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DIGITALLY ENABLED GRASSROOTS ENTREPRENEURSHIP FOR RURAL DEVELOPMENT

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Abstract

ICT has been promoted as a way out of deprivation for rural residents who continue to suffer from a limited access to social-economic developments. However, less is understood about how a marginalized community can drive its own development. Simultaneously, the focus on ICT in developing context has eclipsed the study of ICT for development in existing literature. These observations underscore the need for this study that explores the use of ICT for grassroots entrepreneurship through the phenomenal rise of China Taobao E-commerce Village. Through an in-depth case study, we propose the concept of digitally enabled grassroots entrepreneurship that (1) contributes to the existing ICT4D literature by explicating the roles of ICT (e-commerce) in driving the grassroots entrepreneurship through the emergence of an entrepreneurial ecosystem for a self-driven development, and (2) delineates the process of digitally enabled development beyond the provision of the Internet and infrastructure by presenting the development stages of digitally enabled grassroots entrepreneurship through the opportunity exploitation and opportunity exploration of business, knowledge, and institutional entrepreneurship. The findings also provide a reference point for practitioners to reconsider the external intervention-based development approach.

Keywords: Grassroots entrepreneurship, digital enablement, social inclusion, case study

1 INTRODUCTION

Despite the accumulation of global wealth, social and economic inequalities remain a social challenge of high priority to the world. One of the factors that continues to perpetuate these inequalities is the rural-urban gap. With the concentration of development in urban areas, rural residents face limited access to education, healthcare, and economic opportunities (Chhabra 2012; IFAD 2011). As a result of the rural underdevelopment, various societal challenges arise such as social and economic immobility, labor migration, empty nest family issues (United Nations 2013). In this respect, ICT, manifested in different forms including the Internet, telecenter and e-commerce, has been a proven catalyst for rural development (Bailey and Ngwenyama 2013; Brown and Grant 2010). The ICT strategies for development (ICT4D) are often implemented to reduce transaction costs, transform delivery of basic services, stimulate innovations, and improve competitiveness (Walsham and Sahay 2006; World Bank 2016).

Numerous successful cases about the use of ICT to improve rural livelihood are often cited, such as the e-Choupal in which computers with Internet access are installed in rural India to offer farmers up-to-date agricultural information. To provide public access to ICTs in remote areas, telecenters are also established (Bailey and Ngwenyama 2013; Gomez et al. 1999). We argue that there are two issues with the existing knowledge of ICT-enabled development. First, majority of the extant studies focuses on external intervention-based approach (Green 2010; Mansuri and Rao 2004), where the community is positioned as the recipient of aid who could only react to an external imposition (Bailey 2013). Nonetheless, individuals from within the community may in fact provide the most suitable and enforceable solutions to their challenges (Wei 2011). As Brytenbach et al. (2013) suggested, “members of a society start developing themselves and their community when they begin to actively rearrange the social resources and structures under their control in ways which result in a larger spectrum of action choices and opportunities available to themselves and other members of community” (p. 134). This draws our attention on the grassroots entrepreneurship that is ignited by the use of ICT. Second, few studies delineate the process of the digitally enabled development beyond the provision of the Internet and infrastructure. As reiterated in the recent report by World Bank (2016), countries that have bridged the digital-access divide are confronted with a new divide in digital capabilities. In other words, there remains a heightened interest in unearthing the affordances of ICT and the capabilities of the community in using the ICT that has become widely available.

Through the recent phenomenal rise of e-commerce villages in rural China, which are better known as Taobao Villages, it is demonstrated how the ICT, specifically e-commerce, can enable grassroots entrepreneurship in driving the rural development. It challenges the once seemingly unrealistic notion that the rural poor population could directly use ICT without assistance from an outside agent (Bosworth and Atterton 2012; Gigler 2004). Riding on this favorable opportunity, our study is interested in understanding “how does ICT (e-commerce) lead to grassroots entrepreneurship for rural development?” In addressing our question, an entrepreneurial opportunity perspective is adopted. Our paper is organized as follows: we begin with a review of ICT in rural development and entrepreneurship. We then provide the details of the research method and case, followed by the analysis and contributions. Finally, we conclude with the limitations of the study.

2 LITERATURE REVIEW

2.1 ICT for Development

ICT is recognized as a way out of deprivation to development because its connectivity lowers the social and economic transaction cost, boost efficiency and convenience, and promotes the access to services and inclusion (Njihia and Merali 2013). ICT enables previously isolated communities the access to education (distant learning), healthcare (telemedicine, early warning for epidemics), political

involvement (e-government service delivery), and information for higher incomes (e.g., market pricing) (Narayan-Parker 2002; UNDP 2001). In the existing literature, a rural community is often regarded as the victim that requires external interventions from the government, non-government organizations (NGOs), private firms, or social enterprises in the pursuit of development (Green 2010; Kretzmann and McKnight 1993). Some well-known examples include the rural development in China that is led by the government, e-Choupal in Indian villages that is undertaken by a business conglomerate, mobile banking in Indonesia that is driven by banks, and the “telephone ladies” program of Bangladesh that is initiated by a social enterprise.

While the external actors may possess the financial and technical resources, it is concerned that the dependency of a marginalized community on external change agents may threaten the development that should be freedom-enhancing (Sen 2008; Tambulasi and Kayuni 2005). An inclusive development requires a greater participation of the local community who understand their own needs better. Moreover, it should be recognized that poor people who may be at the bottom of economic pyramid are not necessarily at the bottom of the knowledge and innovation pyramids. In fact, a sustainable and dignified development process need to be built on the resources in which the poor people are rich (Gupta 2013). Without discounting the merit of offering aid to the needy, the competent role of the community is emphasized in this study. To date, little empirical evidence exists to elucidate the process of how a marginalized community can empower itself, supporting the claim of “by the community for the community” (Coetzee 2010).

Additionally, there is a lack of understanding of the impacts of ICT use on development (Brown and Grant 2010; Dewan and Riggins 2005). A review by Brown and Grant (2010) revealed that IS researchers have been focusing on studying *ICT in developing contexts*, rather than *ICT for development*. Studies on *ICT in developing contexts* emphasizes the core IS issues (such as IT investment, implementation, and management) in developing contexts (Walsham and Sahay 2006). Some examples include Montealegre’s (1996) study of the challenges of e-commerce managers in less-developed countries, Lubbe’s (2000) paper on how organizations manage their IT investment in Namibia, and Dobson et al.’s (2013) examination of broadband adoption in rural Australia. Consequently, there is a “much less explicit connection between the technology construct and the development construct” (Brown and Grant 2010 p. 100), which is the focus of *ICT for development*. Similar limitations are expressed concerning current “digital divide” studies that predominantly focus on ICT access and adoption, while neglecting the patterns of ICT use and their consequences (Dewan and Riggins 2005). For example, Hsieh et al. (2008) study the factors that influence the continued ICT use of disadvantaged users, and several others have studied ICT access and adoption (e.g. Agarwal et al. 2009; Chaudhuri 2012; Dewan et al. 2010; Kankanhalli and Pee 2010), without examining the affordances of ICT in contributing to development. This view is also supported by the renewed interest of practitioners like the World Bank, which has highlighted the need to examine digital capabilities after addressing the digital access divide issue (World Bank 2016).

At the intersection of these two gaps, this study aims to explicate the concept of digitally enabled grassroots entrepreneurship. In contrast to an external invention-based development where a rural community is “designed” to be the online seller (or entrepreneur) like the rural artisans of Anou and Novica e-commerce, Taobao E-commerce Villages epitomizes the emergence of entrepreneurship in a bottom-up approach, thus offering an understanding of a self-driven development enabled by ICT as well as the process of development beyond the provision of digital access.

2.2 Digital Entrepreneurship and Entrepreneurial Opportunity

With the evolvement of contemporary business landscape and the advancement of knowledge, entrepreneurship has been defined by a few key notions including risk taking behaviors (Ireland et al. 2005; Scott and Venkataraman 2000), pursuit of opportunities beyond resources currently controlled (Stevenson and Gumpert 1985), and opportunity processes in creating future goods and services (Venkataraman 1997). As we entered the digital age, it is evident that digital technologies have

generated various digital options and opportunities for entrepreneurs. Adopting Davidson and Vaast's (2010) definition, we define digital entrepreneurship as "the pursuit of opportunities based on the use of digital media and other information and communication technologies" (pg. 2).

From the dot-com companies that successfully seize the opportunities from the opening of the Internet in late 1990s to the individuals and organizations that exploit the growth of social networks and mobile technologies in generating new business models, there has been a growing attention on how digital technologies exacerbate changes in the competitive business landscape. For instance, Sigfusson and Chetty (2013) and Fischer and Reuber (2014) have studied how the use of social media could help the entrepreneurs to identify opportunities and enable differentiation from rivals. Bolstered by some high-flying startups such as Airbnb and Uber, the recent rise of share economy again epitomizes the creative destruction process in digital economy as the digital entrepreneurs create business opportunities using ICT, turning people into part-time entrepreneurs (Richter et al. 2015). With its potential, it is of little wonder that many countries consider digital entrepreneurship as a critical pillar in their future economic development (Shen et al. 2015).

While IS studies have a long tradition of examining entrepreneurship in an organizational context, entrepreneurial actions also contributes to the socio-economic growth especially through the facilitation of homegrown businesses in the marginalized or disadvantaged community (Xiao et al. 2013). Nonetheless, these communities face additional challenges in making successful entrepreneurial efforts (Gupta 2013), such as poor infrastructure, distance to broader markets, cultural reluctance of economic exchange with strangers, and a lack of experience with innovative technologies. A successful exploitation of opportunities requires the recognition of local resources, networking, and envision beyond the environmental limitations, that will mitigate perceived risks sufficiently such that the disadvantaged communities may be willing to take the initiative to play a role in grassroots innovation and promote entrepreneurial activities (De and Jeroen 2013). For instance, Avgerou and Li (2013) study how the social embeddedness of the local community, coupled with the virtual relations, have altered the behavioral norm of the local micro-entrepreneurs that emerged from a Web platform in China, and Anwar (2015) has delved into the use of mobile phones in facilitating the operation of Indonesian micro-entrepreneurs' enterprises, including conducting business activities, building trust, and improving communication with other businesses. Given that entrepreneurship culture has a profound impact on social transformation (Del Giudice and Straub 2011), it is crucial to understand how powerless people can enhance their entrepreneurial efforts.

To understand this entrepreneurial process, we build on the knowledge of opportunities which is gaining significant traction in understanding digital entrepreneurship, for the diversity of opportunities generated by digital technologies (Busenitz et al. 2014; Davidson and Vaast 2010). We also ride on the shift of attention from the entrepreneurial spirit of individuals to the nexus of individual entrepreneurial activities and the underlying opportunities of the environment (Sarason et al. 2006; Short et al. 2009). Among the opportunity processes, opportunity discovery and opportunity exploitation have been identified as two core processes of entrepreneurship (Shane and Venkataraman 2000). While opportunity discovery refers to a process that "perceive a previously unseen or unknown way to create a new means-ends framework" (Eckhardt and Shane 2003 p. 339); opportunity exploitation represents the acquisition of resources or the engagement in activities that exploit an opportunity (Sitoh et al. 2014).

At the same time, the multi-dimensional analytical framework by Davidson and Vaast (2010) also serves as a useful ground for our analysis. They suggest three types of entrepreneurship that involves different opportunities: 1) business entrepreneurship involves new business-related, digital ventures aim at generating a financial profit and are directly inscribed into the economic realm, 2) knowledge entrepreneurship involves the pursuit of information- and knowledge-related opportunities to develop, expand, and circulate a domain-related knowledge base and pursue new ventures related to this knowledge base, and 3) institutional entrepreneurship has been defined as the activities that changes particular institutional arrangement, i.e. to create new institutions or transform existing ones.

In summary, our review shows that there is a lack of understanding on grassroots based ICT-enabled development and a paucity of practical knowledge regarding the process of development beyond the provision of digital access. The rise of e-commerce villages in rural China has provided an excellent research opportunity to examine digitally enabled grassroots entrepreneurship in social context. We adopt entrepreneurial opportunity as the theoretical perspective in studying “how does ICT (e-commerce) lead to grassroots entrepreneurship for rural development?”

3 METHODOLOGY

This study adopts a qualitative methodology because it helps to provide a solution to a “how” question in a context rich phenomenon (Pan and Tan 2011). Due to the lack of attention in examining the development process of digitally enabled grassroots entrepreneurship, a case study is appropriate (Siggelkow 2007). Exploratory case study is also most effectively used in the inductive derivation of new conceptual theories (Pan and Tan 2011; Siggelkow 2007), and therefore suitable for exploring the phenomenon and formulate new conceptual arguments. Recognising there is no established theoretical model that is applicable to the study, an interpretive approach is adopted (Klein and Myers 1999; Walsham 1995). Existing knowledge of the entrepreneurship and opportunity form our theoretical lens. In particular, the theoretical lens serves as a “sensitizing device to view the world in a certain way” (Klein and Myers 1999 p. 75), rather than a source of specific features that was sought to verify.

To address the research question, the case of China Taobao E-commerce Villages has been selected for a few reasons. First, the case illustrates a social-economically disadvantaged community caused by rural underdevelopment. Second, this case features various grassroots entrepreneurs and enterprises that emerge from the use of an e-commerce platform, thus demonstrating the disassociation from established institutional stakeholders and structures. Third, the socio-economic improvement of the villages is significant. According to a report by Alibaba, about 280,000 job opportunities (as of end 2014) had been created in rural China as a result of the emergence of these e-commerce villages.

Two primary sources of data were collected: interviews and archival data. Semi-structured and focus group interviews were conducted. During the trip, we visited homes, offices, factories, companies, and the e-commerce trade association. A total of 32 subjects from 7 villages were interviewed, and interviewees include e-tailers, manufacturers, distributors, e-commerce service providers, representatives from the e-commerce trade association and local government. The interviews were led by one lead interviewer who was a Chinese native speaker. All interviews were recorded and transcribed in Chinese. Since the authors are bilingual and proficient in both Chinese and English, the data were analyzed in its original language and only translated at the time of writing. Additionally, archival data such as online articles, press releases, news and reports were collected. The collection of archival data started prior to the research trip to develop an understanding of the Taobao Village case as a general phenomenon. The collection of archival data continued after the trip in order to ensure that there are multiple sources of data for data triangulation. Our data analysis began at the time of data collection. Data were summarised in tabular form to reflect actions taken by grassroots entrepreneurs and other stakeholders. With the summary table as the starting point, tentative concepts that could explain the roles of ICT in the community development process were identified. Using the techniques of thematic analysis, the data was analysed through open coding. Open codes were aggregated into higher-level abstract concepts and relationships between these concepts were investigated. Data analysis was concluded when further cycles of abstraction did not provide any additional new insights.

4 CASE DESCRIPTION

In developing nations such as China, rural-to-urban migration plays an important role in alleviating poverty (OECD 2005; World Bank 2007). Internal migration from rural to urban area has significantly accelerated the urbanisation process in China (Chan and Hu 2003). Meanwhile, the resultant decrease

in the productivity and economic vitality of rural areas has raised concerns on the side effects including village depopulation and rural decline (Sun et al. 2011). This not only leads to social issues like empty nest family issues and village hollowing (United Nations 2014), but also perpetuates the vicious cycle whereby growth concentrates in urban areas and social-economic disparities between rural-urban areas exacerbate (Chan 2008). In other words, the lack of opportunities in rural villages continues to encourage out-migration to cities.

The emergence of e-commerce villages in rural China (better known as 'Taobao Villages') offers an alternative solution to rural development challenges. Over the past few years, China has seen rapid growth and development of e-commerce websites. Taobao.com is a consumer-to-consumer platform operated by Alibaba, the largest e-commerce company in China. It has now dominated the online marketplace in China with three out of four online sales in China take place on Taobao. More recently, the e-commerce platform has played an increasingly significant role in helping to revitalise rural villages in China.

Taobao.com has fostered the emergence of "Taobao villages" – rural areas featuring large number of Taobao vendors. The emergence of Taobao Villages was a grassroots movement. The first movers, or grassroots entrepreneurs decided to take on the e-commerce opportunity and the innovation quickly diffuse and spread amongst the whole village. At the same time, Alibaba actively encourages rural residents to engage in micro and small businesses on Taobao and has coined the phrase "Taobao Villages" to describe a cluster of rural e-tailers where at least 10% of the population are involved in e-commerce, and total annual e-commerce transaction volume in the village is at least 10 million RMB (1.6 million USD). Within a short span of time, there has been a significant growth of e-commerce activities. From three Taobao Villages in 2009, the number has increased to 212 in 2014. It is estimated that commercial activities surrounding e-commerce has generated over 280,000 job opportunities for rural China in 2014. Products sold online vary but are closely related to traditional agricultural or industrial resources in many cases. Cluster of Taobao Villages also lead to the emergence of 'Taobao Towns' – areas featuring several Taobao Villages. Some of these towns have an annual e-commerce transaction volume of over 5 billion RMB (800 million USD). The case study for this study focuses on one of the Taobao Towns in southern China, Shangqing.

Shangqing County is located in the rural area of Fujian Province, covered by forests and mountains. It consists of eighteen villages and has over a population of over 46,000 villagers. In the past, Shangqing was famous for its traditional rattan and iron furniture industry. Due to its remote location and lack of infrastructure development, the economic growth in Shangqing village was rather stagnant. It has been identified as an economically under-developed area. Most of the younger generation opted to study and work in big cities, resulting in village hollowing and an increasing disparity between Shangqing and the more developed regions of China.

Rattan and iron furniture manufacturing has been Shangqing's core business activity since the 70s. For over 40 years, generations of villagers practiced and passed on the skills and experience of crafting furniture in family workshops, as well as manufacturing in large-scale factories. Local government has promoted the export of furniture to stimulate economic growth and hence local development. Prior to transforming into "Taobao Village", almost all the households in Shangqing ran either family manufacturing workshops or work in furniture factories for a living. The local economic vitality was almost inseparable from the exporting activities.

The arising of e-commerce websites in China provides the platform and potential for budding micro-businesses online targeting at the domestic market, which is far from saturated in many industries in China. The first Taobao e-tailer of Shangqing County started his online shop in 2007. Due to the impact of global financial crisis, many more joined in the 2008. The number of online sellers increased significantly in subsequent years, and many of their ventures were successful. In 2013, the first Taobao Village appeared in Shangqing, and four more Taobao Villages emerged in the year after. Shangqing's annual e-commerce sales volume in 2014 has reached over 500 million RMB (80 million

USD), ranked 5th out of 13 Taobao Towns nationwide. In the following, we describe how the grassroots entrepreneurship emerges in Shangqing.

4.1 The Emergence of Entrepreneurial Ventures

The very first e-commerce venture in Shangqing started in 2007. Back then, Taobao had come online for just over 4 years and e-commerce started to gain its momentum in China. One of the first movers to enter online business was Mr Li from Zaomei Village. In 2007, Li and his father learnt about the success story of Taobao. Having used e-commerce platform in the past, they decided to give e-commerce a go. Li, who was working as a migrant worker at a very young age then, returned to his hometown to start his first online store. Although considered as less developed, Shangqing has a long history of iron furniture manufacturing. Given the existing resources at hand, Li decided to open two online stores selling iron furniture. Mr Li said,

“My family has experience in manufacturing rattan and iron furniture and handicrafts... Since this is our traditional industry, we have an industry value chain locally. It is therefore easy for us to start. I was mostly selling products from my family workshop at the beginning.”

The initial start up cost wasn't high. With neither capital, nor much experience, Li started his first entrepreneurial venture with a vendor registration on Taobao.com and a computer in his room. Unlike traditional entrepreneurial ventures, e-commerce presented itself as a very approachable platform. Apart from the manufacturer-turned e-tailers, villagers who were not manufacturers could also become an entrepreneur on the platform by getting the product supplies from their fellow villagers.

“In the past, it wasn't easy to gain access to market – no matter domestic or international market. If not for Taobao, [starting a new business] would not have been this easy.” – Mr Liao (an e-tailer)

During the year of 2008, global financial crisis made its impact worldwide. Exports in China shrank at a steep pace, exchange rates were affected, and the price of labour and raw material went up. Due to Shangqing's reliance on export businesses, prospects of local economy was gloomy, and many individuals and businesses started to look for new market demand for their rattan and iron furniture.

“Before 2008, all of our products were exported to Europe, US, and Arab countries. After the global financial crisis, the international market demand shrank significantly... Export businesses were impacted. Villagers tried some new forms of businesses, such as opening up physical stores in the cities, very few succeeded until some tried e-commerce.”

4.2 Entrepreneurship Cluster

One of the most prominent characteristics of Taobao Village phenomenon is the clustering of entrepreneurship. In rural areas, the villagers form strong social ties and hence, one villager's success can easily draw other residents' attention. Direct imitation followed soon after Li and other first mover's success. This quick spread of e-commerce activities not only happened within the first movers' village, but also took place in neighbouring villages. The more success manifested, the faster this spread of online businesses gain its momentum. Within a year, the number of Taobao Villages increased from one to five.

“Our neighbouring village started later than us, but they developed fairly quickly as well. Many of them came to our village, ask questions and learn from our experience. It doesn't take long to pick up [e-commerce]... We don't mind them learning from us, domestic market is far from saturated.” – Mr Li's father

Although most young villagers had to leave their hometown and work in different areas from their friends and family, they also learned about the e-commerce activities in the area, and were able to trial the feasibility of e-commerce stores before committing. At the same time, the development of the

Shangqing has attracted migrants from other areas, thus adding to the clustering effect of entrepreneurship.

“There are a lot of migrant workers in Shangqing, many from neighbouring provinces. The number has increased significantly this year; our village alone has over a thousand migrant workers. Some of these workers choose to experiment with e-commerce.” – a member of Zaomei Village Council

As the entrepreneurial cluster continued to grow, individual e-tailers sought to differentiate themselves from others. While most of the e-businesses remained home-based and many were satisfied with their improved economic condition, some villagers with extra resources at hand started to think about the sustainability of their businesses. There are various aspects of business to be considered other than product sales such as product design differentiation. For instance, while the Xinlou Village excelled in producing small decorative items, Zaomei Village was focusing on promoting furniture items made of wood and metal (both villages were located in Shangqing).

“Many people are good at using computer, it is not difficult to start [an online shop]. However, the extra profit and competitive advantage come from product differentiation... I told my children that they need to learn about design.” – Ms Liu (an e-tailer)

Management and operation were other aspects that differentiated successful businesses from others. As entrepreneurs, knowledge of organisational management and operation was equally important for new starters as well as the more experienced entrepreneurs. The grassroots nature of the business venture meant limited start-up resources at hand, and hence many only had limited knowledge or experience when it came to management.

“[For future development], operational teams and product teams are very important. However, it is very difficult to assemble a good team, as the members must know about our trade well and must be experienced... We always learn from each other, especially those who are doing well. We have a virtual group of e-tailers.” – Mr Liao (an e-tailer)

With the growing cluster of entrepreneurs within and among the villages, the e-commerce industry in Shangqing prospered. In one single day, there were at least twenty full load containers that departed from the town, sending the ordered items to the customers of the Shangqing e-tailers.

4.3 Entrepreneurial Ecosystem

As mentioned above, Shangqing has a pre-existing industry chain for rattan and iron product manufacturing prior to the emergence of e-commerce. This value chain has facilitated the success of local online businesses to an extent. However, the value chain was export-centric in the past. During the past few years, the industry environment in Shangqing has undergone significant transformation as the entrepreneurship cluster formed.

As more families transformed their traditional home-based workshop to online businesses, there was an increasing need for sharing of entrepreneurial knowledge and assets. Hence, new roles emerged to mediate the process - trade associations were formed. Facilitated largely by the local government, these institutions offered places where e-business owners can seek for improvement and cooperation through exchange of ideas on pressing challenges and business potentials.

“We have the Rattan and Iron Craft Trade Association at Anxi Township level (one level above Shangqing County) where the head of association is from Shangqing... We also have the Shangqing E-commerce Trade Association. We provide a platform for experience and resource sharing” – Mr Wang (secretary of Shangqing County Council)

“Some successful business owners have attended some of the Taobao College [an training institution established by Alibaba] training... After I have gathered sufficient capital and resources for my business, I think getting some training is helpful.” – Mr Liao (an e-tailer)

Another important aspect that drove the local ecosystem was the growing number of e-commerce service providers. A typical example was the increasing number of logistic operators and design companies in Shangqing. Product was a common issue amongst e-commerce entrepreneurs, and therefore, the need for unique product design has brought design service provider to Shangqing.

“All the major logistic companies come to Shangqing to set up a dispatch centre. Why? Because we have an increasing demand for logistic and delivery service.” – Mr Wang (secretary of Shangqing County Council)

From 2009 to 2010, many first movers have expanded their businesses to include their own production, design, operational, and marketing teams. This has given rise to an improved e-commerce supply chain with better division of work.

“Our industry supply chain for e-commerce is very well developed and complete. There are raw material providers, manufacturing plants, packaging, and logistics companies for distribution... This value chain supports the development of our businesses, and gives us competitive advantages compared to other villages.” – Mr Wang (secretary of Shangqing County Council)

The exporters have also become a part of the e-business value chain. Many exporters were interested in the potential of domestic market. However, there was a substantial difference between the business model and daily operations of an e-commerce and a traditional export business. Rather than going into the e-commerce themselves, these exporters partnered with experienced e-commerce entrepreneurs. From the e-commerce entrepreneur's point of view, this was a win-win situation, as their capabilities and resources were now complemented by those of the exporters, and therefore that could lead to stronger growth.

“I partner with an export company. They have resources, land, and warehouses. I have customer orders, so I am in charge of sales, while they manufacture the products.” – Mr Zhong (an e-tailer)

With the institutionalization of a local value chain, it was difficult to replicate the vitality of Shangqing e-commerce industry in other places. With the availability of the e-commerce service support and the strong risk taking culture, the entrepreneurial ecosystem of Shangqing expanded the economic opportunities in the rural region and injected a vibrancy in the villages. Young generation was encouraged to return to their hometown and this revitalized the local development. In the following, we provide the discussion of the case.

5 DISCUSSION

The previous section illustrates how rural residents of China use e-commerce for grassroots entrepreneurship activities and explores the process of economic and social development as a series of stages (individual entrepreneurial venture, emergence of entrepreneurial cluster, and formation of entrepreneurial ecosystem). Taking on a theoretical lens of entrepreneurial opportunity process, this section discusses the enabling role of ICT in three grassroots entrepreneurship development stages. Our findings are summarized in Figure 1.

5.1 Business Entrepreneurship and Entrepreneurial Venture

Grassroots entrepreneurs recognise the novelty and potential of e-commerce, and therefore, are prone to try out new businesses by creating and matching new supply and demand through a process of opportunity exploitation and creation. Such cases are rare, and if the grassroots entrepreneurs are successful, they lead to radical changes in the environment through the creation of a significant new value that can be imitated and diffused. In the study of Shangqing case, ICT plays a key enabler role in the process.

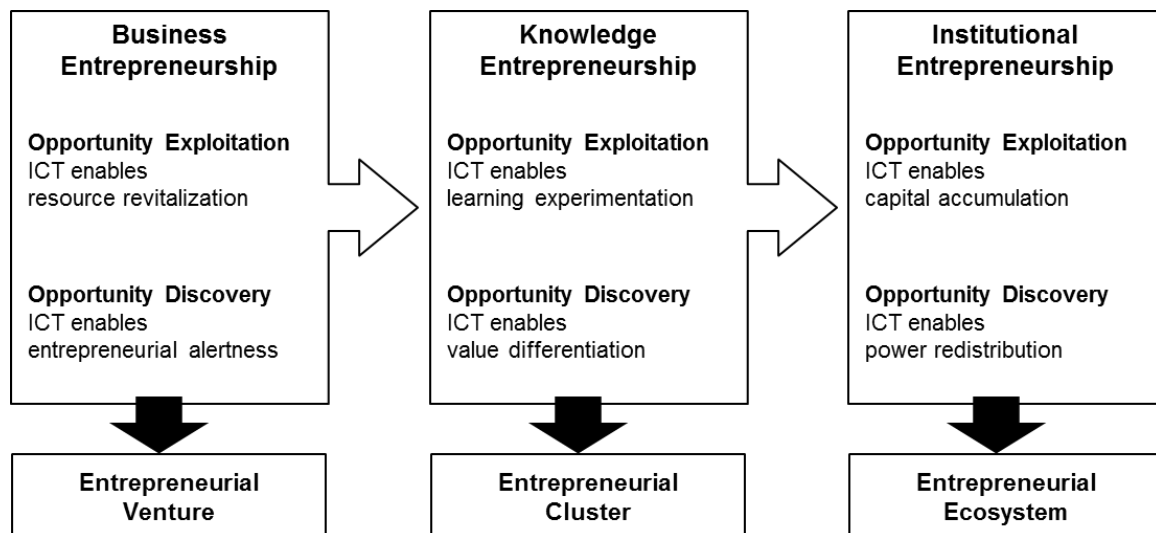


Figure 1. The development of digitally enabled grassroots entrepreneurship

ICT enables **resource revitalisation**. When taking on new business ventures, entrepreneurs often rely on their existing resources such as social network, skills, and knowledge of the business environment. Individuals tend to take lead in areas that they are better at to explore new demand and supply within the market. However, not all resources at hand can lead to successful entrepreneurial innovation. For example, Shangqing's iron products trade have existed for decades, yet Shangqing was still in the state of underdevelopment, and families engaging in manufacturing activities were suffering from disparities prior to the emergence of e-commerce. In this case, ICT gives rise to new ways of leveraging resources (Markus and Loebbecke 2013). When a villager reapply the local assets (i.e., the preexisting rattan and iron furniture industry) in a different setting enabled by ICT (e-commerce), the traditional industry is revitalised. Building upon the community's capacities and strengths (Kretzmann and McKnight 1993), ICT generates a digital option by enabling an alternative approach of utilising existing resources as individuals take on new entrepreneurial ventures.

ICT use and adoption lead to opportunity creation by enabling **entrepreneurial alertness**. Rural villages are typically defined by its closely connected social network among the villagers. Given the high visibility of the home-based e-commerce operations and the significant improvement in the economic condition of the first movers, other villagers are encouraged. In other words, entrepreneurial alertness enabled by ICT facilitates the increase of entrepreneurial propensity – the inclination of getting involved in entrepreneurial activities, thus leading to a diffusion and spread of online business activities. A belief of self-sufficiency germinates, weakening the learned helplessness and gradually gives rise to a “can do” attitude (Conger and Kanungo 1988; Maier and Seligman 1976). Rather than resigning themselves to “fate” or being acquiescent (Gaventa 1980), the possibility of earning a good income in villages by leveraging ICT gives rise to a sense of hope, freedom, and self-respect in the community, and encourages the villagers to take a risk by venturing into e-commerce (Bhattacharyya 2004; Toomey 2009).

5.2 Knowledge Entrepreneurship and Entrepreneurship Cluster

Entrepreneurship is inherently a local phenomenon (Feldman et al. 2005). The enterprises developed by these adopters typically have high relational and geographical proximity, and therefore forms a cluster of entrepreneurship. It is ICT that enables the mass adoption of e-commerce within such a short period of time. Entrepreneurship cluster leads to a profound impact on local economic and social

landscape: as interaction amongst businesses intensifies, it leads to formation of an ecosystem that support and maintain entrepreneurship in the long run. While incubation and business ventures sound exciting, it is not easy to foster digital entrepreneurship in marginalized communities featured with low capital and capacity, a weak culture of entrepreneurship, and a lack of mechanisms to facilitate learning and sharing of ideas (World Bank 2012).

From the case, we argue that the growth of grassroots entrepreneurial venture is largely attributed to the role of ICT that allows **learning experimentation**. When exploiting new business opportunities, individuals typically fulfil a market niche that larger corporation may have overlooked or judged as too small (Feldman et al. 2005). The more significant the changes to current market or to the individual, the greater the uncertainty (Bruyat and Julien 2001). Due to the lack of knowledge in operating an online store or even starting a business, villagers perceive risks in embarking on the business opportunity afforded by e-commerce. However, some of the key business information can be acquired quite easily (e.g., pricing, marketing strategy of competitors, customer preference), because of the openness and transparency of e-commerce platform. For potential adopters, it means that ICT enables greater knowledge flow and an easier acquisition of knowledge. Simultaneously, ICT enables experimentations for individuals to trial and observe market response to the proposed business activity. In Shangqing, the first movers opened several online stores to trial the feasibility of e-commerce. Once market response is observed and assessed, business activities can then be adjusted to ensure full exploitation of potential opportunities. These learning experimentation would have otherwise been difficult, costly, and time-consuming to be executed in a traditional business context. This feature particularly suits rural community such as Shangqing, as one of the key reasons for the underdevelopment of these communities was their limited resource and capability. ICT enables the leap over the gap.

ICT enables **value differentiation** amongst prospective entrepreneurs, and this in turn enables a significant number of adopters to explore different possibilities. The transparency of e-commerce enables high level of imitation amongst online sellers. Since entrepreneurship clusters were initially formed through diffusion and assimilation, entrepreneurial activities of each business share many commonalities, including product offering and customer base. While this nature of e-commerce was favourable to entrepreneurs at the early adoption stage, it will later become unfavourable for a healthy and sustainable business growth. Hence, businesses that undergo this process seek to adapt to the evolving and expanding entrepreneurship cluster. They attempt to increase their competitive advantage through different strategies including product differentiation and business expansion. To ensure the success of their own online businesses, villagers are required to acquire knowledge of e-commerce platform and online business operation. Preexisting entrepreneurial ventures provide a source of e-commerce operation knowledge, and hence help prospective adopters develop their own online business. More importantly, e-commerce allows a range of actions to be taken as the entrepreneurs explore ways of differentiation or digitally enabled diversification in Kelestyn and Henfridsson's (2014) term, such as through the diversification of product range or through the internal management team building.

5.3 Institutional Entrepreneurship and Entrepreneurial Ecosystem

Typically, the formation of ecosystem involves the emergence, adaptation, and alignment of various roles over time. An entrepreneurial ecosystem refers to an interrelated network of entities that "coevolve capabilities around a shared set of technologies, knowledge, or skills, and work cooperatively and competitively to develop new products and services" (Nambisan and Baron 2013). It looks into the dynamics of competition and collaboration in co-evolving technology-intensive entrepreneurship environment setting (Autio et al. 2015b). Individuals, businesses and institutional actors within an ecosystem are bound together by common objectives, value propositions, and the need to leverage one another's knowledge and capabilities and coevolve to achieve those goals (Nambisan and Baron 2013).

Towards the rise of an entrepreneurial ecosystem, ICT enables **capital accumulation** when various stakeholders emerge to support the continuation of grassroots entrepreneurship and the interdependence of these stakeholders develops. Rural community typically faces environmental constraints including infrastructure underdevelopment, limited access to market, lack of incubation support that collectively increases barriers for ICT-based entrepreneurial activities (OECD 2010). Gnyawali and Fogel (1994) refer to this as the entrepreneur environment that is critical to provide the resource and support to facilitate the undertaking of entrepreneurial activities. With the prosperity and potential brought by the e-commerce in the villages, institutional and non-institutional actors engage themselves actively in various activities, with a common aim to sustain the development. Institutional actors such as the local government play a functional role by facilitating the establishment of a formal association to promote trade standard, quality control, and information sharing within the industry. Other than the e-tailers, a variety of non-institutional actors such as the third party e-commerce service providers (e.g., logistics operators, designers, packaging material providers) and e-supply chain partners (e.g., manufacturers) emerge. Building around the development of e-commerce, these actors provide the support and services that complement each other, constituting an environment where communal resources can be shared, gathered, and retained such that it reduces the uncertainty and encourages the sustenance of entrepreneurial and risk taking activities in the villages.

ICT enables **power redistribution** as the value network of the traditional industry is reconfigured. As the resources are reassigned or reapplied and the relationships among the actors are redefined in the digital context, power among the ecosystem players shift. For instance, individuals can become an online entrepreneur with less hassles and lower risks, the e-commerce entrepreneurs has a higher bargaining power with the incumbents (such as exporters) as they have the access to the online market, and the people has a voice in the local development with the government playing a supportive role instead of a dictatorial role in driving the local economy. The redistribution of power generates innovation opportunities for existing actors to find a role in the ecosystem while allowing the emergence of new actors (Kelestyn and Henfridsson 2014). Moreover, these ICT-induced changes in relationship, norms, practices, institutional arrangements provide a basis for the constant (as well as future) adaptation of the actors such that they can cooperatively and competitively sustain an entrepreneurial ecosystem (den Hartigh and Tol 2008), be it from the overall social-cultural, economic, market and institutional aspects (Busenitz et al. 2014; Gnyawali and Fogel 1994).

6 CONTRIBUTIONS

The study investigates digitally enabled grassroots entrepreneurship for rural development. It identifies and conceptualises the roles of ICT in enabling grassroots entrepreneurship, which in turn leads to community development. Specifically, there are two key contributions. First, our findings contributes to the existing ICT4D literatures by explicating the roles of ICT (e-commerce) in driving the grassroots entrepreneurship through the emergence of an entrepreneurial ecosystem for a self-driven development. This study reveals a bottom-up community development process by examining digitally enabled grassroots entrepreneurship. It contributes to the ICT4D literature by revealing the precise nature of the roles that ICT play in addressing complex social issues (Majchrzak et al. 2012). The China E-commerce Village in the study exemplifies how ICT can trigger grassroots entrepreneurship in a marginalized community, leading to the formation of an entrepreneurship cluster and finally an ecosystem that create an entrepreneurial climate.

Second, this study delineates the process of the digitally enabled development beyond the provision of the Internet and infrastructure by presenting the development stages of digitally enabled grassroots entrepreneurship through the opportunity exploitation and opportunity exploration of business, knowledge, and institutional entrepreneurship. From the entrepreneurial opportunity perspective, this study shows how different dimensions of entrepreneurship i.e. business, knowledge, and institutional entrepreneurship, are involved at different stages of development. In addition, the opportunity

processes lend a useful ground for us to unearth the underlying processes that support the development of each dimensions of entrepreneurship. In response to the call for studies on the processes that characterise the creation of new entrepreneurial ecosystems (Autio et al. 2015a; Shen et al. 2015), the proposed framework also provides insights on the contextual determinants of new entrepreneurial ecosystem.

For practitioners, the study provides a new approach for the use of ICT in social development context. By offering a deeper understanding on an alternative, bottom-up approach for community development initiatives, the case study provides an empirical support for the NGOs and government to reconsider their roles when addressing social challenges. The study also generates practical insights for marginalised communities to engage in similar grassroots activities. By explicitly describe and interpret the entrepreneurship diffusion process in the villages, potential adopters of similar innovation can envision what is likely to happen and better plan for their personal and community development.

7 LIMITATION AND CONCLUSION

Our study has its limitation. Our findings may be applicable to only one of the many socioeconomic challenges facing rural community development. In our study, we examine the development of digitally enabled grassroots entrepreneurship, which in turn leads to job creation, rising income, self-esteem, and family happiness. Therefore, we caution the direct application of our findings when other notions of development such as education, healthcare, safety, political freedom and participation, or human rights are under investigation (Burrell and Toyama 2009).

Despite its limitation, we believe that our study should be of interest to researchers and practitioners of rural development in light of the rural-urban differences that are becoming more pronounced. The limited opportunities in sparsely settled areas is a source of struggles among rural residents who strive to improve their lives and simultaneously remain rooted (Cuervo and Wyn 2012), as well as the cause of several social issues such as empty nest, rural hollowing, and social immobility. While development efforts continue, the role of the change agent remains dominated by external experts or authorities. Development driven by local communities, although argued to be freedom-enhancing, sustainable and effective (Coetzee 2010; Sen 2008; Tambulasi and Kayuni 2005), is rarely found and studied.

Notwithstanding, the recent development of e-commerce villages in rural China has witnessed the rise of digitally enabled grassroots entrepreneurship. From an entrepreneurial opportunity perspective, we show how ICT leads to grassroots entrepreneurship for rural development. Adopting the multi-dimensional analysis framework of digital entrepreneurship (Davidson and Vaast 2010), our study unearths the stages of entrepreneurial activities – from entrepreneurial ventures to entrepreneurial clusters and eventually entrepreneurial ecosystem. In particular, the success and sustenance of a rural e-commerce and the grassroots entrepreneurial activities are underpinned by the emergence of an entrepreneurial ecosystem that has provided the support and environment for exploration. Through the entrepreneurial activities enabled by ICT, the grassroots community can drive profound social and economic changes. Indeed, the time may have arrived for the community to make a difference in their own lives, without relying on external aid with Nelson Mandela's mindset: *"I am the master of my fate and the captain of my destiny."*

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