13 Margins at the Center: Alternative Digital Economies in Shenzhen, China

Jack Linchuan Qiu and Julie Yujie Chen

Introduction

Every world has its order, complete with its center and margins, that is imposed by nativist or imperialist authorities and internalized in one's mind. The world of digital technologies is no exception, when conventional wisdom regards the West—or more specifically, Silicon Valley—as the pivotal site of action. This, in essence, reflects the classic center-periphery framework in Wallerstein's conception of the capitalist world system (1974). But modern industries, especially the hardware, software, and services that underpin digital economies, are also very different because they morph rapidly in a "space of flows," with little respect for traditional boundaries (Castells 1996). These industries are transforming with great unpredictability as China emerges as a new global epicenter of technological growth (Schiller 2005), a trend nicely captured in the book title *From Silicon Valley to Shenzhen* (Lüthje et al. 2013).

From a Eurocentric perspective, China—until a little more than two decades ago—was often seen as belonging to the global margins. Before the rise of modern Europe, however, China boasted the world's most advanced science and technology (Needham 1979). Of the four greatest inventions in ancient China (papermaking, printing, the compass, gunpowder), the first three are actually information and communication technologies (ICTs). This historical context is crucial in suggesting that Eurocentric assumptions deserve scrutiny in order to do justice to technological developments in longstanding civilizations such as China, that we need to conceive multiple worlds with alternative and overlapping orders to grasp the reality of digital economies at the semiperipheries and peripheries—where margins turn out to be central to technological innovation. What, then, is

marginality? Why does China show a tendency toward technological innovation in the digital economy in ways that differ from, sometimes even defy, innovation models in the West? What are the implications of the Chinese experiences? How do they illuminate alternative possibilities at the global level?

In this chapter, we first conceptualize marginality as phenomena occurring at the edges of geography, fringes of history, and verges of civilization. In so doing, we consider in broad strokes the connections between China and the West, going back to the Opium Wars, a fateful clash of civilizations that remains relevant when we consider the centrality of margins to contemporary digital economies. The bulk of this chapter focuses on Shenzhen's special economic zone (SEZ) in the Pearl River Delta of South China, arguably the most striking example of "margins at the center" in the Chinese context: a place full of alternative digital innovations that entail a reconsideration of what constitutes the core of global digital economy.

We discuss the regional and national contexts for Shenzhen's SEZ transformation from a technology backwater in the immediate aftermath of the Maoist era (early 1980s) to the most vibrant digital economy cluster in China at the beginning of the twenty-first century. Our main focus is on (a) economies of low-end *shanzhai* electronics in Shenzhen and (b) the app-based ride-hailing economy, energized and agitated by Uber and Didi (the market leader in China). We examine the two cases through the relationship between the center and the margins of innovation, not only geographically in the global digital economy but also from the different vantage points of labor, capital, and the state.

Using fieldwork data, interviews, and primary documents, we test our observations against the old ideas that innovations always travel from the center to the periphery, and that marginality means inevitable disadvantages. The two cases are, in this sense, selected because they are important exceptions to conventional thinking, yet because of their scale and popularity, they are central for understanding China's digital economy. Shanzhai electronics, once synonymous with low-quality copycat products, now has worldwide reach, especially for regions of the Global South. Didi China, unlike Uber, integrates both taxi and private ride services on the same platform. Uber's rhetoric of flexible hours for drivers seems to exclude incumbent taxi drivers from the emerging digital economy facilitated by

online platforms. Didi's inclusion of both taxi and private drivers forces us to rethink the division between the two in the original Uber model. Furthermore, Didi taxi and private car drivers show considerable dexterity in resisting exploitation by digital platforms. They have also rallied to turn their marginality in the Chinese economy (and under Didi's rule) into a core resource for alternative development.

Together, the shanzhai business, Didi's market dominance, and the recalcitrance of its drivers all shed light on how marginality comes about in spatial, historical, and discursive terms. They also show how marginality can be transformed into centrality and into new forms of resistance and alternative development. The chapter concludes by discussing why certain margins turn out to play a central role in contemporary digital transformations, under which conditions they do so, and what the global implications are for Shenzhen and China when seen through the lens of marginal centrality, a lens through which we can see a different world, especially in non-Western contexts, whose orders are multiple and relative, rather than singular and static.

Conceptualizing Marginality

Does the center always control the periphery? Before considering the world of contemporary ICTs, it is instructive to revisit a debate among historians regarding the nature of nineteenth-century European imperialism. While the conventional view holds that imperialist expansion during this period was the result of technological prowess, politico-economic motivation, and the ideological positions of decision makers in European capitals, historians such as D. K. Fieldhouse contended, on the contrary, that "imperialism may be seen as a classic case of the metropolitan dog being wagged by its colonial tail"; that "Europe was pulled into imperialism by the magnetic force of the periphery" (1973, 81, 463).

The First Opium War of 1839–1842 offers a good example for Fieldhouse's argument of the margins pulling at the center. The key technological object used in this war was the steam-powered iron gunboat, which proved to be the critical factor in defeating Chinese troops. A surprising finding from historical research, however, shows that the British Navy, being proud of its traditional sailing warships and suspicious of the new steamer technology, was reluctant to adopt the innovation. The navy did not purchase a single

gunboat until 1845, three years after the war ended (Headrick 1981, 36). Who then supplied the ten gunboats during the First Opium War? It was the Calcutta-based East India Company (EIC), the world's "first major purchaser of gunboats" (54), whose "secret committee" first used clandestine language to deceive London (especially the navy) into importing the new technological inventions from the UK before sending them to support the British fleet. Hence, "Before the age of military research and development, technological innovation (such as the gunboat) often had to sneak through the back door" (37).

The EIC's secret purchase and deployment of the gunboats during the First Opium War was one of the most prominent cases of the "colonial tail," in Calcutta, wagging the "metropolitan dog," in London. The development of gunboats was also as much a major turning point for the relationship between China and the West as it was for the invasion of the Global South in general. As Headrick (1981) documented, only with gunboats could European colonial forces move upstream and conquer the heartlands of Asia and Africa beyond strategic positions along the coast (which older sailships could conquer). Innovation from the periphery was not an isolated phenomenon, however, as we see, over and again, faster technological application at the frontiers or margins of empire. For instance, the world's first attempt to lay underwater telegraph lines took place in Calcutta in 1839, rather than in the metropolitan centers of the British Isles (158). The historical development of the telegraph into a crucial information and communication technology for the empire cannot be fully understood without recognizing the deployment of technologies in the global margins.

To inflate the role played by the margins in technological advancement is, of course, incorrect. But as we argue in this chapter, it is not uncommon for places, people, and organizations located in the semiperipheral or peripheral regions to take the lead in innovative undertakings.

It is thus necessary to reconsider margins in pluralistic terms, beyond the simple measurement of spatial distance from, or economic ties to, the center. As Doreen Massey (2005) points out, a sense of space is fundamental to our thinking about periphery and marginality, while the "power geometries" in spatial thinking are often intertwined with other positionalities of cultural, discursive, and gender relations. This is particularly the case when the innovations are so groundbreaking (e.g., iron gunboat) that they are

incongruent with, or even jeopardize, conventional ways of practice, old thinking, and established business models (e.g., the sailship).

We suggest three intertwined dimensions to conceptualize marginality, all of which hinge on a dynamic and dialectic relationship and interplay between the margins and the center. Neither marginality nor centrality exists alone. They always connect to, counter with, and are constitutive of the other. Like Mezzadra and Neilson (2013), we do not think there is a clear fault line between the two. On the contrary, we contend that the shifting relationship between the center and the margins is precisely why marginality offers an important angle and site to interrogate contemporary digital economy.

The first dimension of marginality speaks to the edges of geography—that is, any system must contain certain forms of geographic discontinuities marking the inside from the outside. Edges are concentrated areas of discontinuity. One way to understand such geographic edges is the basic logic of the network society, which according to Castells (1996) means the binary operation of inclusion and exclusion. Margins are where geographic inclusion of any social, economic, and technological units approaches its limit. At the margins, forces from the core become feeble, ambiguous, easy to subvert, sometimes irrelevant, even paradoxical. As Anna Tsing remarks, "Can one be simultaneously inside and outside the state? This is the dilemma of marginality. … Marginals stand outside the state by tying themselves to it; they constitute the state locally by fleeing from it. As culturally 'different' subjects they can never be citizens; as culturally different 'subjects,' they can never escape citizenship" (1993, 26).

Marginality is anything but static. It shifts over time and emerges as the fringes of history, as "temporal borders" (Mezzadra and Neilson 2013, 131). Human systems, including modern systems of digital economy, have to emerge from a historical context. No system can remain unchanging throughout time. On the one hand, this suggests that historical marginality is a necessary condition for the beginning and the end of any temporal period or any "world order" in a finite temporality. On the other hand, it should be unsurprising to see the multiple overlapping temporalities where it is only normal to observe the coexistence of what Raymond Williams (1978) refers to as the residual, the dominant, and the emergent—historical boundaries between cultural elements of different periods are almost always present. The emergent means great unpredictability and potentials for the

history unfolding. Wallerstein, for instance, envisions that a global post-capitalist future is "intrinsically uncertain, and therefore, precisely open to human intervention and creativity" (2000, 265).

A third dimension of marginality is what we call the vector of the renounced, when disadvantaged groups turn out to enrich and redefine the mainstream. Gary Okihiro (1994) analyzes how historically marginalized groups in the United States (e.g., African Americans) struggled for freedom and justice more forcefully than whites throughout the country's two hundred-year history. The struggles of nonwhites enriched the meanings of freedom and justice, which were embraced as distinctive features of American society. Yet these two terms were often absent from the lives of nonwhites. James Scott's (2009) study of mountain people in the Zomia highlands of Southeast Asia also illustrates that marginality can sometimes reverse the logic of the center. He argues for "a deconstruction of Chinese and other civilizational discourses about 'barbarian,' the 'raw,' the 'primitive,'" because "[civilizational] discourses never entertain the possibility of people voluntarily going over to the barbarians, hence such statuses are stigmatized and ethnicized" (xi). In the following analysis, we show that the digital economy flourishing in Shenzhen is emblematic of both fighting from within and the deliberate choice to stay outside and form contingent connections to the dominant values and practices upheld by those who are at the center of digital innovations.

Regional and National Contexts

The history of Shenzhen in modern China began in 1979, when China opened up to the world after the decade-long Cultural Revolution (1966–1976). Before becoming a special economic zone (SEZ), Shenzhen was a coastal community of fewer than fifty thousand people. It was among the least developed regions in the 1970s, because during the Maoist period (1949–1979), the Chinese authorities made active preparations for another world war, which prompted Mao to move strategic industrial capacities to the hinterlands, far away from the coast. Consequently, places like Shenzhen became economic and technological backwaters within China.

Relative marginality in the Chinese state system has been intrinsic to Shenzhen for an extended period. Yet since 1978, the city has emerged as China's gateway to the capitalistic world system because of Deng Xiaoping's

economic reforms. The population grew exponentially to 14.5 million by 2009 (Shenzhen Ten-year Development Report Research Group 2013), which made Shenzhen the youngest Chinese megalopolis in terms of the city's history as well as the average age of its residents.

Shenzhen soon ascended as a key hub of electronics manufacturing and technological innovation. The total industrial output of electronic manufacturing increased from RMB 6.3 billion (US$1.32 billion) in 1990 to 88.9 billion ($10.19 billion) in 1999, then to 1.2 trillion ($183.35 billion) in 2012, accounting for 23.9 percent of China's total output of electronics (Shenzhen Bureau of Statistics 1991; 2000; Guangdong Provincial Bureau of Statistics 2013). According to official statistics from the SEZ, the total revenue for Shenzhen's software industry jumped from RMB 29.1 billion (US$3.52 billion) in 2003 to 119.1 billion ($17.44 billion) in 2009, then to 378.3 billion ($61.59 billion) in 2014 (representing 9.6 percent of China's software industry). Shenzhen's software industry has grown more rapidly than hardware manufacturing in recent years. There were 72,120 patents granted to applicants from Shenzhen in 2015, representing a 34.3 percent increase over the previous year (Shenzhen Bureau of Statistics 2016).

The digital economy in Shenzhen has evolved into a complex economic system. It is home to Foxconn—the world's largest electronics manufacturer, notorious for the serial suicides committed by its workers, poor working conditions, and high-pressure management (Chan and Pun 2010; Pun, Chan, and Selden 2015). In 2010, thirteen of the fifteen Foxconn worker suicides were in Shenzhen. Foxconn represented a more aggressive capitalism, unthinkable in the developed capitalist world, a renewed model of slavery in the twenty-first century (Qiu 2016). Shenzhen is also home to Huawei, the world's largest telecom equipment maker (Economist 2012); Tencent, the parent company of QQ and WeChat (China's most popular social media platforms), and Asia's most valuable company; and ZTE, another of China's telecom equipment giants. The city is also home to groundbreaking bioinformatics companies, for instance, BGI, which plays a leading role in global bioinformatics with its unparalleled capacity in genomics sequencing. BGI's unorthodox way of collaborating with scientists was initially criticized by Western observers but has now become an industry standard worldwide (Wong 2017), yet another instance of the "tail" at the margins wagging the "dog" at the center.

Shanzhai in Shenzhen

No other Chinese city has grown its ICT industry as rapidly as Shenzhen—neither Beijing, the political center, nor Shanghai, the traditional center of commerce. Why did Shenzhen, an SEZ interfacing with mainland China and the West, succeed in fostering so many world-leading IT companies and, in so doing, become such an important center of the global digital economy, to such an extent that it is known as "the Silicon Valley of hardware" (Lindtner, Greenspan, and Li 2015)?

Shenzhen's success resides in its being an uncharted territory, with ambiguous borders and rules. Here, an enormous number of small operations coexist to work on developing, tweaking, manufacturing, packaging, marketing, selling, and recycling digital hardware and software, content and services, through a variety of formal and informal businesses. They are spatially clustered and can be networked to scale up when the need arises. Some of these interlinked businesses build trust with each other based on traditional connections, such as kinship and shared township origins. Others use online forums and newly built friendship networks to share ideas and resources. As a result, they constantly trespass and ignore the boundaries between the domestic and the foreign, the licit and the illicit, the public and the private. The most important border crossing, argue Lindtner, Greenspan, and Li (2015), is between design and manufacture, the two distinct stages in the making of digital technologies in the West. Yet, here in Shenzhen, design and manufacture happen simultaneously, with so much interplay that the two separated processes have become one (Lindtner, Greenspan, and Li 2015).

If there is a Shenzhen model for alternative digital economies, then its best manifestation must be the shanzhai electronics sector, which combines a Chinese version of the copyleft (i.e., open source technology such as Linux and the Pirate Party) with Chinese capitalism into a peculiar form of assertive marginality in the domain of open hardware. Shanzhai, meaning literally "bandit fortress in the mountains," used to be a derogatory term referring to cheap counterfeit production of branded goods, thus breaking the legal boundaries of the intellectual property rights (IPR) regime (Ho 2010; Wallis and Qiu 2012). The market value of shanzhai products derived from famous brand names such as Nokia and iPhone. The line of authenticity between the formal and the informal modes of manufacture can be

blurry—our research in 2009 found that the same assembly line churning out branded batteries for Nokia phones was also used to produce shanzhai batteries for knock-off Nokia handsets of the same model. The reason was that China's official system of quality assurance operated inefficiently. As a result, by moving into the shanzhai market, the factory could generate cash revenue faster by bypassing the law (Wallis and Qiu 2012). According to Josephine Ho (2010), such informal grassroots production practices have deeper historical origins elsewhere in China, even before the designation of the SEZ, although no other copyleft practices have approached the scale and influence of shanzhai in Shenzhen.

The inefficient Chinese state is not the only reason for shanzhai. Western multinational corporations themselves are more important factors. A former Nokia engineer we interviewed in 2009 revealed that he quit his well-paid job to start his own shanzhai business because he hated the top-down approach Nokia took at the time to micromanage production processes without respecting market demands on the ground (e.g., for phones with multiple SIM-card slots). By converting to shanzhai, he and his colleagues can have more freedom to innovate. The spirit of shanzhai is thus not really about making counterfeits; it is, instead, about making better gadgets than the original, about the margins surpassing the center.

Similar dynamics were at play in a busy IT mall, where we bought screwdrivers (figure 13.1) to take iPhones apart in January 2017. The main business in this mall is to fix and repackage iPhones in all sorts of ways that are unauthorized by Apple but that meet market demands in Shenzhen. This set of tools cost RMB 30 ($4.37), and one of them even has an Apple logo on it. For those who abhor Apple's lockdown of iPhones because it excludes users, merchants, and makers from opening the device, then these tools, sold so cheaply in Shenzhen, subvert the power inequality between Apple and the users of its products. In 2016, one of us was asked to pay $100 to replace a battery on her iPhone 5S in the United States. Yet, here in Shenzhen, the asking price for the same iPhone 5S battery was 13 yuan ($1.89)! The corporate system of closed business models and the ability of local firms to circumvent such high profit margins are among the reasons those at the margins want to subvert and grow their own alternative shanzhai digital economies.

Over time, Shenzhen's shanzhai businesses have come of age, stabilized, and generated their own system at the frontiers between the authoritarian

Figure 13.1
For the price of a Starbucks coffee, we bought in Shenzhen this set of tools, enabling us to open any iPhone (January 2017). *Source*: Authors.

state and global capital. This alternative system—consisting of thousands of small and large firms—is centered on chip R&D teams that work with "upstream" parts and solution providers, as well as "downstream" distributors (channel companies), while collaborating with manufacturers. Rather than a linear flow from ideation to prototyping to manufacture and then to marketing and selling, here the entire process is flexible and open, operating with much higher efficiency even compared to the most aggressively innovative brands, such as Samsung (Wallis and Qiu 2012). The result is that shanzhai devices have become not just more cheaply produced but also more innovative and effective in meeting market demands, from rural China to sub-Saharan Africa.

The latest example is Tecno, a Shenzhen-based company originating from the shanzhai scene, which targets Africa as its main market. By the end of 2016, it had beaten not only Apple, Samsung, and Nokia, but also Huawei, ZTE, and Lenovo to acquire a 40 percent market share in the African continent (Ko 2017). Why did this happen? One reason was that Tecno, in true shanzhai spirit, subverted engineering assumptions that optimize mobile phone cameras for light-skinned faces but not for Africans. As Ko

(2017, n.p.) explains, "The picture system of most mobile phones is based on white or yellow skin tones. When African users take selfies, the pictures are often either too dark or blurred. To solve this problem, Tecno collected a large number of pictures taken by African customers and tweaked the picture function of its handsets based on the data. The superior selfie quality soon became a major selling point."

While some may regard shanzhai as an outdated phenomenon in Shenzhen, the success of Tecno and the sales of iPhone-dismantling tools suggest that the alternative shanzhai system remains vibrant and has become durable. Borrowing from Raymond Williams (1978) again, we would say that shanzhai is no longer simply "emergent"; nor is it lingering as something "residual." Instead, it has become "dominant" on its own, in this region of spatial and historical marginality, and in much of the Global South, which shares similar peripheral and semiperipheral status. The marginality Shenzhen enjoys has enabled the region to become the center of an alternative world, the center of shanzhai design and production, with considerable global reach. In this sense, what we see in Shenzhen goes beyond geographic and historical margins. It belongs to the vector of the renounced in civilizational terms, too—for shanzhai has created an alternative value system, whose centerpiece is, surprisingly, about open sharing.

For the world's leading maker-entrepreneurs, Shenzhen has become the "Silicon Valley for hardware"—and not just conventional proprietary hardware, but, more important, open hardware. As Lindtner, Greenspan, and Li (2015, 5) explain, "Shanzhai is neither straightforward counterculture nor pro-system. As a multi-billion USD industry, it is deeply embedded in contemporary modes of capitalist production. At the same time, with its roots in and ongoing practices of piracy and open sharing, shanzhai challenges any inherent link made between technological innovation and the tools, instruments, and value systems of proprietary, corporate research and development." This culture of open sharing, defying conventional IPR boundaries, is best shown in the production of "public boards," or *gongban*—circuit boards designed to be given out for free to manufacturers of various types, who then need to purchase parts that would go into the "public boards" (5). Another embodiment of shanzhai culture is online information-sharing platforms such as 52RD.com, a main hub of open hardware discussion in 2009 that remains vibrant at the time of writing. The name 52RD means, in Chinese, "I love R&D." The spirit of shanzhai, as reflected here, indeed

shares the sense of hobbyist dedication that characterizes copyleft activities and the "hacker ethic" (Himanen 2001). While individual designers and entrepreneurs taking part in this online platform and in the shanzhai scene indeed pursue capitalist dreams of self-enrichment, the entire social, cultural, and economic system operates as a paradise of open hardware. This paradox of conflicting ideas—capitalism versus postcapitalism, proprietary versus open sharing—has become intrinsic to Shenzhen's rise as a center of digital economy on the margins.

Didi and the Platformization of Ride Services in Shenzhen

In 2016, the most surprising technology news in China was probably Didi Chuxing defeating Uber China. The news left Western media commentators feeling both discouraged and amazed: discouraged because Uber had become yet another Silicon Valley company failing in its attempt to transplant its business to China (Mozur and Isaac 2016); amazed because of the rapid rise of the four-year-old ride-hailing company Didi Chuxing. Didi holds a greater than 90 percent market share of the ride-hailing market in China, which is projected to reach $7.6 billion by 2018 (He 2016). It manages more than 11 million rides daily across its platform. In November 2016, China became the first national government in the world to legalize ride-hailing platforms (including Didi and other apps in the Chinese context, like Uber, Yidao, and Shenzhou).

Although Didi is often seen as a competitor of Uber China, the former distinguishes itself in its strategy to include and take advantage of traditional taxi drivers. Didi, when founded in 2012, was a taxi-hailing app for passengers to book and call taxi services. The app accumulated its user base for more than two years until August 2014, when it launched its private car-booking service, followed by a carpooling service in 2015. Along these lines, Chen (2018) argued that taxi drivers have provided the essential infrastructural labor to transform taxi services in China into an app-based digital industry—that is, the platformization of ride services.

Although Chinese taxi drivers and private hires joined their respective counterparts across the globe in protesting against ride-hailing apps, a closer look at the reasons behind their collective action illustrates how marginality has been produced, acted on, and deployed by (taxi) drivers in the platform economy. Two incidents that took place in Shenzhen in 2016

represent watersheds in the platformization of ride services in China. The events also had a major influence on the relationship between drivers and ride-hailing apps. On January 5, tens of thousands of Shenzhen taxi drivers (about 90 percent of all drivers) decided to park their taxis for the day in protest against their companies' refusal to grant drivers the liberty to terminate their employment contracts or to reduce monthly rental fees for drivers' vehicles in a declining market. The strike was reported to be one of the most united in decades (Wen 2016).

The second incident is also about remonstration, but it was initiated by Didi's partner-drivers. In April 2016, Didi implemented a drive-to-own program, whereby the ride-hailing platform recruited drivers directly by offering them the chance to own their vehicles after meeting the requirements set by Didi in the next two to three years. While the hired partner-drivers each had to put down a deposit of RMB 15,000–20,000 (US$2,200–$2,900), Didi claimed to be providing partner-drivers with new vehicles without additional charges and giving them priority in allocating ride requests. After two months of the experiment, however, on June 17, thousands of partner-drivers in Shenzhen (and in the nearby city of Guangzhou) blocked traffic at the main intersections in downtown areas and on highways, posting signs that read, "VAMPIRE DIDI, RETURN MY HARD-EARNED MONEY!" (huaduzc 2016). Partner-drivers in Shenzhen also occupied Didi's branch headquarters in Shenzhen and went to local government offices that deal with complaints from the grassroots. The partner-drivers were irritated by Didi's opaque ride-allocation algorithms and the constant changes in Didi's minimum requirements on daily ride services, as well as ratings that were out of drivers' control (i100ec 2016).

Struggles by different groups of drivers for various causes in the platformization of ride services in Shenzhen, we argue, suggest Didi's strategy to create contingent marginality on the ride-hailing platform. The contributions of taxi drivers in building and sustaining the early development of the platform were wiped from the narratives about Didi's success (and the digital ride-hailing economy in China generally). In addition to being invisible in the cultural discourse, traditional taxi drivers were also in effect marginalized by the influx onto the platform of private car owners, who in turn were pushed to the margin when Didi decided to develop its own partner-driver program. The partner-driver program also failed to help Didi create a fleet of vehicles or drivers of its own. Didi soon made a U-turn in

its attitude toward the traditional taxi industry by signing a deal with fifty such companies in ten cities in China, including Shenzhen, to introduce an intelligent request-dispatching system to help drivers boost their incomes and reduce the vacancy rate, and even allow drivers to pick up private car rides with the passenger's permission.

It is not coincidental that Didi kept changing its policies toward taxi drivers and potential private car drivers, nor that it turned the process into a spiral of one group of drivers competing against another. Indeed, by shifting the line between the marginal and the core workforce in the compartmentalized ride-service market, Didi has turned them all into contingent drivers by deliberately constructing marginality. As Wang (2016) pointed out, ride-hailing platforms divide labor struggles along the lines of algorithms, meaning that different groups of drivers would selectively participate in labor protest when certain algorithms worked against them. The distinction between taxi drivers and partner-drivers in the aforementioned incidents, therefore, is a convenient construction of contingent marginality in the virtual space of the ride-hailing platform.

But this does not mean drivers are powerless. In addition to protest and strikes, taxi drivers demonstrated how to improve their lives despite their marginality. Taxi drivers in Shenzhen display multiple dimensions of marginality, as we delineate at the beginning of the chapter. Shenzhen is foremost a city of migrant workers—those who travel thousands of miles from their rural hometowns to urban areas searching for jobs. Nearly 70 percent of Shenzhen's migrants-turned-taxi-drivers are from the town of Youxian in Hunan Province, about a thousand miles north of Shenzhen. Ding's (2014) study on community communications among Youxian people showed that they had built a second homeland in Shenzhen while developing their occupational identity as taxi drivers. To be more precise, the second homeland is located in a couple of "urban villages" (*chengzhongcun*) in Shenzhen. Urban villages in Chinese cities are residential enclaves for migrant workers, who are often seen as urban outsiders. Often scattered across the downtown or on a city's outskirts, urban villages are unique landscapes that present spatial ruptures and sites of tension between historical and cultural forces in China's urbanization process (Lan 2005).

Shixia is a renowned "taxi-driver village" in Shenzhen. According to Ding, urban villages like Shixia not only serve as a buffer zone for migrant taxi drivers, but provide the concrete anchor for Youxian people to develop

a series of informal business practices associated with taxi driving. Their informal status as migrants and their social networks built primarily on extended family and village connections are not necessarily disadvantages for Youxian people. Youxian taxi drivers have capitalized on their trust in fellow villagers and invented what is now a popular trade practice, in which two drivers take shifts, the major driver working during the daytime and the other at night (Ding 2014, 22). This major-minor model was initially devised to maximize income and provide necessary training to new drivers. Other business practices border the legal/illegal area, such as fabricating driver history. These methods among taxi drivers have allowed them to build a strong foothold in the city.

Taxi drivers fought for the right to terminate their contracts with taxi companies in January 2016 because taxi companies often treat them unfairly through unilateral contracts that deprive drivers of collective bargaining power and sometimes employment benefits. Drivers were unhappy also because they saw a business opportunity to empower themselves using ride-hailing platforms like Didi. They wanted to exploit the tidal wave of ride-hailing apps and transpose their position of marginalized migrant workers into mainstream drivers preferred by Didi (at that time). Note that when contingent marginality is enacted on the platform, the core driver labor force is also made temporary. This challenges the dominant power relations in the traditional taxi industry working against migrant-turned-taxi-drivers in Shenzhen. The direct outcome of drivers being willing to exploit contingent marginality for their own good is the emergence of a "Didi driver village," called Daxia, which houses car fleet companies founded by former taxi drivers and thousands of private Didi car drivers (Didi Express 2017).

No one knows how long the Didi driver village will exist. The transformation, nonetheless, demonstrates that although Didi's divide-and-conquer strategy exploits both taxi drivers and private car drivers, drivers are not powerless. Their historically and economically marginal status can be deployed to their own advantage.

Conclusion

Every world has its order, as well as its limits, where alternative systems are incubated, contested, and materialized on the edges of geography, at the

fringes of history, and under pressures from the vectors of the renounced. We began this chapter by developing conceptually the idea of "margins at the center," in which the three types of marginality intertwine, then applied it to China, zooming in on Shenzhen and the SEZ, both at the very frontier and arguably the centerpiece of the Chinese digital economy. In so doing, we contend that marginality has multiple dimensions and is not always a curse; under certain conditions, marginality can become a resource for technological and business innovation and for alternative movements, such as on-the-ground resistance and horizontal network formation, as can be seen in the cases of both shanzhai electronics and taxi/ride-hailing services in Shenzhen.

The rise of shanzhai and the struggle over ride-hailing apps of course represent different models of marginality, occupying the periphery of different centers or core regions. Shanzhai, as an alternative practice and open, flexible business model, is more deeply rooted in the anti-imperialist legacies of China, spanning from the Maoist era of guerrilla warfare and revolutionary zeal to today's Chinese copyleft practices. Compared to the case of ride-hailing, shanzhai is more successful commercially; has grown more mature as a large network of R&D personnel, manufacturers, and distributors; and has more global reach, especially in the Global South. Calling Shenzhen the Silicon Valley of hardware is probably an understatement because even the Silicon Valley of California so far cannot capture the sub-Sahara African mobile phone market as Tecno has, a Shenzhen-based company with its roots in the shanzhai community. Shanzhai, as such, illustrates what can happen when geographic and historical marginalities overlap with the vectors of the renounced in successfully creating and sustaining new centrality in the digital economy.

On the contrary, the struggle against Didi, Uber, and conventional taxi companies implies a tactic and a proactive movement initiated by marginalized drivers, responding to the latest expansion of digital capitalism threatening their livelihoods. There is horizontal communication among drivers, either in their physical community of urban villages or online and through mobile phones, but the network formation is confined to regions in and around Shenzhen, with little more than loose connections with similar struggles in other parts of China, cut off almost completely from the global movement against corporate platforms (Scholz 2016). Drivers did their best to resist the dominance of the platforms with a remarkable

endeavor, but their attempts to reverse marginality into centrality were far less successful than the shanzhai community in achieving that goal.

The most crucial difference is ownership—whereas shanzhai businesses are all owned by grassroots entrepreneurs who share and sell their products, ideas, and data under conditions of their choosing, even conditions of their creation, Didi and taxi drivers have nothing more than token ownership, if any ownership at all, of their cars, services, and data. This is why we use the term "contingent marginality" in discussing the drivers' struggle because, innovative and proactive as many individual drivers are, as a group, they are almost completely disposable under the structural constraints of this unequal political economy. In contrast, what we see in the shanzhai model increasingly contains elements of "assertive marginality," when the people at the margins take control.

Despite the differences, in both shanzhai and the drivers' struggle we see the power of China's domestic migrant population, a most important demographic, economic, and sociopolitical category of the "informational have-less" (Qiu 2009). These are people spun off from the agrarian economy, state-owned enterprises, and the failure of the New Economy elsewhere in China. Unlike populations of the haves and have-mores, the main driving force behind the have-less population in the digital economy is their existential needs, which, as Qiu has argued, provides a more sustainable material basis for network formation and grassroots innovation (2009).

Here, it is necessary to revisit the question with which we began this chapter: why Shenzhen? Why not other SEZs? China designated five SEZs in the early 1980s, and Shenzhen is just one of them (the others are Zhuhai, Shantou, Xiamen, and Hainan). All the SEZs are along China's southeast coastline. All are recipients of sizable in-migration, including large numbers of have-less people seeking to fulfill their existential needs. Yet, only Shenzhen has made doing so possible in such a phenomenal way. Why Shenzhen?[1]

Simply being on the margins is not enough to successfully create a new center in the digital economy. What really matters in the state of marginality is the first and most basic condition: weak control from the center. If the center can enforce strong control (as described in dependency theory), then peripheral regions will end up being underdeveloped in the long run (Arrighi 2002). So a precondition has to be weak control from the center,

which was an integral part of the SEZ design from the very beginning. A second necessary condition is a discrepancy between people's expectations and realistic conditions on the ground, leading to the will to struggle, or what could be called "frontier mentality." Next, there need to be structural opportunities where the will can materialize in the forms of alternative business models (e.g., shanzhai) or social movements (e.g., drivers occupying Didi office). Such materialized formations would harbor the next and arguably most crucial action: transforming individual members of the information have-less into collective actors with agency, who are networked and bonded together by not just their marginality and "frontier mentality" but, more important, their shared modes of practice and community.

As the Kenyan author Ngũgĩ wa Thiong'o put it, "The modern world is a product of both European imperialism and of the resistance waged against it by the African, Asian, and South American peoples" (1993, 4). Shenzhen, China, is but one case in the making of such a "modern world," with its order, disorder, and alternative orders. Albeit complex and probably not replicable, the case of Shenzhen is a prism for us to see possibilities of digital economies in the Global South. The acts of resistance and struggle in Shenzhen depict complex reactions to new types of Western imperialism now taking form in and through the digital economy.

Note

1. Note that the following argument is speculative and requires further research and critique to substantiate.

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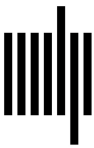

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