



The China-Europe Freight Train and the War in Ukraine: Triumph and Tribulations in Transcontinental Shipping

Xiangming Chen

Key-Points

- The China-Europe Freight Train (CEFT) has grown rapidly with extensive and beneficial logistic links across Eurasia.
- Russia's war in Ukraine has disrupted part of the CEFT's operation as a geopolitical risk.
- The CEFT has adapted to the war with its underlying flexibility and strength from having become a transcontinental freight system.

China's Belt and Road Initiative (BRI) will hit its decadal anniversary in 2023 when President Xi Jinping, who will have certainly secured his third term in office, is likely to champion a broad celebratory marking of his signature foreign policy initiative. Less known and attention-grabbing is the China-Europe Freight Train (CEFT), arguably a precursor to the BRI and its most prominent flagship project, that has already been running for over a decade. While the ambitious BRI has spent an estimated \$1 trillion on around 3,000 projects around the world,¹ the CEFT not only has produced an overwhelming impact on trade and logistics but also remade the vast geoeconomic landscape of Eurasia by creating an unprecedented transcontinental shipping system.

¹ "China denies Belt and Road Initiative 'debt trap lie' as infrastructure spending tops US\$1 trillion," *South China Morning Post*, August 19, 2022; accessed at <https://www.scmp.com/economy/global-economy/article/3189497/china-denies-belt-and-road-initiative-debt-trap-lie>.

Growing fast and wide

The CEFT started when the megacity of Chongqing in southwestern China sent an inaugural freight train to Duisburg, Germany, through Kazakhstan, Russia, Belarus and Poland, on March 19, 2011. A return train from Duisburg did not arrive back in Chongqing until March 2013, marking the first ever eastbound run. One year later in 2014, shortly after the BRI’s launch, Xi Jinping greeted a train from Chongqing when he visited Duisburg, Germany which accelerated the CEFT’s growth. By the end of 2021, a total of 49,000 freight trains had run between China and Europe carrying 4.4 million containers. The fastest growth occurred in 2020, at 50% and 56% in the numbers of trains and containers, respectively, compared to 2019. This growth was fuelled by the pandemic-induced disruption to maritime shipping and Europe’s heavy demand for China-made personal protective equipment (PPE) during the first wave of Covid-19 (cover image). The runs also became more balanced as eastbound trains as the share of westbound ones rose from 50.6% in 2016 to 81.5% in 2021 (Figure 1). By August 1, 2022, the cumulative number of CEFTs reached around 57,000, which carried a total of 5.3 million containers with cargo worth nearly \$300 billion and covering 50,000 types of goods.²

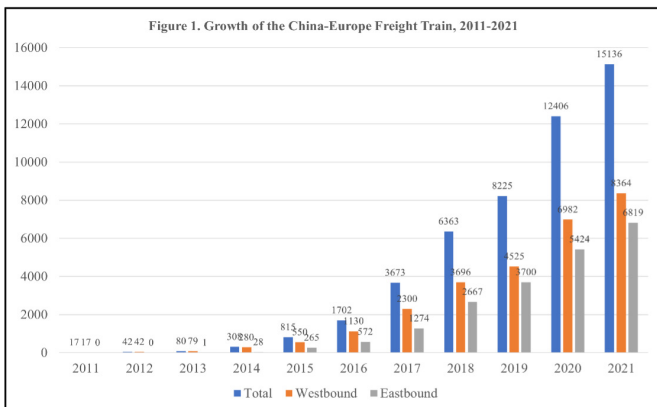
2 “The CEFT is a major innovation in the international freight transport system,” The China BRI Website, August 19, 2022; accessed at <https://mp.weixin.qq.com/s/PF1wWW1X2drJfCOVBZaSYg>.

As the CEFT has grown rapidly, it has expanded broadly to cover the Eurasian landmass. From August 1, 2022, the CEFT runs on 82 routes along three main corridors between nearly 100 Chinese cities and around 200 cities across 24 European countries and a number of Asian countries neighbouring China (Map 1). Everyday these cities send and receive 42 freight trains running across Eurasia. To ensure the timely shuffling of empty containers, China Railway Co. has set up 87 container-return yards in 18 countries covering most of the CEFT hubs outside China. Many Chinese companies have established logistics distribution centers along the CEFT routes. For example, the Chongqing-Xinjiang-Europe Co. has built an overseas logistics redistribution facility in Duisburg, sustaining the two cities’ decade-long freight train service. The CEFT has further extended its overland routes through Central Asia, especially Kazakhstan to intermodal (rail-sea) shipping from and to major ports in East Asia and coastal China that allows containerized cargo to flow back and forth between Japan or Korea and the EU. This has sharpened China’s location advantages in recombining its land and sea transport access and capacity to expand its economic reach and power through the CEFT as a new transcontinental logistics network.

From reach to impact

The CEFT’s vast geographic reach has created new mechanisms for exerting positive impact on countries and cities along the routes. First, while Russia, the former Soviet states and China use the Agreement on International Goods Traffic by Rail (SMGS), Europe uses the Rail Transport Document (CIM) consignment convention, which creates some incompatibility between two separate rounds of paperwork for international rail transport across borders. The CEFT has unified partly the two regulatory systems by allowing a number of CEFT hubs in China, such as Chongqing and Xi’an, to adopt a unified scheme to send and receive cargo shipments on a single round of paperwork between originations

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Source: “The operation of the China-Europe Freight Train for May 2022,” The Belt and Road Logistics Conference Bulletin, No. 11, 2022



Source: Reprinted from a map used in a recent paper by Xiangming Chen.

and destinations. This cooperation has facilitated the inclusion of postal packages in the CEFT cargo, which has extended a new international postal service from the Chongqing-Duisburg line to routes linking 36 Asian and European countries. This led to the running of 22 postal block trains carrying 10,000 tons of mail packages after Covid-19.³ To improve border-crossing efficiency, the CEFT has brought together several of China's interior hubs like Xi'an and border gateways such as Horgos with Ghent (Belgium), Gödöllő (Hungary), Małaszewicze (Poland), and Rotterdam in adopting the "safe and smart trade" and the "customs-rail connect" programs. The CEFT would not be able to operate as a transcontinental shipping network without these cooperative mechanisms.

With more smooth border-clearing and efficient paperwork processing, the CEFT has enhanced regional integration, trade growth, industrial development, and consumption along the routes. Kazakhstan, the most important Central Asian country for connecting China with Europe, has secured new access to international trade by exporting its high-quality wheat to Southeast Asia that otherwise would not have been possible due its landlocked location. Leveraging its CEFT hub position, the megacity of Chengdu near Chongqing has raised its number of export-oriented companies from a few to nearly 50,000, including those that send both locally assembled cars and traditional agricultural products to European markets on its regularized westbound trains.

In the opposite direction, the CEFT carries a growing variety of popular European consumer goods such as Dutch dairy products, French cosmetics, Georgian red wine, Italian clothing, and German luxury cars to China where there is a rising demand for these imports. This is not surprising as China has become a huge consuming nation, whose share of global consumption rose from 9% during 2000-05 to 23% during 2013-2018. As the CEFT has opened up more avenues for European goods to reach China, it has helped drive China's imports from the EU and east-central Europe to grow 63.7% and 127.3% respectively during 2016-2021.⁴

Greater trade along more connected and cost-effective transport routes facilitates increased industrial investment and development leading to more efficiently organized production and supply chains. Freight train costs are only 1/5 of air shipping costs and take 1/4 of the time as maritime shipping. Factoring in time cost for transporting high-value-added products, freight train transport cuts 8-20% of the total logistics costs for combined rail-sea shipping, with less vulnerability to external environmental conditions and more operating stability. These advantages have contributed to the CEFT's appeal to large manufacturers such as Dell, Lenovo, TCL Technology, and

Volvo that have reorganized their supply chains around key CEFT hubs and along key shipping routes. Looking back at the CEFT's first decade of existence, it is still a bit difficult to imagine how fast and wide it has expanded and how impactful it has become. By the indicators above, it is also easy to see the CEFT as a successful transcontinental freight train network.

The war's disruption and the CEFT's adaptation

Despite the CEFT's success, its large systemic scale, wide geographical reach, and operational complexity present obstacles including uneven demand and load distribution across all routes, time traffic congestions at a small number of crucial border crossings like Małaszewicze, Poland, and lagged development of logistical infrastructure at hubs supporting heavy train flows. Yet, none of these is as challenging as Russia's war against Ukraine since February 24, 2022, which has disrupted the CEFT, even though a large amount of rail-cargo has continued to pass through Kazakhstan, Russia, and Belarus. In 2021, 68% of the westbound traffic and 82% of the eastbound traffic in China-EU overland trade went through Russia. The war, however, led the German automaker of Audi, which has extensive supply chains to and in China, to stop using the Trans-Siberian Railway. While Ukraine did not join the CEFT until 2020 and accounted for only 0.2% of the CEFT flows by the end of 2021, the CEFT ran west through Kiev and Chop, a Ukrainian city near the borders of Slovakia and Hungary, as a gateway into the EU. This route came to a halt after the war in Ukraine started.

To adapt, some rail shipping companies and freight forwarders based in both China and Europe have turned to the main alternative route along the network of roads, railroads and ports stretching across Kazakhstan, the Caspian Sea, Azerbaijan, Georgia, Turkey and into Europe, or what is known as the CEFT's Middle or Southern Corridor. Cargo shipments across Central Asia and the Caucasus are expected to reach 3.2 million metric tons in 2022, a sixfold increase over 2021. A small but growing number of trains have also crossed the Black Sea into Europe via intermodal shipping through the Romanian Port of Constanta into the EU (the two dotted lines, Map 1). While this flexibility was not built into the original network, the CEFT's established routes have fostered opportunities for these alternative routes via land-sea shipping to bypass the pacing risks of the war in Ukraine.

Whether crossing both seas or just one, "going south" from Kazakhstan instead of west through Russia is more time-consuming and less cost-effective due to the longer distance and more complicated land-sea intermodal shipping. There are more specific obstacles facing this roundabout route. For one, some Kazakhstan-based European companies attempt to bypass Russia, which slows down Chinese cargo destined for Europe through Kazakhstan. For another, a very limited number of barges are available to carry containers offloaded from trains from

³ *The China-Europe Freight Train Report 2021*, prepared by the BRI Construction World Leadership Group and China Railway Co.

⁴ Same as Note 3.

the Kazakh port of Aktau to Baku across the Caspian Sea and from the Georgian port of Poti to Constanta over the Black Sea. By helping war-torn Ukraine transship its grains out to the world, the port of Constanta lacks sufficient port and rail capacities for moving Chinese cargo. These barriers lengthen the entire CEFT trip from around 15 days along the Kazak-Russian route to approximately 40-50 days, with some CEFT shipments getting stuck in Constanta for around 20 days. They also expose the constraints of such original bottlenecks as the underdeveloped facilities at crucial rail crossings and transit ports across incompatible logistics systems over multiple international boundaries, which are further complicated by contentious geopolitics.

These tribulations aside, the CEFT has created favorable conditions from its decade-long run for incorporating more countries and cities along the main routes that can in turn lead to solutions to the war-induced challenges. Seeking alternative routes has brought western Asian and Caucasian countries such as Turkey, Georgia, and Iran and their nodal cities Istanbul, Tbilisi, and Tehran into the CEFT orbit. Even the reclusive Central Asian country of Turkmenistan has got into the game by allowing its port of Türkmenbaşy, also on the Caspian Sea, to serve as another transit port for connecting to Baku, which is 300 km closer than sailing from Aktau (Map 1). This contributes to the regional spread of trade flows and logistics ties conducive to new opportunities for economic cooperation among recently linked national and local places and spaces across Eurasia. For instance, Georgia, Kazakhstan, and Romania have discussed making border-crossing and tariffs more convenient and compatible.

Running against geopolitical headwinds

The CEFT is a historic triumph in transcontinental shipping. It has built up sufficient demand and resilience, even against the strong headwind of the war in Ukraine. In fact, the number of train runs already reached 10,000

by August 2022, 10 days earlier in hitting this figure than in 2021. The number of carried containers amounted to 972,000, a 5% increase from 2021. Ironically, as fewer trains have run through Russia since the war, the numbers of China-Russia freight trains and their loaded containers, primarily via the Eastern route (Map 1), grew 16.4% and 16.2%, respectively, over the first seven months of 2022, due to growing China-Russia trade under a strong partnership. China's greater exports to Russia have also entered Russia via a number of cross-border transport corridors linking China's northeast region to Russia's Far East that parallel the CEFT's Eastern route (Map 1). In the longer run, these transport corridors are likely to carry more cross-border trade. As indicated by Putin's speech at the 7th Eastern Economic Forum, held on September 5-8, 2022 in the geographically fitting city of Vladivostok, Russia is shifting some of its economic development focus to its Far Eastern region to mitigate against a head-on confrontation with the EU.

Besides its critical role in facilitating trade across Eurasia, the CEFT carries inherent and extended geopolitical stakes. It continues to keep China-EU trade flow effective and business ties strong while political tensions from Russia's war in Ukraine and other sources like the Taiwan issue are eroding broader China-EU relations. If the CEFT helps Russia circumvent Western sanctions by increasing Russia-China trade, it throws another wrench into already deteriorating China-EU relations. These geopolitical contingencies can create both new opportunities and challenges for the CEFT to adapt in continuing a successful run into its second decade.

Xiangming Chen is Director of the Urban Studies Program and Paul E. Raether Distinguished Professor of Global Urban Studies and Sociology at Trinity College Connecticut, a guest professor at Fudan University, Shanghai, and an adjunct professor at the Graduate School of the Shanghai Academy of Social Sciences. He can be reached at xiangming.chen@trincoll.edu.

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NUI
Norwegian Institute of International Affairs
C.J. Hambros plass 2D
Postboks 7024 St. Olavs Plass Dep. 0130 Oslo, Norway
www.nupi.no | post@nupi.no

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