International Inclusive Innovation of Entrepreneurial Firms: Toward a Process Model

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ABSTRACT

Although inclusive innovation has been regarded as a process according to prior studies, this complex process remains relatively under-researched, particularly when the process is successfully completed by entrepreneurial firms from emerging economies. This paper therefore seeks to explore, from a holistically dynamic view, how inclusive innovation process of entrepreneurial firms evolves in the bottom of the pyramid (BOP) markets. Based on the multi-dimensional details of a Chinese entrepreneurial firm conducting inclusive innovation in African BOP market, this exploratory case study suggests that inclusive innovation information management consists of three important consecutive stages: BOP market gap identification, market cultivation, and intensive market developing. The authors also unexpectedly reveal that the key capabilities in these three stages are distinctive.

KEYWORDS

Born-Global Firm, Inclusive Innovation Process, Interplay, Organizational Capability, Synergy

INTRODUCTION

Process is fundamental: The river is not an object but an ever-changing flow; the sun is not a thing, but an enduring fire. Everything in nature is a matter of process, of activity, of change. (Rescher, 1996, p. 10)

Innovation has been widely investigated in the literature (Chen et al., 2020; Ge et al., 2020; Huang et al., 2019; Lee, & Chen, 2019; Li et al., 2019; Nisha et al., 2019; Rahman et al., 2020), little research is done on inclusive innovation. Inclusive innovation, defined as “the development and implementation of new ideas which aspire to create opportunities that enhance social and economic wellbeing for disenfranchised members of society” (George et al., 2012, p. 663), has been increasingly studied by academia, especially the distinctive capabilities facilitating its process and success (e.g., Ansari et al., 2012; George et al., 2012; Peerally et al., 2019). There are two core streams of the related literature. The first focuses on the antecedents, particularly the organizational capabilities

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(e.g., capabilities of constraint diagnosis, opportunity identification, networking, and business model design) driving the initiation of inclusive innovation. Those studies highlight the enabler role of a company’s existing capabilities for inclusive innovation initiation (e.g., Galema et al., 2012; Halme et al., 2012). However, this stream views the link between inclusive innovation and its antecedents as a “black box”; that is, they regard the existing organizational capabilities in general as the trigger of inclusive innovation, without exploring the substantial process through which inclusive innovation is realized. In contrast, the second stream focuses on the effect or outcome of inclusive innovation. Those studies highlight the incubator role of inclusive innovation (e.g., Confraria & Godinho, 2015; Foster & Heeks, 2013; Niosi & Reid, 2007), examining how inclusive innovation can foster certain organizational capabilities. However, this second stream views the link between inclusive innovation and its effects as a “black box,” without attempting to determine the particular special capabilities that facilitate inclusive innovation through various stages and the ways in which they achieve such innovation. Further, research on the critical link between these two separate research streams is limited, resulting in a missed opportunity for their synergetic integration. Last, given the dominant attention to either the antecedents or the outcomes of inclusive innovation (e.g., Ault, 2016; Galema et al., 2012; Halme et al., 2012; Pansera & Owen, 2018; Peerally et al., 2019), the process of inclusive innovation has been largely neglected in extant research, and in particular, in studies on multinational enterprises from emerging economies or emerging entrepreneurial firms. This gap suggests there is considerable potential to integrate the dominant research streams from the process perspective.

As George et al. (2012) suggests, inclusive innovation is a process through which firms serve “bottom of the pyramid” (BOP) markets (George et al., 2012). The present article further argues that during this process, entrepreneurial firms may possess some unique advantages to initiate and support the sustainable growth of their inclusive innovations. Hence, this article explores the process of inclusive innovation by emerging entrepreneurial firms, especially their unique organizational capabilities that fundamentally underpin successful development in each phase of the entire process. The specific research questions are as follows:

1. What are the essential stages of inclusive innovation from the process perspective?
2. How do organizational capabilities evolve in the process of inclusive innovation information management?
3. What are the key capabilities at each stage and how do they interplay progressively?

To address these research questions, the authors have built a theory based on a case study of one Chinese entrepreneurial firm’s inclusive innovation process in the African market. The emerging entrepreneurial firm was founded in China but has been engaging in inclusive innovation in those BOP markets for more than 15 years.

Thus, this article contributes to the literature in at least two aspects. First, it enriches the literature on inclusive innovation by developing a process model of emerging entrepreneurial firms’ inclusive innovation in BOP markets. It highlights the salience of the evolution of inclusive innovation by identifying distinctive process stages. Second, it specifies the unique advantages of these firms in terms of their special capabilities for inclusive innovation in BOP markets over time. Given the centrality of dynamic capabilities in the literature about corporate growth (e.g., Zahra et al., 2006), it is imperative to study these capabilities across the stages of organizational development (Schilke, 2014). Accordingly, this article explores the dynamic (mutable) organizational capabilities in the process of inclusive innovation.

INCLUSIVE INNOVATION BY EMERGING MULTINATIONAL FIRMS

Although studies suggest that firms’ business models need to be radically changed and their products reinvented in order to adapt to BOP markets (e.g., London & Hart, 2011; Ricart et al., 2004; Simanis
& Hart, 2009), both academia and industry have shown increasing interest in multinational firms’ inclusive innovation. The topics examined include the ways in which these firms explore and exploit new business opportunities by using their understanding of the BOP markets and then develop and execute inclusive innovations for the targeted BOP markets (George et al., 2012; Levidow & Papaioannou, 2018; Prahalad, 2009).

The first stream of studies in this field focuses on developing a definition of inclusive innovation (e.g., Ali & Son, 2007; George et al., 2012). Notably, George et al.’s (2012) aforementioned definition is extensively used in this stream (e.g., Chataway et al., 2014; Hall et al., 2014; Reinecke & Ansari, 2015; Zahra & Wright, 2016). The second stream focuses on initiatives for inclusive innovation by multinational firms, such as how the firms can push and implement inclusive innovation initiatives successfully (Galema et al., 2012; Halme et al., 2012). These studies examine the way that firms leverage their existing capabilities to overcome organizational resistance and take the first step toward initiating inclusive innovation. In other words, these studies highlight the importance of organizational capabilities that serve as enablers for initiating firms’ inclusive innovation. The third stream of studies investigates the outcome of inclusive innovation with a special focus on firms’ organizational capability building (e.g., Confraria & Godinho, 2015; Foster & Heeks, 2013; Niosi & Reid, 2007) and regards inclusive innovation as an incubator through which firms expand their organizational capabilities. Nevertheless, few studies have proceeded to investigate more details of the inclusive innovation process of multinational enterprises (Heeks et al., 2013; Mortazavi et al., 2019; Woodson et al., 2019). In particular, it remains unclear how emerging entrepreneurial firms develop more advanced capabilities to accomplish inclusive innovation.

Some conceptual studies (e.g., Madhok & Keyhani, 2012) have suggested that unlike multinational firms from developed countries, emerging entrepreneurial firms may have some capability advantages to bring about inclusive innovation in global BOP markets. Such advantages often are derived from two major sources: (a) the unique symmetries between the emerging entrepreneurial firms’ home-country environments and those of the new BOP markets owing to the similarities between these countries’ economic development process, business environment, and culture, and (b) such firms’ proactive search for capability development since these firms, unlike multinational firms from developed countries, normally possess limited resources and technological capabilities. Accordingly, although emerging entrepreneurial firms are founded and developed in less-developed economic and institutional environments, they may have capability advantages based on their business experience in their original environment and thus can more easily adapt to a similar business environment in other countries.

Inclusive innovation cannot be a one-step process and is composed of multiple phases (George et al., 2012; Peerally et al., 2019; van der Merwe et al., 2020). Hence, this process is often subject to the divergent and evolving demands in a typical BOP market environment (Prahalad, 2012). Accordingly, routines need to be altered, iterated, or even restructured to deal with contingent challenges. Further, timely acquisition of situational knowledge through irregular approaches becomes essential (Eisenhardt & Martin, 2000). However, to date, the detailed phases have been largely under-researched and under-conceptualized. Thus, it is necessary to adopt a process perspective to unveil emerging entrepreneurial firms’ advantageous capabilities, and in particular, to identify ways to achieve inclusive innovation through dynamic capabilities in the context of BOPs. To achieve this purpose, the case study method is the most appropriate (Eisenhardt, 1989) and has therefore been adopted in this study.

**METHOD: CASE STUDY**

Given the absence of prior studies and theories pertinent to this study’s research questions, an explorative theory-building case study approach was adopted. This approach is widely adopted for investigating complex and unexplained phenomena holistically in the field of strategic management...
and organizational research. Thus, the “dynamics within single settings” can be effectually revealed (Eisenhardt, 1989, p. 543). The case study approach, which draws on empirical reality, different from combining prior literature for developing theories, also allows further development of a testable theory (Eisenhardt, 1989).

Case Selection

In line with recommendations for theoretical sampling (Eisenhardt, 1989), a single company was selected for this case study. The emerging entrepreneurial firm is a Chinese firm founded in 2006 that is committed to developing smart devices and mobile services for consumers in BOP markets (Hemmert et al., 2021; Zhang et al., 2021; Zheng, Bai, & Cross, 2021; Zheng, Fan et al., 2021; Zheng et al., 2022). Since its initial inclusive innovation in 2007, this firm has already conducted inclusive innovation in the African market for more than 13 years. Moreover, after years of expansion, the firm has become a leading player in the African mobile phone market. The main business of this firm is manufacturing mobile phones, and it has three leading brands in BOP markets. In 2018, the company was included in the “Top 50 Chinese Cross-Border Brands”, list jointly released by Facebook and KPMG, for its outstanding performance and brand appeal in BOP markets. In 2019, the company won Twitter’s Top Influential Chinese Overseas Brand Award, was listed on the Shanghai Stock Exchange Star Board, and was ranked fourth in global mobile phone manufacturers with an 8.1% market share according to an International Data Corporation report. In 2020, three of its mobile phone brands were ranked fifth, 21st, and 27th among the Top 100 Most-Admired Brands in Africa (a ranking compiled by African Business, a well-known Pan-African business magazine).

Table 1. The entrepreneurial firm’s rapid growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Representative Achievement</th>
</tr>
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<tbody>
<tr>
<td>2006</td>
<td>Founded and aimed at entering the industry of mobile phones</td>
</tr>
<tr>
<td>2007</td>
<td>Market gap identification based on research of potential host-country BOP markets</td>
</tr>
<tr>
<td></td>
<td>Developed and tested new product concept in multiple BOP markets globally</td>
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<tr>
<td>2008</td>
<td>Confirmed the African market’s potential</td>
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<tr>
<td></td>
<td>Launched its two major brands, Tecno and Infinix</td>
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<tr>
<td></td>
<td>Tecno T570 became one of the representative products in the African market</td>
</tr>
<tr>
<td>2009</td>
<td>Tecno enriched its product line and launched new mobile phones for different markets</td>
</tr>
<tr>
<td>2010</td>
<td>Carcare, an after-sales service brand, was established in Nigeria</td>
</tr>
<tr>
<td></td>
<td>Tecno ranked among the top three mobile phone brands in Africa</td>
</tr>
<tr>
<td>2011</td>
<td>Started to build up production facilities in Ethiopia for localized production</td>
</tr>
<tr>
<td>2012</td>
<td>Implemented multi-brand strategy and developed its products/brands for different consumer groups: Tecno, Infinix, and Infinix</td>
</tr>
<tr>
<td>2014</td>
<td>Created the accessories brand Oraimo</td>
</tr>
<tr>
<td></td>
<td>Annual total sales exceeded 66 million units</td>
</tr>
<tr>
<td>2016</td>
<td>In the first half year, Tecno’s sales volume in Africa reached 32.86 million units, ranking first among all the mobile phone brands in Africa</td>
</tr>
<tr>
<td>2018</td>
<td>Listed as a “Top 50 Chinese Cross-border Brands” jointly released by Facebook and KPMG</td>
</tr>
<tr>
<td>2020</td>
<td>The firm’s three mobile phone brands were ranked as fifth, twenty-first, and twenty-seventh respectively among the Top 100 Most-Admired Brands in Africa (a ranking compiled by African Business, a well-known Pan-African business magazine)</td>
</tr>
</tbody>
</table>
Data Collection
Archival and interview data were collected (see Table 3). Using archival data of internal and external publication records, such as press releases as well as corporate communications and financial reports, and combining existing case studies of this company, complementary data could be collected through the subsequent interviews. Two rounds of interviews were conducted with high-ranking managers in the emerging entrepreneurial firm to obtain insights into the critical details during the inclusive innovation process in order to better understand the inclusive innovation stages as well as the key capabilities that interplay with each other in each of those stages. The interviews, which were conducted according to an interview guide, lasted one to two hours. Moreover, requests after the interviews for supplementary details were responded to efficiently by the company.

Data Analysis
Following the suggestions in studies that have adopted theory-building approaches with a case study (Eisenhardt, 1989; Yin, 2003), an intensively iterative and mutually enforcing process was completed along with the data collection and analysis (see Figure 1). First, the case study context was established. The obtained internal and external archival data were used to indicate the research context, including the company profile, target markets, and achievement. A table was developed to illustrate the products’ special features vis-à-vis the inclusive innovation of the emerging entrepreneurial firm (see Table 1). Second, based on the archival and interview data, the entire process of the emerging entrepreneurial firm’s inclusive innovation and the mechanism underlying the process were further identified and

Table 2. The emerging entrepreneurial firm’s representative inclusive innovations

<table>
<thead>
<tr>
<th>Inclusive Innovation</th>
<th>Problems solved by the inclusive innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Multi-card technology</td>
<td>• The inconvenience for African users to switch SIM cards due to the various operators and products.</td>
</tr>
<tr>
<td>2. High-quality loud music technology</td>
<td>• Through analyzing African music styles and instrument characteristics, the gain compensation is optimized.</td>
</tr>
<tr>
<td></td>
<td>• Thus, the overall loudness of the loudspeaker is improved, the dynamic effect of the instrument is</td>
</tr>
<tr>
<td></td>
<td>• better highlighted, and the low-frequency performance is improved. It is greatly favored by the majority</td>
</tr>
<tr>
<td></td>
<td>• uses loud music in markets and social occasions.</td>
</tr>
<tr>
<td>3. Waterproof and anticorrosive design</td>
<td>• African mobile phone users’ hand sweat that corrodes the metal shell and hinders the fingerprint</td>
</tr>
<tr>
<td></td>
<td>• recognition</td>
</tr>
<tr>
<td>4. Dark skin photography technology/Night photography capture technology</td>
<td>• Unclear facial photos due to African users’ dark skin</td>
</tr>
<tr>
<td>5. Long standby</td>
<td>• Mobile phones cannot be charged frequently due to the unstable power supply</td>
</tr>
<tr>
<td>6. High brightness flashlight</td>
<td>• For late-night illumination due to unstable power supply and deficient infrastructure</td>
</tr>
<tr>
<td>7. African language library</td>
<td>• Languages used do not conform to the habits of local users.</td>
</tr>
</tbody>
</table>
analyzed. Largely, the analysis went through the process of comprehending, synthesizing, theorizing, and recontextualizing (Morse, 1994). Essentially, by reviewing and sorting the obtained qualitative data, the synthesization was facilitated. The next step involved creating links between the synthesized data and established theories for constructing alternative explanations. With several iterations based on discussions between the researchers and interviewees in seeking reasonable explanations for unmatchable parts with existing theories, a satisfactory explanation consistent with theoretical bases was achieved, which is critical for establishing the internal validity of findings (Eisenhardt, 1989). By comparing this article’s findings with those of relevant studies, the authors linked the research to established knowledge and developed theoretical propositions.

**FINDINGS**

Based on an in-depth analysis of the emerging entrepreneurial firm’s inclusive innovation, this article explored its inclusive innovation process with respect to the evolution of its organizational capabilities. This exploration revealed that there were three significant process stages: the BOP market gap identification, market cultivation, and intensive market development. It was also found that, to
Successfully move through each phase of the inclusive innovation process, this firm was spurred to develop its organizational capabilities accordingly.

**The Initial Phase of BOP Market Gap Identification**

The first phase is the market gap identification phase in which the emerging entrepreneurial firm identified strategic markets through developing and testing new product concepts in multiple markets globally. The aim of this phase was pinpointing the market with considerable potential that can be well exploited through this firm’s special capabilities. At this stage, this firm did not possess a competitive technological advantage. Through developing and testing its product concepts in developed as well as BOP markets, the founder of this firm realized that it may have a comparative advantage in exploring a BOP market apart from the home-country one. For market gap identification, this firm comprehensively compared the differences between developed and BOP markets as well as among different BOP markets. The major activities in this phase included intensive market research, predevelopment activities, and product concept contextualization.
In the first step of this phase, the emerging entrepreneurial firm conducted intensive market research, including analyses of the economic and institutional environments, the similarities and differences between home- and host-country BOP markets, the capacity of the target BOP markets, and internationalization strategies as well as competitors’ advantages and disadvantages in the BOP markets. Thus, it identified the most promising BOP market. For example, the founder of this firm particularly highlighted that they found some historical and institutional similarities between the home market and the African market. This enabled this firm to be more adaptive to understanding and capturing the features of the African BOP market. In addition, this firm selected the potential market (the African market) based on a detailed, in-depth analysis of competitors’ (i.e., Samsung and Nokia) patterns and paths for entering this market as well as their strengths and weaknesses in this market. Thus, the emerging entrepreneurial firm identified, confirmed, and further understood the key character of the target market, and meanwhile outlined its potential opportunities and threats in the market.

The second step was to conduct predevelopment activities through which the emerging entrepreneurial firm collected, analyzed, and understood the real-time status of the identified BOP market. For example, the firm’s managers highlighted that they conducted a series of activities to collect information on the African market (e.g., political, economic, socio-cultural, and technological factors) to understand the situation and potential trends comprehensively. Through this phase, this firm deemed this market as an integrated market without premature segmentation. This step helped this firm to develop its conceptual products further. Below is a quotation from the interviewees.

The founder started to know the African market when he was working for the BIRD [a Chinese domestic mobile phone manufacturer with successful market expansion, which intended to explore overseas emerging market at the time] and found that the market was quite similar to the Chinese market in 1990s—with a low level of consumption but great growth potential. Meanwhile, according to his judgment, the average productivity and price of Chinese mobile phones could be advantageous in the African market. After resigning from BIRD, the founder and his founding team started to observe the African market more intensively. They found that potential African consumers also preferred low-price mobile phones with a cool appearance and distinctive functions that can also meet their social needs of showing off, and the manufacturers in China did have the advantage of producing the needed mobile phones. Moreover, they deeply analyzed Samsung and other competitors’ weaknesses in the African market, including their products, pricing, marketing, and after-sales services, and concluded that the business model already adopted in the Chinese market could better suit the African market than that of competitors.

In the third step, based on its predevelopment activities, the emerging entrepreneurial firm further captured aspects that fit its potential customers’ needs and preferences in the identified market, in terms of the quality and features of potential products, to accordingly develop product concepts for filling the identified market gap. Regarding key environmental aspects (e.g., cultural values, and institutions), this firm put great efforts to contextualize its technology and business concepts in developing and customizing its product concepts and designs. These efforts enabled the firm to gain in-depth understanding about both the target BOP market and methods to integrate customer-related and environmental features into the product concepts and designs being developed. Thus, this article proposes:

**Proposition 1a:** BOP market gap identification is the primary mechanism in the first phase of an emerging entrepreneurial firm’s inclusive innovation process.

The literature indicates that successful inclusive innovation may require many distinctive organizational capabilities (e.g., Halme et al., 2012). The analysis of the emerging entrepreneurial firm’s inclusive innovation process revealed that in the first phase of market gap identification, this firm possessed substantial learning agility and market-sensing capability. Organizational learning
agility refers to an emerging entrepreneurial firm’s aspiration and capability to accelerate experiential accumulation and then apply that learning outcome in new situations (Carmeli et al., 2017; Lombardo & Eichinger, 2000). Market-sensing capability enables such firms to anticipate market evolution and detect emerging opportunities using information collected (Mu, 2015; Teece, 2007).

In the market gap identification phase, the fundamental capability was organizational learning agility. With this capability, the emerging entrepreneurial firm in this case study was able to make quick decisions about testing high-potential ideas regarding product and brand concepts in the target BOP market. The founder of this firm pointed out that they were capable of learning quickly and identifying the potential customer needs in the market. Furthermore, despite a technological disadvantage, this firm transferred its learning approaches in the Chinese BOP market to the African BOP market, and it adapted them further to local situations for developing novel product concepts for African customers.

Its market-sensing capability further strengthened the emerging entrepreneurial firm’s learning agility to identify an opportunity and develop apt product concepts. Throughout the market gap identification phase, this firm continued to scan and sense consumer preferences and market trends, which allowed its founder and senior managers to estimate market needs and trends accurately. Moreover, this firm’s strong market-sensing capability furthered the product concept contextualization. Given its focus and efforts toward identifying and evaluating opportunities in the African BOP market, the emerging entrepreneurial firm became more capable than previously of understanding and capturing key features of customers and environments. For example, almost all the key members, including the founder and R&D team members in this firm, were sensitized to latent problems and opportunities in the African market and encouraged to address relevant issues effectively and rapidly.

Below is a quotation from the interviewees.

The founding team established a range of channels to collect local consumers’ ideas and experiences, such as warmly and constantly inviting them to share their needs, experiences, and ideas. Moreover, the founding team maintained a close relationship with its local partners and incentivized them to be co-observers and co-investigators.

Taken together, during this market gap identification phase, the interplay and synergy between the emerging entrepreneurial firm’s learning agility and market-sensing capability played a significant role in pinpointing the key gap to fill of the target BOP market. Without such capabilities and their interplay, it can be challenging to deeply understand local BOP market demands as well as to identify, select, and ally with potential partners for joint efforts to enable inclusive innovation. Essentially, inclusive innovation does not require cutting-edge technologies. Rather, precisely grasping overlooked consumers’ unmet needs and adopting and integrating matured technologies for low-cost solutions are central (Foster & Heeks, 2013; Fressoli et al., 2014). Thus, it is crucial to understand local unmet demands, business environments, and potential rivals, and to further interpret the data collected not only from outsiders’ perspective but also from residents’ perspective. This step can facilitate cost reductions in later stages such as R&D and promotion, because the locally rooted process of capturing unmet demand encourages tacit knowledge exchange, creativity, and mutual familiarity (between the emerging entrepreneurial firm, customers, and business partners). This discussion leads to the following proposition:

**Proposition 1b:** The interplay and synergy between learning agility and market-sensing capability sustain an emerging entrepreneurial firm through the first phase of its inclusive innovation process.

**THE EARLY PHASE OF MARKET CULTIVATION**

In the early phase of market cultivation, the leading product concepts were transformed into product engineering and testing, and then initial production, followed by product introduction. In the first step of engineering and testing, the emerging entrepreneurial firm implemented relatively complicated adaptations with existing technologies. A top manager of this firm revealed that the product engineering
and testing were based on its existing technologies developed in the home country. The founder highlighted that the key task was to adapt existing technologies to appropriately fit the application scenarios in the African BOP market. Therefore, for example, this firm built a local R&D team in the African market through which it was able to understand in depth the potential scenarios in which products would be used and to then integrate such contextual information and knowledge into product engineering and testing. The local R&D team also accelerated the product development process through building a real-world testing environment for the products, with professional measurements, proper samples, and sufficient test context. The founder indicated that it was more useful to adopt user testing in the African market than to trust the judgment of an expert who would have an outsider’s insights. Eventually, the emerging entrepreneurial firm accumulated abundant feedback from potential users, which in turn was quite useful in shaping its final products. Below is a quotation from the interviewees.

For product development, we utilized employees’ advantages in both China and Africa for more efficiency. The local teams comprehensively collected data on users’ experiences—especially on whether and how the prototype could address their issues compared with existing products. All the data were transferred back to the R&D center in China for further analyses and mining and were converted rapidly into iterated prototypes before the mass production began.

After several rounds of product engineering and testing according to the target BOP market’s situation, the emerging entrepreneurial firm moved into the stage of mass initial production, where it produced the key components of the initial production in its home country and assembled these in the host country. The firm’s manager pointed out that its large manufacturing plants in both China and Africa enabled this firm to reach mass production and thus to achieve cost leadership. The manager also stressed that the production costs were much lower than those of its competitors worldwide. Below is a quotation from the interviewees.

The productivity in China back then had been abundant for producing a huge volume of mobile phones and their components. The company had its own factories in China and had a close collaboration with a range of suppliers there. Moreover, the assembly lines located in Africa facilitated reducing the cost far below those in developed markets.

After the initial production was completed, the products were introduced into the marketplace promptly and support services were offered. According to a manager of this emerging entrepreneurial firm, the eastern and western African markets were broadly segmented and a sound market management system, including market development and after-sales service systems, was developed. At this stage, the marketing and branding strategies were developed correspondingly. Accordingly, this article proposes:

**Proposition 2a: Market cultivation is the primary mechanism in the second phase of an emerging entrepreneurial firm’s inclusive innovation process.**

During the early phase of market cultivation, the emerging entrepreneurial firm deployed its technology-building capability (e.g., Guo et al., 2019) to transform refined product concepts into product engineering and testing, as well as initial production. Obviously, this firm did not possess a technological advantage in entering the market. However, it possessed a strong technology-building capability through contextualizing the comparatively less advantageous technologies according to the target BOP market situations to create comparative advantages. First, this firm adapted its existing technologies to the target market for technological localization and contextualization. According to the firm’s founder, it made significant efforts to integrate its existing technologies developed in the home country with the contextual information collected and knowledge gained by the local R&D team. Moreover, the firm established an exterior design center in Korea and a telecommunications technology development center in France. Through its product engineering and testing activities, this firm altered existing technologies according to feedback from potential customers and analyses of its existing competitors. Last, this firm implemented complex revisions and iterations of existing technologies that were applied for initial product development to fit the usage scenarios. The
founder highlighted that they continued to explore, adapt, and iterate core technologies based on new information and knowledge they rapidly obtained in their target markets. Consequently, this firm achieved world-class engineering with successful technological contextualization and localization. Below is a quotation from the interviewees.

Actually, the competitors had been promoting their featured products adapted to the African market needs. So, we had to exert our advantages of agility and incremental innovation developed in China a decade ago, following the global advanced technologies while properly integrating them into our technical know-how for the African users’ needs and preferences in a dynamic way.

Together with these technology-building activities, the emerging entrepreneurial firm also possessed strong marketing capability through linking with local partners. Local partnering capability is defined as the ability of such a firm to develop connections with local partners and leverage their resources and capabilities for product development and introduction (Mu, 2015). In the market cultivation phase, the emerging entrepreneurial firm needed to acquire and accumulate diverse resources for technological adaptation and advancement. Thus, this firm continuously developed and maintained connections with multiple key actors in the African market to access diverse in-depth information as well as other relevant resources for creating a superior value proposition. The founder highlighted that technological adaptation and advancement required this firm to orchestrate or reorchestrate information and knowledge obtained from divergent local partners for product engineering, testing, and subsequent production. Those divergent local partners, such as local retailers, wholesalers, and distributors, as well as local internet companies, provided the emerging entrepreneurial firm with opportunities to comprehend local customers’ characteristics and preferences as well as market trends precisely. Moreover, the diverse knowledge from various local partners on markets and customers allowed this firm to triangulate customers’ identified core needs, which further boosted the firm’s technological adaptiveness. In addition, with its strong capability of establishing local partnerships, the emerging entrepreneurial firm was able to creatively reconfigure and reorchestrate the market knowledge gained for subsequent new product development. Therefore, its strong local partnering capability accelerated its technological development process and, more importantly, enhanced this firm’s technological adaptation and advancement in product development to deliver a superior value proposition. Below is a quotation from the interviewees.

According to the observation of local markets and the experiences accumulated in Chinese market earlier, the founding team believed that collaborating with local partners, including advertisers, retailers, service operators and even grocery stores in divergent communities, was more effectual than establishing franchise stores. The company also trained local salespersons and sent them to the rural areas to sell and collect the data of rural users’ experiences and preferences.

Successful inclusive innovation requires integrating viable and relatively economical technologies and customizing these for product development according to local demand; however, it is pivotal to test, iterate, and promote a newly developed product and enable targeted BOP consumers to realize and appreciate its unique values. For the technological integration, emerging entrepreneurial firms must mobilize their advantageous resources in the home and host countries, such as low labor costs for data collection and non-advanced product development; for the customized product development, these firms need to secure a range of local partners who possess critical tacit knowledge about the local consumption patterns, peculiarities, and culture. Therefore, without extraordinary technology-building capability and local partnering capability, it could be scarcely viable to complete those tasks in this stage. Furthermore, since new product development for the BOP market is a process with many iterations as well, the interplay and synergy between the two capabilities become vital, which may however be deficiently developed by firms from developed countries (Go, 2015).

**Proposition 2b:** The interplay and synergy between technology-building capability and local partnering capability sustains an emerging entrepreneurial firm through the second phase (early market cultivation) of its inclusive innovation process.
The Later Phase of Intensive Market Development

After the products achieved a certain market share, intensive market development began. In this phase, timely market segmentations and unifications with diversified inclusive innovations are conducted. The emerging entrepreneurial firm needed to invest significant time and effort to understand each group of customers precisely and comprehensively.

In this phase, this firm collected specific information and product feedback from different segmented markets. For example, it created online and onsite communication platforms for customers to share their consuming or using experiences as well as provide suggestions for further product development. Similarly, this firm employed a significant number of local people to help promote sales. Meanwhile, those local salespersons collected and shared more detailed customer information and market trends. Through its market data analysis, the emerging entrepreneurial firm continuously improved its products’ quality to fit the needs of different customer groups. In this stage, the key activities were to create rapidly realizable and highly iterative products based on divergent user needs. The firm’s various products underwent several iterations in this phase, and the firm defined a feature subset for each iteration. The firm further developed its products’ functions and appearance according to knowledge gained through these iterations to satisfy user needs in various segmented BOP markets, leading to gradual user stickiness. Through such in-depth product adaptations, the emerging entrepreneurial firm created superior value for customers through customizing product offerings as well as relevant branding, which in turn expedited its products’ better position in different segmented markets. These agile and adaptive practices continuously strengthened the firm’s understanding of different customers’ dynamic needs, allowing it to meet evolving market demands more effectively.

Along with product iterations and adaptations, the emerging entrepreneurial firm also started to build its brand architecture and brand value chain in Africa. For example, the firm retained its major brand name in the African market and localized its sub-brands and slogans to each segmented market. This firm also developed an ecosystem for this brand localization. Such an ecosystem for building customer-based brand equity helped the firm to interact with customers continuously and integrate their insights and expectations into future product design. Furthermore, this firm developed a social application (software) across its sub-brand products, which facilitated connections between the users of feature and smart phones. This strengthened user stickiness as well as loyalty and thus its brand legitimacy and identity in Africa over time. Moreover, with its unified after-sales and accessories services, the synergy among its sub-brands has been enhanced, for it helped the emerging entrepreneurial firm spot common customer problems and correspondingly develop generic technological solutions for all the sub-brand products, which, in turn, paved the way for developing more adaptive products at even lower costs, further increasing customer loyalty and brand equity.

Compared with firms from developed countries, emerging entrepreneurial firms do not have sufficient competitive advantages and thus need to intensively exploit their target markets to achieve timely market segmentation and unification and in-depth brand localization and legitimation. Because the demand in BOP markets is fragmented and varying (Prahalad, 2012), intensive market development is indispensable for these firms to further inclusive innovation and business growth. By intensive market development, such firms normally become competitive through advanced configurations and low prices to expand their markets, which leads to the following proposition:

**Proposition 3a:** Intensive market development is the primary mechanism in the third phase of an emerging entrepreneurial firm’s inclusive innovation process.

This article observed that in the later phase of intensive market development, the fundamental capability that supported sustainable inclusive innovation was the emerging entrepreneurial firm’s capability of engaging customers. Customer-engaging capability has been defined as an emerging entrepreneurial firm’s ability to develop intimate relationships with customers (e.g., Mu, 2015; Yim et
al., 2008). In this phase, the emerging entrepreneurial firm further segmented the target BOP markets based on its customers’ needs and preferences, and invited those customers to engage in interactive activities, such as sales promotions and feedback on using experience. This proactive engagement enabled the firm to accumulate customer information and knowledge for further market segmentation, and to comprehend more explicitly how its current technology and rapidly viable advancement can sufficiently support the development of appropriate products. Furthermore, its customer-engaging capability enabled this firm to detect the varying market situations in Africa rapidly, which, in turn, implied how it should strategize its technological development and productivity accordingly. Through its extensive interactions with different groups of customers, the emerging entrepreneurial firm was able to explicitly convey its commitment and sincerity to them, which, in turn, increased customers’ loyalty and stimulated them to promote its products and provide further feedback. Below is a quotation from the interviewees.

On the one hand, we used multichannel advertisements endorsed by local entertainment celebrities and wall-painting advertisements to let urban and rural potential customers know our product; on the other, we set up several standardized after-sales service centers to collect users’ ideas and experiences. We also provided maintenance services for other companies’ products, not only because there were no such services for their products, but more importantly, because this was an effective way to know the users’ experiences and expectations, as well as the products’ defects. So, we could iterate our products more accurately for meeting the expectations of different groups of users.

In sum, in the third phase, although the emerging entrepreneurial firm faced substantial challenges in improving its technologies comprehensively to satisfy more diverse and evolving demands identified or fostered in the BOP market, it implemented its technological upgrades precisely according to the explicitly pinpointed potential demands. Hence, the technological development efficiently matched the constant market exploration and exploitation. This aspect is quite critical for its new product development and subsequent prevalence, since it can allow the emerging entrepreneurial firm to satisfy customers’ evolving and divergent demands accurately, in a timely manner, and at lower costs (of trial and error). This joint effect or synergy furthers the emerging entrepreneurial firm’s capabilities of knowing divergent customers better in the BOP markets while adopting suitable (non-advanced) technologies to develop pertinent products, which, in turn, enables this firm’s sustainable inclusive innovation. Accordingly, this article’s next proposition is as follows:

**Proposition 3b:** The interplay and synergy between customer-engaging capability and technology-building capability sustain an emerging entrepreneurial firm through the third phase of intensive market development.

The three mechanisms and their underlying capabilities across three phases are summarized and presented in Figure 2.

**Figure 2. A model of entrepreneurial firm’s inclusive innovation process**
DISCUSSION

This article explored inclusive innovation information management by an emerging entrepreneurial firm from a process perspective. Specifically, it identified three primary mechanisms in the entire process of inclusive innovation, as well as the organizational capabilities that underpin the primary mechanisms and the ways in which they do so. Furthermore, it further unpacked the underpinning capabilities to support each primary mechanism. Thus, this article’s findings complement George et al.’s (2012) conceptual paper in which they highlighted that inclusive innovation is a complex process rather than an aggregate outcome of business activity and public policy. The present article has accordingly unveiled the evolving process of inclusive innovation and the primary mechanisms across various stages through the entire process, as well as the underpinning capabilities for each identified mechanism.

One significant contribution of this article is that it reveals the evolutionary process of inclusive innovation by identifying and differentiating the primary mechanism at each process stage. The literature has viewed the process of inclusive innovation as an aggregate concept. Although George et al. (2012) stress in their conceptual study that inclusive innovation is a complex process, until date, this process has not been studied in detail. The present article has accordingly decomposed this complex process from the evolutionary perspective by identifying the three core phases and primary mechanism in each phase. Different from the innovation process in the markets at the middle and the top of the pyramid, the inclusive innovation process in BOP markets is more about customizing for fragmented and varying demands in a creative/irregular and low-cost way. The inclusive innovation process has been conceptualized and theorized on a firmer ground in the present article; thus, it provides further understanding of inclusive innovation, which is lacking in the literature because of its largely static perspective until date (Langley, 1999; Langley et al., 2013). From the ontological process perspective, this article has reframed that inclusive innovation is a bundle of phases based on the following dynamic mechanisms: initial market gap identification as the first primary mechanism; early market cultivation as the second, and later market development as the third.

Second, whereas the streams of literature on organizational capability and inclusive innovation highlight the enabler’s roles from a largely static view (e.g., Langley, 1999; Langley et al., 2013), the present article uncovers different organizational capabilities that underpin the primary mechanisms throughout the dynamic process of inclusive innovation. Thus, it enriches the understanding about the enabler roles for the initiatives of inclusive innovation through identifying different types of underlying organizational capabilities at the different stages of the inclusive innovation process. Although inclusive innovations normally do not require advanced technical solutions, customization for the fragmented and varying demands in a creative/irregular and low-cost way is essentially quite challenging and necessitates unusual capabilities. Although idiosyncratic organizational capabilities could have implications for inclusive innovation (e.g., Galema et al., 2012; Halme et al., 2012), determining how organizational capabilities jointly and dynamically function through different stages requires further investigation, since inclusive innovation is a complex process (e.g., George et al., 2012). The present article has further unveiled the ways that key capabilities interplay and synergize with each other to facilitate the progress in each phase of inclusive innovation. By revealing a set of progressive consequences that emerge on deploying a distinct capability mix for synergy, these findings further supplement the studies on the potential link between dynamic capabilities and inclusive innovation (e.g., Ault, 2016; Halme et al., 2012). Although prior studies have investigated dynamic capabilities by considering environmental conditions, these have rarely examined the evolution and interplay of the capabilities for sustainable innovation (e.g., Schilke, 2014). Hence, the in-depth exploration in the present article may fill this gap and offers rich implications for future research along this line, such as interphase capability interplay and the configuration of multiple capabilities in each phase.

Nevertheless, this article has some limitations. First, as it is a single-case study, there exist issues of generalizability. Thus, future studies would need to consider multiple cases of an emerging
entrepreneurial firm’s inclusive innovation process. Second, this study is a preliminary exploration of the phases of an emerging entrepreneurial firm’s inclusive innovation, as well as the interplay between capabilities at each stage. Thus, further exploration can involve capability formation in each phase and further explore capability interplay between the phases. Third, this article did not specifically compare the strengths and weaknesses of capabilities for proceeding inclusive innovation between emerging entrepreneurial firms and firms from developed economies, which can be an interesting direction for further investigation. Fourth, since the context of this study is the African BOP market and the emerging entrepreneurial firm is from China, there may be external validity issues. Thus, more studies need to be conducted in different BOP markets for exploring the inclusive innovation process as well as the capability mix and the interplay of multinational enterprises from different emerging economies.

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