

Investigating Inclusive Entrepreneurial Ecosystem through the lens of Bottom of the Pyramid (BOP) Theory: Case Study of Taobao Village in China

Abstract:

Purpose-Entrepreneurial ecosystem is a frontier issue in the field of enterprise strategy and entrepreneurship. As suggested by Bottom of the Pyramid (BOP) theory, entrepreneurs from base of the pyramid can gain the benefits of economic growth by obtaining equal entrepreneurial opportunities with appropriate support and motivation. However, theoretical framework to understand the ecosystem and help the people from bottom of pyramid to benefit from ecosystem is under-researched. In this paper, based on investigation of Taobao ecosystem case study, we have developed a multi-layer framework to fill in the research gap.

Design/methodology/approach-We examine the case of taobao village and uses cross-case clustering analysis method. Data has been collected and analysed in terms of various aspects in Taobao's ecosystem, such as information and communications technology (ICT), government, entrepreneurs and supporting actors.

Findings-Findings suggest that ICTs empower people at base of pyramid and enable them to be inclusive and overcome shortcomings and environmental barriers to form emerging of entrepreneurial ecosystem. Research also indicates that evolution of entrepreneurial ecosystem presents a point-line-plane diffusion path, and co-creation to enhance inclusive entrepreneurship is realised by interaction and cooperation within social networks and integration of resources. Based on the above findings, the model of inclusive innovation ecosystem is further improved

Research limitations/implications-The significance of this study is to provide theoretical understanding on how to successfully form entrepreneurial ecosystem, by practical investigation of entrepreneurial "habitat" at bottom of the pyramid.

Keywords: Entrepreneurial ecosystem, Bottom of the pyramid, Inclusive entrepreneurship, Case study

Paper type Case study

Introduction

There are a number of entrepreneurial ecosystems, such as Silicon Valley in US and Zhongguancun in China, composed by a rich profusion of enterprises, Universities and research institutes with disruptive and emerging technologies. This kind of entrepreneurial ecosystem is easy to burst various innovative entrepreneurial activities (Du,W, 2018; Yin,2018; Adams, 2020). A thriving entrepreneurial ecosystem rarely appears in the countryside or in the disconnected agricultural community (Darwish, 2018). As a result, facilitation on inclusive entrepreneurship especially for the people at base of these ecosystems are under-researched. Bottom of the pyramid (BOP) group is simply treated as *consumers* rather than *entrepreneurs* (Prahalad, 2012; Ben Letaifa, 2015). In China, however, a large number of entrepreneurs in Taobao villages come from bottom of the pyramid. Deep investigation on Taobao ecosystem, especially its BOP group, can contribute to understanding of inclusive entrepreneurial

38 ecosystems construction and in addition, offers the world a potential solution to reduce poverty (Li,
39 2019), as presented in this paper.

40 Taobao ecosystem has its unique economic and social value (Ruimei, P&Xiaoqiang, X, 2019). It
41 encourages people at the bottom group of the pyramid (BOP group) to start businesses by improving
42 their income and, as a result, it promotes prosperity of the entire Chinese industry. After ten years of
43 development from 2009 to 2019, the number of Taobao villages has gradually grown from 3 in 2009 to
44 4,310 in 2019, located in 25 provinces of China. In 2019, the combined annual sales of Taobao online
45 stores exceeded 700 billion Chinese Yuan (roughly equals to 77 billion Pound Sterling) , and the number
46 of active online stores reached 2.44 million, generating more than 6.83 million jobs (Ali Research, 2019).
47 This reflects the strong vitality of the entrepreneurial ecosystem of Taobao village. Compared with other
48 entrepreneurial ecosystems with patent talents and venture capital (such as Silicon valley and
49 Zhongguancun) Taobao village does not have any advantage. However, as suggested by Ali Research
50 (2019), Taobao ecosystem has demonstrated an effective mechanism to support inclusive
51 entrepreneurship because majority from bottom of the pyramid in Taobao ecosystem become
52 entrepreneurs eventually.

53 How an entrepreneurial ecosystem relates to, influence, or inspire change in the economic fortunes
54 of a place, fostering social and industrial transformations and transitions, is a worthy of study question
55 (O'Connor, A et al, 2018). However, a comprehensive framework to understand the inclusive
56 entrepreneurial ecosystem is missing in current literature. This paper aims to fill in this research gap by
57 investigating Taobao ecosystem through the lens of BOP theory. The outline of this paper is structured
58 as below:

59 Section 2 is devoted to literature review on theories of entrepreneurship ecosystem and BOP,
60 summarised by a proposed theoretical framework on inclusive entrepreneurship ecosystem based on
61 findings from secondary research; Section 3 discusses research design with consideration on case study
62 selection and data collection; Empirical results on Taobao ecosystem are further discussed in Section 4.
63 The paper is then concluded in Chapter 5 with revised theoretical framework of inclusive
64 entrepreneurship ecosystem and suggestions for future research.

65 **Literature Review**

66 *Entrepreneurship Ecosystem*

67 Entrepreneurial ecosystem is increasingly concerned by academia and policy advisory community,
68 and gradually becomes a frontier issue in the field of corporate strategy and entrepreneurship research
69 (Cavallo, 2019). With the rapid development of entrepreneurship research cross the world, it is
70 recognised that entrepreneurial activities are deeply influenced by the interaction of entrepreneurial
71 environment and its relevant bodies (Feld, 2012; Manimala & Wasdani, 2015). Entrepreneurial activity,
72 as an output of the entrepreneurial ecosystem, is considered to be the process by which individuals
73 create opportunities for innovation (Stam&Spigel, 2016). There are many manifestations of these
74 activities, such as innovative start-ups, high growth start-ups, and entrepreneurial employees (Stam,
75 2014). As Stam & Spigel (2016) said in their research, entrepreneurial activity is an intermediary output
76 of the ecosystem. These manifestations will eventually lead to new value in society as ultimate outcomes
77 of an entrepreneurial ecosystem. Researchers also suggested accessible market, human capital and
78 financial support are the three most important elements that affect entrepreneurial activities (Foster,

79 2013; Drexler, 2014). However, despite its popularity, there is not yet a widely shared definition of
80 entrepreneurial ecosystems amongst researchers or practitioners and framework to underpin
81 entrepreneurship activities are vague.

82 In 1935, ecologist Tansley (1935) first proposed the concept of ecosystem, studying the relationship
83 between organisms and the natural environment from a system perspective. The concept of ecosystem
84 was introduced into the field of management by Moore (1993) and Iansiti (2004). After that, the research
85 on the concept of entrepreneurial ecosystem is gradually refined. However, the concept has been used
86 diversely in literature, making it rather 'chaotic' or 'fuzzy' in reality (Cavallo, 2019). In this case, Stam's
87 (2015) definition, has been widely endorsed in literature for its comprehensive nature, since it
88 encompasses all the key features of the entrepreneurial ecosystem (Acs et al. 2017a, 2017b). In addition,
89 Stam's research has the merit of shifting the locus of EE's investigation to "productive" (i.e. innovative
90 and growth-oriented) entrepreneurship, which is a key change in perspective for entrepreneurship
91 research - typically more inclusive and wide-ranging when considering new ventures (Cavallo, 2019).
92 Thus in this paper, we take the definite of entrepreneurial ecosystem which was proposed by Stam
93 (2015). Stam (2015) believes that "the entrepreneurial ecosystem as a set of interdependent actors and
94 factors coordinated in such a way that they enable productive entrepreneurship within a particular
95 territory. " With the current trends of digital technology and globalization, some scholars still stressed
96 the "territory"-specific dimension of an entrepreneurial ecosystem (Colombelli, 2017; Cavallo, 2018),
97 while others scholars pointed out the development of digital technology and globalization can reduce
98 spatial dependence of entrepreneurial ecosystem (Florida, 2017; Acs et al. 2017a, 2017b). But we can sure
99 that the development of digital technology and the Internet provide the potential to further explore the
100 subject field in a global view.

101 *Sustainability of Entrepreneurship Ecosystem*

102 Some researchers (Cohen 2006; Isenberg, 2011) believe the core of entrepreneurial ecosystem is
103 external environment, which enables startups and mature enterprises. Cohen (2006) argues that the
104 entrepreneurial ecosystem is a community formed by interacting subjects in a specific region, which
105 supports and promotes innovation. Enterprises are established and developed create social and
106 economic values in the system for sustainability purpose. Cohen (2006) proposed a sustainable
107 entrepreneurship ecosystem model including four partnerships and a talent pool in the environment, as
108 shown in Figure 2.1 below. He believes that participation of socioeconomic actors will drive more new
109 enterprises to enter system and as a result contribute to the sustainable development of the
110 entrepreneurial ecosystem (Cohen, 2006). Isenberg (2011) pointed out that startups are most likely to
111 succeed when they are in an environment with easy access to capital, talent, infrastructure and support
112 mechanism (e.g. government policy). This environment should encourage innovation and tolerate
113 failure. In the module Isenberg proposed in 2011, sustainable entrepreneurial ecosystem should include
114 six elements, as shown in Figure 2.2 below.

115 Vogel(2013) and Mason(2014), on the other hand, believe entrepreneurial ecosystem is a unified
116 interactive system composed of both entrepreneurs and external environment. Vogel (2013) suggested
117 that entrepreneurial ecosystem is an interactive community in a geographical area, which depends on
118 each entrepreneurial subject and environmental factors (market, regulatory system, etc.). They coexist
119 and interact to promote the establishment of new enterprises (Vogel, 2013). When an entrepreneurial
120 ecosystem is established, it is essential to evaluated the system through three levels, i.e.

121 micro-entrepreneurs, meso-organisations and macro-communities, in order to achieve sustainability
122 goal (Vogel, 2013). Authors of the paper tend to support this argument.

123 *Gap in Entrepreneurship Ecosystem Literature*

124 A rich entrepreneurial ecosystem enables entrepreneurship and subsequent value creation at the
125 regional level (Fritsch,2013; Tsvetkova,2015). At present, entrepreneurial ecosystems are distributed
126 across the world and there are many research cases such as Silicon Valley (Adams,2020), Chicago
127 Campus entrepreneurship ecosystem (Miller,2017), Cambridge cluster (Drofiak, A., & Garnsey, 2019),
128 Phoenix, Arizona (Mack & Mayer, 2016) and Zhongguancun, China (DU, W, 2018) and so on. Few
129 research is conducted based on a thriving entrepreneurship ecosystem in the countryside or in an
130 agricultural community (Darwish, 2018).

131 In addition, existing research case studies mainly focus on high-tech entrepreneurial activities, and
132 none of them take into consideration of people at the bottom of the pyramid as entrepreneurs. Instead,
133 these people are treated as consumers and organisations aim to provide better goods or service to the
134 people at the bottom of the pyramid by constructing the ecosystem. For instance, Prahalad (2012) took
135 development of fuel furnaces in India as an example to illustrate the necessity of considering the BOP
136 group as consumers to establish sustainable entrepreneurial ecosystem. Ben Letaifa (2015) regarded
137 BOP group as consumers to realise value of co-creation and establish service innovation network.
138 However, the concept of 'inclusive innovation' is to overcome institutional barriers, providing BOP
139 entrepreneurs with fair choice opportunities to promote their endogenous ability development
140 (Bhagwati & Panagariya, 2013). This requires organisaions to mobilise BOP groups to form a
141 cross-sector network of alliances or ecological system, which can help the BOP entrepreneurs with
142 support mechanism in order to better create value, finally achieve the result of anti-poverty
143 (Ramachandran et al., 2012).

144 ***Bottom of the Pyramid (BOP) Theory***

145 'Bottom of the Pyramid', also called 'Base of the Pyramid', was coined in economic world to
146 designate a form of inclusive capitalism, emphasising the role of enterprises in reducing poverty
147 (Prahalad and Hart, 2002; Hart and London, 2005).

148 Since the concept was proposed, researchers have conducted a series of discussions and research.
149 The early researchers on BOP theory focused on treating low-income population as valuable consumers,
150 considering they account for 2/3 of the world's population and having huge consuming potentials
151 (Prahalad and Hart, 2002). However, some scholars pointed out that restrictions with people at the
152 bottom of the pyramid on purchase are mainly from low-income rather than lack of appropriate
153 products and services (Karnani, 2006a). Treating people at BOP as consumers will not solve poverty
154 problems, while on the contrary it will increase the burden on the poor under some circumstances
155 (Karnani, 2006a, 2006b). Therefore, a sustainable entrepreneurship ecosystem should consider BOP as a
156 provider of resources and capabilities (Karnani, 2006a, 2006b). To regard low-income groups as
157 consumers and producers can be seen as version 1.0 of BOP theory (BOP 1.0) (Pedrozo, 2015).

158 Along with the deepening of research, scholars realized that enterprises should include low-income
159 groups as partners in the value chain and to embed the groups in local social and cultural environment
160 of the ecosystem. This theory was regarded as BOP 2.0 and it was defined as "creating a shared fortune
161 with BOP, by co-creations and co-inventions, deepening dialogue with the poor communities,

162 generating shared commitment and mutual learning, combining profits with poverty. “(Hammond,
163 2011). The difference between BoP 1.0 and BoP 2.0 is that the theory of BoP 1.0 was aligned more within
164 an organization’s existing structure and main strategy, whereas the theory of BoP 2.0 emphasized the
165 creation of a Research and Development (R&D) “White Space” formalized within the corporation
166 (Dembek et al, 2020). After that the 3rd generation of BOP theory (BOP 3.0) was developed by taking a
167 step future beyond BOP 1.0 and BOP 2.0. The theory of BOP 3.0 considers the poor as producers
168 entrepreneurs in the literal sense, where these are the ones who are active in seeking partnerships, for
169 example with its stakeholders to support their decisions and actions(Pedrozo, 2015). It can be deemed as
170 sustainable development through innovation and entrepreneurship (Hart, 2017). Mason(2017) believes
171 the emerging BOP 3.0 approach is “now seeking a greater conceptual shift, away from singular
172 solutions of poverty alleviation to understanding how wider innovation ecosystems and engagement
173 through cross sector partnership networks can be developed, to enable a stronger focus on achieving
174 greater levels of well-being in BoP markets”. The theory of BOP3.0 is aimed at integrating
175 environmental sustainability concerns along with a triple-bottom-line perspective into BoP initiatives
176 (London 2016).

177 From BOP theory 1.0 to 3.0, the concept is bound by the environment at BOP and cognitive
178 characteristics of low-income groups (Darwish, 2018), as discussed below:

- 179 • For the bottom of pyramid region, scholars believe that there are differences between BOP region
180 and TOP region in capital market, labor market, infrastructure, contract and enforcement’ property
181 rights (Webb, 2010). At BOP, systematic arrangement and infrastructure have demonstrated many
182 drawbacks in various aspects (Simons, 2010). Because of asymmetric information and lack of law to
183 regulate the environment, the problem of incomplete market and unprecise information exists. There
184 exist a lot of SMEs who are not practicing CSR despite the fact that they are claiming the same (Asad, M
185 et al, 2018). This means the market system cannot work effectively (Mendoza, 2008). Meanwhile,
186 adequate infrastructure and service system deficiencies occur at the macro level of ecosystems and
187 society (Fisk, 2016).
- 188 • For the people who are at the bottom of the pyramid, they usually lack resources (Mason et al.,
189 2013; Singh et al., 2015) and suffer from uncertainty in decision-making (Dinica and Motteau, 2012), lack
190 of education (Venugopal and Viswanathan, 2017). They are different from affluent people in thinking
191 styles, cognitive limitations, emotional factors, social relationships (Viswanathan and Sreekumar, 2019;
192 Venugopal and Viswanathan, 2017; Choudhury et al., 2019). Although they are resource lean, they are
193 network-rich, which makes them distinctly different from the middle or upper-income literate
194 households (Viswanathan and Sreekumar, 2019). Thus this is the reason why low-income groups are
195 strongly dependent on local social norms and customs for production, living and trading
196 (Mair&Ventresca, 2012).

197 Based on above assumptions, BOP theory unceasingly consummates. Authors of the paper believe
198 relationship across three generations of BOP theory is complementary rather than substitute.

199 Tremendous institutional barriers hindering to start up entrepreneurship can be found at the BOP
200 of an entrepreneurship system. This is because entrepreneurship requires formal institutional
201 arrangements, such as unimpeded information channels, clear definition of property rights, detailed
202 legal provisions and effective implementation. There is institutional void at BOP which makes it
203 difficult for poor people (Mair&Ventrescai, 2012). De Soto (2000) argued that entrepreneurs coming

204 from BOP could not fully capitalise their assets and use their capabilities due to the lack of effective
205 property rights. It is also difficult for them to get basic financial services such as loans and guarantees.
206 The lack of a systematic supporting mechanism makes BOP entrepreneurs rely heavily on social
207 relations to obtain resources. As a result, business activities in the BOP market are controlled by
208 relations and social networks rather than legal contracts (Mair&Ventresca, 2012).

209 Poverty reduction requires a shift from the traditional "top-down" to "bottom-up" approach
210 (Abrar-ul-Haq, M., Asad, M, et al, 2020). To help poor people escape the grinding poverty, it is essential
211 to overcome institutional barriers, create opportunities for BOP entrepreneurs and promote their
212 endogenous capacity development (Bhagwati & Panagariya, 2013). It is not an easy job; it requires
213 strong liaison of enterprises and to build a cross-sector entrepreneurship ecosystem. Within the
214 ecosystem, BOP entrepreneurs are able to access resources (such as finance and technology) to create
215 value, develop capacity and increase income, and eventually achieve the effect of anti-poverty (Rivera
216 Santos et al, 2010; Ramachandran et al ,2012).

217 *Theoretical Framework*

218 Based on literature review of entrepreneurial ecosystem and BOP theory above, a framework of
219 inclusive entrepreneurial ecosystem is proposed by the authors, as shown in Figure 2.3.

220 Keeping BOP strategy and inclusive entrepreneurship as the core, sustainable entrepreneurship
221 ecosystem is formed by successful interaction and co-creation among socioeconomic subjects indicated
222 in this diagram. It enables all involved parties to obtain benefits and create values in the entrepreneurial
223 ecosystem. Socioeconomic subjects cooperate with each other and become the conditions for each other's
224 survival and development through complementary advantages, so as to realise shared values and
225 inclusiveness. This framework is validated and refined with clear details based on the incentives,
226 development and multiple actors interaction of taobao ecosystem in the following sessions.

227 **Research Design and Methodology**

228 This research adopts Case Study methodology for several reasons. Firstly, case study methodology
229 fits the explorative nature of this research to understand "what" and "how" a phenomenon happened
230 (Yin, 2017). Secondly, case study research design can specify gaps or holes in existing theory with the
231 ultimate goal of advancing theoretical explanations (Ridder, 2016). And third, it can provide researchers
232 with contextual richness (Davison & Martinsons, 2016; Spigel, 2017).

233 As discussed in earlier sessions, the field of inclusive entrepreneurial ecosystem is
234 under-researched (Autio et al, 2015). In-depth research based on a well-selected case study would
235 enable the researchers to gain a nuanced understanding of different roles and how they interact with
236 each other in an successful inclusive entrepreneurial ecosystem, so that enabler factors could be
237 identified as practical contribution to the research field. Field investigation on 5 Taobao villages are
238 conducted via semi-structured interviews with 62 participants, along with consultation on a large
239 number of periodicals, books, news reports and the official documents produced by Ali Research
240 Institute. The overall roadmap of this research is indicated in Figure 3.1 below.

241 *Rationale for Case Selection: Taobao Village*

242 There are several criteria for the case selected for this researcher according to the research aim (i.e.
243 to investigate inclusive entrepreneurship ecosystem through the lens of BOP theory) : 1) The selected

244 case should be a successful entrepreneurial ecosystem with effective inclusion of the people at bottom of
245 pyramid 2) The selected case should be a rapidly developing entrepreneurial ecosystem; 3) The selected
246 case should be a representative inclusive entrepreneurial ecosystem. Originated from Qing Yan Liu
247 village in Zhejiang Province of East China, three Taobao villages appeared for the first time in 2008. It
248 has attracted great attention from academia because of its inclusion of BOP groups. Different from
249 Silicon Valley in US, it demonstrates significant inclusive entrepreneurship in the ecosystem; A large
250 number of villagers provoked e-commerce businesses through the platform and continuously
251 developed to be the economic main body of the village in various industrial sectors. According to Ali
252 Research Institute (2019), more than 800 Taobao villages are distributed in poverty-stricken counties in
253 2019. From August 2018 to August 2019, the total annual sales of Taobao online stores in China exceeded
254 700 billion Chinese Yuan (roughly equals to 77 billion Pound Sterling), accounting for nearly 50% of the
255 country's rural online retail sales and bringing more than 6.83 million entrepreneurial jobs. (Ali
256 Research Institute, 2019) As a result, Taobao village is the ideal case to this research.

257 *Data Collection Method*

258 Developing local resources and capabilities to make the entrepreneurial ecosystem work takes time
259 (Clarysse et al.2005). Given that both ecosystem and entrepreneurial activities are dynamic, there is a
260 need to understand how evolution takes place. From vertical time dimension, Taobao ecosystem is
261 based on the unique geographical settlement and acquaintance society in rural China; BOP
262 entrepreneurs developed their entrepreneurial path in the pattern of point -line -face over time.
263 Therefore, data collection process crosses over a time period.

264 Collecting data from multiple data sources and across different time periods can help avoid
265 researcher's bias via triangulation (Yin, 2017). Supported by findings from literature on Taobao
266 ecosystem regarding its development process, enable factors, entrepreneurial activities of BOP groups,
267 the researchers selected five Taobao villages for field investigation, as shown in Table 3.1.

268 The primary data was collected through semi-structured interviews with Taobao village's
269 socioeconomic actors. 62 participants from these 5 Taobao villages were selected using theoretical
270 sampling (The Information of interviewees as shown in Table A1 in Appendix). This data process lasted
271 for three months from March 2019 to June 2019, with 3 rounds of interviews with each Taobao village.
272 The interview protocol was originally developed based on theoretical framework (refer to Figure 2.3 in
273 section of "Literature Review"). The 1st round aims to conduct preliminary understanding of basic
274 situation of each Taobao village (as shown in Table A2 in Appendix). According to observations in the 1st
275 round, the researchers revised the questions in 2nd round, which aims to investigate development
276 progress of each Taobao village (as shown in Table A3 in Appendix). The final round of interview
277 focused on interaction across multiple actors within each village. As a result, different sets of questions
278 were designed for each category of actors along with general ones (as shown in Table A4 in Appendix).

279 Each interview lasted about 1.5 hours, with recording permission granted by participants. In order
280 to ensure reliability and validity of research conclusion, agile approach is adopted in this practical
281 investigation process and the interview protocol was revised continuously according to investigation of
282 Taobao literature and observation from conducted interviews. In addition, interview records were
283 reviewed by the researchers after interviews and uncertainty was clarified by participants via WeChat
284 group at later stage of the practical research.

286 This research uses cross-case clustering method to develop horizontal analysis of the samples,
287 including their common features and differences of the upgrade activities between samples. Each
288 selected Taobao village is analysed as a holistic system, and main characteristics of this village are
289 deducted and discussed (in Findings). It would enable the researcher to understand all specific cases in
290 a comprehensive way and identify unique mode of each case. Comparison study was then undertaken
291 on the basis of single case analysis to explore difference, so that new facts are to be discovered.
292 Practically speaking, three steps are involved in the research for data classification and analysis: 1)
293 create a coding scheme to understand collected data (See Figure A1 in Appendix); 2) categories data and
294 identify relationship between categories; 3) form theory from the observed patterns.

295 **Findings**

296 In 2008, three Taobao villages appeared for the first time, which attracted great attention of
297 academia. A large number of villagers at BOP started up business through Taobao eCommerce platform.
298 These businesses were continuously developed to certain size in various industrial sectors which not
299 just limited to agricultural industry, and gradually become the economic main body of the village. Such
300 villages are often described as a canonical example of Taobao ecosystem (Ali research institute, 2019). As
301 shown in Figure 4.1 below, the number of Taobao villages continues to grow. According to Ali research
302 Institute (2019), more than 800 Taobao villages are distributed in poverty-stricken districts in China in
303 2019. Different from high-tech entrepreneurial ecosystems (such as Silicon Valley and Zhongguancun),
304 Taobao ecosystem enables people at BOP to achieve entrepreneurship.

305 Taobao ecosystem is also a cross-sector entrepreneurial ecosystem since it integrates the resources
306 and capabilities of every possible party e.g. BOP entrepreneurs, government agencies, financial
307 institutions, logistics enterprises, etc. In order to solve the institutional obstacles faced by BOP group as
308 discuss in Literature review, each actor in the system is making use of its core competence to exert the
309 greatest positive influence on the system development. On the basis of inclusion and cooperation with
310 others, each actor not only just create value for themselves, but also enhance integration of technical,
311 human and material resources. This inclusive entrepreneurial system provides BOP entrepreneurs with
312 comprehensive supporting mechanism including both facilities (e.g. working environment and logistics)
313 and services (e.g. government policy and environmental culture).

314 However, no thorough understanding on how Taobao ecosystem works in current literature and
315 what are direct incentives of its emergence. In order to find answers to these questions, empirical
316 research on 5 selected Taobao villages examines the construction process of Taobao ecosystem and
317 interaction among its multiple actors. Its findings are presented below.

318 *Finding 1 - ICT empowers to BOP Entrepreneurs*

319 BOP 3.0 theory advocates that low-income groups should integrate into the mainstream economy
320 and share the benefits brought by economic growth through equal opportunities for entrepreneurship
321 (Ruimei, P&Xiaoqiang, X, 2019). But in practice, outmoded logistics industry, broadband and
322 transportation are the common problems confronted by BOP entrepreneurs, which led to the digital
323 divide between urban and rural areas. In recent years, infrastructure construction in rural areas has been
324 significantly improved by investment from Chinese government. The infrastructure of highway, power,
325 water, cable television network, and especially the Internet has covered the vast rural areas at an

326 unprecedented speed, laying a solid hardware foundation for people at BOP. As ICT effectively links
327 consumers with product producers, service providers and traders, it can promote the emergence of
328 digital entrepreneurs (Srinivasan & Venkatraman, 2018). In the context of the Internet, digital
329 technology is seen as an effective way to promote development and alleviate poverty. However, in
330 current literature, there is a tremendous gap in understanding of entrepreneurship in the digital age
331 (Sussan, F., & Acs, Z. J, 2017). Taobao ecosystem appears exactly in the digital era. The first finding from
332 empirical study of this research is that ICT empowerment to BOP entrepreneurs is the most direct
333 inducement for the formation of its ecosystem, which is discussed in details below.

334 *Access empowerment: ICT connects the region at BOP to modern market*

335 ICT enables disintermediation of distribution channels, so that BOP entrepreneurs can connect with
336 modern market directly via the Internet. Dissimilar from high-tech entrepreneurial ecosystems which
337 achieve sustainability through the research and development of new technology products, Taobao
338 ecosystem integrates resources in the BOP area via ICP for inclusive and sustainable development. Our
339 interview results suggest for BOP entrepreneurs, connection between BOP region and modern market
340 has incomparable great value because it enables them to access to appropriate information and
341 opportunities (see Table 4.1 below).

342 *Resource empowerment: ICT eliminates people's over-dependence on natural resources*

343 Knowledge, formal authority, social relations and discursive resources are necessary for
344 entrepreneurial activities to certain extent (Wright et al, 2013). However, research suggests that
345 comparing with elite entrepreneurs, marginalised entrepreneurs usually face the predicament of lack of
346 resources (Waldron et al, 2015). This viewpoint can be further supported by our interviews with BOP
347 entrepreneurs in Taobao villages:

348 *"Young people in the village usually go out to work before they graduate from junior high school, so they*
349 *have little knowledge." --BOP entrepreneur of WanTou Village*

350 *"When I started my business, I didn't have enough money to start it. Then I had to borrow money from*
351 *my brothers and sisters to start my business."--BOP entrepreneur of BaiNiu village*

352 *"When I went out to work, I met many villagers. But because the living environment is the same, the*
353 *information we get is almost the same."--BOP entrepreneur of XiaYing Village*

354 On the contrary, entrepreneurs in high-tech entrepreneurial ecosystem such as Silicon Valley
355 generally have high educational background, professional knowledge, social capital and other
356 advantages (Fairlie,2013). In general, there are rich natural resources in BOP region, especially green
357 ecological resources (DU, 2018). Thus, BOP entrepreneurs are overly dependent on natural resources,
358 which unfortunately is not enough to support sustainable entrepreneurial activities. ICT helps the BOP
359 entrepreneurs to obtain financial, human and knowledge resources, as shown in Table 4.2 below.

360 *Psychology empowerment: ICT encourages people to participate in entrepreneurial activities*

361

- More Choices of Lifestyle

362 When the people at BOP is limited by the lack of resources and capacity, they have no choice for
363 their life. Capacity building enables members to find solutions to the obstacles they face in life
364 (Abrar-ul-Haq, M., Asad, M et al, 2020). Because of inclusive entrepreneurship empowered by ICT as

365 discussed above, people has access to information, opportunities and resources, and as a result,
366 enhances control over life. The experience of Zhao Liqin, a villager in Dongfeng Village, is a typical
367 example.

368 *“Almost all youngsters in Dongfeng Village used to go out to work. Since a young open first Taobao*
369 *store in 2010, after then 90 percent of the village’s migrant workers have returned to home. My husband*
370 *and I are no exception. When I return to my village, I works as a customer service for a Taobao store.*
371 *Compared with the previous job which is to sell snacks from dawn to dusk in the city, this job is easier*
372 *and paid more. In the meanwhile, our living accommodation is continue improved.” -- Zhao Liqin,*
373 BOP entrepreneur in DongFeng Village

374 • More Impacts of BOP products

375 BOP entrepreneurs possess a wealth of tacit knowledge, such as the science or art of cultivating
376 crops, traditional crafts and secret folk recipe etc. For example, people live in WanTou village own a
377 traditional skill which can named woven straw. Inclusive entrepreneurship enabled by ICT helps
378 products made by the tacit knowledge gain more influence in modern market. By the inculcation of
379 cottage industry not only self-employment is created but cottage industry also results in employment
380 generation and thus, creates a multiplier effect in the overall economic growth (Haider, S. H., Asad, M et
381 al , 2015). In an interview, a government officer of WanTou village said as follows:

382 *“In our village, people are so ingenious that they can make the most remarkable handicrafts such as fan*
383 *or straw sandals from the most ordinary pampas grass. This traditional skill which name is woven straw*
384 *has been handed down from age to age for more than 800 years. But until the booming of the online*
385 *shopping market, China’s woven straw items from our village are popular for their elegant designs and*
386 *practically in all over the world.” --A government officer of WanTou village*

387 • More Inclusion of Vulnerable Members

388 In Taobao village, vulnerable members of our society such as women, disabled people and the
389 elderly can also become entrepreneurs, consumers or producers with the help of ICT. Lu Zhenhong, the
390 business leader of Beishan village, told us the story of his younger brother during an interview:

391 *“My little brother named LV Lin has suffered from muscular dystrophy since childhood and is incapable*
392 *of doing physical work. With my help, he was attempting to teach herself how to use a computer and*
393 *starting a taobao shop to sell outdoor goods. Through entrepreneurship, my little brother not only to*
394 *become self-sufficient, but also changed his mental outlook and makes life worthwhile.”--Lu Zhenhong,*
395 business leader of BeiShan village

396 **Finding 2 - Development Process of Taobao Ecosystem**

397 Besides ICT empowerment to BOP entrepreneurs in terms of access, resources and psychology as
398 discussed above,formation process of Taobao ecosystem is also essential to be analysed in order to find
399 its unique advantages. Figure 4.2 below summerises its ‘point-line-plane’ development process of
400 entrepreneurial activities in Taobao villages based on interviews.

401 *Stage 1: Entrepreneurial leaders find entrepreneurial opportunities (Point)*

402 As shown in Figure 4.2, the development of Taobao ecosystem is from bottom to top: the
403 entrepreneurial leaders at BOP started their own businesses at the initial stage and grew

404 spontaneously (i.e. 'Point' stage). The use of the Internet has expanded the social network of BOP
405 entrepreneurs, making it easier not only to maintain existing relationship with acquaintance society,
406 but also to establish new connection in the virtual community, and finally brings BOP
407 entrepreneurs more entrepreneurial opportunities. In this case, entrepreneurial leaders have an
408 opportunity to build micro and small enterprises. Entrepreneurial orientation and innovation were
409 very important for improvement in performance of MSEs (Asad, M., Shabbir et al, 2018). The
410 specific content of the interview is as follows:

411 *"I browsed the Internet community and found that people can trade through Taobao platform. So this led*
412 *me to launch a business idea of selling iron handicraft and put it into practice."* --Li Jiangbin, business
413 leader of ZaoMei Village

414 *"My undergraduate major is e-commerce, so I am familiar with the Internet. I find that the Internet may*
415 *be able to make Turquoise from our village sales better. So I tried to open a Taobao store in 2009."*
416 --Jiang Kai Ming, business leader of XiaYing Village

417 *Stage 2: Entrepreneurial followers realise entrepreneurial fission (Line)*

418 With the start-up followers starting to copy the business model at the second stage, the wealth
419 effect of Taobao village quickly spread to the surrounding villages and towns (i.e. 'Line' stage). As
420 Chinese countryside is an acquaintance society, people trust each other in a relatively closed space and
421 it has obvious self-organisation (Fei, 1992). Therefore, there are few barriers for the diffusion of
422 entrepreneurial information and tacit knowledge of grassroots entrepreneurs in rural areas. Based on
423 the strong tie with entrepreneurial followers, business leaders will share their tacit knowledge to
424 entrepreneurial followers without reservation. Therefore, the first batch of entrepreneurial followers are
425 often the closest relatives and friends of business leaders.

426 *"After I started my business, some relatives and friends came to me to ask about e-commerce business.*
427 *We are all acquaintances, so I must teach them. There are more and more people from the village behind*
428 *to study."* --Li Jiangbin, Business leader of Zao Mei Village

429 *"At that time, we saw Li Jiangbin (Business leader of ZaoMei Village) drive a BMW around the village*
430 *every day. We all admired him and wanted to know how he got rich after all. We asked him about the*
431 *secret of making money, because we are all relatives, so he was very willing to tell us"--BOP*
432 Entrepreneur of Zaomei Village

433 By spreading the entrepreneurial experience and the business model step by step, entrepreneurs
434 make the entrepreneurial activities which have the similar business models appear in the neighboring
435 villages, as shown in figure 4.3.

436 *Stage 3: Taobao Ecosystem is formed (Plane)*

437 Finally, with the increase of socioeconomic actors, Taobao ecosystem is formed, which includes office,
438 warehousing and logistics, business services, business incubation and training (i.e. 'Plane' stage). This
439 directly led to the emergence of third-party e-commerce service providers (e.g. logistics companies such
440 as Shunfeng & Shentong, and financial institutions such as Yixing in Taobao ecosystem. Under the
441 moderating effect of environment, generating and taking actions in response to market intelligence by
442 the participation of a variety of departments in the organization positively correlated with the
443 performance of SMEs (Asad, M., Chethiyar, S. D et al, 2020). So this provides BOP entrepreneurs with

444 more opportunities to be more inclusively involved in the system, e.g.:

445 *“I also want to do online sales of iron rattan furniture at the beginning. But then I saw that so many*
446 *young people were already doing this, and everyone generally reflected that there was a large demand for*
447 *logistics and transportation, so I started the logistics business.”--Logistics practitioners in ZaoMei*
448 *village.*

449 *“Every day, I will publicize to the villagers who come to my supermarket that Taobao can help them to*
450 *buy goods and collect and distribute parcels. Many elderly villagers, especially those with left behind*
451 *children, come to me to help them buy daily necessities, snacks, shoes and clothes on Taobao*
452 *platform.”--Liu Bin, who help villagers buy goods from the Internet.*

453 Development of various services, on the other hand, increases the demands of relevant professional
454 knowledge and labours, such as photography, graphic design, packaging and distribution et. As the
455 positive influence of wide existence of service providers, rural residents can now participate in
456 entrepreneurial activities and contribute to inclusive and sustainable development of the
457 entrepreneurial ecosystem as return.

458 *Finding 3 - Co-Creation in Taobao Ecosystem*

459 As seen from previous discussion, inclusive ecosystem development is the result of interaction
460 between multiple actors. Value creation requires the participation of various economic and social
461 entities through the interaction and exchange of tangible and intangible resources (Adner, 2010; Autio,
462 2015). This empirical study also discloses how different participants in Taobao ecosystem interact with
463 each other, including SMEs founded by BOP entrepreneurs, government agencies, social organisations,
464 ICT industry, logistics industry and so on. The findings can be summerised in Figure 4.4 below.

465 In the Taobao ecosystem, interaction and cooperation of multiple participants can gather a large
466 number of heterogeneous resources. As indicated by interview findings and Ali Research (refer to Table
467 4.3), transformation and creation of shared value can be realised via interactive cooperation and
468 resource integration to satisfy business requirements of each participant.

469 **Conclusions and future research**

470 *Revision of Inclusive Entrepreneurial Ecosystem Framework*

471 Findings from both primary and secondary research indicate that the essence of Taobao ecosystem
472 is the product of embedding technology in local social network. Via the Internet, the digital economy is
473 increasingly manifested as a distributed, collaborative network in the industrial division of labor. By
474 accessing to this network, people in poverty-stricken areas could become valuable "nodes" in the
475 Internet, which can help them maintain a relatively equal relationship with the other "nodes" in
476 developed areas. Small and micro entrepreneurial enterprises founded by the people at BOP are highly
477 fit with other socioeconomic actors in the entrepreneurial ecosystem. By complementing each other's
478 advantages, they gradually become survival and continuous development conditions of each other and
479 finally achieve sustainable development of the entire ecosystem. The revised framework of inclusive
480 entrepreneurial ecosystem is shown in the Figure 5.1 below.

481 This framework provides some enlightenment for policy and research. as summerised as below:

- 482 • The empowerment of ICT to BOP entrepreneurs is incentive in an inclusive entrepreneurial

483 ecosystem especially in the digital era. ICTs not only connect the BOP area with the modern
484 market to create open opportunities, but also eliminate the excessive dependence on natural
485 resources at BOP.

- 486 • Entrepreneurial development path of BOP entrepreneurs in Taobao ecosystem is a process from
487 *point* (i.e. single entrepreneurial leader's success) to *line* (i.e. achievement of entrepreneurial
488 replication and industrial chain extension) to *surface* (i.e. formation of entrepreneurial ecosystem).
489 Briefly speaking, the process starts with pioneering entrepreneurs' eCommerce engagement and
490 business model innovation. Then followers of entrepreneurship copy the successfully business
491 model. With the entry of various social and economic participants, as well as the competition and
492 division of labor among online enterprises, an entrepreneurial ecosystem is finally formed.
- 493 • Inclusiveness is an important enable factor of a sustainable entrepreneurial ecosystem. Co-creation
494 can be realised because of inclusion an engagement of every actor in an entrepreneurial
495 ecosystem. Through the interaction between economic and social actors, their resources can be
496 integrated and multi-value collaborative creation can be achieved . BOP groups can play multiple
497 roles, such as consumer, producer and entrepreneur, in the value chain.

498 *Conclusion and Recommendation for Future Research*

499 This study proposed a framework for inclusive entrepreneurial ecosystem through the lens of BOP
500 theory, based on findings of both literature review and empirical study of Taobao ecosystem in China.
501 The theoretical contribution of this study lies in two aspects. On the one hand, this study clearly
502 proposed the theoretical framework of inclusive entrepreneurial ecosystem. As a new entrepreneurial
503 paradigm, inclusive entrepreneurship is a new form of entrepreneurship to deal with complex social
504 problems. However, there are few studies on inclusive entrepreneurial ecosystem. Based on this, this
505 study proposed an initial framework for inclusive entrepreneurial ecosystem through the lens of BOP
506 theory, based on findings of literature review. According to case study of Taobao Village, this paper
507 further improves the elements of the entrepreneurial ecosystem theoretical framework. Finally, a more
508 perfect theoretical framework of inclusive entrepreneurial ecosystem is proposed. On the other hand,
509 this paper reveals the internal mechanism of the formation and development of the inclusive
510 entrepreneurial ecosystem. As a living case of inclusive entrepreneurship ecosystem, Taobao village is a
511 worthy of study unique phenomenon all worldwide. This paper opens the black box of the
512 entrepreneurial ecosystem of Taobao village by sorting out its causes, development process and
513 interaction between each socioeconomic actor. It provides theoretical understanding on how to
514 successfully form a sustainable entrepreneurial ecosystem by integrating BOP entrepreneurs in value
515 chain. And it is helpful to further improve the relevant theories.

516 The successful experience of Taobao village can provide contributions and implications for the
517 management in practice. Firstly, socioeconomic actors in an inclusive entrepreneurial ecosystem can
518 identify their functional roles in the entrepreneurial ecosystem by comparing theoretical models. To be
519 specific, entrepreneur leaders can further play an exemplary role, sharing more entrepreneurial tacit
520 knowledge within Taobao Village, so as to help more people who are at the bottom of the pyramid
521 become entrepreneurs. The government not only actively build an inclusive social atmosphere through
522 policy-making, but also provides more education, training and public services for entrepreneurs who
523 come from the bottom of the pyramid. The ICT industry, finance industry, logistics industry and other

524 related industries should gradually improve relevant supporting services. Second, this can provide
525 theoretical guidance for other countries and regions to build inclusive entrepreneurship ecosystems,
526 and help them to check and fill the gaps and build inclusive entrepreneurship ecosystems based on their
527 local characteristics. Some "Taobao villages" are developed on the basis of their unique resources or
528 traditional industries and they cannot be copied easily. However, as long as each region finds its own
529 unique advantages and relies on the e-commerce platform, it will have the opportunity to develop its
530 unique inclusive entrepreneurship ecosystem. So this paper provides reference for other countries and
531 regions to learn from the successful experience of the existing inclusive entrepreneurship ecosystem.
532 Not only help people achieve the local replication of the inclusive entrepreneurial ecosystem (such as
533 the phenomenon of "Taobao village" growing into "Taobao town"), but also achieve cross-regional and
534 even cross-border replication. Finally, this study provides theoretical guidance for solving the problem
535 of poverty at the bottom of the pyramid, transforming the poor from the objects of help to successful
536 entrepreneurs, and thus realizing regional sustainable development. In the inclusive entrepreneurship
537 ecosystem, people at the bottom of the pyramid have their inherent motivation for poverty alleviated
538 through becoming an entrepreneur, which is of unique reference significance for solving the current
539 global poverty problem.

540 However, the complexity of entrepreneurial ecosystem facing BOP poses a major challenge to its
541 actual operation. Therefore, it is necessary to study the driving factors of inclusive entrepreneurial
542 ecosystems. In particular, ecosystem is a purposeful collaborative network of dynamic interactive
543 systems, which has a set of changing dependencies in a given context. Research is still limited on
544 socioeconomic actors' interaction with each other in each stage to promote the evolution of
545 entrepreneurial ecosystem. The extent to which they are intentionally designed or organically produced
546 is still unclear, which is recommended for future study in this field.

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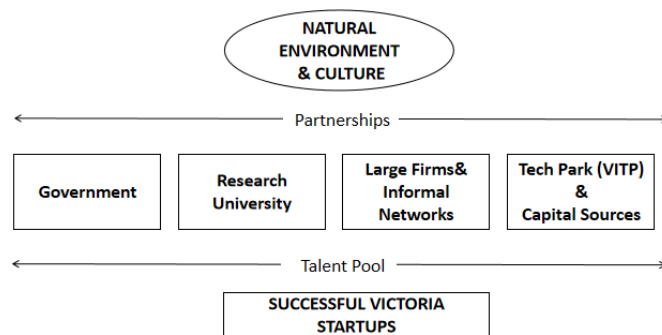
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726 **Appendix**

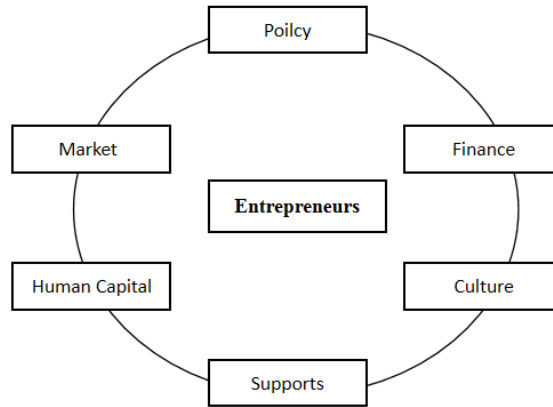
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728

729 Figure 2.1 Cohen's sustainable entrepreneurship ecosystem model (Source: Cohen,2006).

730



731

732

Figure 2.2 Isenberg's entrepreneurial ecosystem model (Source: Isenberg,2011)

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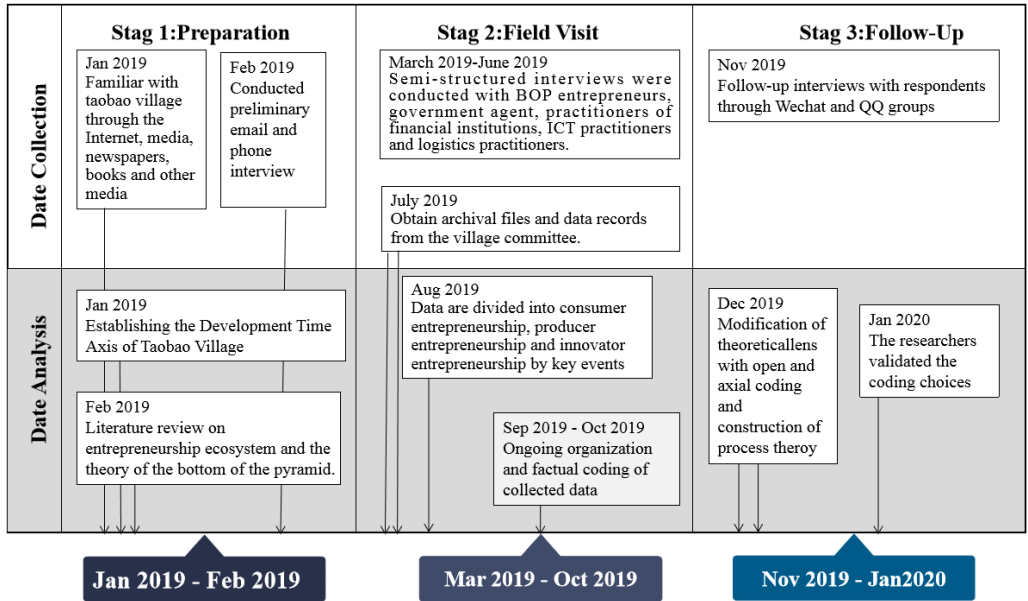


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Figure 2.3: The inclusive entrepreneurial ecosystem based on BOP theory (source: the authors)

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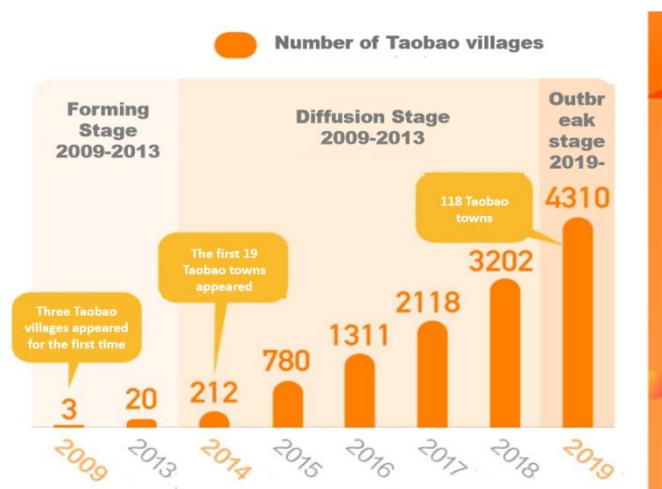
Figure 3.1 Research road map (source: the authors)

Taobao village	Main Business	Geographical Location
BeiShan village	Outdoor product	Jinyun county, Zhejiang province
XiaYing village	Turquoise	Shiyan City, HuBei province
BaiNiu village	Pecan	Hangzhou City, Zhejiang province
ZaoMei village	Iron rattan furniture	Quanzhou City, Fujian Province
WanTou village	Handicrafts	Qingdao city, Shandong province

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Table 3.1: Selected Taobao village cases (Source: the authors)

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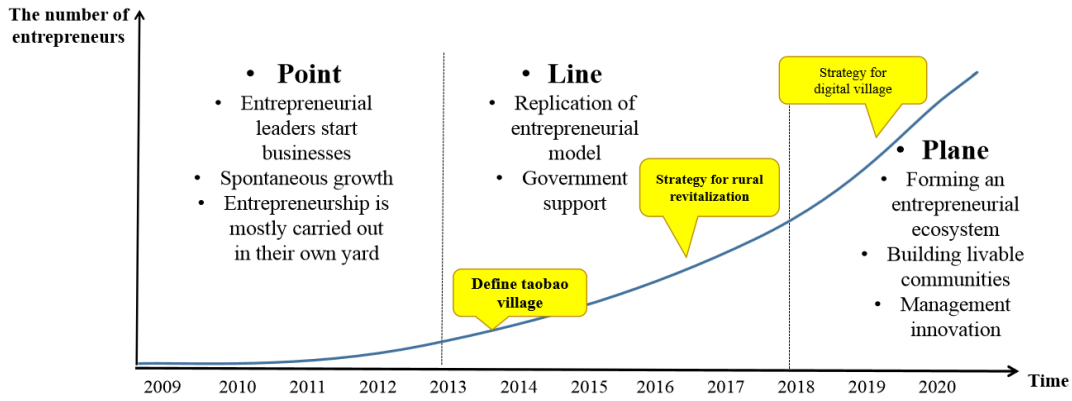


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Figure 4.1: The number of Taobao villages (source: Ali Research Institute, 2019)

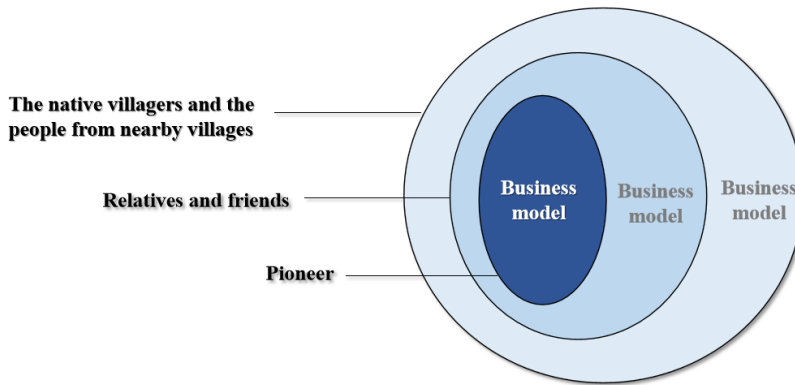
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Figure 4.2 The development process of entrepreneurial activities in Taobao villages (source: the authors)

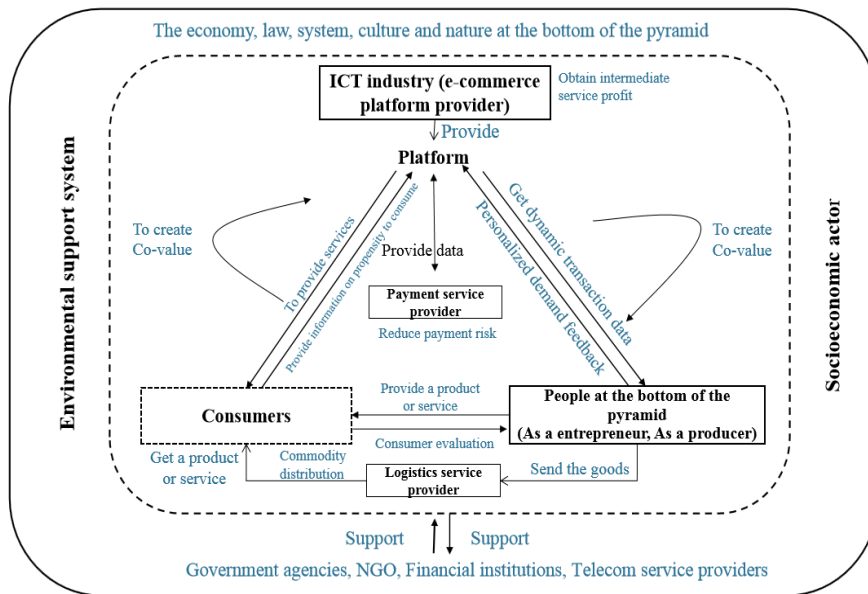
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Figure 4.3: Entrepreneurial fission in Taobao ecosystem (source: the author)

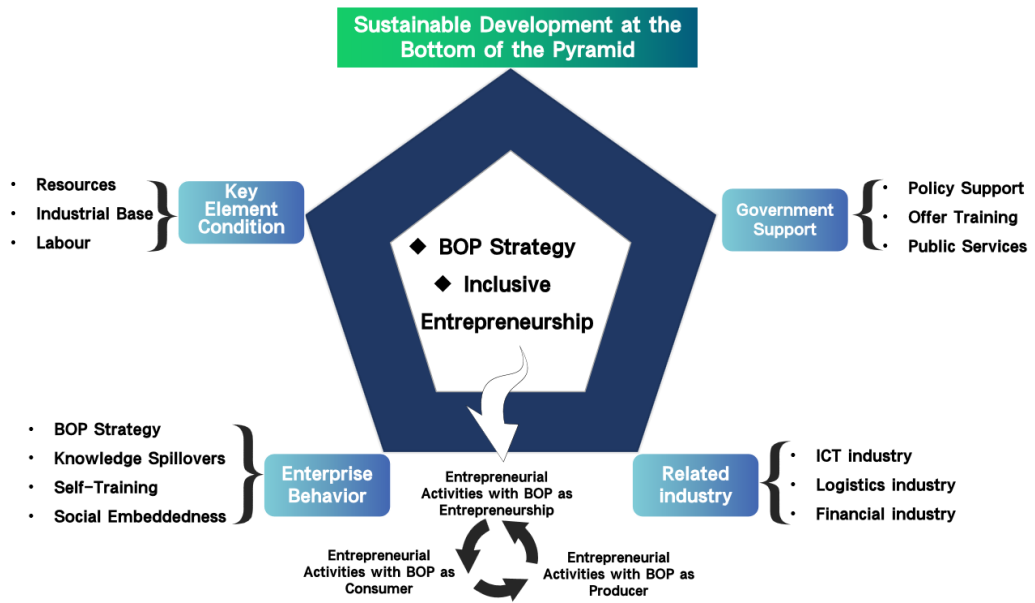


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Figure 4.4: The interaction among the actors in the entrepreneurial ecosystem (source: the authors)

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Figure 5.1: The revised framework of inclusive entrepreneurial ecosystem (source: the authors)

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Examples from Interviews

Discussion

<p>Access to Information</p>	<ul style="list-style-type: none"> ● <i>“Our village has a lot of turquoise. We knew it has a highly ornamental value before, but not many people bought it, so we didn’t pay more attention on it. Until an young which named Jiang Kai Ming through Internet find that people who live in southeast Asia believe in Buddhism, and turquoise is regarded as a holy object in those place. There is a huge demand for Turquoise in these countries. Those information promoted Jiang Kai Ming to open the first Taobao store in our village. Since then, our village’s turquoise has become a best-selling product and sold overseas” -- BOP entrepreneur of XiaYing Village</i> ● <i>“Based on the sales data of outdoor products provided by Taobao Village platform, we analyzed our advantages and disadvantages compared with competitors and adjusted our business strategy. More importantly, we can analyze consumers’ potential consumption preferences according to the information, and then continuously innovate to launch new outdoor products such as envelope-type sleeping bag and blue tent.”--BOP entrepreneur of BeiShan Village</i> 	<p>Information, as a factor of production, has become more essential with the advent of the digital economy era. Information inequality leads to information isolation. (Liangzhi, Y., 2011). This kind of information isolation not only makes the people at BOP at a disadvantage in the market competition, but also causes their commodities are not recognised by the mainstream market. ICT can help BOP entrepreneurs to obtain the same information as the mainstream market crowd, which is conducive to the inclusive entrepreneurship.</p>
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<p>Access to Opportunities</p>	<ul style="list-style-type: none"> ● <i>“Provided that these pecans are sold in the local market of Lin’an, Zhejiang Province, we not only have to reduce our prices because we must face homogeneous competition, but also have a market capacity limited. But the total population of Jiangsu, Zhejiang and Shanghai is about 220 million, nearly 400 times the total population of Lin’an, which provides a bigger market for our village. Our village sold our goods to a big coastal city on the Internet since 2009. During the ten years of development from 2009 to 2019, our village has achieved an explosive growth in sales volume from 1 million yuan to 350 million yuan. In 2018, the per capita annual income of our village reached 33500 yuan, solving the problem of more than 400 rural people’s employment. A package of pecans not only brought more young people back to our hometown to start businesses, but also made the village out of poverty” – Business leader of BaiNiu Village</i> ● <i>Before 2008, a large number of weaving was exported through foreign trade channels, but the global financial crisis triggered the adjustment of the international market pattern, the export channel blocked, a large number of foreign trade orders had to seek domestic sales channels. We were in a great hurry at that time, because if we didn’t have a chance to sell handicrafts, our income would drop sharply. At that time, e-commerce, as the fastest domestic sales channel, added wings to the development of e-commerce in our village. It gives us the opportunity to sell a large number of products and solve our pressing</i> 	<p>According to the world bank research, digital dividend is the growth, employment and service income brought by digital investment (Chandrasekhar, 2017). Compared with the sales in the local market, the excess revenue generated by the sales of goods through the Internet is the typical digital dividend. ICT helps the BOP entrepreneurs access the opportunity to the digital dividend.</p>
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Resources	What? recourses	Definition	of	How? Interviews	Examples from	Why? BOP entrepreneurs	The needs of
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763 Table 4.1 Interview Finding: ICT Access Empowerment

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765 Table 4.2 Interview Finding: ICT Resource Empowerment

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Financial resources	Financial resources refer to various monetary resources available to the entrepreneur in the process of discovering and implementing entrepreneurial ideas, which provide financial support for enterprise operation.	Government advocates Internet finance and provides financial services for the people at BOP. eCommerce platform has launched online financial services such as Alipay.	Most of the BOP entrepreneurs rely on their own funds and have few financing channels. Only a few entrepreneurs can obtain loans with formal financial institution. (Chao, 2015). The access to finance offered by micro-finance institutions positively influence performance of micro and small enterprises (Asad, M et al, 2016)
Human resources	Human resources include entrepreneurs, supporters, team members, etc. It covers the judgment, insight, creativity, vision and intelligence of each individual in the organization, and even the entrepreneur's social skills.	Use the Internet to purchase professional design, photography, trademark registration, legal advice and other professional services The people at BOP improve their professional skills through Internet training courses	There is a serious brain drain phenomenon that people in BOP area usually lack of professional skills. (Gao, 2015)
Knowledge resources	Knowledge resources include technology resources, intelligence resources, information resources and so on	Through the Internet search to open shop knowledge and skills. Learn explicit knowledge of online shop decoration, product appearance design, etc Use social media platforms, such as WeChat, to consult the business leaders about the tacit knowledge of product and market positioning, operation, channel, customer service skills, and profit model etc.	People at BOP in general are poor and undereducated. (Zabir, 2008).

Participants in Taobao Ecosystem	Business Requirements in Co-creation	Examples
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Government	To solve the most difficult poverty alleviation problems at the lowest cost.	<i>"In 2018, our village's e-commerce business income reached 150 million yuan, becoming a well-known wealthy village."</i> --Government officer of XiaYing Village
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ICT Industry (e-commerce platform provider)	The platform needs to attract new customers and suppliers in the sinking market.	According to Alibaba's financial report, 77% of Taobao tmall's new 100 million active users in 2019 come from the third and fourth tier cities and rural areas (Ali Research Institute, 2019).
Logistics & Financial Industry	Enterprises acquire a large number of potential customers	<i>"SF express created a three-level logistics system. This logistics system enables fresh products provided by rural residents to reach cities, which helps SF expand its market share and potential consumers."</i> -- Logistics practitioner in BaNiu Village
People at the bottom of pyramid	Farmers actively participate in inclusive entrepreneurship	<i>"Taobao ecosystem improve the personal skills of those at the bottom of the pyramid, including communication skills, business awareness and competence, management and leadership, can also boost self-esteem."</i> -- Government officer of ZaoMei Village

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Table 4.3: Benefits of co-creation in Taobao ecosystem

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Question	Option	Number	Rate
Gender	Man	42	67.8%
	Women	20	32.2%
Age	<20	2	3.2%
	20-30	32	51.6%
	30-40	12	19.4%
	40-50	9	14.5%
	>50	7	11.3%
Education	Primary school	1	1.6%
	Junior middle school	25	40.3%
	high school	14	22.6%
	Junior college and undergraduate	21	33.9%
	Graduate student	1	1.6%
Profession	BOP entrepreneurs	45	72.6%
	Government agent	5	8.1%
	Personnel of financial institutions	4	6.4%
	ICT practitioners	3	4.8%

Logistics practitioners	5	8.1%
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Table A1. The Information of respondents

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Respondents	Common Questions
BOP entrepreneurs(A)	(1) When did the villagers first come into contact with e-commerce?
	(2) When was the village identified as Taobao village by Alibaba company?
	(3) Who is the first person in your village to participate in entrepreneurship through Internet?
Government agent(B)	(4) What prompted the first entrepreneur to start his own business
Practitioners of financial institutions (C)	(5) What products do villagers mainly sell on the Internet
	(6) Why didn't e-commerce start up before? What do you think contributed to this change?
ICT practitioners (D)	(7) Is the product category single or multiple?If there are multiple products, which ones sell best?
Logistics practitioners(E)	(8) Is the entrepreneurial activity of villagers formed spontaneously, conducted under the guidance of the government, or both?

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Table A2. Semi-structured interview protocol (First round).

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(Notes: according to the job description of each respondent, the concentration of question area might be different. During the interviews, respondents are encouraged to give examples for certain strategies).

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Respondents	Common Questions
	(1) How has the number of entrepreneurs increased in your village?

	(2) What do you think is the reason for the new wave of entrepreneurs?
BOP entrepreneurs(A)	(3) Will the later entrepreneurs choose the same or similar business model as the previous entrepreneurs?
Government agent(B)	(4) Will the later entrepreneurs learn from the experience of previous entrepreneurs?
Practitioners of financial institutions (C)	(5) In your opinion, from the appearance of the first entrepreneur to the development up to now, what stages has your taobao village gone through?What are the landmarks events?
ICT practitioners (D)	(6) Which actors do you think will join or exit in each stages of development? What role do they play in each stage?
Logistics practitioners(E)	(7) Which people in Taobao village do you think are directly or indirectly involved in e-commerce entrepreneurial activities?
	(8) What do you think of the impact of Taobao village's entrepreneurial activities on low-income people? What role can they play in it?
	(9) What factors do you think are driving the continuous development of Your Taobao village

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Table A3. Semi-structured interview protocol (Second round)

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(Notes: according to the job description of each respondent, the concentration of question area might be different. During the interviews, respondents are encouraged to give examples for certain strategies).

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Respondents	Question	Common Questions
BOP entrepreneurs (A)	– What is your motivation for entrepreneur?	(1) What factors do you think will affect the success of entrepreneurship of the people at the bottom of the pyramid?
	– What is the biggest obstacle you encounter in the process of entrepreneurship? Is it solved? How to solve it?	
	– Do you get help from others when you start entrepreneurship? What are the main aspects?	
	– What are the key factors that determine the success or failure of a entrepreneur?	
Government agent	– How does your organization support the entrepreneurial projects of the people at the bottom of the pyramid?	(2)Do you think that the entrepreneurial ecosystem of Taobao village in China is composed of

(B)	– How do you think government can improve the success rate of entrepreneurship of the bottom group of the pyramid?	socioeconomic actors? What roles do each socioeconomic actors play in the entrepreneur ecosystem?
Practitioners of financial institutions	– What is your organization's attitude towards the entrepreneurial activities at the bottom of the pyramid?	(3)What do you think is the fundamental reason for the success of inclusive entrepreneurship in Taobao village?
	– How does your organization choose entrepreneurial projects and give help to them. what is the screening mechanism?	
(C)	– What services does your organization provide for the selected venture?	(4) How do you think Taobao Village in China will develop in the future?
	– What is the success rate of entrepreneurial projects that your organization helps?	
ICT practitioners	– How does your organization support entrepreneurship at the bottom of the pyramid?	
(D)	– What specific support measures have been taken and what problems have been solved?	
Logistics practitioners	– Why does your organization choose to settle in Taobao village?	
(E)	– What is the turnover of your organization in Taobao village?	
	– What kind of express delivery do villagers usually send or receive?	

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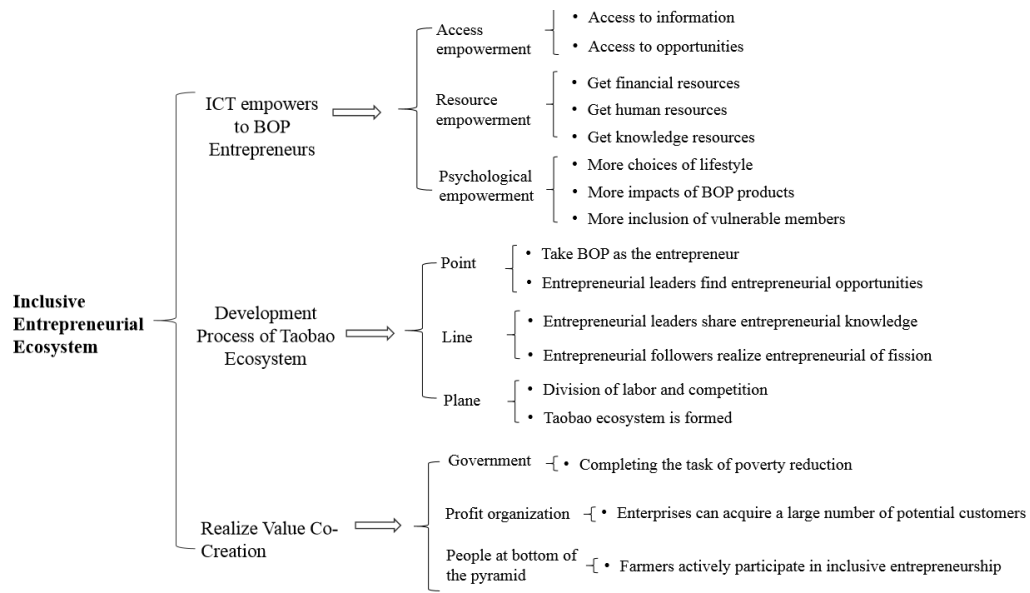
Table A4. Semi-structured interview protocol (Third round)

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(Notes: according to the job description of each respondent, the concentration of question area might be different. During the interviews, respondents are encouraged to give examples for certain strategies).

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Figure A1. Coding schemes.