasts and Eastern plains of China contain fertile lowlands and foothills. Hilly and mountainous terrain are in the Southern areas (South of the Yangtze River), highlands in the West, and plains in the eastern areas. Plateaus are interrupted by deep depressions fanning out to the north and east [2].



Fig. 3. Indonesia volcanoes [12]

Indonesia has three types of climates, seasonal climate (monsoon climate), tropical climate (hot climate), and ocean climate [13], [14]. Seasonal climate occurs because monsoon winds change direction every half year. Indonesia is located around the equator throughout the year, and Indonesia is always in the summer. The Ocean climate brings a lot of humid rain, so Indonesia has a rainy season. The rainy season will cause the temperature not to overheat. However, Indonesia is a tropical climate, usually called a hot climate. China has various climates. The climate is winter in the North region, mild in the South, and Summer in other parts, irregular rain in the deserts area, and southeast and

northwest rainy seasons. To summarize, Indonesia is the world's largest archipelagic and maritime country, while China is the third world's biggest area country, the wide-area island. On the other hand, Indonesia has only two seasons, rainy and hot, while China has winter, spring, summer, and autumn.

3. Results and Discussion

The comparison of China and Indonesia based on Gross Domestic Product (GDP) can be seen in Fig. 4. Based on GDP data released by three international institutions, International Monetary Fund (2017), World Bank (2017), and United Nations (2016), It can be seen that Indonesia's GDP is still far behind China. China was in the top 3 rank, while Indonesia placed in the 16th rank.

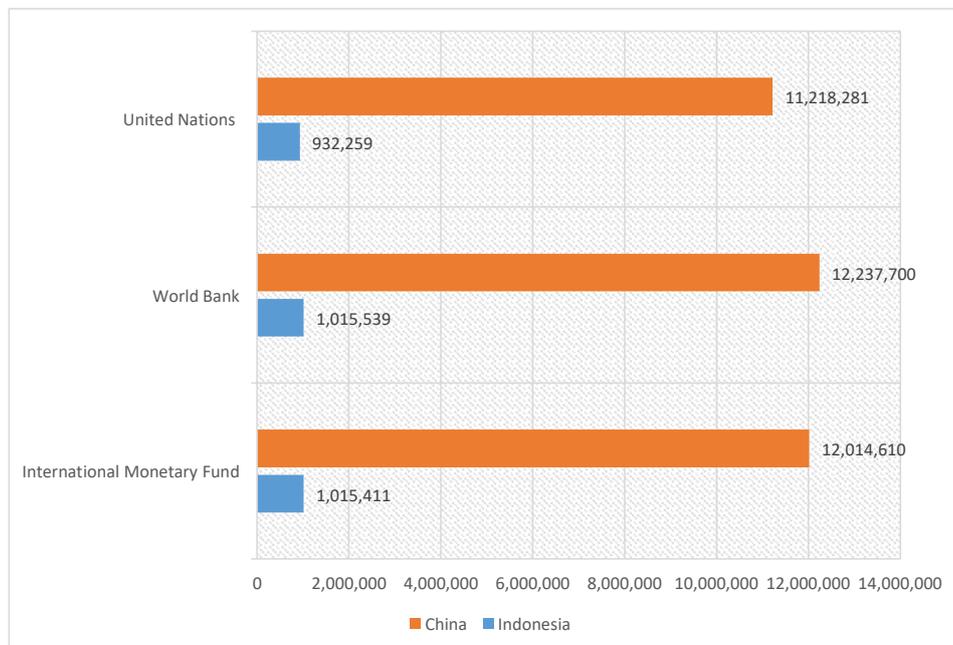


Fig. 4. Comparison of GDP between Indonesia and China [15]

The economic differences between China and Indonesia are visible from the development and implementation and the availability of technology and transportation that supports, especially, the GDP value, as well as other measures of economic health. The paper comprises both countries' technology and transportation in the following subsection.

3.1. Method of Payment

In China, sometimes, people cannot use their cash for payment. Some services like immigration and charge train cards can only use electronic transactions by using bank cards and two main applications, We Chat and Alipay. Besides WeChat as social media, The Payment feature of WeChat has evolved into a popular mobile payment service in China [16]. WeChat (Fig. 5a) and Alipay (Fig. 5b) are famous and main online payment applications in China, allowing us to make payments and receipts more efficiently. Anytime, people can top up the balance from the bank card or withdraw it to a bank account.

WeChat and Alipay are prominent online payment platform applications originating from China, but they have evolved to become multifunctional super apps that offer a wide range of services beyond just payment processing. WeChat, also known as (Weixin) in China, is primarily a messaging app that allows users to send messages, make voice and video calls, and share multimedia content. It has integrated payment functionality known as WeChat Pay, enabling users to link their bank accounts or credit cards and make payments for various goods and services. WeChat also features mini programs, which are lightweight apps within its ecosystem, providing access to services like food delivery, flight bookings, and more. Alipay, developed by the Alibaba Group, is a comprehensive mobile payment platform with a similar payment functionality but has expanded into financial services, offering wealth management, lending, and insurance products. It's tightly integrated with Alibaba's e-commerce platforms, allowing users to shop and benefit from discounts. Additionally, Alipay offers travel and

lifestyle services like booking flights, hotels, and even taxi hailing. Both apps have become integral parts of daily life in China, offering convenience and efficiency for various financial and lifestyle needs while expanding their reach globally for international travelers and businesses.

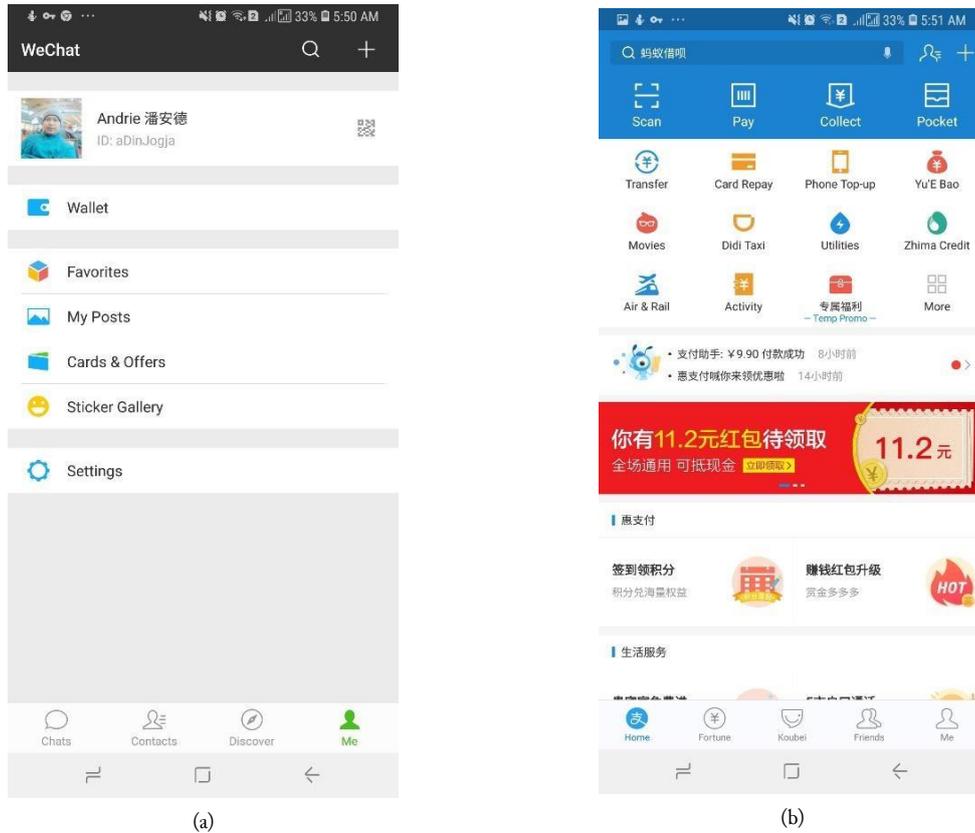


Fig. 5. Online Payment Platform Applications, Alipay (a) and WeChat (b)

Everywhere people can use the applications to make payments. In other words, they can make all payments by using both applications. For instance, to buy fruit (Fig. 6a), make payments to the roadside seller (Fig. 6b) and supermarket (Fig. 6c). It was effortless and straightforward. People do not need to bring their pockets and cash to China.



Fig. 6. Economic Transactions by Using Alipay and WeChat

In short, almost 100% of China's transaction economy uses electronic payment. It contrasted with economic transactions in Indonesia, in which almost 70% of transactions were cash or bank transfers. Indonesia does not have a “national” payment application like China. However, some Online Services platforms like Traveloka (Fig. 7) and GoJek (Fig. 8) were similar to WeChat and Alipay but still have

limitations in some functions. The applications of Traveloka and GoJek had provided an electronic money facility, but it only limited transactions for their application services. People could not buy anything and pay everywhere in other online or offline shops like China.

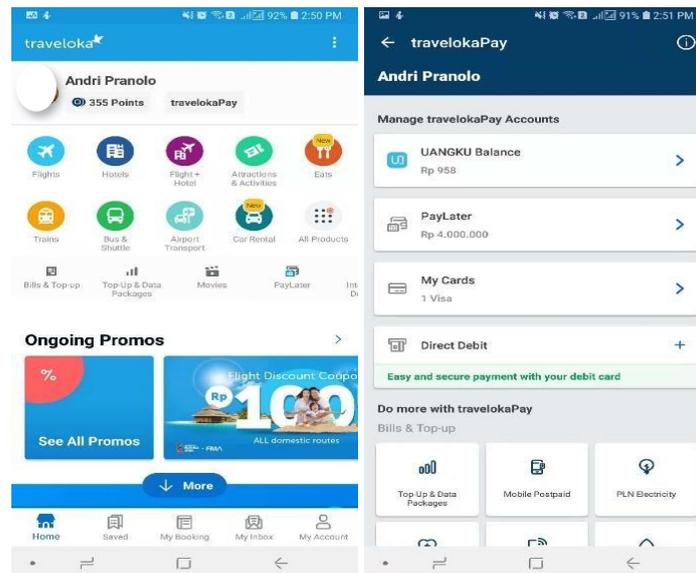


Fig. 7. Indonesian Application: Traveloka

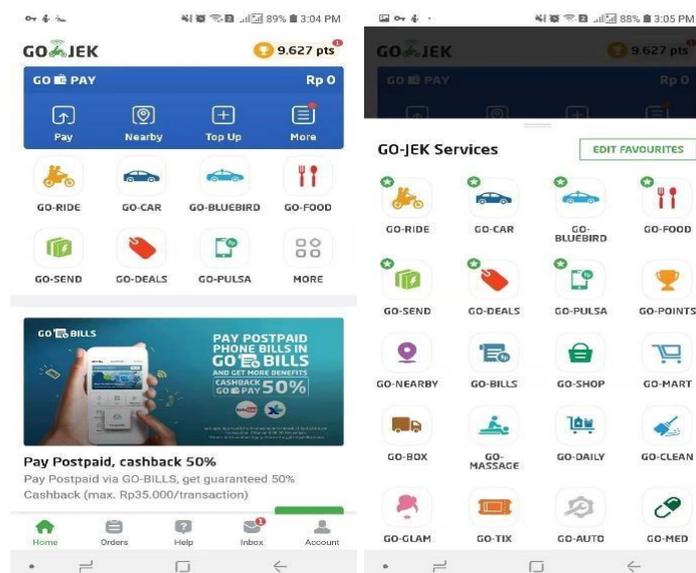


Fig. 8. Indonesian application: GoJek

3.2. Online Shop

Online shop like Taobao in China is trendy. People can buy anything online anytime, from cloth, household goods, sports equipment, electronics, and toys to cooking spices with less or free delivery. In Indonesia, Lazada is one of the famous online shops (Fig. 10); launched in 2012, currently present in Southeast Asia countries, such as Indonesia, Malaysia, Singapore, Vietnam, Thailand, and the Philippines. Like Taobao, Lazada provides many products in categories from consumer electronics, beauty, and fashion to toys, household goods, groceries, and sports equipment. Most of Lazada Group is owned by Alibaba Group Holding Limited (NYSE: BABA) [17].

There are three basics different online shops between Indonesian and Chinese online shops. Firstly, in Indonesia, people cannot pay the one application by other applications like Alipay and WeChat. It must pay using the same platform, or the payment can only be made by debit card with a transfer or credit card.

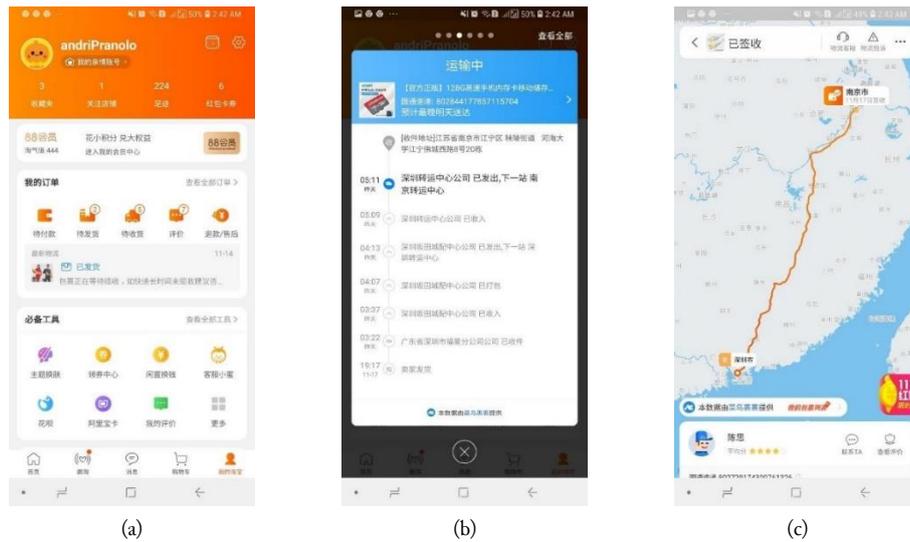


Fig. 9. Taobao Online Shop

Secondly, the price of shop items almost not includes delivery fee service, while in China, the payment almost includes the fees. In other words, all online transaction shops in Indonesia must pay an additional delivery service fee (Fig. 10c).

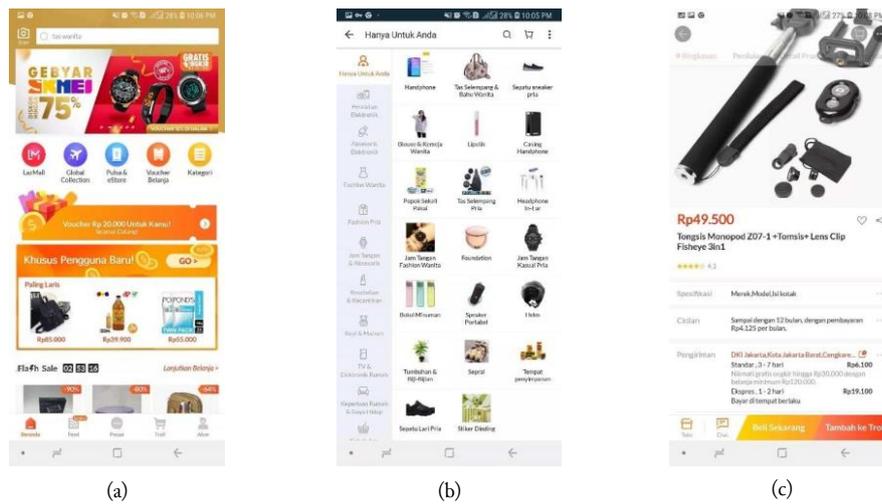


Fig. 10. Lazada Indonesian Online Shop

In Indonesia, the delivery service sends the items to ship directly to the buyer's home or house, while in China, buyers should come to the delivery service station and show their text message containing information about delivered items in Fig. 11a and Fig. 11b.



Fig. 11. Delivery System Online Shop in China

3.3. Transportation to Support Economic

Transportation is one of the most vital issues in a country. Developing countries, like Indonesia, have serious problems regarding this transportation problem. China has succeeded in developing infrastructure, providing convenient and inexpensive transportation for its citizens. Some types of Chinese transportation are train (Fig. 12 c,d), plane (Fig. 12e), bicycle rent (Fig. 12b), electric motorcycle rent (Fig. 12f), car rent, and bus transportation (Fig. 12a). It was useful and easy to use. People can go to shopping point and go everywhere in China using mobile phones by installing Alipay and WeChat applications. However, some transportation, such as trains and buses, can not use before they have a card or coin to access them. They need to buy either card or a coin using Alipay or WeChat. Furthermore, transportation will connect us to economic activities and buy something everywhere by using convenient transportation.



Fig. 12. Alternative Transportation in China

In Indonesia, mass transportation provided by the government in some cities was not entirely available for connecting one place to others, and the traffic jam was still an important issue in Indonesia’s capital city. Indonesian do not have much local train transportation to connect from one place to another. For example, in Yogyakarta, the bus is rarely. If people use a taxi, it is costly. However, some software startups currently recruit citizens with cars and motorcycles to provide transportation services. It helped us because this online transportation was easy to track, with clear and transparent payment, and cheaper than standard transportation fees (like a regular taxi). For example, GoJek (Fig. 13) is one famous application for ordering transportation services which was established in 2010 as a motorcycle ride-hailing phone service and currently operate in 50 cities across Indonesia [18], [19]. Some valuable features of GoJek include booking or ordering motorcycle transportation, car transportation, sending items, and ordering food.

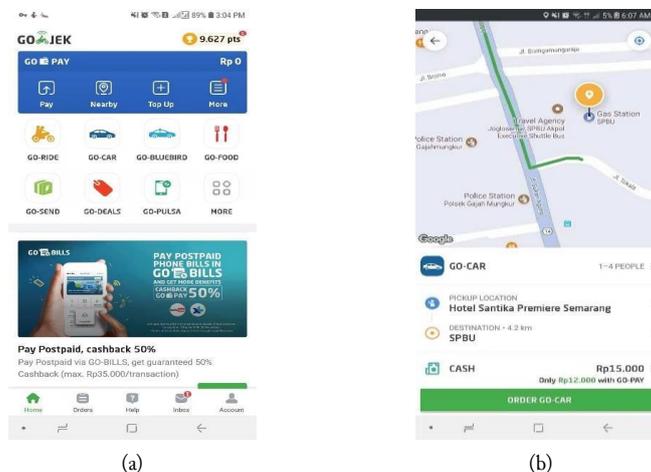


Fig. 13. Online Transportation in Indonesia

To summarize, transportation between Indonesia and China has some differences. The first, to use transportation in China tends to consumer self-service or provider (as “machine”), whereas in Indonesia, still use “tripartite” provider (as human)-platform-consumer. Second, some transportation in China can be paid using general payment services like Alipay and WeChat. In Indonesia, the payment can come only by cash or deposit in the chosen application, which cannot be shared with other applications. Overall, Chinese mass transportation was better than Indonesian transportation in the facilities, infrastructure, and fully connecting from one to another.

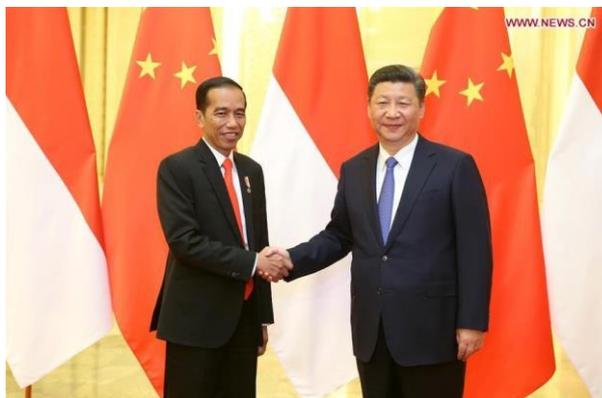


Fig. 14. Chinese President Xi Jinping (R) and Indonesian President Joko Widodo [20]

Fig. 14 shows that Chinese President Xi Jinping (Right side) met with Indonesian President Joko Widodo (left side) to discuss collaboration. Currently, Indonesia has much collaboration with China. For instance, both countries agree to establish a Belt and Road Initiative partnership, and some intensify cooperation.

4. Conclusion

This paper discusses the availability of technology and transportation to support economics in China and Indonesia. China has only two main platforms of payment, Alipay and WeChat, usable for all online and offline merchants. In addition, in China, the payment almost includes the delivery fees, while in Indonesia, additional delivery service fees are applied. In China, the delivery service sends the items to ship directly to the buyer’s home or house, while in Indonesia, buyers should come to the delivery service station and show their text message containing information about the delivered items. The Chinese transportation system is based on self-service, and payments can be made through common payment systems such as Alipay and WeChat. In general, Chinese mass transportation was superior to Indonesian mass transportation in terms of facilities, infrastructure, and the extent to which it connected one mode of transportation to another.

References

- [1] “The 8 facts of China’s 21st century renaissance | ChinaWhisper.” [Online]. Available at: <https://www.chinawhisper.com/the-8-facts-of-chinas-impressive-21st-century-renaissance/>.
- [2] Y. Han *et al.*, “Net anthropogenic phosphorus inputs (NAPI) index application in Mainland China,” *Chemosphere*, vol. 90, no. 2, pp. 329–337, Jan. 2013, doi: [10.1016/j.chemosphere.2012.07.023](https://doi.org/10.1016/j.chemosphere.2012.07.023).
- [3] “China climate: average weather, temperature, rain - Climates to Travel.” [Online]. Available at: <https://www.climatestotravel.com/climate/china>.
- [4] Q. Kong, J. Zheng, H. J. Fowler, Q. Ge, and J. Xi, “Climate change and summer thermal comfort in China,” *Theor. Appl. Climatol.*, vol. 137, no. 1–2, pp. 1077–1088, Jul. 2019, doi: [10.1007/s00704-018-2648-5](https://doi.org/10.1007/s00704-018-2648-5).
- [5] UNHCR, “China Fact Sheet,” no. December, pp. 1–3, 2015. [Online]. Available at: <http://www.unhcr.org/5000187d9.html>.
- [6] McKinsey, “China and the world: Inside a changing economic relationship,” 2019. [Online]. Available at: <https://www.mckinsey.com/featured-insights/china/china-and-the-world-inside-the-dynamics-of-a-changing-relationship>.

-
- [7] S. Rozelle *et al.*, *Capital Formation and Economic Growth in China*, no. 35. Brill, pp. 1186-1221, 2017. [Online]. Available at: <https://brill.com/display/book/9789004304987/B9789004304987-s049.xml>.
- [8] “Geography of China - Wikipedia.” [Online]. Available at : https://en.wikipedia.org/wiki/Geography_of_China.
- [9] “Economy of China - Wikipedia.”. [Online]. Available at: https://en.wikipedia.org/wiki/Economy_of_China.
- [10] J. Fan, “High-quality Development of National Territory Space Governance and Regional Economic Layout During 14th Five-Year Plan in China,” *Bull. Chinese Acad. Sci. (Chinese Version)*, vol. 35, no. 7, pp. 796–805, Jul. 2020. [Online]. Available at: <https://bulletinofcas.researchcommons.org/journal/vol35/iss7/1>.
- [11] “File:China Economic Sector.svg - Wikimedia Commons.”. [Online]. Available at: https://commons.wikimedia.org/wiki/File:China_Economic_Sector.svg.
- [12] “Geography of Indonesia - Wikipedia.”. [Online]. Available at: https://en.wikipedia.org/wiki/Geography_of_Indonesia.
- [13] “Iklim Di Indonesia - Jenis, Perubahan dan Pengaruh Bagi Dunia - IlmuGeografi.com.”. [Online]. Available at: <https://ilmugeografi.com/ilmu-bumi/iklim/iklim-di-indonesia>.
- [14] I. D. G. A. Putra *et al.*, “Development of climate zones for passive cooling techniques in the hot and humid climate of Indonesia,” *Build. Environ.*, vol. 226, p. 109698, Dec. 2022, doi: [10.1016/j.buildenv.2022.109698](https://doi.org/10.1016/j.buildenv.2022.109698).
- [15] “List of countries by GDP (nominal) - Wikipedia.”. [Online]. Available at: [https://en.wikipedia.org/wiki/List_of_countries_by_GDP_\(nominal\)](https://en.wikipedia.org/wiki/List_of_countries_by_GDP_(nominal)).
- [16] Y. Qu *et al.*, “Influencing Factors Analysis for a Social Network Web Based Payment Service in China,” *J. Theor. Appl. Electron. Commer. Res.*, vol. 13, no. 3, pp. 99–113, Sep. 2018, doi: [10.4067/S0718-18762018000300106](https://doi.org/10.4067/S0718-18762018000300106).
- [17] “Southeast Asia’s No. 1 Online Shopping and Selling Destination.”. [Online]. Available at: <https://www.lazada.com/en/about/>.
- [18] “Gojek Super App: Ojek Online, Taksi Online, Pesan Makan, Kirim Barang, Pembayaran.”. [Online]. Available at: <https://www.gojek.com/id-id/>.
- [19] L. Dessyanawaty and Y.-S. Yen, “An optimizing omni-channel strategy for ride-hailing companies: The case of GOJEK in Indonesia,” *Sci. Press Int. Ltd.*, vol. 10, no. 1, pp. 1792–7552, 2020, [Online]. Available: [https://www.sciencpress.com/Upload/AMAE%2FVol 10_1_4.pdf](https://www.sciencpress.com/Upload/AMAE%2FVol%2010_1_4.pdf).
- [20] “China, Indonesia agree to step up Belt and Road cooperation - Xinhua | English.news.cn.”. [Online]. Available at : http://www.xinhuanet.com/english/2017-05/14/c_136282435.htm.
-