Sustainable Competitive Advantages via Temporary Advantages:

Insights from the Competition between American and Chinese Digital Platforms in China

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Acknowledgements

I would like to thank the large number of senior business leaders participated in this research for their time and insights. The advice from Professor Hugh Willmott, Professor Davide Ravasi and Professor Andre Spicer was invaluable during the revision. Associate Editor Professor Stephen Brammer provided excellent guidance in addressing reviewer concerns and articulating contributions. The constructive criticisms and suggestions by the anonymous reviewers played an important part in shaping the focus of the paper. An earlier version of this paper was awarded the Best Full Paper Prize (eBusiness & eGovernment) at BAM2020 Conference. This work was supported by the UK Research Councils EPSRC and ESRC under the Digital Economy Programme, Reference Number EP/G066019/1 and EP/M023265/1.

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ABSTRACT

The world's most valuable public companies today are built on digital platforms. While American digital platforms (ADPs) have successfully dominated many international markets, some Chinese digital platforms (CDPs) have managed to survive and thrive in China, with European digital platforms largely absent both at home and abroad. Using comprehensive longitudinal data over six years, this study examines the platform competition between ADPs and CDPs in China, and explores how digital platforms challenge traditional ways of thinking about strategy and international competition. Some ADPs initially dominated the Chinese market, but some CDPs used their institutional advantages in China to offset the competitive advantages of ADPs based on superior resources and capabilities and strong market positions. Their competition evolved over three distinctive episodes so far, and CDPs used successive temporary advantages to achieve sustainable competitive advantages dynamically and accomplished radical changes cumulatively through incremental changes. A new dynamic equilibrium model (DEM) of platform competition – "the spiral model" - between global and native digital platforms is developed, which highlights a trajectory that is different from the dominant models of change in the literature. Limitations of the study and new areas for future research are highlighted.

Keywords: digital platform, platform competition, platform ecosystem, sustainable competitive advantage (SCA), temporary advantage (TA), dynamic equilibrium model (DEM)

This study is motivated by the competition between American and Chinese digital platforms in China and how digital platforms challenge traditional ways of thinking about strategy and international competition.[1] While American digital platforms (ADPs) have successfully dominated many international markets, some Chinese digital platforms (CDPs) have managed to survive and achieve self-sufficiency, with European digital platforms (EDPs) largely absent both at home and abroad (Hermes, *et al*, 2020). The failure of ADPs in China is in stark contrast to their huge success around the world (Zeng & Glaister, 2016; Yoffie, Gawer & Cusumano, 2019). Popular views point to censorship and interference by Chinese government, poor understanding of local culture and market, and insufficient local autonomy (Woetzel, *et al*, 2017; Wang & Ren, 2012). Such factors are undoubtedly important, but they did not stop ADPs dominating other politically or culturally different markets; nor prevented multinational firms in other sectors from succeeding in China (Fannin, 2019; Li, 2019).[2] By systematically investigating the competition between ADPs and CDPs in China, this paper addresses two closely intertwined questions and explores their theoretical implications: *(1) Why have ADPs failed in China? (2) How have CDPs survived and thrived in their competition with ADPs?*

Studying the competition between ADPs and CDPs can shed light on the nature of platform competition and how it differs from conventional multinational firms. From the international business perspective, the ownership-location-internalization (OLI) advantages

[1] This study focuses primarily on digital platforms which from inception rely on digital services enabled by the Internet and related digital technologies including mobile, such as search engines, online content providers, and retail and sharing economy platforms. The "previous generation" IT platforms such as Microsoft, Intel, IBM, and to a large extent, Apple, are excluded from this study, as they rely primarily on sales of IT hardware and software as their main sources of revenue.

[2] As Kola (2016) argued when discussing why ADPs thrive in India but struggle in China: '*In spite of the [Chinese] government's clear preference for domestic firms, I vehemently disagree with the claim that American firms have failed because of the Chinese government. Handwaving away every foreign failure to the Chinese government presumes that companies like Alibaba and Didi get an 80 percent market share by nepotistic means while being equal, or inferior to their foreign competitors. Sounds pretty presumptuous ….*'

enjoyed by multinational firms that enabled ADPs to successfully enter China have failed to sustain their early success (Cantwell, 2014; Cantwell, Dunning & Lundan, 2010). From the strategic management perspective, ADPs' failure in China is also unexpected given their successful track record in other international markets (Li, 2019).

Using comprehensive longitudinal data from four pairs of inductive case studies over six years, this paper makes three contributions to the literature. First, this study shows that digital platforms challenge traditional ways of thinking about strategy, and their distinctive features can affect international competition differently when compared with conventional multinational firms or traditional manufacturing or product platforms (Kretschmer, *et al*, 2021; Cusumano, *et al*, 2019; Jacobides, *et al*, 2018; Shipilov & Gawer, 2020). Some native digital platforms in China exploited their inherent institutional advantages based on deep understanding of the local market and culture to attract partners, grow market share, and trigger the increasing return to scale dynamic and network effect, leading to their eventual market dominance in the winner-takes-all digital market.

Second, platform competition redefines the significance of different types of competitive advantages in the digital market. Although most competitive advantages gained by CDPs over ADPs in China are temporary, which can be - and have been – overcome by ADPs through imitation or other competitive advantages, this study extends previous studies on temporary advantages (D'Aveni, Dagnino & Smith, 2010; Rindova *et al*, 2010; McGrath, 2013; Huang *et al*, 2015) by offering a thick description and empirically-induced insights on how platform competition is different conventional multinational firms, and how sustainable competitive advantages can be attained dynamically via successive temporary advantages in the winner-takes-all digital market.

Third, the competition between ADPs and CDPs in China has followed a distinctive trajectory from the patterns illustrated by the dominant models of change in the literature, including the punctuated equilibrium model (Tushman & Romanelli,1985) and the continuous morphing model (Brown & Eisenhardt, 1997; Ridova & Kotha, 2001; Plowman *et al*, 2007). A new dynamic equilibrium model (DEM) – "*the spiral model*" – that is unique to digital platform competition has emerged, which complements and extends established models of change in the digital economy (Hanelt, *et al*, 2020; Sarta *et al*, forthcoming).

In the next section, the literature review is presented. Then the research design and empirical work is illustrated. The main findings are discussed; and contributions to extant literature are highlighted. A new dynamic equilibrium model of platform competition is developed. Limitations of the study and areas for future research are highlighted.

LITERATURE REVIEW

The Competition Between Digital Platforms

Platforms are firms '*that facilitate transactions and govern interactions between two or more distinct user groups who are connected via an indirect network*' (Rietveld & Schilling, 2020). Platform ecosystems have been conceptualized as meta-organizations '*with less formal and less hierarchical structures than firms, but more closely coupled than traditional markets*' (Kretschmer, *et al*, 2021). The emergence of digital platforms has been viewed as a paradigm shift in the way businesses are organized, as platforms have become the predominant business model in a growing number of industries.[3] Traditional models of vertically integrated firms with

[3] There are two types of platforms. The most common platforms are transaction platforms - digital intermediaries that make it possible for participants to exchange goods, services or information (Cusumano, *et al*, 2019). Innovation platforms, in contrast, facilitate the development of new, complementary products and services that are built mostly by third-party companies without traditional supplier contracts (Shipilov & Gawer, 2020).

hierarchical supply chains are increasingly replaced by dynamic groups of independent partners working together to deliver integrated products and services (Kapoor, 2018), which raises complex strategic challenges on how digital platforms compete with incumbents and with one another (Yoffie, *et al*, 2019; Jacobides, *et al*, 2018).

Most digital platforms do not take ownership of products or production processes but rather depend primarily on resources and activities provided by independent firms in their ecosystems. Compared to traditional firms and non-digital intermediaries, digital platforms can introduce new transaction mechanisms more rapidly and at much lower cost (Zhao, *et al*, 2020); provide access to capabilities quickly that may be too expensive or time-consuming to build within a firm (Kretschmer, *et al*, 2021); scale much faster than an individual business (Kapoor, 2018); and enable both high variety and a high capacity to evolve (McIntyre *et al*, forthcoming; Gawer, forthcoming).

Platforms fundamentally change the competitive strategies firms use to attract customers and complementors, and indeed, the nature of the firm itself (Bonina, *et al*, forthcoming). This is largely driven by the increasing return to scale dynamic based on the learning-curve effects or network externalities, leading to "winner-takes-all" markets (Rietveld & Schilling, 2020). When a large portion of value comes from network externalities, new platforms often struggle to displace an established platform even when the new offerings are superior (McIntyre *et al*, forthcoming; Khanagha *et al*, forthcoming). Importantly, since both complementary goods producers and consumers make adoption decisions based on which technology has the largest installed base, signalling can be particularly influential for market success. Achieving a large installed base early could lead to a dominant position, so firms often use penetration pricing to rapidly build up an installed base in the hope of recouping early losses later through secondary

revenue streams (Rietveld & Schilling, 2020). This also significantly influences a firm's intellectual property strategy, for example, either liberally licensing technology or temporarily forgoing patent enforcement in order to speed up the accumulation of installed base and complementary goods (Karhu, Gustafsson & Lyytinen, 2018; Parker & Van Alstyne, 2018). As will be shown later, the cost-benefit of copying and imitation for platforms also differs from traditional organisations.

Despite such progress, however, significant gaps still exist in our understanding of platform competition. First, although it is widely recognised that competitive dynamics play a key role in platform competition, most studies so far have focused on single design parameters, e.g., how platforms use price, subsidization or provision of complements to create strong network externalities (Rietveld & Schilling, 2020). Since digital platforms operate '*in a setting that calls for highly interdependent decisions*' (Helfat & Raubitschek, 2018, p1391), the success of a platform requires holistic thinking (Shi, Li & Chumnumpan, 2020). This calls for more empirical research to systematically explore interdependent decisions in the competitive battle for market leadership (Kretschmer, *et al*, 2021).

Second, most platform studies to date focus on a small number of industries in western economies (Rietveld & Schilling, 2020; Bonina, *et al*, forthcoming). A greater range of industries (e.g., Shriver, 2015; Kretschmer, *et al*, 2021) and geographic scope (e.g., Hann, Koh, & Niculescu, 2016; Lehdonvirta *et al.*, 2019) would enhance the robustness of research and reveal important new relationships that have been overlooked. Longitudinal case studies on the way that platforms evolve over time in new markets are particularly needed (e.g., Khanagha, *et al*, forthcoming; Logue & Grimes, forthcoming).

Third, while a growing body of work highlights conditions under which winner-takes-all dynamics occur in platform markets (e.g., Cennamo & Santalo, 2013; Chen, Doraszelski & Harrington, 2009; Dubé, Hitsch, & Chintagunta, 2010), much less is known about how and why dominant platforms get displaced (Rietveld & Schilling, 2020). Some studies explored the "*David versus Goliath*" type competition between digital platforms (Li, 2019; Zeng & Glaster, 2016), but it is not clear how this differs from technological disruptions observed outside the realm of platform competition (Christensen, 1997). Since digital technologies facilitate the continuous updating of previously static platforms, it reduces the occurrence of marked generational breaks (Cennamo, 2019; Ozalp *et al*, 2018). Established platforms can readily identify emerging trends in their ecosystems to continuously improve their offerings (Adner, *et al*, 2019), making it increasingly harder for new entrants to gain a strong foothold. Some established platforms also bundle or envelope adjacent platforms, but such strategies are still poorly understood (Gawer, forthcoming). More nuanced studies on how and when new entrants succeed in disrupting dominant platforms are needed.

Sustainable Competitive Advantages and Temporary Advantages

Strategic management is governed by three complimentary paradigms: industry-based view (Porter, 1980), resource-based view (Barney, 1991) and institution-based view (Peng, 2002). Since strategy is a plan for long-term goals, the primary purpose of strategy is to create sustainable competitive advantages, which are often assumed to exist (D'Aveni, Dagnino & Smith, 2010; Dagnino, Picone & Ferrigno, 2020). In practice, however, few competitive advantages are genuinely sustainable over prolonged period, and most of them are temporary (Fine, 1998; Ahokangas, Juho & Haapanen, 2010; McGrath, 2013). This is either the result of fast-paced competitive actions and counter responses among rivals (including imitation), or

frequent endogenous and exogenous competence destroying disruptions and discontinuities. Some studies have found that sustainable competitive advantages are rare and declining in duration; and the importance of temporary advantages is increasing, especially in nascent, emerging, high-tech, or high velocity environments (Eisenhardt & Bingham, 2017; Wiggins & Ruefli, 2005; Thomas & D'Aveni, 2009; Sirmon *et al*, 2010).

Previous studies have argued that sustainable advantages can be made up of a series of temporary advantages over time; and competitive advantages from one source may lead to new competitive advantages from other sources (Wiggins and Ruefli, 2005; Rindova *et al*, 2010; Huang *et al*, 2015). However, the underlying mechanisms and processes are poorly understood (Rabetino, Kohtamäki & Federico, 2020; Bettis & Blettner, 2020). This is particularly so for platform competition where the strategic importance of temporary advantages needs to be re-evaluated under conditions of increasing returns and network effects, leading to greater emphasis on experimentation, learning and serendipity compared with traditional multinational firms.

THE RESEARCH DESIGN AND EMPIRICAL WORK

Many ADPs have succeeded internationally by replicating their business models and technological platforms in new markets, but this strategy has failed in China. eBay entered China in 2002, and it acquired the leading Chinese C2C platform EachNet in 2003. The combined eBay EachNet dominated 85% of the Chinese market. In contrast, Alibaba was only a small B2B website for SMEs when it launched Taobao in 2003. However, by 2006, Taobao already outpaced eBay, winning 67% market share against eBay's dwindling 29%. By the time eBay sold EachNet to Tom Online in 2007, its market share had already declined to a mere 6.2%.

eBay is not an isolated case. Google and Amazon's experience is similar. However, Uber's defeat by DiDi Chuxing is particularly puzzling. Uber set up a highly autonomous subsidiary; partnered with China's largest search engine Baidu; offered services tailored for China; and paid out over $2bn in subsidies. "*It is hard to pinpoint anything we did wrong*" [Uber executive], but it still failed.[4]

Inductive Case Studies

This study uses four pairs of inductive case studies over six years to develop a thick description and contextualized theoretical explanation of this peculiar phenomenon (Doz, 2011; Yin, 2014); and explore how digital platforms challenge traditional ways of thinking about strategy and international competition. Through theoretical sampling (Eisenhardt & Graebner, 2007), four leading ADPs in China and four CDPs that are deemed their direct competitors are selected: eBay versus Taobao, Google versus Baidu, Amazon versus JD.com, and Uber versus Didi Chuxing. Multiple case studies allow triangulation from different sources, augment external validities (Eisenhardt, 1989), guard against observer bias (Miles and Huberman, 1994), adopt the replication logic (Yin, 2014), and develop new theoretical explanations of the observed phenomenon (Lee, 1999).

The research design and data analysis emerged through an iterative learning process over six years (Gioia, Corley & Hamilton, 2013; Nag & Gioia, 2012). Data was mainly collected via semi-structured interviews with current and former senior executives, supplemented by extensive secondary data from private and public sources. Both retrospective and real-time data are

[4] Uber spent over US$2bn in China to win 8% of market share. When it was taken over by Didi Chuxing in 2016, Uber took a 20% stake (worth US$7bn at the time) in the combined company. Although financially this represents a lucrative return for its investment, Uber failed *operationally* in China.

collected (Pettigrew, 1990). Overall, 59 senior executives are interviewed, 21 have experience in both ADPs and CDPs, offering valuable comparative insights for the study (Table 1).

The case studies are purposefully selected to cover different types of digital platforms. All interviewees are senior directors, usually one level subordinate to the China CEO with both strategic and operational responsibilities. Each interview begins with a brief introduction of the study, followed by open ended questions, typically lasting 90 to 120 minutes. A semi-structured protocol is adopted. Respondents are encouraged to provide examples (Yin 2014). Interviews are not recorded on the advice of some interviewees to encourage uninhibited discussions, but notes are taken during interviews and written up immediately afterwards on the same day (Barkema *et al*, 2015). A longitudinal perspective is adopted to record chronology of events, verified by subsequent interviews and secondary data (Eisenhardt and Graebner, 2007). A follow up 'content-checking' exercise is conducted after each round of interviews (Miles & Huberman, 1984).

All interviewees are introduced by mutual acquittances. Formal interviews are often preceded or followed by social activities to build rapport. WeChat and emails are used to share materials and maintain contact subsequently, enabling continuous capture of data. Interviews are supplemented by extensive secondary data (Eisenhardt, 1989) to validate interview data and fill gaps (Table 2). Internal documents are often provided after each interview.

All interviews centred on the two intertwined research questions: *(1) Why have ADPs failed in China? (2) How have CDPs survived and thrived in their competition with ADPs?* The focus is on timeline of events, significant decisions, specific actions, underlying rationales, and concrete examples. Data from different sources allow triangulation, thereby '*unravelling the*

underlying dynamics of phenomena that play out over time' (Siggelkow, 2007: 22). Over 250 pages of A4 are written up, supplemented by handwritten notes and secondary data.

To mitigate potential biases of retrospective sensemaking and impression management (Eisenhardt & Graebner, 2007), data is collected by interviewing multiple respondents with different perspectives. Retrospective and real time data are triangulated with archival and secondary data, verified with selected informants and in subsequent interviews. Hence, such biases are minimized.

Data Analysis

This study is qualitative. A strong element of interpretation and judgement in appropriate context is emphasised (Barkema *et al*, 2015; Barney, 2019). The replication logic is emphasized for each pair of case studies before comparisons are made (Yin, 2014; Strauss & Gorbin, 1990). Data collection and analysis has overlapped over six years, and data and theory are considered together (Alvesson & Karreman, 2007), involving multiple cycles of data, concepts, themes, dimensions and relevant literature (Gioia, Corley & Hamilton, 2013). An initial systematic data coding was undertaken after two rounds of interviews for three pairs of case studies (before Uber entered China), following a three-step process (Glaser, 2004; Locke, 2001). First, two researchers independently coded all the interview notes for one pair of cases, directed by the project leader. They systematically identified first order categories and typical examples. The coding is then compared, any inconsistencies discussed and resolved. By standardizing the unit of coding to '*important factors for the success and failure of ADPs and CDPs in China*', a high level of inter-coder consistency is achieved (Campbell *et al*, 2013).

Then the interview notes for the remaining two pairs of case studies are independently coded by these two researchers, and inconsistencies are discussed and resolved. New categories are

added to the master list until theoretical saturation is reached (Glaser, 2004). The first-order categories are then combined into second-order themes and third-order aggregate dimensions.

The coding identified 56 first order categories, seven second order themes and three aggregate dimensions (Table 3). However, most factors identified, such as cultural differences or institutional voids, may apply equally to all multinational firms in China, yet the phenomenon seems unique only to digital platforms.

Some senior business leaders, academics and government officials are consulted, and two advices are offered to extend the research. First, the competition between ADPs and CDPs is not a one-off event but a dynamic process. To develop a longitudinal account of the competition, additional interviews are conducted. Uber and Didi Chuxing are also added since 2016.

Second, data analysis should go beyond rigid systematic coding of interview notes verbatim, which has reached theoretical saturation. A holistic approach based on thick description is needed to develop a contextualized theoretical interpretation of the underlying dynamics (Dyer & Wilkins, 1991; Langley, 1999; Alvesson & Sköldberg, 2000; Buchanan & Bryman, 2007). This advice is particularly relevant in high context cultures like China (Barkema, *et al*, 2015; Cole, 2015). Systematic coding often misses out on subtle clues and rich contexts which are essential for making sense of the underlying dynamics. To minimize interpretation bias, emerging insights are validated in subsequent interviews and on-going dialogues.

MAIN FINDINGS

This study finds the competition between ADPs and CDPs in China has evolved over three distinctive episodes in a continuous, cumulative process (Table 4). Initially, ADPs capitalized on their superior resource and capability advantages to enter China and gain further competitive advantages from dominant market positions. To survive, some CDPs initially exploited their

deeper understanding of Chinese business environment to gain temporary institutional advantages which translated into increased market shares. This allowed some CDPs to erode the positional advantages by ADPs and attain new resources and capabilities. The combined competitive advantages eventually enabled some CDPs to survive and thrive in China.

Episode One: Market Entry – *"David and Goliath"*

Contrary to popular opinions, all ADPs in this study have achieved significant early success in China, largely by replicating their business models and technological platforms from the USA. This was even the case when ADPs acquired local market leaders in China. Both eBay and Amazon abandoned the proven technological platforms and business models of their local acquisitions - EachNet and Joyo. This approach has been successful in other international markets, but it allowed some CDPs to adopt products and business models finetuned for the Chinese market through multiple iterations of imitation, innovation and experiment.

While the strategic focus of ADPs is market dominance, the priority for CDPs is survival. All CDPs initially imitated and finetuned the products and business models of leading ADPs for China via experiments and user feedbacks. The institutional voids in China at that time allowed CDPs and ADPs to copy one another freely, which resulted in relentless iterations and incremental improvements. CDPs also targeted market niches that ADPs deemed unattractive to acquire new users. During this stage, all CDPs avoided head-on collisions with ADPs.[5]

The 'David and Goliath' competition is typified by eBay versus Taobao. eBay entered China in 2002. In 2003 it took full control of EachNet for $180 million, the market leader in China

[5] During the interviews, it was explained on several occasions that the so-called 'guerrilla war' tactics inspired by Mao Zedong was used by CDPs to avoid direct competition with ADPs: '*Retreat when the enemies advance, harass when the enemies camp, attack when the enemies are tired, and pursue when the enemies retreat*'. *The Art of War* was also often cited: '*Good fighters first put themselves beyond the possibility of defeat, and then wait for an opportunity to defeat the enemy.*'

with 80% of the C2C market. The combined eBay EachNet dominated 85% of the Chinese market with over two million users. However, instead of supporting EachNet's business model and technological platform that had made it the local market leader, eBay migrated EachNet onto its global technological platform and business model, charging sellers for listings, relying on ratings and user feedbacks to help buyers choose which seller to do business with. This approach worked well for eBay in other countries, but it allowed Alibaba to launch Taobao for $12m *after* eBay acquired EachNet, mainly as a defensive strategy to protect its Alibaba.com rather than make a profit. Different from eBay, Taobao adopted the 'freemium' model (which was imitated by eBay in 2006). This allowed Taobao to set up *Aliwangwang* - a direct messaging and voicemail service from Taobao platform to mobile phones - to encourage buyers-sellers to communicate directly without worrying about losing transaction fees. This service proved essential for building trust and alleviating user concerns. While eBay mainly targeted middleclass users in large cities, Taobao targeted a broader spectrum of users. The middleclass segment in China was relatively small at the time compared with USA or Europe. This allowed Taobao to grow user base more rapidly than eBay.

To block Taobao from advertising online, eBay signed exclusive advertising rights with all major online portals in China. eBay also advertised on buses, subways, and billboards at huge costs. While eBay had a budget of over $100m, Taobao only had $1m and was forced to advertise on TV instead, which ironically proved far more effective than online channels. In 2004, only 7% Chinese had access to internet, but over 90% had TVs. This allowed Taobao to grow rapidly.[6]

[6] '*We spent a lot of money doing the wrong things in China!'*, according to a senior eBay Executive interviewed.

Google started offering search in Chinese since 2000; and it also owned a minority stake in market leader Baidu since 2004. When Google set up a wholly owned subsidiary in 2006, Baidu, Sougou, SoSo and 3721.com (the latter acquired by Yahoo for $120m in 2003) were already competing fiercely for market shares. Despite their head-starts, no CDPs could match the capabilities and resources of Google, allowing Google to capture 33% market share. While Google's growth was achieved by taking market shares from small search engines, Baidu was also able to grow. Two factors contributed to this according to Baidu senior executives interviewed. First, Baidu is made for China, but Google is converted from English to Chinese. There is a strong user perception that search results from Baidu are more relevant than Google's, giving Baidu an incremental advantage. Although disputes with the Chinese government over censorship were emerging, it was mainly disagreements between Google China with US head-office and the limited autonomy to adapt global products for local needs that significantly hindered its ability to compete.

Second, Baidu exploited a temporary institutional void in China by offering services linking search results to free music download on third party websites. This was considered too controversial for Google due to concerns of copyright infringements and conflicts with its own global music strategy. When Google eventually launched a similar free music downloading service with consent from major music labels, it was already too late.

> *'The digital market in China is the most cutthroat in the world, where speed is essential, copying is accepted. The battles are life and death, and your competitors will stop at nothing to win market shares. The only way to survive is to constantly improve your products and business model, by copying, by finetuning, by pushing boundaries and by exploring all possible iterations of your innovations. You have to beat some of the world's most nimble, savvy and determined entrepreneurs simply to survive.'* [Former Senior Google Executive]

Amazon entered China in 2004 by acquiring leading Chinese online bookstore Joyo.com for $75m. It started migrating Joyo to its global platform in 2005; only in 2007 that Amazon

renamed it Joyo Amazon; and Amazon.cn in 2011. This approach soon lost the market lead held by Joyo, allowing a series of "*Amazons of China"* to prosper, first DangDang, then Alibaba's Tmall and JD.Com.

When Uber entered China in February 2014, Didi Dache and Kuaidi Dache were already competing fiercely for market shares. Despite the head-start by CDPs, Uber was bigger and operating in 10 countries, rapidly expanding to 68 by 2016. Uber's entry in China posed an existential threat, forcing Didi Dache and Kuaidi Dache to bury the hatchet and merge as Didi Chuxing in 2015.[7] Although still smaller than Uber, Didi Chuxing was bigger than Uber China, which significantly improved its chance for survival.

During the first episode, ADPs used their resource and capability advantages to successfully enter and quickly dominate the Chinese market. However, some CDPs exploited their inherent institutional advantages from deeper understanding of the Chinese business environment to gain market shares. By imitating and adapting the products and business models of ADPs through experiments and user feedbacks, some CDPs gained a series of temporary advantages, allowing them to survive and grow despite the formidable competitive advantages of ADPs.

Episode Two: Market Capture - *'Tug of War'*

As some CDPs survived the initial onslaught from ADPs, their competition became more hostile. While ADPs continued to expand aggressively via superior capabilities and resources and strong market positions, a shift in the strategies of some CDPs was observed. Market creation by CDPs continued in a broader spectrum of user segments than ADPs, but more direct competition between ADPs and CDPs ensured. The strategic priorities for both ADPs and CDPs

[7] '*Without Uber, the merger probably would not have happened*', according to a Senior Didi Executive interviewed.

are land-grabbing, resulting in some of *'the bloodiest battles ever observed anywhere in the world*'.

eBay EachNet still dominated the C2C market, but Taobao gained momentum from its freemium business model and deeper understanding of Chinese market to acquire users. Recognizing neither second-hand items nor auctions are as popular in China as in USA or Europe, Taobao increasingly focused on online sales of new items, but eBay continued to emphasise auctions with 40% of its listings compared with 10% for Taobao. eBay's 'clean' web design was organized around buyers and sellers in line with its global platform; but Taobao's was more vibrant, similar to large department stores organized around categories such as Men, Women and Children, which helped Chinese users locate items, or simply browse for a bargain. This also reflected the business environment at the time, when internet was slow and unreliable, and digital firms packed as much information as possible on every webpage, rather than relying on a clean design and multiple clicks to get to destination.

Since credit and debit card payments were still rare at the time, Alibaba launched online payment service, Alipay. It also signed a long-term agreement with *China Post* for customers to put funds into their accounts at its 66,000 post offices throughout the country. Different from PayPal, Alipay provided escrow service for buyers and sellers to protect them from financial loses. Taobao also supported cash on delivery by signing exclusive agreements with major logistical providers. Given how extensively cash was used in China at that time, this became a major attraction for buyers and sellers. Although eBay also set up an escrow service in China called *Anfutong*, it was separate from PayPal. This confused some customers when they tried to transfer funds between them. This enabled Taobao to capture sellers and buyers from eBay.

'Chinese users were not comfortable with completing transactions online during that time. There were too many "what if?" uncertainties: What if the seller is a scam? What if

> *product quality is poor? In the US, we have a well-established system to tackle these problems, but here, the relevant financial, logistics services and regulations are rather limited. And they (Headquarters) completely ignored these issues that have fundamental impacts on our customer experience'* [Former eBay Senior Executive]

eBay's failure was also attributed to its rigid organizational structure and slow decision-making. Instead of relying on local talents from EachNet, eBay's China operation was managed by a German General Manager and an American Chief Technology Officer. Neither of them speaks Chinese. They lack cultural sensitivity and autonomy, and are no match to the hunger, drive, and entrepreneurial spirit of local competitors.

> *'It took us nearly six months to respond to the threats posed by Taobao, and to be honest, the solution they [the head office] came up with didn't really solve the problem. By the time we responded, the customers had already gone. Six months in digital time is like three years in normal time.'* [Former eBay executive]

Despite its superior capabilities and resources, Google's expansion in China was hampered by its global technological platform. Google addressed this by employing over 100 engineers in China to add new codes for Chinese language search, but this was constrained by its global platform. Google's global business model was uncompetitive in China, as it focused narrowly on search, generating revenue from advertising alone. It also insisted on payment by credit or debit cards by advertisers. In contrast, Baidu was more flexible with different payment methods, offering a range of paid services to generate additional revenues. Baidu also developed user communities, including online bulletin boards, named *'Tie Ba'; 'Zhidao'*, similar to Yahoo Answers; and *'Baike'*, an online encyclopedia. These services helped Baidu attract and retain users.

Amazon's mild approach in China led to the rapid decline of Joyo. Its expansion from books to other product categories soon earned it a reputation as being more expensive than other online

platforms. The lack of local autonomy limited Amazon's ability to respond to challenges from CDPs. Its superior technological platform failed to translate into increased market shares.

> *'Yes, we have a better technological system than our competitors, but our rivals offered more competitive price to our customers. Chinese customers are very price sensitive and we lost our customers to them, and again, without customers, nobody wants to use our platform to sell stuff. So we were sitting on our technology and waiting to be used.'* [Amazon Senior Executive in China]

Uber took an aggressive approach to crush local rivals with sheer brutal force. This was initially paying off as China soon became Uber's largest market, but at a cost of over $1bn in annual subsidies. Although Uber grew from 10 to 60 cities in 12 months, Didi Chuxing expanded even faster. Uber only captured 8% of the ride hailing market in 60 cities compared to Didi Chuxing's 80% in over 400 cities. As a show of determination to continue the expensive battle, Didi raised a further $7bn new capital in June 2016, increasing its war chest to $10bn. As the momentum increasingly tilts towards Didi, Uber blinked first.

Although eBay stopped charging for listing in late 2005 by imitating Taobao, it was too late. Alibaba founder Jack Ma famously declared that '*the competition is over. It's time to claim the battlefield*'. By late 2006, Taobao's market share reached 82%, forcing eBay to sell EachNet.

> *'We were pretty confident at the beginning—it worked well everywhere else, right? But things were falling apart, fast. The competition we faced in China was far more intense than any other countries, and this created many uncertainties and challenges on our performance'* [Former eBay Senior Executive]

By the end of this stage, some CDPs went on to dominate the Chinese market. Their advances were almost unstoppable due to network effects. Amazon opened an online store on arch-rival Alibaba's Tmall in 2015 and its market share in China declined to a single digit. Google withdrew its search engine from mainland China in 2010 and redirected all search traffic to Hong Kong before it was blocked by the '*Great Firewall*'. eBay became the junior partner in

a joint venture with Tom Online. Uber allowed Didi Chuxing to acquire its China operation for a minority stake (20%) in the combined group.

Episode Three: Market Consolidation - *'Empire Building'*

The lack of existential threat from ADPs allowed some CDPs to expand their ecosystems rapidly. New CDP start-ups are also emerging to compete with the incumbents. However, all CDPs in this study have taken strategic actions to further consolidate their dominance.[8]

Empire building by CDPs developed in three directions. Firstly, all CDPs formed strategic partnerships with key service providers and via direct investment in support services. Alibaba extended Alipay's functionalities to form Ant Financial; and took full control of logistical partner Cainiao and pledged ¥100 billion ($15 billion) to build a global logistical network. Alibaba is no longer just an e-Commerce platform, and its business empire covers what Amazon, eBay, PayPal, Google, FedEx, wholesalers, and a good portion of manufacturers do in the United States, including nearly all functions associated with retail and coordinate them online into a sprawling, data-driven, super platform ecosystem of sellers, marketers, service providers, logistics companies, manufacturers and financial services providers. Similar expansions are observed in other CDPs, resulting in increasing differentiations from ADPs.

Secondly, all CDPs have expanded beyond their core businesses and invested in promising start-ups in adjacent or new markets – a trend particularly pronounced in China. Apart from strengthening and protecting core businesses, the underlying thinking is that *when (not if)* the core business is eventually disrupted, some of these new ventures would have grown

[8] This was described on several occasions during interviews with CDPs as '*digging deep and wide moats*' around their core businesses, particularly by going beyond the asset-light digital business models preferred by ADPs and investing in physical activities and in adjacent markets.

significantly. Sustainability is then achieved dynamically, not only by sustaining current core business, but also via new ventures in emerging areas. Didi expanded from its ride hailing platform to urban traffic management ecosystem based on the data it collects. It also partnered with major car manufacturers to develop autonomous vehicles; acquired the third largest bike sharing firm Bluegogo and invested heavily in the leading bike sharing firm ofo. Baidu invested heavily in AI, and its *Apollo platform* has become an open software platform for autonomous vehicles used by both Chinese and international companies. Alibaba expanded into cloud services, brick & mortar retail chains (before Amazon's acquisition of Wholefood), online food delivery, transportation and entertainment. As part of its drive for '*new retailing*', Alibaba invested in Lianhua supermarket, Intime department store, electronics retail chain Suning, and Lingshoutong, an initiative to connect China's millions of corner shops with Alibaba's internet-based distribution network. It also opened the futuristic Freshippo supermarket (ahead of Amazon Go), where consumers use Alipay to order groceries for delivery, often within 30 minutes. A '*new manufacturing*' initiative is also launched to integrate online and offline operations (O2O) through its e-Commerce platforms and logistics systems. Alibaba invested in over 400 start-ups, and of the top ten digital unicorns in China in 2017, three are owned by Alibaba - Ant Financial (No.1), Alicloud (No.4) and Cainiao Logistics (No.6).

Thirdly, all CDPs invested heavily in international expansion, although compared with APDs, CDPs' international presence remains modest. Alibaba is the largest shareholder in PayTM, an Indian e-Commerce and payment firm. It acquired Lazada, the largest e-Commerce group in six Southeast Asian countries. However, its expansion in developed countries encountered challenges. Its acquisition of MoneyGram was blocked by US Government. It also scaled back plans to expand AliCloud in the US and the initiative to help American SMEs sell

products to China. Similarly, JD.com partnered with Walmart to expand in the USA, and launched its own European e-Commerce platform and delivery services. A $550million investment by Google in JD.com allowed JD to sell products directly on Google shopping. JD also teamed up with Intel to bring Internet of things (IoTs) to retailing.

Didi invested in Grab in Southeast Asia, Lyft in the US, Ola in India, Careem in the Middle East, and Taxify in Europe and Africa; and launched its own services in Australia. In 2017, it raised a further $4 billion to support international expansion. Baidu has operations in Brazil, Indonesia and Thailand, through local-language versions of its search engine; and its own app store in Indonesia, MoboMarket. Baidu also established an AI Laboratory in Silicon Valley.

During this stage, all CDPs faced the re-entry of ADPs. Despite the escalation of the US-China trade war, Google re-entered China by setting up new offices and an AI centre, signing new deals with JD.com and Tencent, investing in promising local start-ups, and rolling out new business products. Amazon expanded its cross-border e-Commerce, Amazon Prime, and Amazon Web Services (AWS) in China, although its Marketplace was closed in June 2019 due to dwindling sales. eBay employs over 1,500 people in China, and its activities comprise of a multi-billion dollar export business to help Chinese entrepreneurs sell products overseas via eBay's platforms and PayPal's payments solutions; a large R&D centre in Shanghai which undertakes critical development and infrastructure support that underpins eBay's global platforms; and an import business through a partnership between *eBay Style* and *Xiu.com*, a Chinese e-Commerce firm which sells middle to luxury brand name fashion products. eBay also partnered with the city of Ningbo, a major e-Commerce Pilot Zones, which enjoys expedited imports and tax breaks and allows firms to set up warehouses to store imported goods for quick dispatch to Chinese customers, reducing lead time by as much as 80%.

However, no ADPs have managed to launch a credible challenge to the dominance of CDPs in China. CDPs have gained substantial capabilities and resources and are often stronger than ADPs in China and some other emerging markets. CDPs have also become significant innovation machines with strong institutional, positional, and resource and capability advantages, increasingly introducing innovative products, services and new business models ahead of ADPs.

DISCUSSIONS

The competition between ADPs and CDPs in China illustrated how platform competition differs from the competitive dynamics between traditional multinational firms. It also highlighted the path dependent nature of competitive advantages from different sources, and the need to re-evaluate the strategic significance of temporary advantages under conditions of increasing return and network effect. The competition between ADPs and CDPs followed a trajectory that is significantly different from the dominant models of change in extant literature. In this section, three theoretical contributions are discussed.

Digital Platforms and International Competition

This study reveals how digital platforms challenge traditional ways of thinking about strategy, and how the distinctive features of digital platforms affect international competition differently when compared with conventional multinational firms or traditional manufacturing or product platforms. Unlike conventional (multinational) firms that control a linear series of activities along the value chain, digital platforms do not usually take ownership of products and production processes but rather depend on resources and activities controlled and provided by independent firms in their wider ecosystems (Gawer & Cusumano, 2014; Thomas *et al*, 2014; Kapoor, 2018). This allows some native digital platforms to overcome their resource and

capability disadvantages and exploit their institutional advantages based on deep understanding of local market and culture to attract and retain partners, grow market share, and trigger the increasing return to scale dynamics in the "winner-takes-all" digital markets.

Digital platforms are also different from traditional manufacturing or product platforms (Gawer, 2014; Krishnan and Gupta, 2000; Kapoor, 2018), because the exclusive control of technology, product or standard by manufacturing or product platforms often gives them sustainable advantages that local firms often find insurmountable. In contrast, most digital platforms lacked such control in international markets. Digital platforms and ecosystems cannot be entirely planned and designed as they emerge and continuously evolve, which leaves room for improvisation, bricolage and serendipity to satisfy emerging customer needs. These distinctive features allow some native digital platforms to use their institutional advantages in local markets to overcome the strong competitive advantages of leading international digital platforms based on superior resources and capabilities and dominant market positions.

Digital platforms call for highly interdependent decisions which require holistic thinking in the competition for market leadership. Although it is widely recognised that competitive dynamics play a critical role in the development of digital platforms, most previous studies focused on single design parameters which are insufficient to win platform competitions (Kretschmer, *et al*, 2021; Rietveld & Schilling, 2020; Helfat and Raubitschek, 2018). Furthermore, as leading platforms increasingly bundle or envelope adjacent platforms (a trend particularly pronounced in China), the competition between ADPs and CDPs in China are not limited to well-defined core market niches. CDPs often demanded merchants and suppliers in their multiple ecosystems – including new start-ups they invest in - to pick sides and show

loyalty, which often led to asymmetrical competition and tipped the delicate balance in the fierce rivalry for market leadership in China.

From Temporary Advantages to Dynamic Sustainable Competitive Advantages

This study offers a thick description and a contextualised theoretical explanation of how successive temporary advantages can translate into dynamic sustainable competitive advantages in platform competition, and how competitive advantages from one source can lead to new competitive advantages from other sources (Rindova *et al*, 2010; Sirmon *et al*, 2010; McGrath, 2013; Huang *et al*, 2015). It extends previous studies that few competitive advantages are genuinely sustainable (Fine, 1998; McGrath, 2013; Dagnino, Picone & Ferrigno, 2020), as the role of temporary advantages should be re-evaluated under conditions of increasing return and network effect in platform competition. This study illustrates how CDPs first exploited their institutional advantages to launch new products adapted and finetuned for the local market to overcome ADPs' advantages based on rich resources and capabilities and dominant market positions. By imitating and adapting the products and business models of ADPs in China via experimentation and user feedback, some CDPs gained successive temporary advantages to grow market shares. This allowed some CDPs to overcome the dominant market positions of ADPs, and then accumulate new resources and capabilities to erode ADPs' other competitive advantages. The benefits from each temporary advantage are often small, but collectively and over time, such gains can accumulate to a level that triggers the increasing return to scale dynamic and network effect, leading to eventual market dominance in the winner-takes-all digital market. By nurturing and supporting an evolving portfolio of temporary advantages, some CDPs achieved sustainable competitive advantages dynamically over ADPs in China.

A New Dynamic Equilibrium Model (DEM) of Platform Competition: *"The Spiral Model"*

This study finds that both ADPs and CDPs have undertaken significant changes during their fierce competition in China, but the observed trajectory is significantly different from the dominant models of change in extant literature, which are largely based on non-platform firms. Previous studies found that change can be continuous or episodic in pace (Weick & Quinn, 1999), and incremental (convergent) or radical in scope (Greenwood & Hinings, 1996; Tushman & Romanelli, 1985). By combining these two dimensions, four types of change can be identified (Plowman *et al*, 2007). Radical change is often viewed as frame-bending and episodic (Nadler & Tushman, 1989; Romanelli & Tushman, 1994). Incremental change is usually seen as ongoing modification in organizational processes and continuous, which conforms to existing practices and hence does not result in radical change (Gersick, 1991; Weick & Quinn, 1999). While incremental change is often assumed to occur, radical change is the focus of interest (Eisenhardt & Bingham, 2017). The punctuated equilibrium model asserts that long periods of incremental change are interrupted by brief periods of radical change; while the continuous morphing model illustrates continuous radical change in volatile environment (Brown & Eisenhardt, 1997; Ridova & Kotha, 2001; Plowman *et al*, 2007; Uotila, 2018).

However, this study shows that neither models can adequately illustrate the observed trajectory of competition between ADPs and CDPs in China, and a new dynamic equilibrium model that is unique to platform competition - "*the spiral model*" - has emerged (Figure 1; Table 5), which illustrate the dynamic competition between global and native digital platforms and an alternative trajectory they could follow. Unlike ADPs which relied on their US parents for technological, product and business model innovations, CDPs used consecutive incremental changes to deliver radical changes over time. CDPs have followed a relentless cycle of

imitation, innovation and iteration for products, platforms and business models based on experimentation and user feedback. This enabled CDPs to try out many new ideas inexpensively. '*If a new idea works, then scale it up quickly. If not, move onto other ideas and you have not lost anything.*' [Senior Executive from Alibaba]. The benefit from each change is often small, but the cumulative effect can lead to radical change over multiple iterations, which is particularly important for platform competition under conditions of increasing return and network effect.

The result is not a punctuated equilibrium model nor a continuous morphing model of radical change (Plowman *et al*, 2007; Greenwood & Hinings, 1996). Rather, continuous incremental and radical changes in combination have spiralled in three distinctive episodes of radical changes in the competition between global and native digital platforms, but without clearly identifiable radical innovations to separate the different stages. The spiral model eclectically and holistically combines key features of the punctuated equilibrium model, the continuous morphing model and the continuous incremental change model, but is different from each of them. Unlike the punctuated equilibrium model when long periods of incremental changes are interrupted by brief periods of discontinuous changes, the different episodes are the result of a continuous, cumulative process. It is also different from the continuous morphing model in that distinctive episodes of dynamic competition are clearly identifiable.

This study also exposed the limitations of traditional competitive practices, where much of the emphasis is on rivalry, head-on competition, and attack and response among players within an industry (Chen & Miller, 2015). CDPs seek victory not in one single decisive battle in a clearly defined market niche, but rather through successive incremental moves designed to gradually improve their positions, eventually winning the competition through a cumulative

process by triggering increasing return and network effect. It illustrates an alternative path that native digital platforms can follow to compete with stronger global digital platforms.

The new spiral model extends previous studies that competitive advantage is associated with an eclectic process of renewal based on favourable market position (Porter, 1980), superior resources (Barney, 1991) and institutional contexts (Peng, 2002). It illustrates the nonlinear dynamics at work in platform competition; and highlights the strategic importance of temporary advantage when change and continuity are simultaneously attained. It shows how small changes can emerge and spiral into something radical through a dynamic and cumulative process, and specific intended and unintended actions often led to other emergent changes, amplifying the initial small change into something much bigger.

The new model does not fit Romanelli & Tushman's (1994) popular view that radical change does not happen slowly, or Gersick's (1991) assertion that fundamental change cannot be accomplished piecemeal or gradually; nor Plowman *et al* (2007)'s continuous radical change that happens accidentally, or Rindova & Kotha (2001)'s continuous morphing model that organizational form, function, and competitive advantage dynamically coevolved as one continuous transformation to regenerate transient competitive advantage. The new spiral model illustrates a distinctive dynamic path of platform competition that is different from conventional multinational firms and firms based on traditional industrial or manufacturing platforms.

The new model is consistent with emerging trends highlighted in other studies. For example, Hanelt *et al* (2020) found that in the context of digital platforms and ecosystems, change is shifting towards continuous, triggered and occasionally punctuated by episodic bursts, and "*even these episodic episodes lead to new phases of continuous change in organizations, which may endure for a comparably long time*" (p20). This emerging pattern is significantly

different from established models of change in the literature. The new spiral model not only systematically substantiated a similar trend, but also provided a nuanced illustration of the triggers, mechanism and processes, supported by comprehensive empirical evidence. This suggests the spiral model is not specific to the empirical context of this study.

LIMITATIONS AND FUTURE RESEARCH

Case study research must always confront the issue of generalizability. Such limitations may represent interesting new research opportunities. This paper is based on four pairs of digital platforms. The generalizability and the boundary conditions of the findings should be further validated empirically in different contexts.

Due to the emerging nature of the phenomenon, this exploratory study has taken a broad, eclectic approach. The conclusions are, therefore, necessarily tentative. However, by argue theoretically, and show empirically, how the competition between ADPs and CDPs has played out in China, this study contributes to our understanding of the underlying mechanisms and develops a new spiral model of competition between global and native digital platforms.

The new model may also be used to investigate other emerging phenomena in the digital economy, such as why Europe has so far failed to produce any credible large native digital champions to rival the FANGs and BATs from USA and China; and whether other large emerging economies (such as India, Brazil or South Africa) can (or should) replicate China's experience. Further, it may also be used to study platform competition in other emerging technologies, from 5G, Artificial Intelligence, big data, cloud and edge computing, autonomous vehicles, smart homes, 3D printing (additive manufacturing) to Internet of Things (IoTs), both in China and internationally.

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TABLE 1: INDUCTIVE CASE STUDIES

Firms	Business	Year of Entry	Main Features	Market Status	Number of Interviews	Dates
eBay	C2C retailer	2003	Acquisition of Eachnet.com	Market share dropped from 85% to under 10% by 2006 and sold to Tom online in 2007	3 1 1	Aug 2012 Feb 2013 Aug 2014
Taobao (Alibaba)	C2C retailer	2003	Part of Alibaba Group	Over 80% market share	3 3 2	Aug 2012 Aug 2014 Feb 2017
Google	Search engine	2006	Wholly owned subsidiary	Market share peaked at 33% and dropped to 19.3% when it exited the Chinese mainland market in 2010	5 1 2	Feb 2013 Aug 2014 Feb 2017
Baidu	Search engine	2000	Dominant search engine in China	70% of the search market	4 2 3	Feb 2013 Sept 2016 Feb 2017
Amazon	B2C retailer	2004	Acquisition of Joyo.com	Still operational with 0.8% market share in 2016. Opened online store on Alibaba's TMall in 2015.	4 2 2	Feb 2013 June 2015 Feb 2017
JD.com	B2C retailer	2004	One of two dominant B2C online retailers (with Alibaba's Tmall).	31.2% of the B2C market in 2016 & growing faster than Tmall (51.3%).	3 3 2 2	Feb 2013 June 2015 Feb 2017 Mar 2018
Uber	Ride hailing	2013	Wholly owned subsidiary	Acquired by Didi Chuxing in 2016 but owned 20% shares in the combined firm.	2 2	Sept 2016 Feb 2017
Didi Chuxing	Ride hailing	2012	Merger of Didi Dache and Kuaidi Dache; acquired Uber China in 2016	Over 80% market share	2 3 2	Sept 2016 Feb 2017 Mar 2018

TABLE 2: ARCHIVAL AND SECONDARY DATA

Type	Source	Quantity	Use
News Reports and Commentaries	Articles from English and Chinese Newspapers, Business Magazines and the websites of major news agencies, including but not limited to *The Financial Times*, *Wall Street Journal*, *The Daily Telegraph*, *The Guardian*, *The China Daily*, *The People's Daily*, *The Economic Daily*, *The Economist*, *Fortune*, *Business Week*, Bloomberg, CNN, BBC, Xinhua News and others.	3156 articles concerning ADPs in China, major initiatives by CDPs, the latest development in the digital economy and e-commerce in China, new regulatory and policy initiatives and changes concerning digital services and digital firms in China, and other relevant background information	Primarily used as a secondary source of information to initiate questions and discussions during interviews, confirming and verifying chronology of events and major developments; and triangulating and validating data collected from the interviews.
Research Reports (public)	Research reports from Business Consulting Firms, Research Institutions and Chinese government agencies, such as Mckinsey, BCG, Bain, Gartner, iResearch, Ministry of Industry and Information Technology, China Academy of Social Sciences. Some commercial reports by major investment banks, (Citi, BAML, JP Morgan and HSBC) on these digital firms were also obtained.	106 reports containing comprehensive background information about American and Chinese digital firms, the digital economy and e-commerce development in China in general and in different niche areas and regions, and emerging technological and business trends in China and globally	Primarily used as background information and the business context for understanding, validating and analysing the data collected from the interviews. Selected reports are referenced directly in the paper.
Reports and internal documents by relevant digital firms (Private)	Reports produced by American and Chinese digital firms, for example, from Ali Research, Baidu and Tencent. Some of these reports are publicly released subsequently, but some internal reports not publicly available are also obtained through personal contacts.	47 reports on major strategic initiatives and significant emerging technological and market trends concerning Chinese and American Digital Firms in China	These reports were mainly used to validate the chronology of major events and provide written accounts of key developments in the case studies.
Web portals	A range of Chinese web portals are regularly monitored, for example, TouTiao.com, Shujuju.cn, China Big Data Industrial Observation (Cbdio.com), and links to relevant reports, news and commentaries via personal Wechat contacts and their Moments.	These portals are mainly used to generate lead to new research reports, news release and relevant new initiatives by Chinese and American digital firms, major changes in regulations and policies in China, and on-going development of the digital economy, infrastructure and services	Mainly provide background information and identify links to current and historical developments in China on a regular basis. Also links to major news and research reports in relevant areas.

TABLE 3: SYSTEMATIC CODING OF INTERVIEW DATA

First Order Categories	Second Order Themes	Aggregate Dimensions
Slow and reluctant adaptation of group business model for Chinese market	Group business model not competitive in China	Conceding multiple strategic advantages
Imposing group business model on new acquisitions in China		
Products and services aimed narrowly at middle class users in first tier cities		
Reluctance to diversify with narrow range of products and services		
Rigid adherence to group global pricing strategy		
Limited and narrow sources of revenues		
Failing to compete with more aggressive Chinese competitors	Failing to cope with extreme competition	
Failing to respond quickly to extremely intensive competition		
Overwhelmed by very large number of local competitors		
Unable to cope with more determined competitors		
Rigid adherence to proven strategies and tactics in China		
Failing to capitalise on group technological advantages		
Failing to capitalise on group capabilities and resources and business networks		
Underestimate determinations of local competitors		
Incompatible and poorly aligned business partners	Problems with local partners and acquisitions	
Failing to capitalise on capabilities and local knowledge of Chinese local partners		
Failing to utilise proven government relations (*Guanxi*) of local partners		
Failing to manage relations effectively with local partners		
Failing to capitalise on the market dominance of local acquisitions		
Failing to acquire or partner with local market leaders		
Focusing narrowly on formal business partnerships through strategic alliance, merger and acquisition		
Inability to develop non-transactional and informal relations with supporting companies and user communities		
Technological platform not designed for China's internet environment	Technological platform and product not designed for China	
Rigid adherence to group technological platform and reluctant to adapt		
Imposing global technological platform on new acquisitions in China		
Products and services not designed or adapted for Chinese consumers		
Web design, products and brand promotion targeted primarily at large cities		
Web design, products and brand promotion not suited for lower tier cities and rural China		

		Technological platform, product and organisational structure not designed or fully adapted for China
Organisational structure too rigid for rapidly changing consumer behaviours	Rigid organisational structure and slow decision making	
Local management lacked sufficient autonomy to make decisions		
Decision making by head office too slow		
Decisions by head office inappropriate for China		
Inability to respond quickly to local competitors		
Relying on expatriates to manage Chinese operations		
Reluctance to empower local talents to manage operations in China		
Imposing group business practices that are ineffective in China		
Slow response to local competition and changing customer demands		
Slow response to changing customer demands		
Over-reliance on ineffective digital communications internally and externally		
Poor understanding of user behaviours in China	Lack of deep understanding of Chinese culture, geography and user preferences	Lack of deep understanding and ineffective response to Chinese business environment
Superficial understanding of user segments in China		
Failing to appreciate market differences between China and the West		
Failing to understand diversity in user demographics and expectations in different cities and regions		
Failing to appreciate geographical differences across China		
	Failing to adapt for China's infrastructure and third party support services	
Superficial understanding of the internet environment in China		
Failing to adapt for uneven development of telecommunications infrastructure and internet accessibility and speed in different regions		
Lack of preparation for the limited banking services (e.g. payment) in China		
Failing to develop solutions for the transportation infrastructure and logistics services		
Failing to address online security and user protection concerns due to inadequate regulations		
Failing to address inadequate third party supporting services in China		
	Failing to manage regulatory environment and government relations	
Excessive concerns about weak protection of IP rights		
Unwilling to cooperate with Chinese government		
Inability to manage complex relations with Chinese governments and their different departments		
Inability to cope with inconsistent and rapidly changing regulations both nationally and locally		
Regulations interpreted and implemented differently and inconsistently across cities and regions		
Regulations and government relations are viewed negatively rather than as potential opportunities		

TABLE 4: THE COMPETITION BETWEEN ADPs AND CDPs DURING DIFFERENT EPISODES

	EPISODE ONE *Davide & Goliath*	EPISODE TWO *Tug of War*	EPISODE THREE *Empire Building*
eBay	Acquire local market leader EachNet with over 80% C2C market share for $180m Dominate Chinese C2C market with 85% market share and 2 million users Migrate EachNet business to eBay's global platform & business model, using servers in USA, slowing down services for users Spending $100m advertise online and on billboards etc by signing exclusive advertising deals with all major online portals in China - Sina, Sohu and Netease - to block Taobao from advertising online	Stop charging for listings and imitate Taobao's freemium model but it was too late to reclaim lost market share The simple, clean web design by eBay not suitable for Chinese market and culture Continue to emphasise auction of 2nd hand items when they are not popular in China Launch escrow service *Anfutong* but could not match functionality of Alipay Relying on customer ratings to rate sellers for future customers Relying on Expats rather than local talents to run China operation Slow decision making by Headoffice causing delays in launching timely responses to local competition Limited autonomy to make changes to products and platforms or developing strategic partnerships with service providers	Market share decline from 85% to a mere 6.2% Selling EachNet and becoming junior partner in joint venture with Chinese wireless internet firm Tom Online Maintain fringe presence in China and focus on cross-border e-Commerce Multi-billion dollar export business by helping Chinese entrepreneurs selling internationally via eBay global platform and Paypal Import business for Chinese consumers in collaboration with Chinese firm Xiu.com but smaller than other players Large development centre in Shanghai to undertake critical development and infrastructure support for eBay's global platform Signing new agreement with Ningbo City - a major port city near Shanghai and an e-Commerce Pilot Zone designated by Chinese Government with expedited imports and tax breaks – in order to expand cross-border e-Commerce Facing strong competition from multiple Chinese digital platforms for cross boarder e-Commerce, including Taobao, Tmall, JD and Suning; and also from Amazon
Taobao (Alibaba)	Building Taobao *after* eBay enterred China for only $12m Using freemium business model mainly as a defensive strategy to protect main B2B business Alibaba.com, not to make a profit	Launch *Aliwangwang* instant messaging integrated to Taobao platform to support direct communications between buyers and sellers for trust building Enabling texting and voice mails from Taobao platform to mobile phones by users	The world's largest IPO raising $25bn in NYSE Expanding functionality of Alipay and invest in logistics partner Cainaio Expanding AliCloud Invest in hundreds of promising new startups across different sectors

	Freemium model generated huge traffic on Taobao enabling new opportunities for revenue generation Due to lack of funding and the fact that eBay signed exclusive advertising deals with all major online portals in China, Taobao was forced to advertise on TV and small web portals for with ¥1m ($125k) budget to reach small business owners and consumers, which ironically proved more effective than online advertising at the time	Launch Alipay as escrow service *and* insurance to protect buyers and sellers from potential financial loses. Collaboration with *China Post* to use its 60000 branches throughout China for users to put money on accounts 'Cash on delivery' by signing formal agreements with major logistical providers. Overtaking eBay EachNet only two years after launch Building on momentum to claim victory with 82% market share in China Continue to expand Taobao (and Tmall) and support services (Alipay and logistics) incrementally Taking over Yahoo China to strengthen technical and other expertise and resources International presence in Japan, SE Asia and Europe Incremental innovations to fine tune Taobao platform - e.g. using discrete, star rating system as an improvement of the continuous % based ratings that eBay uses; focusing on online sales of new items rather than auction of second-hand items	Launch 'new retailing' initiative to expand empire through O2O Acquire multiple retail chains in China before Amazon acquiring Whole Food Launch Hema Xiansheng before Amazon Go International expansion of services in both emerging economies and developed countries - e.g. India, Russia, Singapore, SE Asian countries – by setting up new offices and through M&A Continue to expand and consolidate retail ecosystem to defend against potential Chinese and foreign disruptors Launching 'new manufacturing' initiative following the success of 'new retailing' to further integrate value chains and ecosystems under O2O Expanding into adjacent and other promising new sectors and areas for long term dynamic sustainability Further significant expansion internationally both in e-Commerce and in other services (e.g. payment; Alicloud
Google	Offer search in Chinese and invest in Chinese Search leader Baidu before entering China Entering China via wholly owned subsidiary Converting English Search for Chinese with minimal adaptation of tech platform or business model Capture 33% Chinese market within a short period - mainly from smaller	Launching Google music with consent from major music labels but it was too late Limited autonomy to make changes to platform or build strategic partnerships Marketshare declined to below 20% in China (19.3%) Open confrontation with Chinese authorities and withdraw search services from mainland China	Only maintain marginal presence in China Continue to generate over one billion dollars annually from Chinese business advertising internationally Only accessible in China via VPNs by a small segment of users from particular backgrounds Tentative attempts to repair damaged relations with Chinese authorities Re-enter China cautiously by setting new offices in major cities and a new AI centre in China

	providers rather than market leader Baidu	Re-direct all search traffic from Mainland China to its Hongkong website before it was blocked by Great firewall	Developing new collaborations with major players include Tencent and JD.com Investing in multiple promising local new startups in China Exploring the re-launch of old and new services, including the suspended censored mobile search that would link results to individual phone numbers
Baidu	Competing with multiple local and foreign Search providers (3721.com, one of the main competitors, was acquired by Yahoo for $120m) for marketshare Defending against Google by offering incrementally more relevant search results and other services Capture market share from other search providers in China	Fine-tune tech platform and business model for China Multiple paid search services to generate additional revenues Allowing different payment methods by advertisers Develop online communities such as Tieba, Zhidao and Baike to attract users and maintain market share Exploit institutional voids by linking search results to free music and video download by third part websites Dominating Chinese Search market with 63% marketshare Consolidating platform and ecosystem to maximise revenues Managing and maintaining good relations with Chinese regulatory authorities and telecom operators Capture market share vacated by Google's exit and achieve total dominance Increasing revenue generation through incremental innovations	Expanding heavily into new areas, particularly in AI and autonomous vehicles Setting up Deep Learning R&D Lab in Silicon Valley Investing in promising new startups in adjacent and other areas and domains Acquiring multiple companies in USA, Japan, Israel, Finalnd and Brazil etc Expanding operations internationally particularly in emerging economies Maintaining dominance in Search in China and defend potential re-entry of Google in China Making a significant bet on AI and autonomous vehicle platforms for future growth Investing in multiple promising new startups both in China and internationally
Amazon	Acquiring leading Chinese online book, music and video retailer Joyo.com for $75m	Market share in e-Commerce decline to single digit in China Limited autonomy to make changes to platform or build strategic partnerships	Continue to operate in China as a marginal player Market share continue to decline to lower single digit Focusing on cross-border e-commerce with limited success

	Migrating Joyo business slowly to Amazon global platform and business model eBook reader Kindle uncompetitive in China but refuse to change or explore other options Rapid decline of market lead by Joyo	Setup digital storefront on Alibaba's Tmall to increase sales in China but with limited result Overtaken by a large number of other online retailers in China, becoming a marginal player	No longer seen as a main player in China either by Chinese digital platforms or consumers Expanding cross-border e-Commerce Expanding AWS and Amazon Prime in China with limited success Market share in e-Commerce decline further to 0.7% in 2018 Widely seen as a marginal player in China
JD.Com	Not yet seen as a main competitor of Amazon - the main competitors for Amazon were other online book retailors, such as Dang Dang Started as a small shop in Beijing selling multimedia products and was forced to start selling online during the SARS outbreak in China when people are unable to go to public places for shopping	JD.com and other e-Commerce firms enter the fray as Amazon expanded beyond online book retailing Competing aggressively with Amazon and other (Chinese) e-Commerce firms Building proprietary logistics services to ensure superior consumer experience Expanding to general merchandise from electronics Expanding superior proprietary logistics services to attract users Focusing on competing with Alibaba's Tmall and Taobao for market share even though JD business model closest to Amazon Entering financial services Strategic partnership with Tencent, giving JD exclusive access to Tencent's WeChat and QQ platform First major Chinese e-Commerce firm to list on Nasdaq	Continue to expand ecosystem particularly by investing in logistics for fast efficient delivery and excellent services Investing in promising startups in China International expansion to the USA and Europe via strategic partnerships with leading global players such as Walmart, Google and Intel International expansion in emerging markets Competing against established e-Commerce giants in China Alibaba with backing of Tencent Defending against new disruptors such as Pinduoduo Continuing international expansion through strategic partnerships with leading global players and and foreign direct investments in both developed and developing countries
Uber	Setting up wholly owned, highly autonomous subsidiary in China Key partnership with leading Chinese player Baidu in China Uber co-founder and global CEO maintained hands on role as CEO of Uber China	Use cash subsidy to win market shares, at a cost of over $1bn annually China became Uber's largest market accounting 1/3 of daily rides in business volume Expanding rapidly in selected cities Only managed to capture 8% market share in 60 cities in China	Uber China absorbed into Didi Chuxing Uber China ceased operation as a separate business Continue to hold stake in Didi Chuxing in China Continue to hold stake in Didi Chuxing in China Competing with Didi Chuxing in selected international markets, particularly in emerging economies

		$1bn annual cash burn as subsidy unsustainable for Uber Allowing Didi to take over its China operation for a 20% stake in Didi Chuxing	
Didi Chuxing	Merger of Didi Dache and Kuaidi Dache to form Didi Chuxing as a defensive strategy against Uber and other ride hailing firms in China Shifting business focus from traditional taxi hailing to private car hailing Using cash subsidies to attract drivers and customers to its platform, forcing Uber to follow	Continuing to expand extremely rapidly throughout China Continue to subsidise heavily to drivers and users to win market shares Introducing a range of data-enabled new services based on its superior data system Service optimisation based on rich data Raising new funding for rapid expansion and for battle with Uber Expanding to over 400 cities in China with 80% of ride-hailing market Raising another $7bn new capital from international and Chinese investors to show determination to fight to the end, with a total war chest of over $10bn Continue with land grabbing through cash subsidies and introduction of new products and service	Dominate Chinese ride hailing market Consolidate and expand ecosystem and platform Diversify services to carpooling, bus services, surrogate drivers and many others – from ride hailing to one stop travel platform Expand into other areas such as urban traffic management, bike sharing and food delivery International expansion in multiple countries Defending against powerful new entrants in ride hailing Further international expansion Defending against new competitor Meituan entering ride hailing through cash subsidiary and by integrating ride hailing into Meituan food delivery platform Defending against Alibaba's AutoNavi which entered the fray by launching a free carpooling and then ride hailing aggregation platforms

TABLE 5: A DYNAMIC EQUILIBRIUM MODEL OF PLATFORM COMPETION BETWEEN ADPs AND CDPs IN CHINA

		Episode One	Episode Two	Episode Three
Episode		Market Entry	Market Capture	Market Consolidation
Competition		*Davide and Goliath*	*Tug of War*	*Empire Building*
Main Features		High profile market entry and domination by ADPs	Disrupt ADPs market dominance by CDPs via asymmetrical competition	CDPs expand rapidly to consolidate market domination in China
Mission	**ADPs**	Market domination	Market domination	Damage limitation
	CDPs	Survival	Market domination	Market domination
Strategy	**ADPs**	Replicate group technological platform and business model in China	Crush local competition via superior capabilities and resources and dominant market position	Retreat from China with only marginal presence remaining
	CDPs	Imitate and refine business models, platforms and products of ADPs for the local market	Incremental innovations via experimentation and user feedbacks to grow market share	Horizontal, vertical and international expansion
Competitive Advantage	**ADPs**	Resource and Capability Advantages Positional Advantages	Resource and Capability Advantages Positional Advantages	Resource and Capability Advantages
	CDPs	Institutional Advantages	Institutional Advantages Positional Advantages	Institutional Advantages Positional Advantages Resource and Capability Advantages

FIGURE 1: "*THE SPIRAL MODEL*"

A NEW DYNAMIC EQUILIBRIUM MODEL OF COMPETITION BETWEEN GLOBAL AND NATIVE DIGITAL PLATFORMS