From Piracy to Innovation: The Politics of China’s Intellectual Property Transition

When Chinese telecommunications equipment and mobile handset maker Huawei Technologies (hereafter “Huawei”) became the world’s top patent filer in 2008, the world suddenly turned its attention to this company which has gone global within a short span of just two decades.1 While some attribute the success of this young Chinese firm to its business strategies (Nakai and Tanaka 2010, 12, Tse 2015), others are less positive. The company’s rapid growth and global expansion are said to have been sponsored by the Chinese state through various means including generous subsidies and market regulation to keep out competitors. The firm’s ability in generating new intellectual property (IP), especially patents, has been dismissed as mere outcomes of top-down state-engineered innovation which, in the context of China, places the quantity of patent applications over their quality (The Economist 2010). There are also observations that Huawei’s earlier products resemble those of rival firms (Liang and Xue 2013), leading to the charge that Huawei thrives at the expense of infringing others’ IP and benefits from China’s weak rule of law and lax IP protection.

This paper examines the architects and forces behind China’s rapidly expanding patent portfolio and the motivations behind the construction of an innovation economy by the late developer. In 2011, China overtook the US to become the world’s top patent filer (in terms of total applications including domestic and international ones) (WIPO 2012). In 2016, China ranked third in the number of international patents filed, just behind Japan and the US (Cookson 2017).

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1 Huawei filed 1,904 patent applications in 2008, which was 20% more than that of Ericsson (the world’s second largest telecom equipment maker at the time).
While the explosive growth in patents can be interpreted as results of proactive state intervention and the implementation of a top-down state project, changing dynamics in the global market have provided opportunities (as well as constraints) for accumulation of intangible assets on a more extended scale. Most importantly, as the Chinese government directs the next phase of development of the country, the transition from a ‘made in China’ economy to a ‘created in China’ one is shaped by structural contexts of the global market as well as social tensions emanated domestically. Such framework of analysis – understanding state transformation in the context of ongoing contestation of interests amongst social actors – will shed new light on assessing the capacity and limits of the Chinese state in the 21st century.

This paper is divided into three sections. In the first section, I review existing literature on the notion of the developmental state and its relevance (and irrelevance) to China. Since mid-2000s, the Chinese state has embarked on a new project to move China up the value chain. The Chinese state has been actively pursuing and managing the transition from a manufacturing-based, export-led economy to an innovation-driven, knowledge-intensive one. Such state activism reflects certain fundamental features of a developmental state. That said, I contend that the role, capacity and limits of the Chinese state in overhauling its economy needs to be better understood in contemporary political and economic contexts. By this, I mean attending to the systemic, structural changes in the global market, the technological advances which provide opportunities for particular fractions of capital, as well as social tensions which the Chinese state encounters and as a result, has to deal with, in the course of steering the next phase of development for the country.

The second section discusses key tenets of the Chinese state project on accelerating the accumulation of intangible assets (in the form of IP) as part of its broader innovation strategy. I will focus on three initiatives which drive patent accumulation, namely the patent reform, patent-promoting policies and R&D spending.
The final part of the paper will further illuminate the social tensions and contradictions embedded in China’s transition to a knowledge-capital-led economy. On one hand, while the state is pushing domestic innovation and IP utilisation; on the other, it permits the existence of imitation products (generally referred to shanzhai goods) for their social and economic values. Here, centrally-guided policy orientation is mediated by social equity and stability concerns, and is tempered with local priorities, which together undermine the capacity and effectiveness of a developmental project.

The paper will be concluded by a discussion on how this study contributes to our understanding of the contemporary Chinese state.

**China - a developmental state?**

China’s miraculous economic progress and its rise as a global power have drawn significant academic interest in understanding and conceptualising the Chinese state – its intriguing relationship with the market, its complex (and sometimes secretive) decision-making process, and more recently, its tactical responses to challenges of economic globalisation. To some, the Chinese approach to development represents an antithesis to the Western capitalist economic model which is supported by liberal democratic practices characterised by various forms of individual freedoms made possible with a limited government. In fact, the Chinese state, who aggressively embarked on market reform and openness since the late 1970s, was hailed by some as an exemplar of a ‘developmental state’ – one that assumes a pivotal and active role in directing and facilitating the economy so as to strategically develop the country’s capacities to quickly catch up with the more advanced economies.

The ‘developmental state’ has been used to describe East Asian fast-growing economies in the 1980s and 1990s. The term, first coined by Chalmers Johnson in 1982 in his study of the industrial policy of Japan, depicts an effective state apparatus with strong capacity to steer manufacturing-based, aggregate economic growth (Johnson 1982). Driven by economic
nationalism and the imperative to overcome Western domination in global economic rules, the developmental state directs growth strategies through implementing market-conforming interventions in the economy and developing cooperation with capitalist elites (Johnson 1982, Önis 1991, Lee 2014, 104). The Japanese economic miracle in the 1980s, which was in part attributed to the leadership of a strong developmental state, was emulated in South Korea, Taiwan, Singapore and Hong Kong. Staggering economic growth of these newly industrialised countries in East Asia sparked discussions about the Asian developmental model. It was only until the Asian financial crisis hit in 1997, beginning with the collapse of the real estate market in Thailand which was then spread to other countries in Northeast Asia, that the entire Asian developmental model was thrown into question (Woo-Cumings 1999, ix)

Amongst the various features characteristic of a developmental state, the capacity of the state to steer national development and its relationships with private market actors are particularly instructive in the case of China as it undergoes capitalist transition. For Chalmers Johnson, the state is regarded as a partner with the business enterprises in the pursuit of industrialisation:

The concept of the developmental state means that each side uses the other in a mutually beneficially relationship in achieving development goals and enterprise viability. The state is a catalytic agency in the Michael Lind’s sense of the term…and the managers are responding to the incentives and incentives that the state establishes (Johnson 1999).

While the developmental state has its distinctive set of governing apparatus, its effectiveness is predicated on what Peter Evans calls ‘embedded autonomy’ – the presence of a highly meritocratic bureaucracy that enjoys corporate coherence in the Weberian sense, which at the same time, is embedded in multiple sets of social ties with the society (Evans 1995, 12). It is such ‘contradictory combination of coherence and connectedness’ that provides the necessary structural condition for successful state involvement in industrial transformation (Evans 1995, 12).

Since the inauguration of economic reforms in 1978, the Chinese state has assumed a central role in directing the country’s economic development trajectory. In the absence of a reform blueprint
and a set of coherent targets and objectives (Naughton 1995, Breslin 1996, Deans 2004), Chinese reformers approached and managed the market transition in a gradual, cautious and experimental manner - one that was often described (in the words of Deng Xiaoping) as ‘crossing the river while groping the stones’. In a sense, ‘groping the stones’ requires the continuous adjustment of policies through adapting to the changing contours, power structures, and patterns of political and economic exchanges in the global environment. Integral to ‘socialism with Chinese characteristics’ is the gradual introduction of processes of economic liberalisation through careful adoption and incorporation of market disciplines into existing economic activities, without abandoning the goal of egalitarianism. Meanwhile, the state retains its control over key economic activities and entities, in addition to the direction, pace and extent of reforms. Emulating the success of Japan and the Asian Tigers (Singapore, Taiwan, Hong Kong and South Korea) and leveraging on an increasingly open, international market, China's transition strategy centres upon promoting exports and attracting foreign investment, among others. Bilateral trade agreements were signed with advanced economies. Importantly, Special Economic Zones, which provided tax concessions and preferential business treatment to foreign investors, have been set up across China in geographically-propitious places as laboratories for greater openness and integration with the word market.\footnote{The first SEZs (Shenzhen, Zhuhai, Shantou of Guangdong Province and Xiamen of Fujian Province) were set up in 1979-1980. This was followed by another 14 port cities which were opened in 1985. These economic outlets encouraged foreign investment through lower tax rates, fewer and simplified administrative and customs procedures, and duty-free import of components and supplies (see Stoltenbery 1984).}

With a committed growth agenda, largely insulted technocratic officials, and the capacity to mobilise resources and to deploy policy tools, the Chinese state, to some extent, exhibits certain attributes of a developmental state. These are manifested through the ways in which Chinese leaders pragmatically identifying key sectors/drivers for growth and exploiting diplomacy to effect technology transfer from advanced economies through joint venture activities. Most of all, China is an exemplar of how state activism and state capacity have led to miraculous economic achievements.
Critics, however, have cautioned that the appearances of a developmental state should not overshadow the actual outcomes of policy. In his study of China’s economic reform in the 1980s and early 1990s, Breslin (1996) observes that China lacks a coherent, strategic plan of development. Most of its economic policies are outcomes of political battles between vested interests and reformers both within and outside the Communist Party. More importantly, the failures of certain reform policies (for example, the pricing of essential commodities) demonstrated how the ruling elite struggled not to upset established interests and ultimately the legitimacy of the party. These shortcomings and the way in which long-term economic well-being has been compromised by short-term political considerations have prompted Breslin to label China as a ‘dysfunctional state’ (Breslin 1996).

Shirk (1992) also questions how Chinese leaders reached consensus over matters of national importance. She argues that the Chinese authorities adopted an ideology of ‘balancism’ in response to competing political interests within the party, as well as spatial and sector economic interest rivalries. The result is that a policy option is chosen not on its merit on the country’s long-term interest, but because it is a politically viable option as it satisfies most parties without incurring significant costs on particular vested interests.

Similarly, in his study of the development in Western China, Shih (2004) suggests that politics and local interests often interfere policy implementation. Chinese bureaucrats fall short of enjoying embedded autonomy. They are constantly and largely susceptible to competing interests at the local government levels where rent seeking and predatory behaviour are significant (Shih 2004).

How can one conceptualise the Chinese state in the 21st century (its capacity and effectiveness) as it shifts from a strategy of growth predicated on low-cost mass manufacturing to a new approach of driving growth through new ideas and technologies? What attributes does it have and what challenges does it encounter? This is what I will turn to in the next section.
From a manufacturing powerhouse to an innovation economy

This section discusses three major policy initiatives (legal reform, patent-promoting policies and R&D investment) in relation to accelerating China’s patent accumulation which has grown rapidly since the late 1990s. Based on varied policy outcomes, I argue that while state activism is one of the key drivers pushing domestic innovation, institutional outcomes are also driven and shaped by central-peripheral tensions, technological change, as well as changing interests of market actors impacted by various global market dynamics. State policies are mediated by local priorities, which are often reflected in inextricable ties between local governments and business interests. More importantly, to support continued reform and to justify the transition to an innovation economy which will entail empowering particular fractions of capital over others, the state is subject to formulating a new ideology that places social and national interests at its core.

By the late 1990s, China’s economic success has ironically prompted fears that the persistence of growth strategies predicated on cost competitiveness would compromise and inhibit future growth potential. The ambitions to break the curse of the middle-income trap marks an important turning point in China’s IP trajectory (after WTO accession). Beginning in the mid-2000s, as growth rates began to slow, rising wages, aging population, a diminishing workforce, non-performing state enterprises and a growth strategy that is heavily export-led and investment-driven are cited as critical factors that would undermine China’s prosperity. Beijing leaders advocate a shift of reform strategy from one that ‘manufactures’ and ‘assembles’ for the world to one that is driven by domestic innovation. Increasing the generation, ownership and exploitation of intangible assets becomes a new development goal.

China's innovation fever originated from the ambitious 15-year Medium to Long-term Plan of Science and Technology Development (2006-2020) in 2006, which essentially placed innovation at the heart of driving continuous, substantive national economic growth and development. Unveiling this master plan at the 18th National People’s Congress, President Hu Jintao called for a new path of innovation with Chinese characteristics, which entails leapfrogging key technologies, promote indigenous innovation, with an aim to reduce reliance on foreign
technologies (see Suttmeier and Yao 2001). He envisioned China would spend 15 years to turn itself into an innovation-oriented country. He reinforced the creation of ‘a favorable mechanism’ so that ‘science and technology will accelerate social development’ and in return, the society should increase investment into the scientific and technological innovation (Zhang 2006).

This was followed by the National Intellectual Property Strategy of 2008 which called for the establishment of institutions to promote, utilise and enforce IP. In conjunction with the broader aim to boost indigenous innovation, the national strategy aims at raising China's IP rank ‘among the advanced countries of the world in terms of the annual number of patents for inventions granted to domestic applicants’ and thereby ‘improv[ing] China’s capacity to create, utilise, protect and administer intellectual property, making China an innovative country’ by 2020 (State Council of the PRC 2008). The more recent 13th five-year plan of the Chinese government (covering 2016-2020) further places innovation at the centre of development strategy. ‘Promoting innovation as the driver of economy’ was the first of all five principles put forward to steer the direction of reform in the next five years. The plan called for the establishment of an innovation-driven system which would ensure the market playing a key role in allocating resources as China goes through economic transformation and upgrading (State Council of the PRC 2016). One specific developmental goal is to strengthen the national utilisation and protection of IP and by doing so, facilitating more enterprises to become innovators.

**Patent-promoting policies**

How to realise the goal of transforming the Chinese economy into an innovation-driven one? First of all, Beijing believes that patents are good indicators of innovative capacity. Its new IP strategy recognises that the private sector in China has limited core patents and that private enterprises generally have a weak capacity in utilising patents. As one of the ways to promote domestic innovation, the Chinese government implements policies and provides incentives to encourage domestic filing. National targets are set to measure achievement. According to the National Intellectual Property Strategy (2008), by 2020, it is envisaged that the number of patents for inventions owned by Chinese entities and the number of patent applications in foreign
countries by Chinese nationals will quadruple that of 2010 levels (Suttmeier and Yao 2001). To meet ambitious national targets, which were once described as ‘mind-blowing’ by a US Patent Office Director, a top-down approach is taken to mobilise the country’s resources to create knowledge and new discoveries.³

National patent targets are allocated to local governments who then draw up different patent-promoting schemes. For local governments, it is important to meet or even exceed these targets in order to gain a higher position in city ranking. As a result, financial subsides for patent filing are offered to incentivise filing behaviour. An additional award will be given to the applicant upon successful granting of a patent. The actual amount of subsidies provided differs with provinces or municipals, as well as with the types of patents. For example, a subsidy for an invention patent is generally higher than that for a utility patent which is regarded as less technology-intensive.⁴ Filing patents will also bring tax benefits for a company. Even academics may file a patent to gain tenure (The Economist 2010).⁵

Despite attempts by the central government to direct the creation of knowledge, the outcomes vary because of interference of political considerations. Since 2000, China has recorded a remarkable surge in the number of patent applications, averaging a yearly growth rate of 36% (State Intellectual Property Office of the PRC 2017a). However, it is the quality of these patents that are in question. Official records show that the majority of patents filed by domestic individuals and enterprises in China are utility models (or sometimes referred to as ‘petty patents’ or ‘junk patents’) which entail lower technological breakthroughs. Unlike invention patents, they are not subject to examination for novelty and non-obviousness.⁶ Utility models

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³ In an interview with the New York Times, David Kappos, former Director of US Patent & Trademark Office, described the Chinese government’s two million annual patent filing target as ‘mind-blowing’ (Lohr 2011).
⁴ For example, in Guangzhou, patent subsidies range from RMB1,000 to RMB4,200 for each domestic patent application. Applicants will be awarded for an additional RMB40,000 for foreign filings in Europe, Japan or the US, and RMB10,000 for other foreign countries (limited to two) (Kriegel 2012).
⁵ For a China’s patent-promoting policies and their impact on patenting behaviour, see also Lei, Sun, and Wright (2013).
⁶ Utility patent applications in China are only subject to a preliminary examination. Utility patents are also available in Japan and Germany, but not in the United States.
enjoy a protection period of ten years (20 years for an invention patent). In fact, from 1985 to 2015, of all patents granted to Chinese inventors, 52% were for utility patents, while invention patents (those with higher innovative content and warrant longer protection duration) accounted for just 12.3% of the total (State Intellectual Property Office of the PRC 2017b). In contrast, foreign inventors focused more on the more valuable invention patents – 80% of total patents granted to foreign investors during the same period were for invention patents while utility models only represented an a minimal of 4.6% (State Intellectual Property Office of the PRC 2017b). As utility models have lower innovation content and are easier to file, fueled by local governments’ patenting incentives, they have become the main driver of China’s patent boom.

As a result of intervention by provincial and local governments, another patenting phenomenon emerged, and once again, challenges how effective state-driven targets and subsidies are. In their research covering domestic patent applications in China between 1985 and 2007, Lei, Sun, and Wright (2011) point out there are unusual yearly peaks in applications for domestic patents in December. This could mean that certain applications were politically and policy motivated, rather than innovation and commercial driven – made simply to meet or exceed targets (Lei, Sun, and Wright 2011, 6). The authors also observe that in face of pressures from local governments, Chinese firms split each innovation product into multiple applications and in return, benefit from financial incentives (Lei, Sun, and Wright 2011, 18). The Chinese government may have achieved its patent goals but whether they have successfully boosted innovative capacity through policy initiatives remains in doubt.

**Patent reform**

In addition to implementing policies to encourage patenting activities, the Chinese government also alters the legal environment in favour of innovation and accumulation of patents.

The Chinese government made three important amendments (1992, 2000 and 2008) to the nation’s Patent Law. It also established the Special People’s Courts to enhance IP judicial enforcement in 1992, as part of revamping the nation’s IP infrastructure. Amendments to the Chinese Patent Law have extended the scope of products and technologies that are patentable
under Chinese law. Efforts have also been stepped up to enhance judicial enforcement in IP as an incentive to patent holders to file their inventions. For example, the 1992 amendment broadened the scope of patent protection to include pharmaceutical products, food, beverages, flavourings, and substances obtained by means of chemical processes, benefiting foreign capital who had a niche in these product categories as foreign firms extended capital accumulation in China (Hu and Jefferson 2009). It also extended patent protection (from 15 years to 20 years for invention patents; from 5 years to 10 years for utility model and design patents) to incentivise more patenting activities. Hu and Jefferson (2009) point out that these institutional changes are one of the reasons behind China’s patent boom.

The second amendment to the Patent Law in 2000 succeeded the previous one in further leveling the playing field for different types of enterprises by granting equal treatment for state-owned and non-state-owned enterprises in obtaining patent rights. As a measure to reduce infringement costs on patent holders, the amendment provided patentees with the right to obtain a preliminary injunction against the infringing party before filing a lawsuit. Furthermore, the procedures of patent application, examination and transfer were also simplified.

Although these institutional improvements in relation to the patenting of new ideas and technologies were largely state-led and reform-driven, they were propelled by mounting pressures from foreign capital demanding China to effect greater protection of foreign technology, invention and brands on Chinese soil. This is especially true for the first two amendments to the Chinese Patent Law. Foreign enterprises investing in and trading with China in the 1980s and 1990s grumbled about how their profits had been undercut by the prevalence of product piracy and the ineffectiveness of law enforcement in the country. Represented by their governments, they demanded greater harmonisation of China’s IP laws with international norms as a precondition, among others, for China to join the World Trade Organisation (WTO). American capital-linked lobby groups, including those from the pharmaceuticals and entertainment industries, were the most influential ones.
In 2000, Chinese reformers acquiesced to more institutional adjustments as part of its final bid for WTO membership. The second amendment to the Patent Law was a clear and deliberate move to make China’s IP institutions more in line with international standards and more specifically, to comply with the requirements of the Agreement of Trade-related Aspects of Intellectual Property Rights (TRIPS) administered under the WTO. TRIPS, which was chiefly drafted by lawyers and economists hired by a group of US multinational corporations, represented the interests of largely American and European multinational capital (May 2010, 47). In the words of Sell (1999, 170), the agreement would have been inconceivable "without the concerted efforts of US-based corporate executives."

For Chinese reformers, negotiations and subsequent adoption of IP institutional reforms were central to acquiring WTO membership. Joining the international trade platform would promise China with greater integration with the global market and increased inflows of foreign capital and technology – which China’s growth, and ultimately political legitimacy of the Chinese Communist Party, heavily relied on. State activism was in large motivated by national growth priorities in an evolving global economy characterised by neoliberal advocates of trade and capital liberalisation.

When it came to the third amendment to the Chinese Patent Law in 2008, it was more driven by the state’s new strategy to promote indigenous innovation and to reduce reliance on foreign technology. The third amendment revised about half of the original 69 articles and added 12 new ones – all aimed at promoting indigenous innovation and reducing China’s dependence on foreign-owned patents (Yu 2013, 15). Besides, it also tightened the public exploitation of patents held by state-owned enterprises (Guan 2014, 59-61). By giving greater recognition and exclusiveness to the patents held by state-linked capital, the amendment was an important step to incentivise and empower state-linked capital to accumulate and commercialise their intangible assets.

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7 In addition to amending the Patent Law, China also passed amendments to the Copyright Law and Trademark Law in 2001. It was only after these attempts to make Chinese IP laws become more aligned with TRIPS that China ‘qualified’ to join the WTO (Stoianoff 2012).
R&D and human capital investment

New technologies do not come out of thin air. New discoveries often involve trials and experiments which can be costly. Investment of capital is required to turn ideas into applications or products. To encourage enterprises to become innovators, the availability of funds to support research and development is critical. Increased government R&D spending is one of the reasons which triggers increased accumulation of patents in China. Funds are poured into research institutes, targeted state-owned enterprises and selective private firms. The government has been actively involved in picking winners as to whom to support. Since the mid-1990s, the Chinese government has consistently increased R&D expenditure. With the launching of the 15-Year Medium and Long-term Plan for Science and Technology (2006-2020), R&D expenditure was set to be increased to 2.5% of GDP by 2020 (Suttmeier and Yao 2001). China currently ranks second in the world’s top R&D spenders, investing a yearly average of USD200 billion into R&D, just behind the US (Reuters 2016).

To nurture creative minds to provide necessary human resources and talents for enterprises, the central government invested heavily into its higher education system to boost the nation’s intellectual prowess. About 7 million students graduate from college yearly, compared to just 1 million in 2001 (Tse 2015, 108).

Market forces

While the state acts as an important driver of patent accumulation, it should be noted that other market factors also contribute to the exponential growth of patents in China. The growth of advanced technology industries (which are patent-intensive), heightened competition between enterprises, as well as change of production modalities have made firms understand that their intangible assets are becoming as crucial as, if not more important than, their tangible ones. IP has become important in strengthening the bargaining positions of firms in cross-licensing negotiations involving complex products (Suttmeier and Yao 2001, 15). For example, one of the rapidly developed sectors in China is the electronics and telecommunications equipment industry
of which patent applications hiked by more than seven times between 1995-2001 (Hu and Jefferson 2009, 60).

Across the world, private enterprises are main patent filers. Structural differences between industries make firms in specific sectors intensive patent filers. This is especially true in the case of patent-intensive advanced technology industries which include telecommunications, information technology, optoelectronics, automation and biotechnology. Structurally, the highly complex production process of these products means that multiple patents can be involved in one product. The rising prominence of these sectors in China is noted from the late 1990s. On one hand, growing Chinese enterprises in these sectors result from central government identifying them as priority industries and subsequently pouring resources into them. But more importantly, rapid technological advances (in areas of information technology and medical research) have altered some of these as priority industries. For enterprises in these technology-intensive sectors, the struggle for profit maximisation has been extended from the traditional realm of tangible assets to the new frontier of intangible capital (The Economist 2010).

Finally, increased patent applications in China by foreign firms also contributed to the patent upsurge (Hu and Jefferson 2009, 60). As foreign firms invested in new joint ventures or increased their investment in established partnership arrangements, the exposure of their IP being imitated or infringed also heightened, thus propelling foreign firms to register their IP for legal protection.

**Social contradictions: domestic innovators vs counterfeitors**

The previous two sections demonstrate the role of the Chinese state in encouraging the accumulation of patents as part of its broader strategy to climb the technology ladder. While state activism in initiating institutional changes is evident, I emphasise that local priorities, market forces and changing global production structures have also contributed to patent explosion in China. The following section will further illustrate the ways in which the Chinese state struggles between promoting domestic innovators on one hand and tolerating product piracy at the same
time so as to balance and manage different interests arising domestically during the process of capitalist transition.

To enhance innovative capacity, Chinese reformers have identified priority industries and supported selected state-owned and non-state-owned enterprises to become strong inventors. The telecommunications industry was identified as a key industry back in the 1990s. In fact, before market reform, China significantly lagged behind foreign countries in terms of technological capabilities in public telecommunications services. Chinese people only had four phones per 1000 people in 1978, not to mention that most telephone switching systems then were manually operated (Shen 1999, 16). However, government policies, advances in technologies, rising domestic demands and a global economy underpinned by neoliberal principles have all contributed to the dramatic transformation of China’s telecommunications landscape. In terms of building a modern telecommunications network supporting communication needs, phenomenal progress has been achieved after decades of market reform. In 2015, mobile cellular subscriptions hiked to 92% of the population, compared with 0.3% in 1995 and 30% in 2000 (National Bureau of Statistics of China 2017). The number of Internet users has also soared. By end of April 2017, fixed broadband Internet subscribers reached 315 million, whereas mobile broadband users amounted to 849 million (Government of the PRC 2017).

Furthermore, the emergence of two indigenous telecommunications equipment makers (Huawei and ZTE Corporation) as global firms has been seen as a success story of Chinese, home-grown companies becoming global innovators. Huawei drew international attention when it first topped the world’s PCT patent application in 2008. In that year, it filed 1,904 patent applications - 20% more than that of Ericsson (the world’s second largest telecom equipment maker at the time)(WIPO 2012). Both companies were the world’s two most prolific filers of international patents in 2016 (Cookson 2017).

When Huawei was established in 1987, it was initially a reseller of telecoms switchers which it obtained from a Hong Kong firm. Within five years, the company developed its own switch
which boosted a much large capacity than those available on the Chinese market. In the 1990s, Huawei targeted peripheral cities in China where the company was able to quickly acquire market share through the supply of low-cost telecoms switches. As a result of its links to the government, Huawei is understood to have benefited from various government incentives which have helped the company establish a strong presence in the domestic market. In 2011, Huawei admitted that its customers enjoyed generous financial support, for example in the form of export financing (The Economist 2012).

Both Shenzhen-based Huawei and ZTE are icons of Chinese innovation. Their continued business growth relies on, amongst other things, the generation, exploitation and protection of their IP. As smartphone manufacturers, they compete on breakthroughs in vertical innovations (attempts to enhance a product's technical characteristics such as mobile data services) and horizontal innovations (introduction or development of new product features such as weight reduction and mobile apps) (see Koski and Kretschmer 2007). Established players in the industry amass a rich portfolio of IP which gives them exclusive right to exploit and benefit from the distinctive features they have developed. They file patents to safeguard their commercial interests against copying or imitation by rivals. They can also exploit these monopoly rights in negotiations of licensing agreement, avoiding IP lawsuits, blocking rivals from accessing established markets, and enhancing reputation. It is therefore in their interest to see improvements in IP institutions in China, particularly when it comes to enforcing IP rights.

IP protection and enforcement, however, are known to be lacking in China. Despite occasional official crackdowns on product piracy, IP infringement remains rampant and the range of products involved has expanded.\(^8\) Interestingly, while Shenzhen houses two leading Chinese innovators in telecommunications equipment and mobile handsets, the Special Economic Zone in Guangdong is also home to bandit products which are commonly called ‘shanzhai’. Shanzhai goods began to emerge Shenzhen in China in the late 2000s and since then have grown rapidly. They are low-cost, manufacturing consumer products which bear a high resemblance to branded

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\(^8\) For a good account of the reasons behind the lack of effective IP enforcement in China, see Dimitrov (2009).
goods, covering a wide range of merchandise from sportswear and watches to light household appliances and mobile phones. Shanzhai ji, or bandit phones, are one of the most popular imitation products in Shenzhen. Makers of shanzhai mobile handsets have created an entire supply chain that includes project design, software development, assembling, packaging, as well as logistic distribution to sales and after-sales service (Chen and Wen 2016). The most recognisable mobile handset brand HiPhone is strikingly similar to Apple’s iPhone in its appearance and functions. It has a registered trademark and it advertises by the tag-line ‘not iPhone, better than iPhone’ (China Daily 2010).

Under Chinese IP laws, many shanzhai products infringe patent, trademark and copyright rights to various extent but very few shanzhai manufacturers have been charged with IP violations. Nor do local governments and enforcement agencies seriously crack down on these clusters of pirated goods. The shanzhai phenomenon demonstrates tensions and competition between different fractions of capital in relation to IP in the telecommunications industry. The resulting contradictions (promoting innovation on one hand and tolerating counterfeiting on the other) lie at the heart of the state’s struggle to balance one set of interests against another. This tension is further exacerbated by diffusion of power from the central to the peripheral governments and the relationships between local governments and businesses.

Demand for low-cost shanzhai mobile handsets are said to be generated from the grassroots – consumers in the lower tier of the market who cannot afford the authentic, branded version. Despite shanzhai products violate IP laws, they continue to exist as the local government lacks the political will to enforce the law. Chinese officials’ responses to these imitative products have been ambivalent and contradicting (Sun 2012). Shanzhai products are said to demonstrate cultural creativity. Also, for local officials, instead of questioning whether shanzhai constitutes counterfeiting acts, local manufacturers should focus on doing business and generating wealth (Schmidle 2010). This interpretation is echoed by the view that the shanzhai industry itself is a form of ‘good-enough innovation’, providing an alternative market for small domestic manufacturers to create their own playing field vis-à-vis the dominant brands (Chen and Wen 2016). More importantly, the local government’s strong ties with some of these businesses and
the economic value (in terms of jobs and economic output) that the shanzhai industry generates also explain why the shanzhai industry continues to operate without much political resistance.

For those who are in favour of strong protection of IP rights, the production and sale of shanzhai products amount to serious IP thefts. Though the central government has endeavoured to spur domestic innovation, local officials and bureaucrats tacitly allow IP infringements (in the form of shanzhai products) to exist. Such a contradiction has its roots in the intrinsic nature of capitalist market transformations. Market reform in China has inevitably led to social stratifications where some segments of the population are not as privileged as others to enjoy the fruits of development. Widening social inequality, exacerbated by spatial unevenness in market development, potentially undermines social stability which in turn, may threaten legitimacy of the ruling elite. Tolerating shanzhai is a political move to contain potential social disturbances. By giving support to innovation and technology-linked capital to amass intangible assets, the state realises it has to leave room for other domestic capital to flourish.

**Conclusion**

Since vowing its ambition to move up the value chain and to become a world’s leading technology player, the Chinese government has deepened reforms and implemented policies to refocus its latest development strategy. This paper aims to illustrate the latest ‘facet’ of the Chinese state – its ambitions to build an innovation nation; its roles and functions in expanding and revamping the Chinese IP regime; and the ways in which it reconfigures institutions and transforms state-market relationships to encourage the accumulation of intangible assets.

I argue that with the state-driven innovation project, the dichotomous depiction of ‘a strong state vs small market’ or ‘a weak state vs big market’ is inadequate in understanding transformation of late-developing economies, particularly in the case of China. By examining the various forces that drive the Chinese IP regime and the complexities which mediate between policy intentions and outcomes, this paper reaffirms that certain concrete state action, and ironically also inaction
(in the case of shanzhai production), have shaped the distribution of interests and power amongst key players in China’s evolving IP environment. Chinese state’s intervention in IP is both direct (through legal reforms) and indirect (through providing a favourable, capital-friendly environment). While these state-driven reforms in ‘improving’ China’s IP environment have been acknowledged, one should not overlook that the actual constitution of the IP regime reflects a lot more than the presence (or absence) of state action. IP institutional outcomes in China, which appear to be inconsistent and variegated, manifest complex interactions between domestic demands and international pressures; as well as dynamic, contesting interests among political, economic and social actors, which take place against the backdrop of an intensely competitive world market where amassing intangible assets (in this case creative works, ideas and new technologies) is treated as, among others, a key strategy to sustained and substantive growth. The Chinese state, in this sense, is neither in retreat nor in control. It is embedded in a nexus of intertwined interests and tensions which provide opportunities and also challenges that mediate institutional outcomes. As the reliance on low-cost manufacturing, foreign investment inflows and export markets has proven inadequate of sustaining competitiveness and growth, the Chinese government has shifted its strategy to mobilise its political apparatus, market actors and even the mass (as captured in the national campaign of ‘Entrepreneurship and Mass Innovation’) to develop, acquire and accumulate intangible assets. The transition requires the formulation of a new ideology which places the promotion of knowledge and technology-linked capital at the core of development. The result is the enhanced capacity of these fractions of capital and the construction of new sets of institutions to support them.

As Peter Evans points out, ‘21st century development will depend on generating intangible assets (ideas, skills, and networks) rather than on stimulating investment in machinery and physical assets oriented to the production of tangible goods’ (Evans 2008, 3). The Chinese state, in its pursuit of intangible assets, has demonstrated what Philip Cerny (1997) has described as the ‘competition state’ – one that has pursued increased marketisation to make economic activities

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9 The ‘Entrepreneurship and Mass Innovation’ campaign is the brainchild of Chinese Premier Li Keqiang who first announced it at the World Economic Forum in Tianjin, China, in 2014. The Chinese government encourages start-ups by means of financial subsidies. It also streamlines registration procedures for start-ups. So far, the campaign has seen a significant rise in the number of new start-ups across China but there is also a high failure rate (see He 2017).
more competitive in international and transnational terms (Cerny 1997, 260). Moreover, while creating new IP institutions to steer national growth, these institutions are often rationalised and justified by a new ideology (Wolfson and Kotz 2010, 84). In China’s case, this is evident by Beijing leaders appealing to the mass that innovation and the empowerment of intangible assets are key to tackling prevailing social and economic issues in China. President Hu Jintao spoke of creating ‘a favorable mechanism’ so that ‘science and technology will accelerate social development’ (Zhang 2006).

Meanwhile, the transition to the new phase of national growth entails moves to further reform existing institutions and to cautiously mediate class tensions and conflicts. New structures are consciously built to support and facilitate profit-making and capital accumulation. Policies that promote development, registration and exploitation of IP by private enterprises simply reflect the fact that the role of the government has shifted to facilitating programs that are favourable to the accumulation of intangible assets. The co-existence of shanzhai products and branded smartphones illustrate varied and inconsistent institutions that need to be put in place to manage core contradictions and uneven resource distribution emanated from capitalist transition.

In sum, state activism has played a role in facilitating the recent phase of IP acquisition in China. Nevertheless, while examining the constitution of China's IP regime, I also stress that this very 'visible hand' in China struggles to combat with external institutional pressures and domestic demands, leading to many contradictions and inconsistencies in policy outcomes. Judging from the variegated implementation outcomes across localities, it appears that the Chinese state is more in command of policy direction, but less on actual outcomes.
References


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