

CONFORMITÉ EUROPÉENNE VS CHINA EXPORT.

The Conformité Européenne (CE) mark (white) is a common sight on products in North America and Europe. However the China Export mark (red) and CE mark are easily confused, understandable given they appear almost identical. The China Export Mark means the product was manufactured in China. No registration, testing, or auditing is required in order to use it. The mark can be used arbitrarily by Chinese manufacturers.

PRODUCING STANDARDIZATION: CHINESE BLOCKS IN NETWORKS

如何创造标准化：国际网络中的中国版块 | Marc Laperrouza

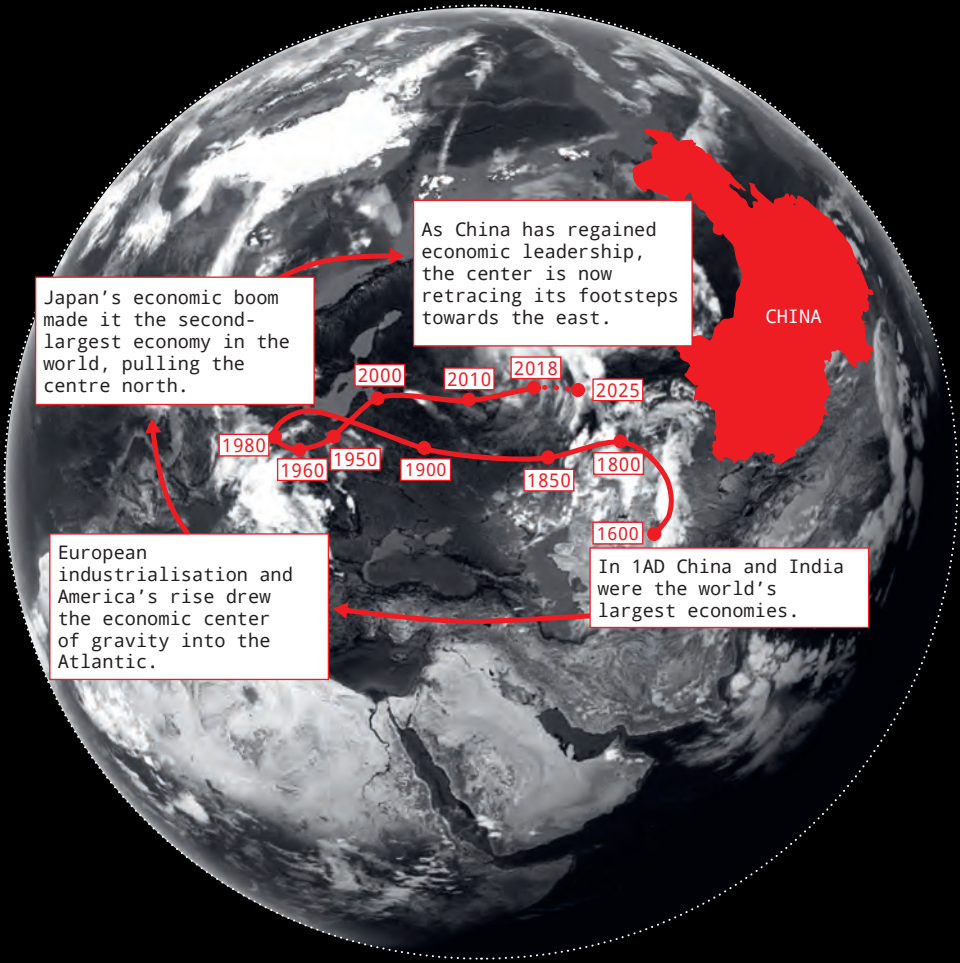
The gravity center of the global economy is tilting back towards Asia. Central to this shift are regional and global production networks to which Chinese companies increasingly add value, relying less and less on exports of semi-manufactured and finished goods. In parallel, deployment of large scale infrastructure and service provision at the domestic and international level comprises both physical and digital components with massive amounts of data flowing along telecommunication networks, electric grids, shipping lines and railway routes. This chapter discusses how standardization has enabled the participation of Chinese companies in global value chains (GVCs) and how the production of standards is now used as a strategy to drive them. It argues that the Belt and Road Initiative (BRI) can serve as a vehicle to deploy Chinese standards across borders, raising important questions related to economic and technological sovereignty and security.

1. RE-EMERGENCE OF ASIA/CHINA AS CENTERPIECE IN THE GLOBAL ECONOMY

CHINA IN GLOBAL ECONOMIC HISTORY:

RE-EMERGENCE RATHER THAN EMERGENCE

For almost as long as history books can recall, China has enjoyed economic prominence on at least a regional level, with innovation capacity and regional dominance. However, the weight of China (and India) in the world economy changed drastically during the second half of the 19th century. Between 1840 and 1950, the country's GDP dropped from a third to a twentieth of the world's total, and per capita income fell while rising three-fold in Japan, four-fold in Europe and eight-fold in the United States (Maddison 2007). It would take some radical domestic economic reforms for the Chinese economy to put an end to this 150-year period, during which the country stood at the margins of the world economy, and to feature again prominently in GDP tables.



THE WORLD'S ECONOMIC CENTER OF GRAVITY.

Often dominant at home, Chinese manufacturers seldom maintain the lead in host markets. The economic center of the globe is calculated using an average of countries' locations weighted by their GDP.

Ushered in by Deng Xiaoping, the open door policy reconnected the country with the global economy, initially with lightweight industries, later with heavy industries and electronics, and now increasingly with critical infrastructures and services.

The shift of economic gravity back toward the East should not be attributed solely to China. Japan's post-war recovery, followed by the emergence of the four "little dragons",¹ laid the ground for reversing the trend of Western-centric economic powers. These newcomers developed largely thanks to their connection to other economies, at times in the vicinity, at times on the other side of the world. The permanent movement of production means from Japan to other Asian economies created over time a large and intricate regional production network. Such networks proved to be very handy when the Chinese economy opened up again to trade and started to look for ways to participate in global production activities.

Another factor contributing to this shift was the fact that growth rates in Europe and, to a certain extent the United States, started to slow down. Whereas the world economy saw a succession of European empires dominate economic history from the 15th to the early 20th centuries, competition in the first half of the 21st century has taken place between Beijing and Washington. For the past 50 years, the United States, Europe and Japan have dominated exports in information and communication technologies (ICT), embedding many homegrown standards in products and services used throughout the world (e.g., GPS, GSM, VGA, etc.). China's economic development and technological progress in particular fields (telecommunications, machine learning, etc.), coupled with the sheer size of its economy has started to threaten US economic and technological dominance. Whereas some already point to a new Cold (technology) War, one should keep in mind that the level of interconnection between economies is unprecedented in world economic history and that most countries (and consumers) benefit from such interdependency.

A LOT OF PLANNING AND GOOD TIMING

For all its political leadership, planning and implementation capability, the Chinese government also owes its impressive economic turnaround to a number of exogenous factors. The liberal agenda championed by the United States and the United Kingdom during the 1980s paved the way for deregulation across the world. As a result, the flow of goods, capital and technologies increased notably thanks to an international framework conducive to exchange and development. Reduction of tariffs on the trade of IT products² in the framework of the Uruguay Round was accompanied by attempts to address the growing service component through an agreement on basic telecommunications services, introducing among other things the concept of technological neutrality. In effect, governments were recognizing the importance of innovation, intellectual property and

1 South Korea, Singapore, Taiwan and Hong Kong.

2 The Information Technology Agreement (ITA) was concluded by 29 participants at the Singapore Ministerial Conference in December 1996.

TECHNOLOGY		MARKET SHARE IN CHINA %	MARKET SHARE IN THE REST OF THE WORLD %	FIRST-TIER COMPONENTS FROM CHINESE SUPPLIERS %
LEADING LOCAL PLAYERS WITH LOCAL CONTENTS	SOLAR PANELS	100	50	70-85
	HIGH-SPEED RAIL	100	5	75-90
	DIGITAL PAYMENTS	95	10	>85
LEADING LOCAL PLAYERS WITH FOREIGN CONTENTS	WIND TURBINES	80	5	60-75
	ELECTRIC VEHICLES	95	5	60-75
	CARGO SHIPS	90	45	40-50
	AGRICULTURAL MACHINERY	88	19	60-80
	SMART-PHONES	85	25	35-50
	CLOUD SERVICES	70	8	<35
	ROBOTICS	50	15	25-45
LAGGING LOCAL PLAYERS	SEMI-CONDUCTORS	5	5	<10
	AIRCRAFT	<5	<1	<20

CHINESE PRODUCERS

NON-CHINESE PRODUCERS

the flow of technology for economic growth.³ Technological developments and trade-related measures significantly lowered transaction costs. This made it even easier to scatter production facilities across the world in search of the lowest production costs (and working standards...). In other words, China's economic re-emergence coincided with, and benefited from, a number of factors that brought economies closer than they had ever been.

FROM SHIPS TO CHIPS?

The phenomenal growth of international trade and sophisticated intrication of suppliers, contract manufacturers and other actors in the supply chain is due in large part to technology and trade agreements. It probably owes as much, if not more, to an innovation in logistics. The fragmentation of production and the ensuing acceleration of trade has indeed been made possible by the standardization of containers initiated in the United States at the end of the 1950s (Levinson 2006). The standardization was actually an attempt to regain competitiveness for US ports by simplifying logistics, reducing overall transport time and, in the end, the total cost.

Fast-forward 50 years and one could observe a similar pattern of standardization in the field of telecommunication manufacturing. Companies like MediaTek, a Taiwanese chipset manufacturer in search of competitive advantage, transformed some parts of the handset manufacturing business by offering turnkey solutions. This opened the door to Chinese companies with limited technical know-how but a good understanding of particular markets to match demand and offer, in a cost-effective manner, something that would have been totally impossible without the standardization of components throughout the value chain.

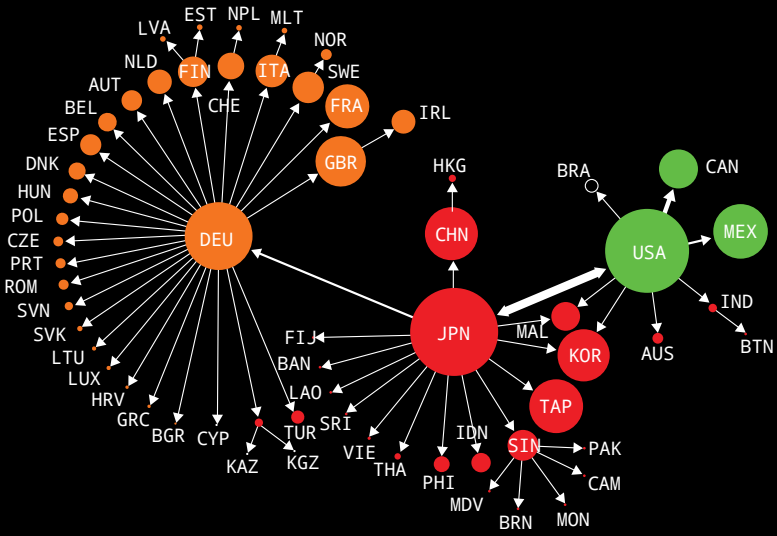
Being able to sell globally operable mobile phones while having limited technical knowledge wasn't a given. In fact, until not so long ago a European traveler crossing the Atlantic would not have been able to use her mobile phone in the United States as manufacturers (and operators) on both sides of the ocean were battling to impose their homegrown telecommunication standards. The telecommunication industry clearly illustrates the importance of standards in economic growth and, to a certain extent, why they have become so central to governments intent on ensuring technological dominance for their domestic industries and companies.

In the field of telecommunications, the Chinese government had been extremely keen at the turn of the century to promote TD-SCDMA, a "homegrown" standard for 3G.⁴ Its enthusiasm extended to China Mobile, assigning its deployment as a way to find an alternative to European or American standards.

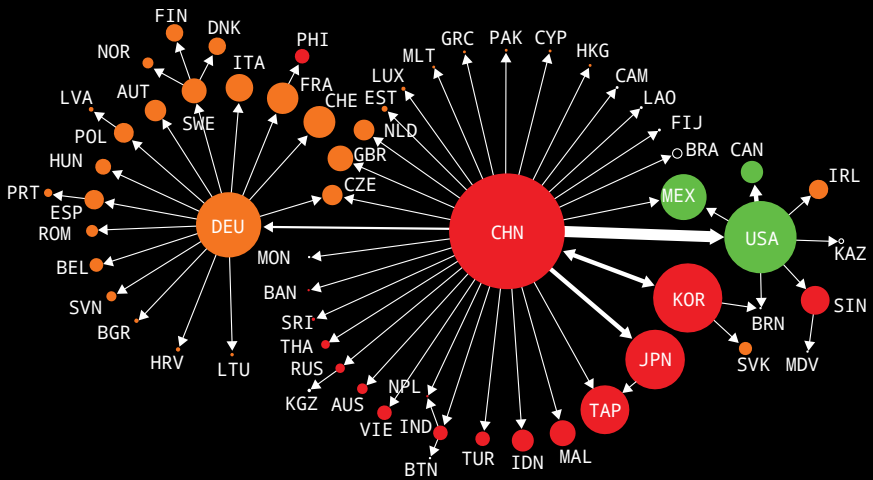
³ The agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) enshrined IP into the trading system in 1995.

⁴ Time Division Synchronous Code Division Multiple Access (TD-SCDMA) was jointly developed by the Chinese Academy of Telecommunications Technology, Datang Telecom and Siemens.

2000



2017



SUPPLY HUBS OF TRADE IN VALUE-ADDED TO VARIOUS NETWORKS IN THE ICT SECTOR (TRADITIONAL TRADE NETWORKS).

In that particular case, the attempt failed both domestically and internationally as the standard did not offer the required technological maturity. As we will see later, it was just a matter of time before a Chinese company would be ready to offer a telecommunication standard with the potential to be deployed globally.

The deployment of standards and, more importantly, the dominance of standards is not an easy feat. One can differentiate *de jure* standards, which are imposed by the government or standardization bodies, and *de facto* standards which are imposed by the market. *De jure* standards can be powerful tools for the implementation of industrial policies orchestrated by the government, and China's *de jure* standardization efforts have been relentless at the domestic level. For the past two decades, few sectors have been spared as an estimated 150,000 standards were adopted in an attempt to regulate economic agents at all levels (national, provincial and local).⁵ In 2018, and alongside a swarm of other initiatives aimed at positioning China among the front-runners of innovation such as "Made in China 2025",⁶ the government initiated the China Standard 2035 policy. This does not mean that market-driven standards do not exist in China. In fact, similar to what has been witnessed in other areas of economic reforms, the government has often used a dual strategy by letting competition in the market emerge while maintaining an oversight.

Not surprisingly, China's standardization drive does not stop at its borders, nor does it leave rival economies impervious. The propensity of the Chinese government to play the standardization card is increasingly raising concerns abroad. Breznitz and Murphree (2013) have argued that "the main challenge China poses in standardization is in establishing new norms, particularly the advancement of a cheap royalty option to the holders of standards—essential Intellectual Property Rights (IPR)."⁷ They also pointed to the increased skill and sophistication in global standards organizations. Chinese companies (e.g., Huawei) understood this early on, and in the late 1990s began to increase their presence and activity (e.g., commission chairing) in different international telecommunication forums such as ITU and 3GPP. Lastly, the authors have highlighted the role of government in the standardization process—as opposed to more voluntary and market-based approaches in the United States. Standards can indeed be used both as a way to ensure easy dissemination and interconnection of technologies and as a tool for protectionism. One needs to look no further than electric plugs in European countries to grasp how standardization can betray inward—rather than outward—looking strategies.

5 One obviously needs to differentiate technological and non-technological standards (e.g., safety standards). In particular since the former usually come with network and lock-in effects.

6 Made in China 2025 is a strategic plan at the national level aimed at turning China into a major manufacturing power over a ten-year period. It epitomizes the Chinese government's ambition to move up the value chain.

7 By creating competing standards for similar technologies, the idea is to push foreign standard alliances to lower their rates.