

The path to WeChat: How Tencent's culture shaped the most popular Chinese app, 1998–2011

Global Media and Communication

2020, Vol. 16(2) 208–226

© The Author(s) 2020

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/1742766520923008

journals.sagepub.com/home/gmc**Gianluigi Negro** 

University of Siena, Arezzo, Italy

Gabriele Balbi

Università della Svizzera italiana (USI), Switzerland

Paolo Bory

Polytechnic University of Milan, Italy

Abstract

This article contributes to the literature on WeChat, providing a historical perspective on the long-lasting culture of its mother company, Tencent. Through a corpus of primary and secondary sources, the article retraces four constitutive choices which characterized Tencent's culture from 1998, when the company was founded, to 2011, when the first version of WeChat was launched. We argue that Tencent's market strategy has always been based on four principles: mobility, media convergence, gaming/youth culture and Sinicization. The article concludes by highlighting that these constitutive choices paved the way to the creation of WeChat, thus contributing to its current success.

Keywords

Chinese Internet, Chinese media, Internet studies, media history, Tencent, WeChat

Corresponding author:

Gianluigi Negro, Department of Education, Human Sciences and Intercultural Communication, University of Siena, Campus del Pionta, Palazzina Biblioteca, Entrata B, Stanza 8 I Piano, Viale Luigi Cittadini, 33, 52100 Arezzo, Italy.

Email: gianluigi.negro@unisi.it

Introduction

WeChat (in Chinese, *Weixin*, meaning ‘micro-message’) is a mobile application for smartphones marketed by Tencent, a Chinese company based in Shenzhen. WeChat is currently China’s most popular app, with a larger number of users than any other single smartphone application in the world. According to data provided by Tencent in February 2019, with 1.08 billion monthly active users, WeChat is today one of the most popular messaging apps in the world, right behind WhatsApp and Facebook Messenger (Business of Apps, 2019).

As a consequence of this success, academic interest in WeChat continues to increase (Tang, 2019). For example, Eric Harwit (2017) analysed the strategies developed by the Chinese government to monitor and control WeChat; Fangjing Tu (2016) has provided an alternative point of view, arguing that ‘WeChat can be used to facilitate civil society as well as to constitute obstacles for it’ (p. 349). Plantin and De Seta (2019) have argued that WeChat made a contribution by acting as a new infrastructure within Chinese society. At the sociological level, Chen et al. (2018) provide a comprehensive overview of the app in *Super-Sticky WeChat and Chinese Society*. Other scholars have focused on the interactions among WeChat users (Cui, 2016) as well as on personal gratification and the potential reinforcement of social boundaries (Gan, 2017). Various studies have explored WeChat’s success from a comparative perspective, arguing that the famous microblog platform, Sina Weibo, began to decline (in user numbers) as WeChat emerged and grew (Benney and Xu, 2017; Gan and Wang, 2015; Negro, 2017).

This article contributes to this scientific literature using history, a discipline rarely applied to the study of WeChat or, more in general, digital media (Balbi and Magaudo, 2018). Specifically, this article focuses on WeChat’s prehistory, identifying recurring trends in the history of Tencent, the mother company that launched WeChat in January 2011. Tencent was founded in 1998; during the late 1990s and early 2000s (long before WeChat), it developed popular digital platforms in China, including OICQ and QQ, which anticipated WeChat’s main distinguishing characteristics. Following Paul Starr (2004), we argue that Tencent has developed and managed WeChat by following a few constitutive choices made during the years that preceded its launch.¹ Between 1998 and 2011, the corporation made some key decisions, which were driven by political motives, economic profitability, technical visions and user pressures; these shaped the company’s business mentality and way of seeing itself. Such choices, made before its foundation, affected WeChat’s development and ‘culture’. In sum, instead of viewing WeChat as the disruptive-innovation brainchild of brilliant programmers and entrepreneurs, a historical approach can identify continuities and forms of *remediation* (Bolter and Grusin, 1999) for old ideas, as well as strategies and technologies (such as pagers and computers) that persist in the new mobile application.

This article is organized into four sections. The first describes the archives and historical sources used to retrace WeChat’s prehistory. The second section provides a short history of Tencent, highlighting its key assets and business strategy turning points. The third section develops the empirical analysis, using sources to identify the main arguments underpinning Tencent’s four constitutive choices. In particular, we hypothesize that the company drew on four principles to create its products: mobility, media

convergence (young) community building, and Sinicization. The fourth and concluding section highlights the way in which these constitutive choices paved the way for WeChat and contributed to its current success.

Archives and sources

This article relies on four sets of primary sources rarely considered in Chinese academia and translated into English here for the first time. The first set incorporates three of the most authoritative Chinese IT magazines of the 1990s and 2000s: *China Computerworld* (*Jisuanji Shijie*, hereafter CCW), *Internet Review Weekly* (*Hulianwang Zhoukan*, hereafter IRW) and *IT Time Weekly* (*IT Shidai Zhoukan*, hereafter ITW). Accessing the China National Knowledge Infrastructure database (CNKI) at Beijing National Library, we selected 52 articles from CCW, 89 articles from IRW and 23 articles from ITW published between 1998, when Tencent was founded, and 2011, when WeChat was launched. These magazines are key sources for understanding the Chinese digital culture of the time, conveying different visions of technological development and the digitization of China.

The second set of historical sources includes three books on the history of Tencent, Tencent annual reports and the company's own data and self-reflections on the state of the business. The three books are *Pony Ma of Tencent Empire* (*Ma Huateng de Tenngxun de Digu*), published in 2009 by the Chinese tech journalists Lin Jun and Zhang Yuzhong; *QQ Small Empire: Ma Huateng Legend* (*Xiao QQ Dadiguo, Mahuateng Chuangji*), published in 2013 by Xiong Jiang; and *Tencent 1998–2016: Evolution of the Chinese Internet Company* (*Tengxun Chuan: 1998–2016: Zhongguo Hulianwang Gongsi Jinhualun*), published in 2017 by the journalist Wu Xiaobo and the only officially approved history of the company. Overall, these sources provide internal documents, interviews with former and present staff members, and private anecdotes, recounting the ways in which the company has narrated itself.

The third set of sources consists of reports published by the China Internet Network Information Center (CNNIC). CNNIC is an administrative agency managed under the aegis of the People's Republic of China's Ministry of Information Industry, which publishes the most important biannual statistical report on the country's Internet development. This report is open access and provides useful data and a comprehensive view of Internet development in China, in which Tencent has played such a significant role.

The fourth and final set of sources includes Chinese hi-tech online blogs, such as *Chuansongme*, *TheNextWeb* and *SinaTech*, as well as Western magazines and blogs, such as *Bloomberg*, *The Economist*, *Fastcompany*, *Forbes*, *Techinasia*, *Technode* and *Quartz*. We did not carry out systematic research on these sources; instead, we used them to deepen our understanding of digital Chinese culture as well as the way in which Tencent is viewed outside China.

A short history of Tencent

Tencent is a digital service provider founded in Shenzhen in November 1998. In 1999, it launched OICQ, the first instant-communication application to be used on digital devices in imitation of ICQ, the instant-messaging service developed in 1996 by Mirabilis, an

Israeli company, and later bought by America Online (AOL). Unlike ICQ, OICQ allowed users to interconnect with pagers and mobile phones, as well as personal computers, to identify friends online and offline. Most importantly, it included Chinese encoding software, which allowed users to write quickly in Chinese (Jun and Zhang, 2009).

After a lawsuit with AOL in 2001 (see below for more details), Tencent was obliged to rebrand its service as QQ. QQ soon became a must-have application for most Chinese Internet users; it was installed in computer offices, Internet cafés (*wangba*), and later on mobile phones (Jun and Zhang, 2009; Koch et al., 2009; Wallis, 2013). In 2003, only 2 years after its launch, QQ topped the five-million-registered-users' mark (China Computer World (CCW), 2004: 7). In the same year, QQ launched both a gaming app and a new mobile app (Xiong, 2013). In the mid-2000s, in line with both Western and domestic social-networking trends, Tencent established two social network websites: Qzone in 2005 and Qzone mobile in 2007. Thanks to QQ's spectacular success, Tencent debuted on the Hong Kong stock market in 2004 and it has now become one of the most profitable companies in the world (Xinhua, 2019).

The new app Weixin (launched on 21 January 2011 and translated into WeChat in 2012) is the most significant service that Tencent has released during the last decade. WeChat quickly became China's most important message-exchange app, in part because it enabled users to directly import all of their contacts and text messages from the former QQ app. WeChat immediately shocked the market, despite being opposed by the three main Chinese telecom companies (China Mobile, China Unicom and China Telecom). Its competitors worried that their text messaging and other mobile services could be disrupted by the Shenzhen company (Millward, 2018). However, WeChat's success can be traced back to long before its recent launch. Between the 1990s and early 2000s, Tencent made four constitutive choices that shaped company strategy, contributing extensively to WeChat's creation and current success.

The four constitutive choices

From its founding to the present day, Tencent has applied four paradigms and guiding principles to all of its technologies and services (from applications for pagers to personal computers, software, social networking, mobile phones and smartphones). These paradigms and principles are mobility, media convergence (young) community building and Sinicization. These are the four 'constitutive choices' that have shaped Tencent's mentality.

Mobility and 'nomadic' access: Pagers, mobile phones and cloud computing

The first constitutive choice made by Tencent, at a time when computing and digital communications were mainly desktop, was to invest in mobility and mobile communications. An article published in the *Internet Review Weekly* in December 2000 pointed out that 'the real added value of OICQ was its natural capacity to be designed around its users (*Tieshen Genzong*)' (*Internet Review Weekly (IRW)*, 2000: 30). Right from the start,

Tencent has been perceived as a *mobile* company, capable of creating portable and ubiquitous services.

In the 1990s – before the mobile-phone boom – being ‘mobile’ in China meant communicating through paging devices. Pagers were wireless telecommunication devices that enabled users to be contacted on the move; they were the ancestors of mobile phones (Agar, 2013). They became quite popular in the United States from the 1980s onwards, but, as Yan (2003) has shown, the pager industry also grew steadily in China, from 873,800 users in 1991 to 48.84 million in 2000.

Before founding Tencent and becoming its CEO, Ma Huateng was a pager software developer. He pushed Tencent engineers to develop a series of creative services for pagers, including text messaging, emails and a ‘wireless-network paging system’ (*wuxian wangluo xunhun xitong*). All of these services allowed users to store their cell-phone books and diaries online and to exchange times, locations and schedules with other users. By creating a ‘comprehensive pager business’ (*xunhu qiye daquan*) (Lin and Zhang, 2009), Tencent contributed to strengthening the portability concept among Chinese users. To speed up the system and make it more efficient, Tencent bought 100 servers in 2001. This allowed OICQ to be much more responsive than other international paging services, such as ICQ, AOL, AIM, Yahoo Pagers and instant-communication software, such as MSN. This strategy enabled OICQ, then renamed QQ, to reach 95 per cent of the Chinese instant-messaging market in just a few years, making it the largest paging service in Asia and the third-largest instant-messaging service in the world, in terms of users (CCW, 2001a: 13).

This ‘mobile mentality’ became more and more crucial to the corporation’s culture over time. In 2001, Ma Huateng argued that ‘one of the most important resources for our future is mobile communications. The first goal is to charge every short message and then share the revenues with mobile operators’ (CCW, 2001a: 13). Following this strategy, Tencent partnered with telecom operator China Mobile on the ‘mobile Internet’ programme, Monternet (*Mengwang Jihua*). This programme, joined by 3,600 service providers in 2002 (Kong and Luo, 2006), combined mobile and Internet communications, integrating various services such as multimedia messaging, a wireless-application protocol (WAP), web browsers and mobile games.

Although pagers did not become a dominant technology in China, they helped Tencent develop its business strategy in at least two ways. First, Tencent used pagers to create the largest wireless network in China, arranging agreements and partnerships with many private and public companies, including Guoxin, China Unicom, Zhongbei, Wangsheng, Wanlingtong and the China Railway Group (CCW, 2001b: 11). Thanks to these partnerships and the integration of diverse communication standards, such as GSM and IP phones, Tencent became a leader in mobile communications. Second, pagers were Tencent’s first step into mobile society; they made mobility a key part of company culture. In 1998, when Tencent was founded, there were only 1.17 million Internet users in China (CNNIC, 1998) and only 820,000 computers were connected to the Internet (CNNIC, 1998). In mainland China, where personal computers were even scarcer, citizens could gain familiarity with the Web at Internet cafés, which were popular in big cities such as Beijing and Shanghai as well as in provinces such as Guangdong, Sichuan, Jiangsu and Zhejiang. In the 2000s, when personal computers were spreading

worldwide, more than 30 per cent of Chinese users still accessed the Web primarily in Internet cafés (CNNIC, 2008), using different terminals and logging in at different places. This Chinese characteristic captured the attention of Ma Huateng from the very beginning:

[In the US] users access the Internet using their personal or office computer, where their personal data is stored. In China, it's different; the majority of Internet users access the Internet from the workplace (*dangwei*, labour unit) or Internet cafés. When Chinese users log into the system, their contact list and contents are not accessible and this is very annoying. (Lin and Zhang, 2009: 40)

Tencent services, such as OICQ and the upgraded version QQ, were a response to this 'nomadic need' for access to information and connectivity. Unlike its Western competitors, such as AOL, Tencent software stored user information (such as personal data and contacts) on company servers, rather than personal devices. In other words, from its earliest days, Tencent was one of the first Asian (and worldwide) companies² to manage and coordinate a complex set of cloud-computing services, allowing users to access their essential information from any device and any location.

Media convergence

The second constitutive choice made by Tencent can be summarized using the buzzword 'media convergence'. In Western societies, the idea of media convergence emerged in the 1980s and combined various visions of the digital future (Balbi, 2017). Technologically, for example, it was commonly believed that all digital devices would soon integrate, enabling people to use a single one (the so-called *überbox*) to access all kinds of media messages. From a political-economy perspective, corporations working in different sectors, such as telecommunications and mass media, would inevitably merge into more profitable mega-groups. This was a failed prediction – or at least one that, several mergers later, was shown to be unprofitable. From the 2000s onwards, the idea of a cultural convergence emerged, in which consumers and producers would no longer be distinguishable.

Tencent quickly embraced the rhetoric of media convergence. In Spring 2001, the company began to combine personal computer communications and mobile devices, such as telephones, launching Mobile OICQ (*Yidong OICQ*). This system was developed alongside China Telecom and based on three different and complementary mobile standards: GSM, SMS and WAP. Whereas, in the past, users had only been able to exchange messages between personal computers and pagers, Mobile OICQ allowed communication between mobile phones and personal computers (*IT Time Weekly (ITW)*, 2001: 22). Users could thus exchange instant messages between mobile phones and PCs with no constraints. PC-based QQ clients could also receive messages sent to them remotely on a mobile device, check the online presence of other QQ users through their status and even obtain information and potential contacts directly through their mobile phones. Overall, thanks to Mobile OICQ, computers and mobile phones became convergent, using overlapping technologies.



Figure 1. Image: 1–24 hours spent with Tencent.

Source: IRW (2007: 59).

At the same time, Tencent decided to enter other media sectors and launched a series of online services, such as news (thanks to the QQ.com portal), gaming, e-commerce and a search engine (IRW, 2009: 62). In the social media era, the company launched a wider range of Web 2.0 services, including blogs and the social network Qzone, which became the world's third-largest social network in a few years (Bischoff, 2014). Finally, Tencent entered the email sector, buying Foxmail, a freeware mail service launched in 2005; its creator Zhang Xiaolong later developed WeChat.

In less than a decade, this convergence-based strategy allowed QQ to become

the primary platform for information exchange; leader in the competitive field of instant communications and interaction services, the best regarded company in online and casual gaming; one of the top three companies in the massive multiplayer online game sector (MMOG) and the traditional business wireless sector, as well as a 3G mobile-communication leader. (IRW, 2007: 57)

In 2007, according to a survey published by the *Internet Review Weekly*, two-thirds of the lives of Chinese Internet users were spent using Tencent services. As Figure 1 shows, the everyday lives of Tencent users included reading the news at 9:00 a.m. on *Tencentwang* or *Xinwenzhongxin*, online gaming 1:00–4:00 p.m., blog writing or communicating online with colleagues 4:00–5:00 p.m., listening to music on *QQMusic player* 5:00–7:00 p.m., and using the social network *Qzone* from 8:00–9:00 p.m.

The importance of media convergence was addressed by CEO Ma Huateng in several official speeches. In October 2005, for example, Ma gave a lecture titled, 'Six Trends that Will Bring About an Instant Communication New Era' (*Liu Daqushi Yingling Jishi*

Tongxun Xin Jiyuan), noting that Tencent was no longer in the business of instant messaging. Instead, QQ was becoming a *platform* on which users could source various types of content, including information, entertainment, music, video services, BBS and blogs. As Ma argued,

Chinese Internet users have already experienced the point end era of the instant-messaging platform, and we are now approaching a new set of trends in the field of instant communication beginning in China. Chinese instant communication will rapidly develop the biggest social culture in the world. (Wu, 2017: 146–148)

According to Ma, the six main trends to influence the Chinese Internet and Tencent strategies from the mid-2000s onwards were entertainment (*yulehua*), social networking (*shequhua*),³ individual-information processing (*geren xinxi chuli*),⁴ security (*anquanxing*), Internet wireless convergence (*wuxian hulianwang ziliao ronghe*), and localized application convergence (*bendihua yingyong de ronghe*). These six trends encompass a high degree of ‘convergence culture’, not only because the word convergence (*ronghe*) itself is present in two of them, but because Ma predicted that users would concentrate on entertainment and on social networking, would process information, and would deal with security in all their online activities and through all their devices. Making all these activities converge on one platform was the next step.

Summing up, Tencent has embraced the culture of media convergence at an early stage, at the level of both technology and content, by merging wireless communications with computers and mobile phones and providing a range of services and activities that ultimately converged on one dominant platform, later named WeChat.

Community building and gamification: A ‘youth’ company

In one of his most famous publications, the Chinese Academy of Social Science scholar Liang Guo (2007) labelled the Chinese Internet environment an ‘entertainment highway’, favouring this definition over the classic American ‘information superhighway’. Tencent perfectly fits this definition as it was one of the first Chinese companies to focus on entertainment and gaming services, spending time and financial energies on creating a community of young users.

The centrality of young generations in Tencent’s strategy has already been researched, both in the case of QQ (Meng and Zuo, 2008) and in the case of WeChat (Pang, 2016). Meng and Zuo claim that the influence of the ‘one child policy’ led younger generations to establish social links through social networks – with QQ providing tools to fight loneliness. Pang argues that WeChat succeeded among younger generations because it allowed users to personalize their virtual identities without the interference of parents or social control.

Tencent’s investment in younger generations also has a history. The strategy was clear as early as July 2007, when Ma gave the following interview to *China Computerworld*:



Figure 2. The first OICQ logo, 1998.

Source: Chuansomen (2017, 28 January).

Tencent users are already aging [and] this problem needs to be fully considered once they will become more mature. According to Tencent, this is particularly clear in the case of college students. Will they still use Tencent every day? These students will gradually become rich people. So, if they do not regularly access Tencent aren't we missing an opportunity to grow? (CCW, 2007: 3)

In other words, Tencent invested (and still invests) in younger generations to create a persistent and long-term sustainable business. Young people get old, and if they have integrated Tencent services into their everyday lives and habits, they will maintain this routine in the future and will also be inclined to spend money using the application.

A stable community of users needs a leader and Ma Huateng played this role perfectly. Before becoming the CEO of Tencent, Ma was one of the most respected figures in the community of 'techno-enthusiasts' (McLelland et al., 2018), who contributed to the development of BBS⁵ networks in China between 1993 and 1998. He was involved in the launch of Pony Soft, one of the first BBS networks in China,⁶ in Shenzhen in February 1995 (Xu, 2017), as well as CFido, the Chinese version of the famous BBS FidoNet (Driscoll, 2014). Like other techno-enthusiasts of the time, such as Lei Jun (founder of the mobile company Xiaomi), Ding Lei (founder of web portal Netease) and other future CEOs of Chinese digital corporations, Ma Huateng organized offline events with other members of BBSes, rapidly becoming an online and offline celebrity.

Reusing this social capital, as well as the BBS community, Ma Huateng also involved users in Tencent corporate strategies. One emblematic anecdote involves the creation of the OICQ and then QQ logo. The logo initially featured a penguin, with the bilingual slogan 'OICQ Zhongwen Wangluo Xunhuji' (*OICQ Chinese Internet pager*, see Figure 2). OICQ was a clear reference to the famous AOL instant-messaging application ICQ. The Chinese hi-tech journalist Xiaobo Wu (2017: 35) has said that Ma Huateng himself chose to include the letter 'O' to suggest the application's openness (*kaifang*). The second part of the slogan was exclusively in Chinese, not only to make it clearer to Chinese consumers but also to emphasize the importance of pagers in China. Finally, the choice of the penguin was inspired by Linux, a symbol of open and hacker culture.

As previously mentioned, in 1999, American Online, ICQ's owner, decided to sue Tencent through the World Intellectual Property Organization (WIPO) for copyright infringement; it won this case in May 2001. Consequently, in 2001, Tencent decided to

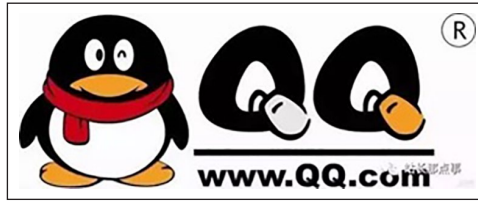


Figure 3. The QQ logo after online consultation in 2001.

Source: Chuansomen (2017, 28 January).

change its logo and was probably one of the first companies worldwide to launch an online user consultation. Users preferred to keep the penguin because of its reference to Linux, but Tencent designers decided to differentiate it from the Linux penguin by adding a red scarf around its neck and making it smile and wink. Then, to avoid any other potential legal disputes, the application was renamed QQ, two letters that echoed OICQ and sounded even more entertaining and cute⁷ (Figure 3).

From the 2000s onwards, Tencent aimed to expand its user base from techno-enthusiasts to other users, and online gaming was the Trojan horse to achieve this goal. Probably, the most notable example was the so-called QQ show (*QQxiu*), launched in 2001. The QQ show was a virtual social platform, which, for the first time, allowed QQ users to personalize and play with their profile interfaces. With the further development of the QQ coin (*QQ bi*) as virtual currency that could be used to purchase accessories for avatars and personalize blog pages, Tencent also began combining comics (especially anime) and games (Liao, 2017). Through these, young users could build new fandom and gaming communities on a single platform. By the end of 2004, QQ's gamers peaked at more than one million (*IRW*, 2004: 19), a record for China's online entertainment gaming industry. In 2010, Tencent started to develop one mini-online game per month, one normal-sized game every 3 months, and one massive multiplayer online game (MMOG) every 9 months (Wu, 2017). The firm also developed children's games, which are currently the most lucrative application (Culpan, 2016).

Investment in young cultures has been also part of the corporate social responsibility strategy of Tencent over time. For example, in June 2005, Tencent launched a collaborative project with the China Children and Teenager Fund to initiate 'Public Welfare 2.0', a campaign that invited QQ users to donate at least five QQ credit points. Tencent then used these points to provide school supplies and other necessities, such as textbooks and school uniforms, to poorer children and teenagers, especially in rural parts of China. The campaign raised 200,000 RMB (US\$26,228)⁸ in less than 1 year (Tencent Press Release, 2007).⁹

Tencent's focus on youth cultures, community building through user involvement, and the dimension of gaming and play can be viewed as three interwoven constitutive choices. These choices enabled the company to increase user loyalty through services that crossed generational boundaries, while also presenting itself as a young and supportive private company, quite unique in the Chinese technological and social landscape. All these aspects of the company culture started to emerge well before WeChat.

Sinicization

Tencent's fourth and final constitutive choice lay in its Sinicization (*Zhongguohua*) of Western digital services. This strategy was the outcome of collateral events, which drove the company towards a more Chinese self-narration, in contrast to Western companies.

As 'Community building and gamification: A "youth" company' section makes clear, during its economic growth and expanding user numbers, Tencent faced international legal issues and harsh criticism domestically. Internationally, OICQ was inspired by ICQ, the 'world's most popular online communication community and international service' (Time Warner Group, 2007). Right from the start, OICQ tried to differentiate itself through a process of Sinicization from its Western counterpart, ICQ, in two key ways. The first involved its name. Notably, ICQ stands for 'I Seek You', to which Tencent decided to add an 'O' at the beginning of the acronym, highlighting a different (both Asian and open) vision of the platform. Furthermore, as noted in 'Media convergence' section, a second remarkable difference between OICQ and ICQ was the fact that the Chinese OICQ gave users the chance to store their online conversations on servers so that they could access them from different devices. This represented an early cloud-computing strategy.

The re-appropriation of Western digital culture and its re-adaption to the Chinese social, political and economic context provide one explanation for Tencent's success. As theories such as the social construction of technology (Pinch and Bijker, 1984) and more recent studies on the role of corporate narratives and company cultures in the diffusion of technological innovations (Natale et al., 2019) have shown, cultural traditions, symbols and values are essential for integrating new technologies into different social contexts. In this sense, what we call Sinicization is not, as common sense would suggest, a simple reproduction of Western ideas and products. Instead, Sinicization is a way of reinterpreting and promoting innovation, while giving new products specific roles and meanings in new cultures.

In the Chinese case, researchers have focused on the *shanzhai* phenomenon: the tendency to imitate and infringe trademarks (Strafella, 2010; Zhang and Fung, 2013). However, if *shanzhai* has been more grassroots-driven and focused on irony and parody (see Herold and Marolt, 2011), the *Sinicization* of digital media in China relies on a series of changes and amendments to Western ideas, applied by a Chinese Internet company and inspired by Chinese cultural and online behaviours. This phenomenon is particularly clear in the case of QQ.

Notably, the AOL legal suit was not an isolated case; the *Sinicization* process was widely criticized and analysed domestically. The most representative case occurred during the summer of 2010, when the cover of *China Computerworld* featured the striking slogan, 'Motherfucker Tencent' (*Gouride Tengxun*) and an article inside accused the company of lacking creativity and imitating well-established products and services in the Chinese market (CCW, 2010: 20, see Figure 4).

Tencent does not usually try out new things. It finds a free mature market and eventually finds a way to compete [with other companies]. Its way [to act in the market] is generating debate, imitating, sometimes making use of *shanzhai*. At the beginning of 2006, Sina CEO Wang

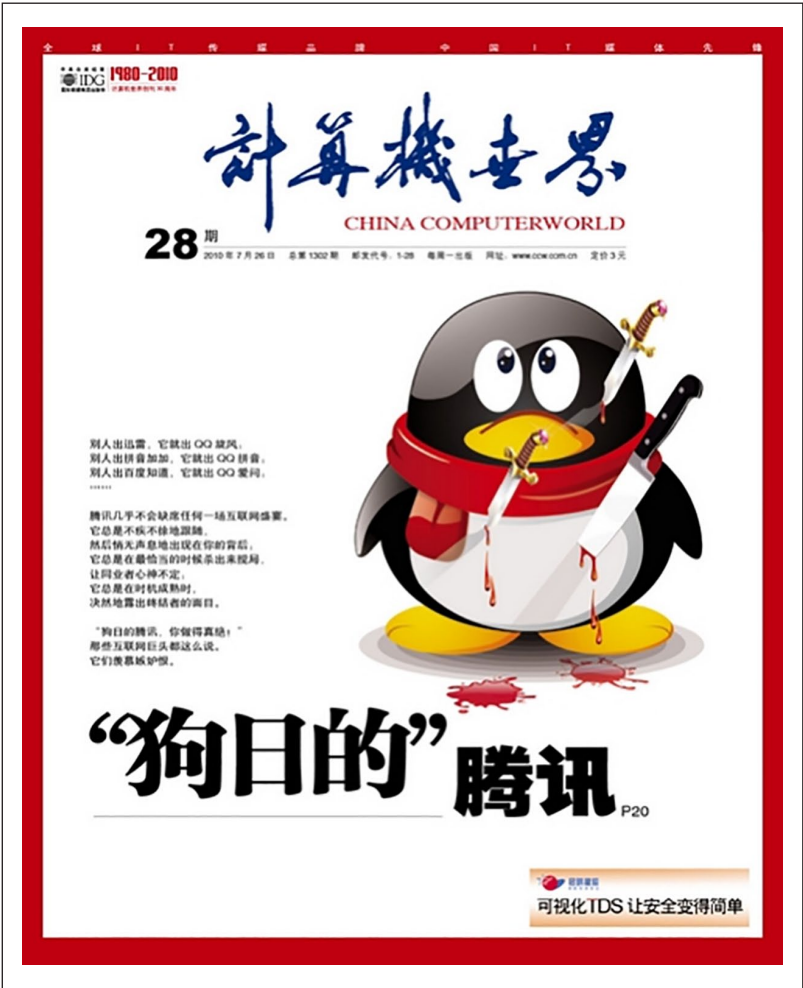


Figure 4. The famous *China Computerworld* cover, ‘Motherfucker Tencent’.
Source: CCW (2010).

Zhidong accused Ma Huateng of being the ‘king of plagiarism’, and even shameless plagiarism. Accordingly, in recent years, similar voices have been circulating. More recently Hu Yanping, Director of the DCCI Data Center . . ., stated that Tencent is not a disruptive innovator and should be considered a natural enemy of smaller Internet companies. (CCW, 2010: 21)

Nevertheless, some Chinese media outlets defended Tencent’s attitude. *Internet Review Weekly*, for example, emphasized Tencent’s tendency to integrate and imitate Western products and *make them Chinese*:

When many people speak of imitation, they think of *shanzhai* and plagiarism. There are many prejudices around imitation and it is by no means purely plagiarism and does not necessarily

imply copying a product. Imitation's deeper meaning is learning. We acknowledge that the emergence of a large number of copycat products has made the word 'imitation' a constraint. We also acknowledge that the emergence of many *shanzhai* products has compromised the idea of imitating and has become the main factor limiting Chinese economic development. By imitating successful domestic and foreign products, services and websites, we can improve and innovate without the need to develop new ones. We have to admit that imitation has played a role in the development of the Internet. Almost all successful imitations have been grafted onto other business models and resources . . . Tencent imitates new business models for its own use and integrates several business models into its unique, continuously improving model. Many domestic Internet models have come from imitating foreign ones. Tencent has enough funds and users to achieve a diversified business. Innovation and imitation are the vehicles for success. (*IRW*, 2010: 30)

This quote shows that innovation and imitation are not always seen as diametrically opposed concepts in the Chinese context. In contrast to the *revolutionary* narratives that characterize Western companies such as Apple (whose slogan is 'Think different!'), in Chinese culture, Tencent is considered successful *because* it is good at imitating – and, at the same time, innovating – Western technologies, adapting products to a different social environment. In fact, Western companies also imitate to innovate – even Apple has imitated other companies' products in the past. The real difference between China and the West is the social (i.e. political, legal and cultural) *acceptance* of imitation and so of the 'nationalization' of IT products. Sinicization, together with mobility, media convergence, community building and the gamification of young cultures, thus constitutes the fourth cornerstone of Tencent's mentality and culture before the rise of WeChat.

Conclusion: WeChat today and its historical roots

The Tencent Guangzhou Research and Development Group, led by Zhang Xiaolong, developed the idea of Weixin in Guangdong Province in 2010. The first version of Weixin was launched in January 2011. The online magazine TheNextWeb (2011) described it as 'a free mobile application similar to Kik . . . , it let users search their contacts for other micro-letter users who are automatically added to users' buddy lists. It can also show real-typing and the delivery status of the messaging app'. Weixin was renamed WeChat in 2011 to promote the new service in international markets.

The key argument of this article is that WeChat's success can be explained by examining the long-term business strategies (referred to as constitutive choices) of its founding company, Tencent. Indeed, these long-term choices have been crucial to WeChat's rise and development and are still part of WeChat's mentality and culture today.

The first constitutive choice was mobility. When WeChat was launched, the Chinese telecom companies, China Mobile, China Unicom and China Telecom, had their own working online messaging applications, most of which relied on text messaging. WeChat was designed to be a mobile application that could be used on any phone or mobile service, providing users with a more comprehensive service than simple text messaging. From pagers to Internet cafés, from mobile phones to smartphones, this idea was implemented and became successful: today, WeChat is constantly used and also linked to transportation and mobility services, such as bike rentals, taxis, and car-sharing services,

such as Didi. As Chen et al. (2018: 27) have noted, ‘Ma Huateng wanted Tencent (via QQ and WeChat) to create a “new online lifestyle”. Tencent aspired to provide the utilities for that new online lifestyle’. This mobility strategy did not originate with WeChat or smart-phones – it was the legacy of previous decisions taken in the era of pagers and early personal computers.

WeChat also followed the original Tencent paging-system concept when it came to media convergence. Like QQ, WeChat can be accessed from both PCs and mobile devices. It also supports text messaging, hold-to-talk voice messaging, broadcasting (one-to-many), messaging with so-called Moments, location sharing, contact-information exchange, and photo and video sharing. Moreover, WeChat developed a handwriting-input method that was eventually upgraded to include voice recognition – a feature that broke down the technical barriers of mobile texting in Chinese (Wu and Wan, 2014). In WeChat, there are several degrees of convergence. For example, by introducing QR codes in 2012 and identifying users’ profiles (as QQ numbers did in the past), WeChat blended wallets with phones and began to support the development of an online payment and money-transfer system. The creation of a single app, integrating millions of lightweight apps combined with a QR system, has made WeChat a comprehensive and universal platform (a kind of *überplatform*, revitalizing the old dream of media convergence: the *überbox*), in which different content and services could be easily accessed from a range of devices. Although this is nothing new, it can be understood as the final implementation of a long-term strategy and culture: a media-convergence tendency that has characterized Tencent since the late 1990s.

WeChat is now a taken-for-granted service by three-quarters of the Chinese population and linked to several everyday activities. Generations of young Chinese people are building their social experiences and maintaining and extending their social connections through WeChat (Pang, 2016). WeChat supplies 24-hour entertainment, enabling users to play and pay, check out other peoples’ profiles, browse and post pictures, videos and memes. In sum, WeChat hosts China’s biggest online community and one of the world’s largest. However, this community was not created by WeChat itself; it originated from Tencent QQ’s 784 million active online users. This long-term connection with users, reflecting the age of BBS and Ma’s hacker culture, has also been maintained via the company’s gaming culture, another legacy from the past.

Finally, as happened in the case of OICQ and QQ, WeChat’s success has been driven by Chinese culture and values. Although WeChat was initially called the ‘Chinese WhatsApp’ (TheNextWeb, 2014), the Western press has noted substantial differences between the two mobile applications (Quartz, 2014). This has led to a reconsideration of the whole Chinese Internet industry, as confirmed by an article published in *The Economist*, entitled ‘China’s tech trailblazers. The Western caricature of Chinese Internet firms needs a reboot’ (*The Economist*, 2016). Like OICQ and then QQ, WeChat underwent a process of Sinicization. One of the most emblematic recent cases involved the success of red envelopes (*hongbao*), a monetary gift shared during special occasions in China, such as weddings or the Spring Festival. Users can send red envelopes through WeChat in a digitized version of a centuries-old Chinese tradition. The success of red envelopes was immediate; in 2014, during the Chinese New Year holidays, WeChat users exchanged 20 million red envelopes. After this event, the number of Chinese users

making regular WeChat payments rose from 30 to 100 million in a single month (Chao, 2017). This shows that WeChat, like other Tencent services in the past, has profited from Chinese traditions and social habits. This Sinicization of the platform is once again the last long-term constitutive choice now taken for granted as an aspect of Tencent culture.

The path to WeChat has long historical roots. In particular, the persistence of four long-term constitutive choices in shaping Tencent's corporate mentality challenges and undermines the 'revolutionary' label that scholars tend to attach to WeChat and, we would argue, to digital media in general. As this article has shown, WeChat's success cannot be attributed to magical innovative features or technological breakthroughs introduced by the new platform. Rather, WeChat's success has been generated by a strong and coherent corporate identity and a long-standing business culture and mentality. Business culture cannot change with the speed of technology. To adapt their business models continuously, digital companies must rely on stories, myths, practices, basic assumptions and shared meanings. WeChat inherited several of these from Tencent and is still being shaped by past, long-standing ideas or 'constitutive choices'. In a nutshell, it is impossible to understand WeChat's current culture and mind-set without remembering its past-dependent path.

Acknowledgements

The authors are grateful to Professors Wu Jing, Jin Jianbin, Xu Jinghong and Fang Xingdong for their comments and suggestions during the data collection.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The data collection for this research was supported by Sino Swiss Science and Technology Cooperation (SSSTC) exchange grant no. EG-CNCH-01-042018.

ORCID iD

Gianluigi Negro  <https://orcid.org/0000-0003-2485-6797>

Notes

1. According to Starr (2004), constitutive choices in media history are on par with key decisions taken by politicians, managers, engineers and even users, which have long-term and path-dependent effects (i.e. decisions made at subsequent times are affected by these early choices).
2. For example, at that time, neither Baidu in the search-engine field nor Alibaba in the e-commerce field was able to implement a cloud-computing strategy.
3. Ma predicted that within 3 years (by 2008), QQ would be a personal online space in which users could communicate, play online games, share news, create online communities and open online diaries.
4. According to Ma, Chinese users in 2005 were already collecting the data files stored or saved in their Internet profiles. These users needed to process their information and data individually and easily, by storing, downloading and managing their online messaging, voice calls, video communication and pictures.

5. BBS stands for Bulletin Board System, a system of communication exchanges through telephone lines that won pre-Internet-era fame, especially in the 1980s.
6. According to Xu (2017), when Pony Soft was launched, there were fewer than 10 BBS communities in China and fewer than 100 active users in total.
7. According to the American Sinologist Victor Mair (2011), there are two reasons behind this choice. First, Q or QQ in Chinese can stand for 'cute'. Second, the new name comes from Taiwanese in which Q or QQ means 'chewy'. According to Mair, 'all the nice associations of QQ are also in the background when one talks about the QQ instant-messaging service'.
8. All currency values have been converted through the historical currency converter, <https://fxtop.com>.
9. Likewise, a very similar initiative was promoted in November 2018 on WeChat. It was called *Light Mountain Action (Dengshan Xingdong)*, a game in which the player, a student from a rural area, scored points by overcoming challenges to reach the nearest school. The game included some images and stories of students in Jiangsu Province who had to wake up before dawn to reach the school. Only two days after the game reached, 20,000 users donated more than 300,000 RMB (US\$47,763) (Newby, 2018).

References

- Agar J (2013) *Constant Touch: A Global History of the Mobile Phone*. Cambridge: Icon Books.
- Balbi G (2017) Deconstructing 'media convergence': A cultural history of the buzzword, 1980s–2010s. In Sparvierio S, Peil C and Balbi G (eds) *Media Convergence and Deconvergence*. Cham: Palgrave Macmillan, pp.31–51.
- Balbi G and Magaouda P (2018) *A History of Digital Media: An Intermedia and Global Perspective*. New York; London: Routledge.
- Benney J and Xu J (2017) The decline of Sina Weibo: A technological, political and market analysis. In: Kent M, Ellis K and Xu J (eds) *Chinese Social Media*. New York; London: Routledge, pp.221–236.
- Bischoff P (2014) Tencent owns 3 of the world's 5 biggest social networks. *Tech in Asia*, 3 November. Available at: <https://www.techinasia.com/tencent-owns-3-worlds-5-biggest-social-networks/> (accessed 29 January 2019).
- Bolter JD and Grusin R (1999) *Remediation, Understanding New Media*. Cambridge, MA: The MIT Press.
- Business of Apps (2019) WeChat revenue and usage statistics. Available at: <https://www.businessofapps.com/data/wechat-statistics/> (accessed 23 September 2019).
- Chao E (2017) How WeChat became China's app for everything. *Fastcompany*, 2 January. Available at: <https://www.fastcompany.com/3065255/china-wechat-tencent-red-envelopes-and-social-money> (accessed 29 January 2019).
- Chen Y, Mao Z and Qiu J (2018) *Super-Sticky WeChat and Chinese Society*. Bingley: Emerald.
- China Computer World (CCW) (2001a) Wo Zai Kaifangzhe Zhao Ni 我在开放着找你 [Opening I seek you]. *CCW*, 5 February, p.13.
- China Computer World (CCW) (2001b) Yidong Shuju Shichang de Boyi Caixiang 移动数据市场的博弈猜想 [Game guess in the mobile data market]. *CCW*, 20 August, p.11.
- China Computer World (CCW) (2004) Guochang IM Chanpin Changshichang Zhujiao 国产IM产品城市主角 [Domestic Chinese instant mobile products became leader of the market]. *CCW*, 23 February, p.7.
- China Computer World (CCW) (2007) Xiao qie: Zhang da yihou zenme ban 小企鹅: 长大以后怎么办 [Little penguin: what it will do when grow up] *CCW*, 30 July, p.3
- China Computer World (CCW) (2010) 'Gouride' Tengxun '狗日的'腾讯 [Motherfucker Tencent]. *CCW*, 26 July, pp.20–25.

- China Internet Network Information Center (CNNIC) (1998) 第二次中国互联网发展状况调查统计报告 *Di Er Ci Zhongguo Hulianwang Zhangkuang Diaocha Tongji Baogao* [The 2nd Statistical report on Internet development in China]. Beijing, China: CNNIC.
- China Internet Network Information Center (CNNIC) (2008) 第二十二次中国互联网发展状况调查统计报告 *Di Ershier Ci Zhongguo Hulianwang Zhangkuang Diaocha Tongji Baogao* [The 22nd Statistical report on Internet development in China]. Beijing, China: CNNIC.
- Chuansomen (2017) Weishenme QQ de Logo Shi Yi Zhi Qi'e 为什么QQ是一只企鹅 [Why QQ logo is a penguin]. Available at: <https://chuansongme.com/n/1515671633715> (accessed 29 January 2019).
- Cui D (2016) Beyond 'connected presence': Multimedia mobile instant messaging in close relationship management. *Mobile Media & Communication* 4(1): 19–36.
- Culpan T (2016) Tencent's MMOG problem. *Bloomberg*, 18 May. Available at: <https://www.bloomberg.com/opinion/articles/2016-05-18/tencent-s-mmog-problem> (accessed 29 January 2019).
- Driscoll K (2014) *Hobbyist inter-networking and the popular internet imaginary: Forgotten histories of networked personal computing, 1978–1998*. PhD Dissertation, University of Southern California, Los Angeles, CA. Available at: <http://digitallibrary.usc.edu/cdm/compoundobject/collection/p15799coll3/id/444362/rec/2> (accessed 11 May 2020).
- Gan C (2017) Understanding WeChat users' liking behavior: An empirical study in China. *Computers in Human Behavior* 68: 30–39.
- Gan C and Wang W (2015) Uses and gratifications of social media: A comparison of microblog and WeChat. *Journal of Systems and Information Technology* 17(4): 351–363.
- Guo L (2007) *Surveying Internet Usage and Its Impact in Seven Chinese Cities*. Shanghai, China: Center for Social Development, Chinese Academy of Social Sciences.
- Harwit E (2017) WeChat: Social and political development of China's dominant messaging app. *Chinese Journal of Communication* 10(3): 312–327.
- Herold DK and Marolt P (2011) *Online Society in China: Creating, Celebrating, and Instrumentalising the Online Carnival*. London: Routledge.
- Internet Review Weekly (IRW)* (2000) Gouer Yin QQ Er Gabian沟通因QQ而改变 [Communication changed because of QQ]. *IRW*, 13 November, p.30.
- Internet Review Weekly (IRW)* (2004) 即使通讯现象环生 Jishi Tongxun Xianxiang Huansheng [Dangerous instant messaging]. *IRW*, 13 December, pp.18–21.
- Internet Review Weekly (IRW)* (2007) 企鹅凶猛 Qi'e Xiongmeng [The Malicious Penguin]. *IRW*, 5 April, pp.58–60.
- Internet Review Weekly (IRW)* (2009) Mahuateng: Qi'e Zhiwai Ma Huateng 马化腾：企鹅之外 [Ma Huateng: Outside the Penguin]. *IRW*, 20 January, p.62.
- Internet Review Weekly (IRW)* (2010) 模仿英雄 Mofang Yinxiong [The Imitator Hero]. *IRW*, 5 September, pp.30–32.
- IT Time Weekly (ITW)* (2001) Tengxun Yu Ziji Saipao 腾讯与自己赛跑 [Tencent and its own race]. *IRW*, 9 May, pp.22–25.
- Jun L and Zhang Y (2009) 小QQ大帝国 马化腾传奇 *Xiao QQ Dadiguo Mahuateng Chuanqi* [Great Empire of Tencent QQ: Legend of Ma Huateng]. Beijing, China: Central Compilation & Translation Press.
- Koch PT, Koch BJ, Huang K, et al. (2009) Beauty is in the eye of the QQ user: Instant messaging in China. In: Goggin G and McLelland M (eds) *Internationalizing Internet studies: Beyond Anglophone paradigms*. New York: Routledge, pp.265–284.
- Kong J and Luo J (2006) The innovative business model behind the rapid growth of SMS in China. In: *2006 International Conference on Service Systems and Service Management*, Troyes, 25–27 October, pp.1472–1477. New York: IEEE.

- Liao R (2017) WeChat's older sibling QQ plants to stay forever young. *Technode*, 7 August. Available at: <https://technode.com/2017/08/07/wechats-older-sibling-qq-plans-to-stay-for-ever-young/> (accessed 29 January 2019).
- Lin J and Zhang Y (2009) *Ma Hauteng de Tenngxun de Diguó* 马化腾的腾讯的帝国 [Pony Ma of Tencent Empire]. Beijing, China: Zhongxin Press.
- McLelland M, Yu H and Goggin G (2018) Alternative histories of social media in Japan and China. In: Burgess J, Marwick AE and Poel T (eds) *The Sage Handbook of Social Media*. London: Sage, pp.53–68.
- Mair V (2011) A new morpheme in Mandarin. *Language Log*, 26 April. Available at: <http://languageblog.ldc.upenn.edu/nll/?p=3111> (accessed 29 January 2019).
- Meng Z and Zuo M (2008) Why MSN lost to QQ in China market? Different privacy protection design. In *2008 International Conference on Information Security and Assurance (isa 2008)*, Busan, South Korea, 24–26 April, pp.384–388. New York: IEEE.
- Millward S (2018) 7 years of WeChat. *Techinasia*, 21 January. Available at: <https://www.techinasia.com/history-of-wechat> (accessed 29 January 2019).
- Natale S, Bory P and Balbi G (2019) The rise of corporational determinism: Digital media corporations and narratives of media change. *Critical Studies in Media Communication* 36(4): 323–338.
- Negro G (2017) The development of mobile internet. Weixin (WeChat): A killer application for Sina Weibo? In: Negro G (ed.) *The Internet in China*. Cham: Palgrave Macmillan, pp.193–208.
- Newby J (2018) *Tencent Launches New WeChat Game to Help Children in Rural China*. RADII. Available at: <https://radiichina.com/tencent-launches-new-wechat-game-to-help-children-in-rural-china/> (accessed 23 September 2019).
- Pang H (2016) Understanding key factors affecting young people's WeChat usage: An empirical study from uses and gratifications perspective. *International Journal of Web Based Communities* 12(3): 262.
- Pinch TJ and Bijker WE (1984) The social construction of facts and artefacts: Or how the sociology of science and the sociology of technology might benefit each other. *Social Studies of Science* 14(3): 399–441.
- Plantin JC and de Seta G (2019) WeChat as infrastructure: The techno-nationalist shaping of Chinese digital platforms. *Chinese Journal of Communication* 12: 257–273.
- Quartz (2014) WeChat is nothing like WhatsApp – And that makes it even more valuable. Available at: <https://qz.com/179007/wechat-is-nothing-like-whatsapp-and-that-makes-it-even-more-valuable/> (accessed 29 January 2019).
- Starr P (2004) *The Creation of the Media, Political Origins of Modern Communications*. New York: Basic Books.
- Strafella S (2010) The shanzhai metaphor in language, media and culture. In: Lupano E (ed.) *Media in Cina oggi: testimonianze e orientamenti: atti del Convegno, Polo di mediazione interculturale e comunicazione*. Milano: Università degli studi di Milano, pp.108–129.
- Tang M (2019) *Tencent: The Political Economy of China's Surging Internet Giant*. New York: Routledge.
- Tencent Press Release (2007) Tencent promotes 'public welfare 2.0'. Available at: <https://www.tencent.com/en-us/articles/80165.html> (accessed 23 September 2019).
- The Economist* (2016) China's tech trailblazers. *The Economist*, 6 August. Available at: <https://www.economist.com/leaders/2016/08/06/chinas-tech-trailblazers> (accessed 29 January 2019).
- TheNextWeb (2011) Tencent launches Kik-like messaging app China. *TheNextWeb*, 21 January. Available at: <https://thenextweb.com/asia/2011/01/21/tencent-launches-kik-like-messaging-app-in-china/> (accessed 29 January 2019).

- TheNextWeb (2014) More than messaging: Why you should stop comparing WeChat to WhatsApp. *TheNextWeb*, 24 January. Available at: <https://thenextweb.com/asia/2014/01/24/messaging-stop-comparing-wechat-whatsapp/> (accessed 29 January 2019).
- Time Warner Group (2007) ICQ Launches New 2001b Instant Messaging Product. *WarnerMedia*, 1 November. Available at: <https://www.warnermediagroup.com/newsroom/press-releases/2001/11/01/icq-launches-new-2001b-instant-messaging-product> (accessed 29 January 2019).
- Tu F (2016) WeChat and civil society in China. *Communication and the Public* 1(3): 343–350.
- Wallis C (2013) Technology and/as governmentality: The production of young rural women as low-tech laboring subjects in China. *Communication and Critical/Cultural Studies* 10(4): 341–358.
- Wu J and Wan Q (2014) From Wechat to we fight: Tencent and China mobile's dilemma. In: *Pacific Asia Conference on Information Systems*, Proceedings, 265. Chengdu, China, 24–28 June, p.265.
- Wu X (2017) 腾讯传1998-2016:中国互联网公司进化论 *Tengxun Chuan 1998–2016: Zhongguo Hulianwang Gongsi Jinhualun* [Tencent 1998–2016 – Evolution of the Chinese Internet company]. Hangzhou, China: Zhejiang University Press.
- Xinhua* (2019) China has most companies on Fortune Global 500 for first time. *Xinhua*, 23 July. Available at: http://www.xinhuanet.com/english/2019-07/23/c_138250400.htm (accessed 23 September 2019).
- Xiong J (2013) *Xiao QQ Dadiguo: Ma Huateng Chuanqi* 小QQ大帝国马化腾传奇 [QQ Small Empire: Ma Huateng Legend]. Beijing, China: Central, Compilation & Translation Press.
- Yan X (2003) Mobile data communications in China. *Communications of the ACM* 46(12): 80–85.
- Zhang L and Fung A (2013) The myth of 'shanzhai' culture and the paradox of digital democracy in China. *Inter-Asia Cultural Studies* 14(3): 401–416.

Author biographies

Gianluigi Negro is assistant professor at the University of Siena (Department of Education, Human Sciences and Intercultural Communication). After obtaining his PhD from the China Media Observatory (CMO), Università della Svizzera italiana (USI), he has been a postdoctoral researcher fellow at the School of Communication of Tsinghua and Peking Universities. He is a member of the Global Internet Governance Academic Network (Giga-Net) as well as the Italian Association of Chinese Studies (AISC). His research focuses on Chinese media history and Internet governance in China.

Gabriele Balbi is associate professor in media studies at USI Università della Svizzera Italiana, Switzerland. He is chair of the ECREA Communication History Section. His main areas of research are media history, the history of telecommunications and digital media history. His most recent book, written with Paolo Magaudo, is *A History of Digital Media: An Intermedia and Global Perspective* (Routledge, 2018).

Paolo Bory is a postdoctoral researcher at the Polytechnic University of Milan and lecturer in media studies at the Università della Svizzera italiana, Switzerland. His research deals with the history and imaginaries of digital media. He is author of *The Internet Myth: From the Internet Imaginary to Network Ideologies* (University of Westminster Press, 2020).