

Innovating to survive in competitive markets: Business model innovation of Chinese digital businesses

Robin Bell

International Journal of Innovation Science [10.1108/IJIS-09-2022-0189](https://doi.org/10.1108/IJIS-09-2022-0189)

Abstract

Purpose

Business model innovation (BMI) has been posited as essential for both new and existing digital business, as they commonly operate in competitive and fast-moving markets with limited entry barriers. However, it is highlighted within the literature that the understanding of how BMI contributes to business success and how new digital ventures develop competitive advantage is still unclear. This research addresses this lacuna by exploring how young Chinese digital businesses develop and innovate their business models to survive in fast moving and competitive markets.

Design/Methodology

This research adopted a multiple case study design, with qualitative data being collected from the founders of five Chinese digital businesses, to develop an understanding of the evolution of their business models and BMI from their inception.

Findings

The findings add support for the contention that BMI can play an important role and is beneficial in the success of such new digital ventures in highly competitive environments. The founders attribute their success to a willingness for continued BMI, an openness to new opportunities, developing customer relationships, and continuous iteration.

Originality/Value

This research addresses calls to further our understanding of BMI contributes to business success, and how new digital ventures develop competitive advantage by exploring the BMI of five highly successful digital businesses from their inception.

Keywords

Business Model Innovation; Innovation; Digital businesses; Start-ups; China

Introduction

The digital new venture can be considered in terms of digital technology combined with entrepreneurship (Nambisan, 2017), applied to new business opportunities using digital technology to create digital value (Zhu et al., 2022). Digital new ventures can be considered as transformative (Li et al., 2018) and disruptive (Bullini Orlandi et al., 2021) and generally, have a greater emphasis on the orchestration of resources over resource possession, and value creation over value capture, when compared to traditional business ventures (Amit and Han, 2017). Digital start-ups have attracted much attention because they are often considered in terms of high value, high rate, or as part of the 'engine of the digital economy' (Kraus et al., 2018). Digital ventures have been able to enter new markets through their digital distribution channels, highlighting the potential value (competitive advantage) that digital technology can provide over traditional business start-ups.

Successful digital start-ups have been an important and central force driving the development of the Chinese economy and technological development (Zhu et al., 2022). Supported through the development of technology and innovation (Raman et al., 2022), China has sought to support the development and convergence of tele-communication, television, and internet networks since 2009 (Guo and Liu, 2021), and the population of internet users in China is the largest in the world and great strides are being made in the roll out of next generation of mobile networks (Ofek et al., 2020). In 2016, China's thirteenth Five Year Plan was released by China's National People's Congress. The word 'innovation' features in the Plan's ambitious digital development goals. The Plan builds on China's 2015 unrolling of "Internet Plus," with an emphasis on internet and cloud-based technology as tools to solve domestic issues and propel China to a global position as exporters of indigenous digital technology.

China has sought to follow a growth path seeking to develop technology intensive industry, which is less dependent on resources and has high growth potential (Guo and Liu, 2021). Such developments have laid the effective groundwork to support the development, growth, and utilisation of digital new ventures. The development and access of digital technology is the basis for digital innovation and has ushered in a new era of digital new ventures (Urbinati et al., 2018). Digital technology also empowers new ventures to be interactive and potentially borderless (Martinez-Caro et al., 2020).

The digital era has opened both opportunities and challenges for businesses, as 'datafication' has impacted nearly all areas of life, changing working, communication, and interaction patterns (Newell and Marabelli, 2015). Businesses which have embraced digital technologies have found new opportunities and have been able to reach new customers and solve problems through new offerings (Konopik et al., 2022). Whilst the digitalization of more aspects of consumers lives have opened more opportunity for potential innovation, it has also increased and amplified the need to consider and constantly review how customers' needs can be met (Yu et al., 2019). Therefore, new ventures increasingly need to innovate not only by developing new products, but also by updating and innovating their business models (Martins et al., 2015). Magretta (2002), argued that a sound business model was the key to a viable business and since then numerous research studies have linked business model design and innovation to business performance (Visnjic et al., 2016). Whilst BMI has often been considered a predictor of the success of a business (Karimi and Walter, 2016), it has been highlighted by Foss and Saebi (2017) that it is still not clear whether BMI is beneficial to businesses and an understanding of how it contributes to business success is lacking. There is also a lacuna of understanding as to how new digital ventures develop competitive advantage (Zhu et al., 2022). This paper addresses this gap by exploring how Chinese startup digital businesses develop and innovate their business models to survive in dynamic and competitive markets. This research explores the cases of five award-winning, Chinese digital technology organisations and investigates the development and innovation of their business models since inception.

Literature Review

Business Models

Magretta (2002) described business models as explaining who the customers are and what they value, as well as how the business will deliver value and make money; by Gassman et al. (2014) as a holistic picture of the business produced by combining factors both inside and outside the business; by Massa et al. (2017) as a formal conceptual representation of a company; and by Teece (2010) as the "design or architecture of the value creation, delivery, and capture mechanisms it employs". The concept is now used widely, and Teece (2010) argues that all businesses use some sort of business model, either implicitly or explicitly.

Despite a plethora of definitions and composite business models having been proposed in the literature (e.g., Amit and Zott, 2001; Magretta, 2002; Morris et al., 2005; Osterwalder and Pigneur, 2010; Teece, 2010; Zott and Amit, 2010; Bucherer et al., 2012; Shafer et al., 2005) there is a lack of consensus, and no universally accepted definition of a business model, nor its essential elements (Andersén et al., 2015).

However, despite the wide array of views as to what a business model constitutes and involves, some reoccurring themes can be identified. These are the consideration and identification of value creation, value delivery and value capture mechanisms (e.g., Teece, 2010; Zott et al., 2011; Osterwalder and Pigneur, 2010); along with the development of their value networks (Shafer et al., 2005). These are described briefly below

Value creation represents the firm's product and its business logic in creating value for partners and customers (Morris et al., 2005; Osterwalder and Pigneur, 2010; Teece, 2010).

Value delivery represents the activities through which value is delivered to both customers and network partners. It also includes how a firm develops and maintains contact with its customers (Osterwalder and Pigneur, 2010).

Value capture represents the practices and mechanisms through which firms produce profits. The revenue model (e.g., the advertising model, the commission model, and the fee-for-service-model) plays a central role in many business model definitions (Osterwalder and Pigneur, 2010; Teece, 2010).

Finally, the *value network* includes partners, distribution channels, coalitions, and customers (Shafer et al., 2005).

These generic business dimensions have been adopted widely in research to analyse business models and business model development (Haaker et al., 2021).

However, advances, competition, and other factors may change over time requiring new strategies to be considered to develop the business model to meet the new circumstances.

BMI is a transformative process that seeks to alter key elements within the existing business model (Bucherer et al., 2012) to maintain or create new competitive advantages.

Role of Strategy

Some researchers have proposed including competitive strategy factors within their business model frameworks, in which case it can be considered as a tool for strategic sustainability. In this case the business model can be seen to offer interrelated sets of strategic choices (Morris

et al., 2005). Voelpel et al. (2004) argues that examining business models from a strategic perspective sets the stage for developing a new competitive advantage.

However, George and Bock (2011) argue that business models are opportunity focused whilst strategy is competitor or environment focused. It is argued that, whilst strategy analysis is a key stage in the development of a competitive and sustainable business model (Teece, 2010), the business model is a static abstraction of a firm's strategy (Seddon et al., 2004). DaSilve and Trkman (2014) argue that strategy reflects what a firm is focused on becoming whilst a business model describes where a firm is at a given time. Whatever the case, it is imperative for a business to strategically upgrade its business model to meet new challenges/environmental changes (DaSilva and Trkman, 2014).

As such, the development of a new business model can be seen as a tool for creating strategic sustainable competitive advantage in the marketplace and differentiated and difficult-to-replicate elements are an important ingredient.

Business Model Innovation

Just as business models enable innovation, they must also be innovated continuously to react to external changes (Demil and Lecocq, 2010), and can be viewed as critical to a firm's performance, sustainability, and long-term success (Chesbrough, 2007).

BMI can come about in response to the identification of new opportunities or new threats and can be either proactive or reactionary (Granig and Hilgarter, 2020). It has been defined by Bucherer et al. (2012, p.183) as "a process that deliberately changes the core elements of a firm and its business logic", and by Casadesus-Masanell and Zhu (2013, p.464) as "the search for new business logics of the firm and new ways to create and capture value for its stakeholders". Innovation can take place by modifying or redesigning their business model architecture to make it more competitive (Baden-Fuller and Morgan, 2010; Zott and Amit, 2010). In summary, whilst product/service, process innovations, and BMI's can be interlinked and impact one another, they can also occur independently (Bucherer et al., 2012). This is especially important when product or process innovation alone may be inadequate to gain and develop a competitive advantage, or when a firm faces difficulty in differentiating itself from its competitors, its products, or its services (Chesbrough, 2007).

Firms can innovate through the design of their business models to create fundamentally different and more efficient models to increase their competitiveness (Gronum et al., 2016).

Amit and Zott (2012) have argued that BMI can take place through adding activities, linking activities in novel ways, and by changing which parties perform an activity. BMI can involve restructuring e.g., dividing, or combining individual business models, dual-brand strategies, changing market segmentations, out-sourcing, changing the product or the service mix, or how it is offered and delivered (Liu and Bell, 2019).

Although products and services can be copied, it takes time for competitors to create new business models and may require changes in the competitor's long-term strategy, corporate culture, and core competencies (Bucherer et al., 2012). In this sense, competition between firms can be regarded as competition between business models as much as between specific products or services (Gronum et al., 2016). BMI can potentially be a powerful competitive tool and increasing competitive pressures in the environment has increased the focus on it (Garzella et al., 2021; Moradi et al., 2021). Businesses are increasingly adopting BMI as an alternative or as a complement to product or process innovation to achieve a sustainable advantage (Brehmer et al., 2018).

DaSilva and Trkman (2014) highlight four key operational steps to outperform the competitors: choosing the right business model, executing it to maximum effect, continually developing the company's dynamic capabilities/competitive advantages, and quickly redefining the business model when opportunities/ threats arise. Building on the company's strategically enhanced dynamic capabilities creates a business model with potentially greater competitive advantage. Despite a proliferation of BMI research, there is still a lack of a systematic understanding of how it contributes to firm success (Foss and Saebi, 2017).

This research focuses on how five digital businesses have undergone BMI to survive and develop in highly competitive markets in their initial years. It has been suggested that BMI is a strong predictor of business performance (Karimi and Walter, 2016; Visnjic et al., 2016), and offers businesses a feasible way to maintain strategic flexibility in the digital era (Xiao et al., 2021). By studying businesses that have been successful, key lessons on strategic business model development and innovation can be identified.

Methodology

The research adopted an investigative multiple-case-study research design, whereby each case was a single unit of analysis (Yin, 2013). This allowed for a detailed exploration and

understanding of how each business had developed and innovated their business model from inception. Qualitative data was collected in the form of interviews with founding members of each new digital venture. All the founding members interviewed were still active in running and leading the businesses. This selective criteria for interviewee selection ensured that those being interviewed had a clear and robust understanding of the BMI decisions made, why they were made, and how the decisions influenced the success and performance of the business. The interviews were conducted by one interviewer, supported by a team of research assistants who took notes regarding key points and the context and situational analysis of the discussions. The notes were also used to support and ensure professional translations of the interviews, which were recorded and then later transcribed. The interviews were conducted in Chinese, the narrative language of both the interviewee and interviewers, and then translated into English using a process of backtranslation.

Interviews lasted between one and two hours and explored the development of each company's current and previous business models and the changes which they had made. The interviews adopted a semi structured interview approach. This approach was selected to allow the interviewee the freedom to present and discuss their business model and BMI as they chose, whilst still allowing for direction through questioning and prompting. The interviewees were guided and encouraged to discuss the key area of their business models without using the term 'business model' directly, to avoid possible different interpretations of the meaning, and feeling influenced to answer the question in any particular manner.

The sample was selected through a purposive sampling approach, focused on selecting young Chinese digital companies which could elaborate on the challenges which they had faced in their early years and the business model decisions which they had taken, and why these decisions had been made. The selection of the cases chosen was based on their ability to yield the most detailed and informative information, pertinent and relevant to the research. The sampling criteria for selecting the businesses, were digital businesses, who had been involved in some form of innovation, or innovative research and development, and were recognised as successful in their field through being recipients of national and/or awards. The specific and detailed sampling criteria, helped to focus the research on businesses which had launched and developed successfully and as such could be considered as a deviant purposeful sample, where the cases are rare, but are informative for achieving the research aim set

(Patton, 2002). An outline and summary of the cases within the sample is presented in table 1.

Table 1 – Case Summary

Case	Business Description	Age (years)	Market	Value Proposition	Revenue Model
A	IOS and Android keyboard app developer	8	Global	Advanced easy to use keyboard app	Advertising
B	IOS and Android voice over internet protocol (VOIP) app developer	3	Regional	Free to use app telephone service	Advertising
C	Big data collection and analytics	9	Global	Independent data and technology analysis service	Fee for service
D	Digital advertising demand side platform	8	Global	Digital advertising service with direct programmatic buy service and audience profiling service	Fee for service
E	IOS and Android keyboard app developer	4	Global	Next generation predictive keyboard application with colourful and fun input keyboard	Advertising

The researchers undertook a case-base analysis of the transcripts, using a thematic approach to understand each business's views regarding the development of their BMI in response to environmental competition and to ensure their survival and success. The data analysis is presented by first providing the context of each case and a short analysis. The results and

discussion section follows on, which was derived from thematically analysing across the cases to identify common themes.

Case Presentation and Analysis

Case A

Case A is a mobile keyboard app developer. While the company is based in China, their product has always targeted overseas, English-speaking markets, as they found a Roman alphabet easier to operationalise onto a smartphone screen.

Case A initially launched its product as a no-cost app to enter the market (Shareware distribution model). Case A saw the benefits of this approach as being easy to action, with low costs/overheads. Payment was required after a set period. The cost was considered by Case A to be relatively high to themselves for an app with a low rate of return, but it provided critical and stable early-stage cash flow.

Case A's focus was on a quick launch into the market. The interviewee explained that they did not attach too much importance on market research. Constant alterations and improvements to the product were made on an ongoing basis, and Case A released frequent updates. The interviewee highlighted that involving customers with product updates made innovation easier through a faster iterative process.

Case A believes that its relationship with its core users was vital to the ongoing development of its product and the provision of product feedback can encourage the creation of value through improvement of the value proposition (product and/or service offered).

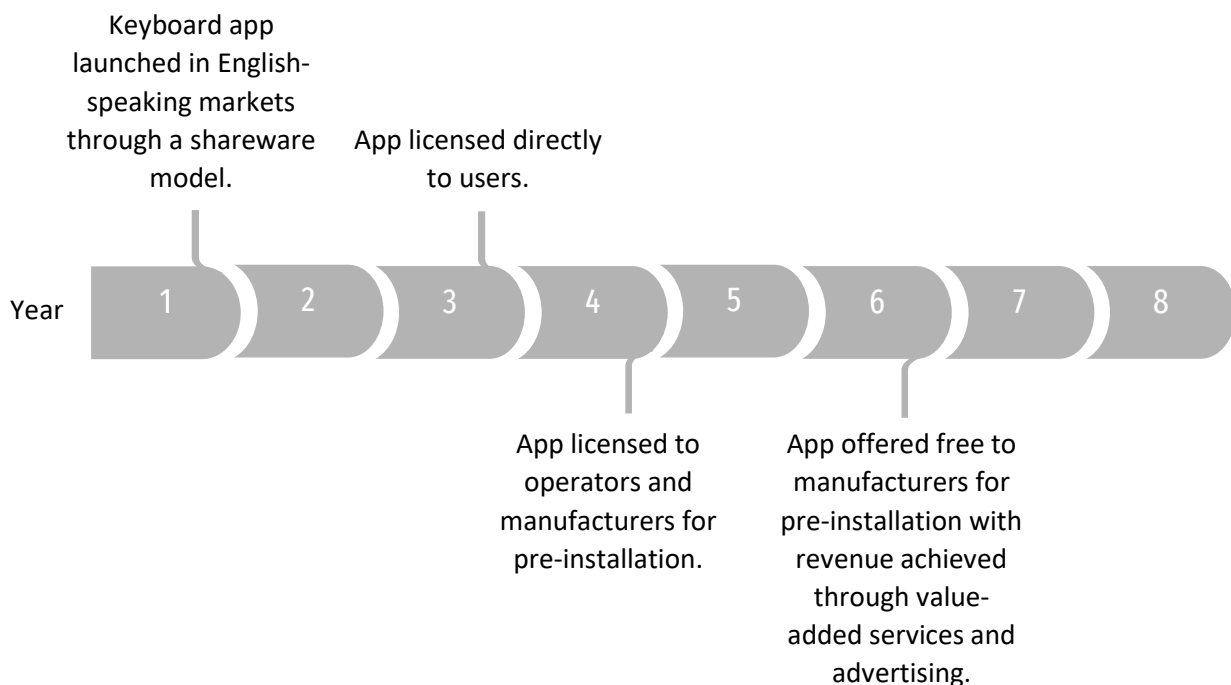
The product was later placed on the firm's own website where, for a license fee, users could download the software. The uptake of the product using this approach was encouraging but offered limited potential for growth and development. Case A discounted the Chinese market, as there was little appetite to use products that required licensing payments.

As the product became more established, Case A cultivated relationships with operators and manufacturers, extending their value network by selling them licenses for pre-installation of the product on their phones and operating systems. This business model was limited however, due to market saturation.

The next innovation was to offer the product free to manufacturers for pre-installation in their products. Using this business model, revenue was captured through value-added

services, including advertisements. This new approach, while being risky in the short term, provided the potential for increased returns and innovation. Initially, this model resulted in less revenue than the licensing model, which Case A offset by increasing external financing. Ongoing innovations have included an increased level of prediction accuracy, gesture input, and smart correction, all of which have increased the competitive edge of the firm (a higher technology barrier) through the constantly improved value proposition. A summary of the timeline for Case A is presented in figure 1.

Figure 1 – Case A Timeline



Analysis of Case A

Case A adapted its business model many times. Its value delivery activities, with frequent feedback from customers, helped its burgeoning value creation proposition. Continually upgrading both the business model and product, not only protects market share but makes it more difficult and more time consuming for competitors to copy (DaSilva and Trkman, 2014). Customer feedback also helped the firm to improve its value proposition.

Value capture came to this company via many mechanisms that Case A innovated as it exhausted previous approaches. An initial freemium approach gave way to selling licensing rights and ultimately to gratis pre-installation with advertising, bringing the app to more

users. With this, its value network changed as it progressed from interacting largely with the end users to expanding interaction with a network of mobile device and software manufacturers. Case A typified how constant iteration of product and BMI through the adaptation of value creation, value delivery, value capture and value networks can not only help a digital business to survive but also develop in global markets.

Case B

Case B produces a mobile app that allows users to place free calls to other app users (value creation). Currently, this product is only available regionally in China, where the business model is still being tested. The app software is pre-installed by several telephone manufacturers (value delivery) and revenue (value capture) comes via advertising.

Free services like these require a 'critical mass' of consumers to add enough value to produce a return. Case B believes consolidation in its home market (China) is vital before considering expansion into new areas and that the domestic market offers large growth potential because it is still relatively untapped. 'Big data' has been used to collect large numbers of commercial phone numbers, develop phone number identification, and support anti-spamming/phishing services. As the popularity of free internet calls increases, Case B believes its growth will follow the overall growth of mobile calling apps, which will open the door to other, yet undetermined, streams of revenue through a burgeoning value network.

When the current model is fully tested and validated, Case B will consider international markets, although it is certain its business model would need to be adjusted to meet the customer demands and expectations in different cultures. It believes some of the bigger issues may be developing relationships with foreign manufacturers and/or consumers' who are willing to pay for apps. It was highlighted that the plan to extend overseas was grounded in a desire to seek a wider customer base to stabilise and grow their market. It was identified that developing the business competencies and value proposition, and learning from the big data collected domestically, would support the basis for international expansion. Further local customization within the international market could be achieved through the collection of additional international big data. A summary of the timeline for Case B is presented in figure 2.

Figure 2 – Case B Timeline



Analysis of Case B

Case B's approach to innovation is to slowly develop its value network in China before expanding into other markets. The blocking of many communication and social network sites within China may put the firm at an advantage internally that may not exist outside China. Its attitude towards international expansion shows that it is considering changing its value network in the future to fit the needs of the international marketplace (that is, considering selling directly to consumers as an app store offer). Case B is aware that moving into other international markets may require different business models and BMI involving the development of potentially different value creation, value delivery, value capture, and value networks. Networks are important for resources and information (Liu and Bell, 2019), particularly to new ventures with limited resources, to help overcome the liability of newness in their business model design.

Digital technologies and digital transformation can offer both unique and potentially valuable business development opportunities for SMEs (Müller et al., 2018; Pergelova et al., 2019). Digital technologies are particularly valuable for both the collection of market information and for communicating with customers and international partners (Pergelova et al., 2019).

This business intends to collect big data now to learn and prepare for future expansion. This learning offers the opportunity to develop a value proposition which can cross international boundaries, and then over time more localised iterations can be undertaken based on localised data. Real time data can lead to more data driven decision-making which can develop competitive advantage, through the delivery of (tailored) products and services, and BMI (Andersen et al., 2020).

Case C

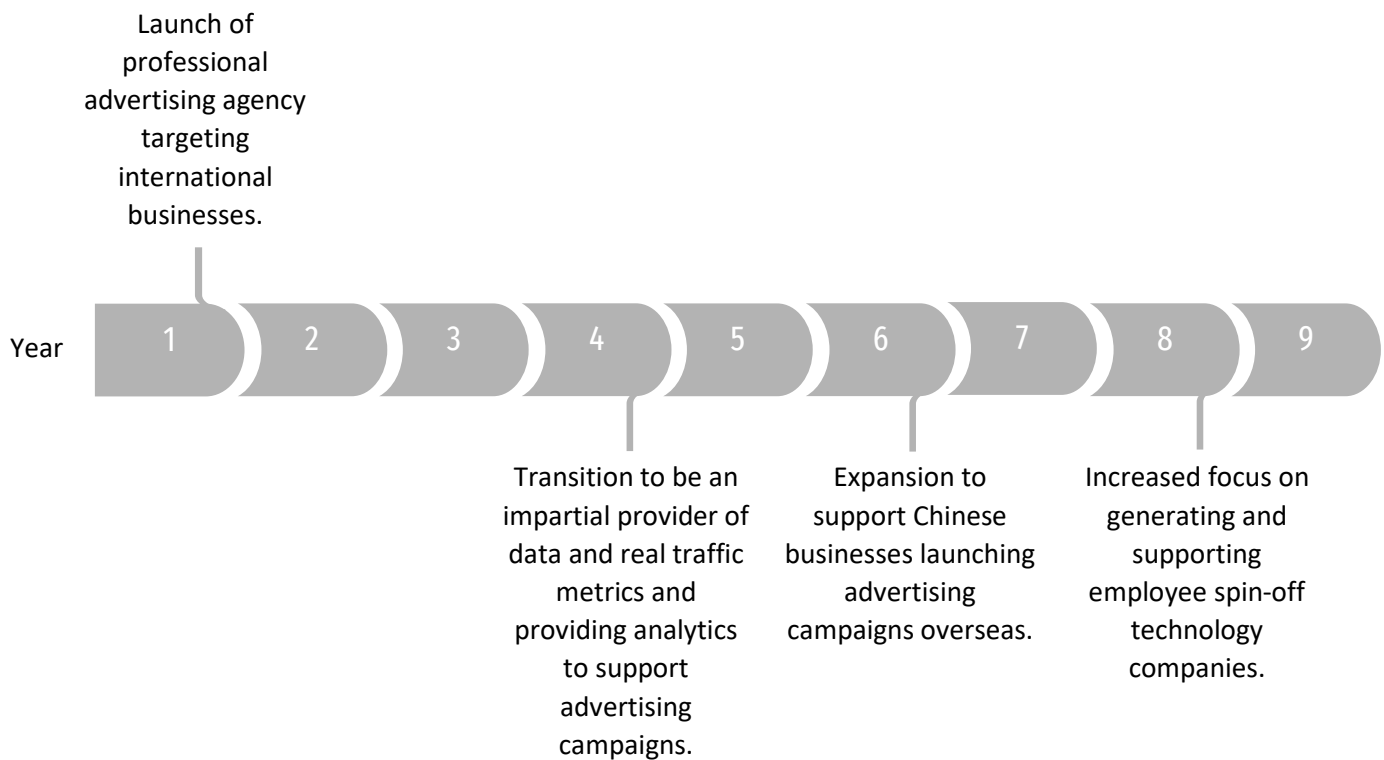
Case C started as a professional advertising agency, collecting internet user data, and developing personalised advertising algorithms for businesses. The information the firm gathered was used to target and deliver specific adverts to individuals. Income was based on the volume of transactions to their links. Its clients were international businesses.

While Case C's business plan was profitable, it noticed an increase in competition and decided to adapt its business model. While competitors were selling data and advertising, Case C perceived that there was a distaste for this practice of 'advertising arbitrage' with its international clients. Case C decided to remove itself from the advertising side and focus its value proposition solely on technology-based data collection and its analysis for clients. In this way, Case C became an impartial provider of data and real traffic metrics, focused on building trust with the client.

As a result, Case C now helps businesses optimise their future investments in advertising by processing data from e-campaigns (value creation). Customers are charged a service fee which is based on the advertising spend and provides a data report (value capture).

It now provides services to Chinese businesses who are advertising abroad. A stepwise approach to expansion has provided a low-risk opportunity to develop the business and is a common BMI for such firms. It aims to build a system that helps clients understand their consumers better. Its ambition is to become a recognised 'big data' company in the domestic IT industry, leveraging the role of technology in everyday life. The interviewee highlighted that all consumer behaviour could be recorded and sold as part of big data. It also aims to expand its technological reach beyond this value proposition, and encourages its employees to generate spin-off technology companies, in which the company invests, creating a mini-incubation element to the firm. A summary of the timeline for Case C is presented in figure 3.

Figure 3 – Case C Timeline



Case C Analysis

Case C reviewed and developed its business plan in step with changes to the business environment. It changed its value proposition to providing reliable, transparent data in a world where arbitrage has eroded trust between consumer and provider. It innovated its business model by adapting its value delivery, creation, and capture mechanisms to target Chinese firms wanting to advertise abroad. By positioning itself as an independent service operator, it gained a strategic competitive advantage of being regarded both independent and trustworthy. By encouraging internal innovation and small spin-offs, it may be positioning itself to catch the next 'wave' in technology.

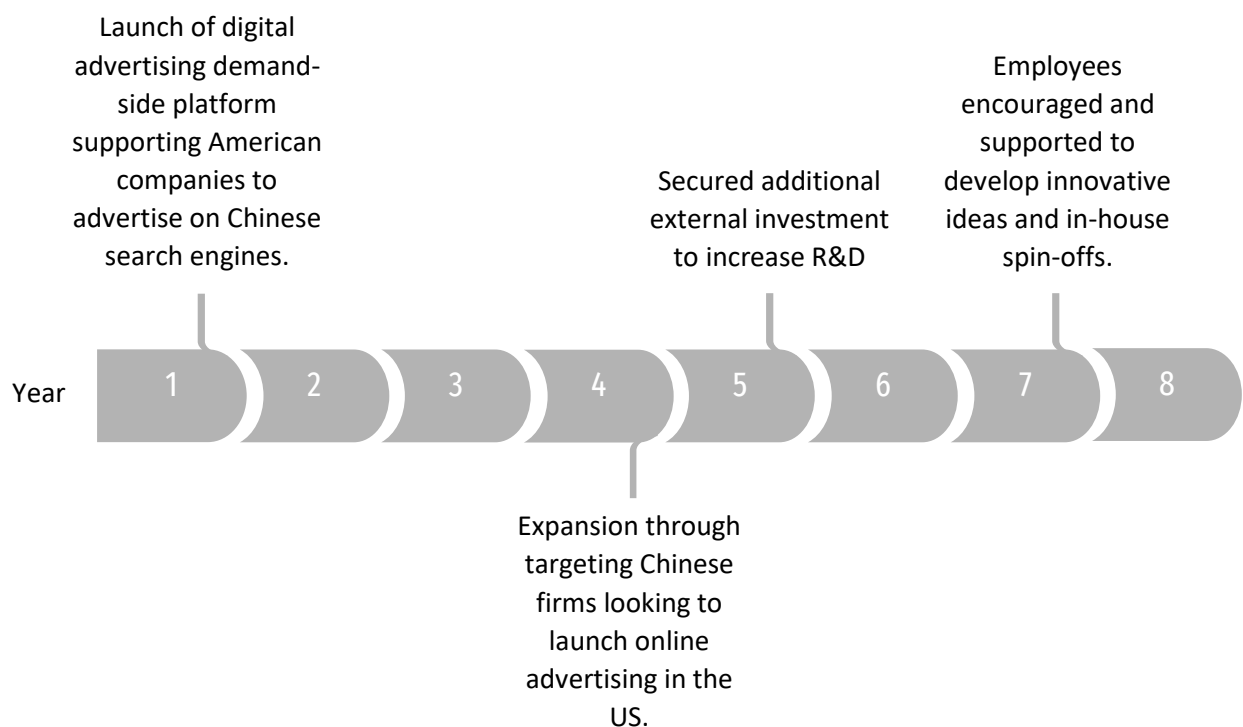
Case D

Case D is a digital advertising demand-side platform that offers direct programmatic services and a data management platform to customers. The firm has a real-time bidding algorithm, a proprietary cloud computing platform, and audience profiling technology. Advertisers can bid in real time for their products or services to be targeted at specific potential clients. This has

led to Case D becoming a growing provider of audience-based program advertising technology (value creation).

The firm began by targeting clients outside of China, selling advertising space on Chinese search engines to American companies. The firm makes revenue by charging a fee for each service it provides its client (value capture). As the Chinese economy developed, Case D began to increase its network by targeting Chinese firms looking to sell to the U.S. market. After this stepwise expansion, Case D felt compelled to seek external investment to increase its value network and R&D. A summary of the timeline for Case D is presented in figure 4.

Figure 4 – Case D Timeline



Case D Analysis

Case D's value proposition lies in its ability to effectively match advertisements and customers. Its revenue model captures value with a straightforward fee-for-service model. It creates value by offering an enhanced, premium technologically tailored, and targeted advertising service through a bidding process. A new value proposition has been added by expanding its value network to Chinese business. To capture this value, the firm needed to

develop its product to serve a new client base. This was supported by securing external investment to enable expanded research and development operations. The leadership-based focus on fostering new ideas and in-house spin-offs may be a strategic move in an increasingly crowded marketplace and may be a key driver of workplace innovation (Khalili, 2016).

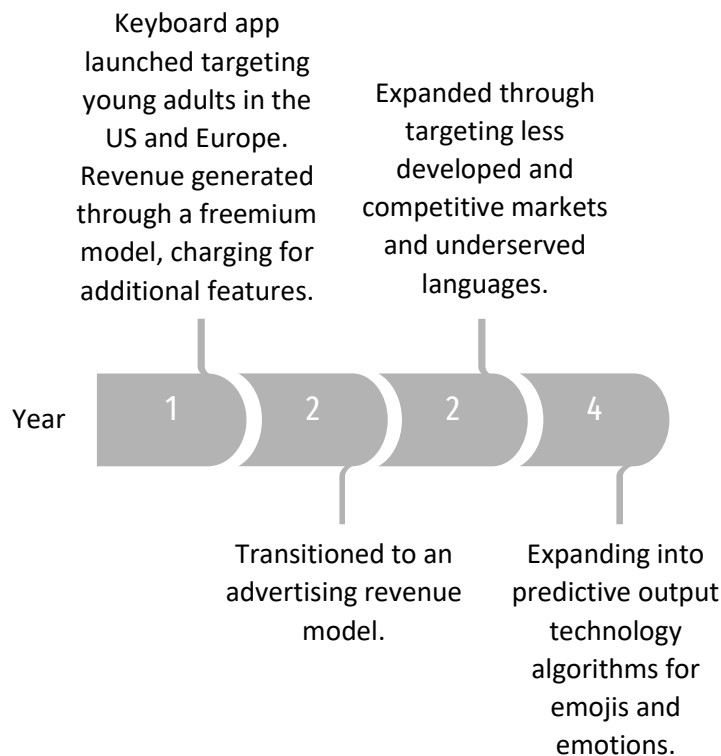
Case E

Case E is an app developer that produces mobile keyboards. It develops machine-learning technologies to mimic human expression. Firm E began by developing a successful app that provided a colourful keyboard targeted at youth and young adults in the United States and Europe (value creation). Based in China, Firm E later expanded into less developed nations with a burgeoning mobile consumer base to capture the market for less common languages that other developers may be overlooking. The interviewee commented that globalisation had made this process easier.

The app download is free to the customer and the firm captures revenue through advertising (value capture). It originally offered a premium service, in common with many internet businesses, but this has now been discontinued. Updates are provided to refresh interest and maintain customer loyalty by providing fun and novel features to keep pace with its competitors. As such, it focuses on assessing the preferences of its customer base. The firm believes that this market is far from saturated, and big data can be used to identify future trends and customer preferences.

Case E is now expanding into predictive output technology algorithms. It plans to offer emoji suggestions to users based both on what the user is typing and on past recent conversations the user may have had with the recipient. Case E believes actively pursuing innovation is a crucial step to stay ahead of the competition. The firm assess their business model quarterly to respond to a dynamic market. A summary of the timeline for Case E is presented in figure 5.

Figure 5 – Case E Timeline



Case E Analysis

Case E's development can be viewed as a typical stages model development outwards from the US and Europe. Its focus on untapped markets shows that it believes its initial markets are becoming too crowded. Its constant product innovation harkens to the importance of feedback to the app market. The app is free, and value is captured through advertising. Case E's potential new value proposition highlights the importance of strategic innovation and business model development, which will potentially provide a new source of competitive advantage that could take time for others to replicate.

Results and Discussion

From the analysis of the cases, four main themes were identified which help to explain how Chinese digital businesses develop and innovate their business models to survive in dynamic and competitive markets. These themes can also help to explain how these organizations view their success through the strategic development of their business models. The four themes

are a willingness for continued BMI, an openness to new opportunities, developing customer relationships, and continuous iteration.

A Willingness for Continuous Business Model Innovation

The businesses in this study all highlighted that BMI is essential to stay ahead of the competition and remain competitive. This is apparent in all the businesses, most particularly in the more established ones, Cases A and E. Case A has gone through a series of BMIs along with constant developments of their product offering. The business has changed not only its value creation/value capture/value delivery offerings as it grew, but also its value network to achieve these ends. This is not surprising since different resources provided by different partners are required at different stages of the innovation process (Lambrecht et al., 2014). In the meantime, it has undergone continuous product development and product iteration to maintain its competitive edge. Case D began by providing services to overseas clients who wanted to advertise in the Chinese market before identifying the market for Chinese businesses looking to advertise in the US market. Similarly, Case E has constantly developed its products to remain highly competitive but is constantly looking at expansion into new areas which will involve new networks and value delivery considerations. The use of networks is valuable for supporting innovation in the Chinese context (Wang et al., 2020). Interestingly, Case E examines its business model quarterly to maintain its competitive advantage and Ko et al., (2022) have suggested that innovation is commonly driven by management commitment.

Whilst some businesses have extensive investments and the ability to explore new ideas and technologies, they often lack the ability to undertake BMI (Spieth et al., 2016), or suffer from organisational inertia (Moradi et al., 2021). In contrast, all the case studies in this research have survived and thrived by developing their products and business models through innovation after identifying new customer wants, gaps and opportunities in the market.

An Openness to New Opportunities

Digital technology has empowered new ventures to be interactive and potentially borderless (Martinez-Caro et al., 2020). All the cases demonstrated an openness to change and new opportunities, within their case narratives. All apart from Case B had already adapted their business models to take advantage of new opportunities abroad, whilst Case B was

considering expansion abroad after further consolidation in China. Case B, described a more laid-back approach to innovation, preferring to methodically hone its product domestically. As a communication app, it requires the development of user concentrations, which could explain its relatively slower approach to BMI. As a digital technology however, it does have the advantage of being able to access valuable data which it can use to tailor domestic products to develop new streams of revenue at home (Andersen et al., 2020).

Case B was however, aware that expansion abroad would require different business models than that used domestically.

Developing Customer Relationships

Knowing and understanding customers' needs, demands and behaviours through the management of knowledge flow can be critical for BMI (Smith and Mckeen, 2005) and product development. Firms can thus develop their products, to enhance their competitive advantages, and to build a stronger brand. All the firms interviewed stressed the need to understand exactly what their customers' want, which reflected Teece's (2010) contention that businesses should be customer-centric, and the business model should be adapted to suit the customer. Whilst the increasing digitalization of consumers lives have created more opportunities for potential innovation, it has also increased and amplified the need to consider and constantly review how customers' needs can be met (Yu et al., 2019). Indeed, digital technologies have become efficient mediums for the collection of quality market information and feedback (Pergelova et al., 2019) which these businesses have taken full advantage of. The cases all utilized technology-based means to interact with its customers and amend their offering accordingly. The user's data drove changes, and one firm even disparaged the use of focus groups, saying they were more likely to lead the firm in the wrong direction. The close relationships with customers were a hallmark of all the firms interviewed and allowed the quick launches, rapid iteration and potentially expansion into new markets. In the case of Case C, by positioning itself as an independent service operator, it gained a strategic competitive advantage of being regarded both independent and trustworthy by its customers. Engaging and interacting with customers, can lead to customers becoming partners and potentially co-creators in developing future products and business model innovations (Sabia et al., 2022). It can help to close the gap between businesses and the expectations, desires, and requirements of customers and can be supported by promoting

the feedback back loop between users and businesses. It can also offer the opportunity for the collection and analysis of big data.

Continuous Iteration based on feedback and big data

In fast-moving markets such as the digital sector, changes and developments are rapid and as a result, the process of constant iteration, or probe and learn (Lynn et al., 1996), are widespread. Constant iterative approaches are often adopted within an emergent strategy in the development of value propositions with competitive advantage(s). Whilst this most commonly involves product development, it can also include frequent changes across the value creation, delivery, and capture mechanisms. For example, case A innovated their business model value elements regularly and the product was continually developed while adjusting the business model to increase income and enable further research and development. Andersen et al. (2020) confirmed that SMEs adopt this type of agile behaviour to innovate their business models to achieve competitive advantage in competitive markets. The cases highlighted the willingness to put out new features and iterations quickly and seek to get market feedback in real time, through the use of feedback. Each firm referred to 'big data' when referring to how it obtained customer feedback to support its BMI, which was supported by the increasing amount of data collected from internet and mobile activity, and other technology-based processes. The need to obtain big data to understand the elements of an individual's behaviour was highlighted.

As businesses iterate their product offering, they need to assess their value capture mechanisms. In terms of value capture the five cases demonstrated a wide range of value capture mechanisms, including advertising, fee-for-service, licensing, and freemium products. Cases A, B, and E came to rely on advertising to produce revenue whilst Cases C and D rely on pay for service charges. Case A tried different value capture mechanisms but found that they were not always effective. They attributed their willingness to try different value capture mechanisms to the need for an increase in cash flow to enable them to focus on research and development.

Conclusion

Whilst BMI has been argued to be a predictor of firm performance (Karimi and Walter, 2016, Visnjic et al., 2016), a systematic understanding of how it contributes to firm success is still lacking (Foss and Saebi, 2017). In addition, Zhu et al., (2022) have called for further understanding as to of how Chinese digital new ventures develop competitive advantage, which has still received limited attention.

This research addresses these calls by exploring how five start-up Chinese digital businesses developed and innovated their business models to survive and thrive in dynamic and competitive markets, adding to our understanding of the role that BMI plays in their development and survival during their early stages. The results have provided additional support for the contention that BMI can play an important role and is beneficial in the success of start-ups and their development in a highly competitive environment.

To be successful and survive in the digital economy, this research has highlighted a range of key factors in the BMIs studied which have led to their survival and prosperity in the digital market. These include the importance of BMI as a strategic tool to ensure competitiveness in the market; an openness to innovation and the identification of new opportunities; a close relationship with customers and their requirements; the ability to iterate to meet changing demands; and the ability to create and maximise value through the most efficient use of value delivery, capture, and networks. Case A which is one of the older businesses in the sample, for example, exhibited the widest range of product/service and business model innovations, valuing customer feedback for product development, adopting new business models, and expanding internationally as the business developed.

The ability to change course, pivot and adopt emergent strategies, respond to customer feedback, and embrace new business models to maintain a competitive advantage, are all common features within these case studies. Case D began by targeting US businesses looking to do business in China, then looked to target Chinese businesses looking to do business in the US. Case C switched from an advertising revenue model to a technology-based data collection revenue model.

As globalisation increases interconnectivity, it is no surprise that embracing innovation has played a key role in the success of the cases examined.

The globalised nature of knowledge, networks, markets, and the digitalization of more aspects of consumers lives, makes foreign markets increasingly accessible to start-up enterprises. It presents businesses with a harshly competitive environment requiring value propositions that match the market's current whims. Thus, it is not surprising that in the cases examined, that had either launched internationally from the start, expanded operations internationally, or have an eye on doing so in the future, all have a keen focus on innovation in the many aspects of their business models. However, there is an imperative need to constantly review and refine the business models, as was seen in this research, with one business (Case E) reviewing their business model on a quarterly basis.

The implications of the research findings support previous research that has concluded that in fast moving and competitive markets BMI can offer businesses a way to maintain strategic flexibility in the digital era. These businesses have innovated their products and refined their business models regularly to achieve strategic advantage in the marketplace. Importantly, they have connected and listened to their customers and provided what their customers wanted, leading to product and service refinements. This in turn leads to increased revenue and new opportunities including expansion. These findings suggest that businesses who do not innovate their products/services and their business models, possibly due to fears and concerns over damaging the business, a lack of knowledge, or organisational inertia, will struggle to survive in such a dynamic and competitive environment. This highlights the need for policymakers to ensure that new and growing businesses are supported through training and entrepreneurial ecosystems to make changes and innovations to their business models. Such support should provide knowledge and training to reduce the fear and inertia to enhance the future development and potential of future businesses in this sector.

In common with all research, this research has some limitations. The research is limited to the scope of the sample; however, the sample was purposefully selected to allow the analysis of successful digital businesses and their survival. Future research could analyze a larger number of businesses to provide further evidence. Within this research the business models and BMI was considered retrospectively which has the potential to be influenced by recall bias, future research could explore a range of businesses and the BMIs undertaken using only secondary sources to reduce the potential for recall bias, or research businesses over a longitudinal timeframe. As this research has focused on Chinese digital start-ups and China has been identified as having unique innovation and entrepreneurial systems (Bell et al., 2019), future

research could consider digital start-ups in different locations and contexts. Additionally, future research could explore start-ups using digital processes in non-digital products and industries to investigate their survival in competitive markets.

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