
Gearing up for growth: the growth process of new ventures at the base of the pyramid

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Abstract: There is need for more empirical-based knowledge on the growth process of new ventures. In this paper, we examine the combination and sequence of the growth modes used by a growing new venture to achieve scale at the base of the pyramid (BOP). Our case study reveals a growth process involving resource management to overcome contextual challenges which leads to shifts in the growth modes of the venture. We contribute to firm growth literature and demonstrate how new ventures may successfully grow through resource management, in a resource-poor environment and how this influences their growth path.

Keywords: growth process; growth modes; social entrepreneurship; base of the pyramid; BOP; resource management.

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1 Introduction

In this paper, we address the research question: how do new ventures at the base of the pyramid (BoP) overcome contextual challenges to achieve scale? The reasons for asking this question are threefold: first, we lack theoretical consensus on firm growth and scaling in general (Delmar et al., 2013; Lockett et al., 2011), second we lack knowledge regarding the growth processes firms undergo (McKelvie et al., 2017; Wright and Stigliani, 2013; Davidsson et al., 2010; Leitch et al., 2010; McKelvie and Wiklund, 2010) and third, we lack knowledge about growth and scaling of social ventures in the BoP context (Bloom and Smith, 2010; Dees et al., 2004; Kistruck et al., 2011; London and Hart, 2004).

The aim of this study is to give consistent empirical support to the growth literature by examining the combination and sequence of the growth modes and mechanisms used by a case firm to achieve scale, and seek explanation in terms of resource management in interaction with the context.

Most new firms either do not grow or show limited growth (Delmar et al., 2013; Acs, 2006). Penrose (1959) argued that firm growth can be seen both as an increase in amount (e.g., in output or employment) and as an internal process of development, in which an interacting series of changes leads to a change in size accompanied by changes in the characteristics of the growing object. The majority of research on new-venture growth has focused on the former – namely, the 'how much' of firm growth – at the expense of the 'how' of firm growth (Wright and Stigliani, 2013; McKelvie and Wiklund, 2010). While this has led to the identification of diverse determinants of the growth rate and its variation among firms, few determinants have received consistent empirical support for predicting the rate of growth, and theoretical development in this area has been slow (Wright and Stigliani, 2013; Lockett et al., 2011; Gilbert et al., 2006; Delmar et al., 2003).

New-venture growth is a multidimensional, heterogeneous, and complex phenomenon (Leitch et al., 2010). In order to grow their businesses, entrepreneurs need to access resources that can enable growth, develop an organisation that can accommodate growth, develop a strategy that encourages growth and operate in a context that supports growth

(Gilbert et al., 2006). This implies making strategic choices in light of the particular context of operation, and the consequences of these choices determine the observed patterns of firm growth (Achtenhagen et al., 2017; Garnsey et al., 2006). Considering growth as a process and exploring the interlinkages between the development of firm resources, capabilities and strategies, and external environmental resource contexts can help explain how new ventures grow (Wright and Stigliani, 2013; Hamilton, 2012; Westhead and Wright, 2011).

For entrepreneurs aiming to help solve complex societal problems, it is necessary to achieve scale to substantially impact these problems (Bloom and Smith, 2010; Dees et al., 2004). In the social entrepreneurial context (Dacin et al., 2010), growing a new venture is even more demanding due to their hybrid motivation (Battilana et al., 2015).

The base of the economic pyramid (BoP), defined as the nearly 4 billion people globally who live in relative poverty (Hammond et al., 2007; Prahalad and Hammond, 2002), is a social entrepreneurial context in which intermediation by socially motivated entrepreneurs is particularly relevant (Kistruck et al., 2013). A core assumption of the BoP proposition is that solutions developed to target the needs of the poor can be scaled up considerably and can, thereby, have a positive social and economic impact on the lives of a substantial number of poor people (Chliova and Ringov, 2017; Prahalad, 2004). There are, however, few examples of firms that have been able to achieve significant scale in this context (Kistruck et al., 2011; London and Hart, 2004). The poorly developed business ecosystem at the BoP often entails the use of approaches and strategies different from those in other contexts (Desa and Koch, 2014; Kolk et al., 2013; Hart and Sharma, 2004). As a result, the BoP literature currently emphasises the need to investigate how ventures can best engage with the context in order to achieve scale (Chliova and Ringov, 2017; Kolk et al., 2013; Kistruck et al., 2011; Landrum, 2007).

Entrepreneurs in the BoP operate where regular economic actors have failed (Dacin et al., 2010). These environments typically lack established infrastructure and present institutional constraints. For instance, supply and distribution infrastructure often needs to be built from scratch; there is a lack of availability of or access to financial institutions; and the customers are often dispossessed and lack resources (Hockerts, 2015; Desa, 2012; Bloom and Smith, 2010).

Reviews of literature on social entrepreneurship and particularly the BoP reveal that though there are many practitioner-focused studies of how to succeed in such contexts, and different drivers and strategies have been identified, theoretically grounded studies of how such ventures can grow remain limited in number (Kolk et al., 2013; Bloom and Smith, 2010). Addressing the research gaps identified above, we answer our research question by tracing the growth of a new venture operating in the rural off-grid electrification sector in India over several years post-establishment.

People without access to electricity can be seen as a particular market at the BoP, and they number approximately 1.3 billion worldwide (IFC, 2012; UNDP, 2011; Zerriffi, 2011). An estimated 364 million of these people are located in India (Balachandra, 2011), and a vast number of these live in rural areas (Bhattacharyya, 2007). It is acknowledged that renewable energy, especially off-grid solutions, could play an important role in remote rural areas (Reddy, 1999). Entrepreneurs and associated firms are expected to contribute to solving the problem of electricity access (Balachandra, 2011; Govt. of India, 2006). The magnitude of the rural electricity deficit in India highlights the necessity of such firms' growth.

Our findings show that growth-oriented entrepreneurs at the BoP attempt to solve resource-related problems in this context by actively pursuing strategies to develop and mobilise resources that enable growth. This results in different modes of growth, for which knowledge about how to grow is developed and refined by actually engaging in growth in each mode, and explains shifts between the modes of growth. We label this path-dependent process as ‘gearing up for growth’.

Our primary contribution lies in providing an explanation for the growth process of a new venture in a resource-constrained context such as the BoP. We provide an insight into how entrepreneurs may achieve scale and impact at the BoP. We show that this is related to managing resources in face of contextual challenges and extend knowledge on how entrepreneurs respond to environmental contingencies and how this affects growth paths of firms. By demonstrating the use of multiple modes of growth in a new venture, we also contribute to the demand for more empirical studies of the sequence and combinations of growth modes in firms in different contexts.

This paper proceeds as follows: we first review the literature on the processes by which new firms grow. We then examine the BoP literature for its stance on new-venture growth at the BoP and the strategies and mechanisms for achieving scale. The aim of this is to explicate the current stance, and by doing so, identify gaps in our knowledge related to new-venture growth in the BoP context. This is followed by the research design. We then present and discuss our findings in light of existing theory. Finally, we present our conclusions, including theoretical contributions, practical implications and suggestions for further research.

2 Theoretical background

To answer the question of how new ventures at the BOP can overcome contextual challenges to achieve scale, we must first understand the dynamic processes related to growth and how they unfold at the BoP.

2.1 New-venture growth process

How do new ventures grow? Penrose (1959) argued that firm growth is a function of the productive opportunity set (POS) of firms. This comprises entrepreneurial capability, which is related to the identification of growth opportunities, and managerial capability, which is related to the management of the growth process. According to Penrose, merely having entrepreneurial capability is not enough to achieve growth; the ability to manage the growth process is necessary in order to realise the growth opportunity. The growth of the firm is related to increases in the POS, which is generated by learning-by-doing. Learning about processes and routines in a firm requires less and less managerial attention over time, and this frees up resources that can be deployed to pursue growth opportunities. Furthermore, as managers learn more about the resources under their control, they can find novel ways of recombining and redeploying these resources to achieve growth. Penrose’s view of firm growth, though developed through the observation of large firms, has also been applied to the development of new ventures (Hugo and Garnsey, 2005; Garnsey, 1998). Building upon the Penrosian view of growth as a dynamic process of entrepreneurial matching of resources to opportunities, this view argues that entrepreneurs grow their ventures by successfully performing this matching

through a process of problem solving to overcome barriers, and the subsequent competence development leads to new opportunities (Clarysse et al., 2011; Hugo and Garnsey, 2005). Unlike big firms, entrepreneurs do not usually start with a large resource base (Brush et al., 2001). However, this does not necessarily mean that entrepreneurs cannot grow their ventures; they use novel strategies to manage their resources (Sirmon et al., 2007; Baker and Nelson, 2005; Sarasvathy, 2001). This process is contingent on the context, where barriers can be overcome through a process of mobilising resources in novel ways, leading to different growth paths (Clarysse et al., 2011; Hugo and Garnsey, 2005). Here, a positive attitude towards growth is important; 'growth intention' is a key determinant of the growth performance of firms (Wiklund et al., 2009; Wiklund, 1998), and entrepreneurs/managers with an intention to grow their ventures seem more likely to achieve growth (Gilbert et al., 2006; Baum and Locke, 2004; Cliff, 1998; Kolvereid and Bullvag, 1996; Chandler and Hanks, 1994).

In summary, the literature suggests that entrepreneurs/managers of new ventures who intend to grow their ventures do so by successfully matching resources to growth opportunities. This involves overcoming contextual challenges by solving problems as they occur, leading to learning that can be applied to the discovery and pursuit of further growth opportunities. This dynamic process can translate into the use of different mechanisms and modes of growth and can result in diverse growth paths or patterns (Coad, 2009).

Penrose (1959) identified internal, or organic, and external, or growth through acquisition, as two modes of growth. Most firm growth research, however, implicitly assumes organic growth, especially for small firms (McKelvie and Wiklund, 2010). Firms can, however, grow using many different modes besides the organic and acquisitive modes, including, but not limited to, hybrid modes such as joint ventures, franchising and strategic alliances (Davidsson et al., 2010; McKelvie and Wiklund, 2010) and different combinations of these over time (Achtenhagen et al., 2017). Firms can also grow using different mechanisms that encompass qualitative differences in ways of growing such as domestic vs. international growth, product improvement vs. introductions of new (related or unrelated) products and reselling to existing customers vs. the acquisition of new customers (Navarro et al., 2012). Combinations of these different mechanisms can be viewed as growth strategies and can lead to better growth performance (Navarro et al., 2012).

While the firm growth literature provides an overview of the different patterns, modes and mechanisms that new ventures can use to grow, literature on the dynamic process of growth is still limited (Achtenhagen et al., 2017; Wright and Stigliani, 2013; McKelvie and Wiklund, 2010). The few papers that do examine growth processes do so in firms in more-developed economies (Achtenhagen et al., 2017; Lockett et al., 2011). In the next section, we review the BoP literature to examine how new-venture growth is treated in this specific context.

2.2 *New-venture growth at the BoP*

The BoP proposition was initially oriented towards multinational corporations (MNC) engaging with the largely unexplored market of the relatively poor (Kolk et al., 2013; Prahalad, 2004; Prahalad and Hammond, 2002). Subsequently, and following criticisms of MNCs' somewhat imperialistic approach (Karnani, 2007), the discussion has shifted

towards small and local firms serving the poor, where the role of the poor is increasingly seen as moving from being passive consumers to active co-creators and participants in these ventures (Kolk et al., 2013). In parallel to this, from a product-market perspective, the discussion also shows a shift from how to sell ‘western’ products to the poor (Prahalad and Hammond, 2002) to how to customise products and processes for local conditions (Hart and London, 2005) to how to shape the context through entrepreneurial action (Kolk et al., 2013; Simanis, 2011; Simanis and Hart, 2009). This is because firms operating at the BoP are expected to help alleviate the conditions of poverty while also making profits (Prahalad and Hammond, 2002). The BoP context presents some challenges (London and Hart, 2004) that need to be overcome to grow such hybrid-motivation ventures and may require different modes, mechanisms and strategies than other contexts (Chliova and Ringov, 2017; Bocken et al., 2016; Kistruck et al., 2011).

Given its origins in strategic management, most of the BoP literature concerns itself with firms’ strategies for survival and success in this context. In this, the need for becoming embedded in the context and developing native capabilities has been emphasised (Hart and London, 2005). Native capability emphasises adaptation to local conditions (Simanis and Hart, 2009) by including fringe stakeholders (Hart and Sharma, 2004) and building upon existing local resources (Hart and London, 2005). At the same time, there may be a need to create and shape the market conditions at the BoP in order to grow, because a ready-made consumer market often does not exist (Simanis, 2011). Few papers discuss strategies for scaling up at the BoP (Palomares-Aguirre et al., 2018). Instead, the focus has largely been on:

- 1 identifying how strategies used for growth in ‘top of the pyramid’ markets need to be adapted for the BoP market, given its institutional challenges (Kistruck et al., 2015, 2011; Sutter et al., 2014)
- 2 what institutional support is needed for ventures to grow at the BoP (Kistruck et al., 2013; Webb et al., 2013)
- 3 identifying the drivers for achieving scale (Palomares-Aguirre et al., 2018).

While these foci offer insight into the requirements for achieving scale at the BoP, to our knowledge, how entrepreneurs with hybrid motivations actually achieve scale at the BoP is not dealt with in the current literature. There is no discussion in the literature of the dynamic processes involved, in the sense of how, when and in which order these growth strategies are implemented by growth-oriented entrepreneurs at the BoP, or how these are linked to the process of matching resources to opportunities in order to achieve growth.

Our literature review showed that the growth process of new ventures is an iterative process of solving problems to overcome challenges posed by the context while matching resources to growth opportunities. This leads to competence development, enabling innovation in the management of resources for realising and pursuing further growth opportunities. This results in various modes, mechanisms and patterns of growth. These have been studied and discussed primarily in western/developed economy contexts. The BoP literature stresses the need for different strategies for the BoP as the common expansion strategies used in developed markets are less relevant here. Knowledge of how growth-oriented entrepreneurs at the BoP use these strategies to overcome contextual challenges to achieve growth is limited. Applying theoretical insights from the firm growth literature, we attempt to fill this gap through our study.

3 Research design

3.1 *Sampling and the case company*

We adopted a single-case study design to understand of the process of growth of a new venture at the BoP. Firm growth is a complex phenomenon (Leitch et al., 2010), and exploring how and why different modes and mechanisms of growth are used by a firm operating in a particular context requires a qualitative research approach (McKelvie and Wiklund, 2010; Yin, 2009b). A single case is suitable when theory is being extended and there is limited existing research that asks a similar research question in a similar context (Eisenhardt and Graebner, 2007). Our selected context, the rural electrification sector in India, was chosen because of the potential of significant impact on this context by a growing new venture. Of the numerous villages in India that are not connected to the grid, up to 25,000 of them are considered to be out of reach of the grid (Moharil and Kulkarni, 2009). The government of India opened up the rural electricity market in India to private-sector players in 2003 (Govt. of India, 2006), and off-grid electricity generation and distribution by entrepreneurs is important for increasing access to electricity (Balachandra, 2011). Commercially driven mini-utility firms operating close to economic viability in this context are rare (IFC, 2012) and only started emerging in India after the Electricity Act of 2003.

A single case is chosen when it is unusually revelatory, is an extreme exemplar, or provides opportunities for unusual research access (Yin, 2009a). The selected case, Husk Power Systems (HPS), was able to expand its activities rapidly over a six-year period from 2007 through 2012. Choosing this organisation allowed us to gain certain insights that other organisations would not be able to provide (Siggelkow, 2007). This single case is a unique (Neergaard, 2007) and unusually revelatory case (Eisenhardt and Graebner, 2007) that has commissioned 79 rural power plants while simultaneously aiming for profits. In addition to winning several awards for their efforts in bringing electricity to the poor, HPS has received investments, grants and loans from around 25 different sources, worth approximately 10 million USD. Furthermore, a ranking by the International Finance Corporation (IFC) states that the venture is at the top of all commercially driven mini-utility firms at the BoP (IFC, 2012). HPS was founded in 2007, with the mission 'to empower rural people in India on the backbone of electricity produced from renewable energy'. Based in the state of Bihar, one of the poorest and least-developed states in India, HPS's power plants run exclusively on gasified biomass from rice husks, a locally abundant agricultural waste product. Ranging from 30 to 100 kW in size, each power plant can supply between 300 and 1000 households and/or businesses with basic electricity services. Prior to setting up the first power plant, the founders spent five years (2002–2007) engaged in developing ideas, choosing technology and putting together initial resources. In this paper, we present the development of the firm from the setup of the first power plant in 2007 to the end of 2012, when data collection was completed for this study, a period that corresponds to the setup of power plants in multiple locations and efforts to grow the firm.

4 Data collection

Semi-structured interviews with the two founders of HPS and the power plant managers, and additional group interviews with employees in two field offices constitute the primary sources of our data (see Table 1 for an overview). Interviews and observations were conducted over two periods in 2012, with approximately eight months in between. The first data collection period consisted of an initial open-ended (Miles and Huberman, 1994) interview with the CEO and cofounder of HPS, who came to be our key informant (Patton, 2002). The first interview was constructed around open questions such as ‘please tell us about HPS’s development from inception until today’, allowing the respondent to tell his story without much interruption from the researchers (Wengraf, 2001). This first interview and visits to two power plant sites provided a first impression of HPS’s history and present activities and laid the foundation for the subsequent data collection round, in which numerous semi-structured interviews with the founders, management team, field staff, franchisee and customers of HPS took place.

Table 1 Overview of respondents

<i>Person</i>	<i>Date</i>	<i>Place</i>	<i>Type</i>	<i>Length</i>	<i>Language</i>
CEO, co-founder	Feb. 2012	HPS headquarters, Patna	Semi-struct. interv.	1 h 28 min	English
CEO, co-founder	Nov. 2012	HPS headquarters, Patna	Semi-struct. interv.	1 h 3 min	English
CEO, co-founder	Nov. 2012	HPS headquarters, Patna	Semi-struct. interv.	1 h 10 min	English
COO, co-founder	Nov. 2012	HPS headquarters, Patna	Semi-struct. interv.	1 h 15 min	English
COO, co-founder	Nov. 2012	HPS headquarters, Patna	Semi-struct. interv.	46 min	English
VPO	Nov. 2012	HPS headquarters, Patna	Semi-struct. interv.	1 h	English
Team, 6 persons	Nov. 2012	Field office, Tamkuha	Group interv.	1 h 59 min	English/Hindi
Team, 5 persons	Nov. 2012	Field office, Bettiah	Group interv.	1 h 45 min	English/Hindi
Manager	Nov. 2012	Power plant, Suklahi	Semi-struct. interv.	1 h 26 min	Hindi
Manager	Nov. 2012	Power plant, Misir Batraha	Semi-struct. interv.	1 h 3 min	Hindi
Manager	Nov. 2012	Power plant, Pataili	Semi-struct. interv.	1 h 36 min	Hindi
Manager	Nov. 2012	Power plant, Kundilpur	Semi-struct. interv.	1 h 28 min	Hindi
End-user	Nov, 2012	Private household, Pataili	Unstruct. interv.	15 min	Hindi
Total				16 h 14 min	

The first data collection round revealed that HPS had launched several power plants under three different business models, and these business models were somehow related to the growth of the firm. We let this preliminary ‘finding’ guide further data collection, where we targeted the managers (including field staff employed by HPS) of power plants subject to different business models. Table 1 provides an overview of the respondents.

5 Data analysis

The process of data analysis took place in four steps, by which data collected through primary interviews were coded by two researchers at the first-order code, second-order category, theoretical sub-category and aggregated theoretical dimension levels (see Figure 1 for an overview).

- *First-order codes: structural in vivo coding.* In the first round of coding, we followed a structural in vivo coding technique, which reduced the empirical material without losing the respondents’ voices (Gioia et al., 2013). A structural code is a content-based or conceptual phrase that represents the coded segment (Gioia et al., 2013). We prioritised using the respondents’ own words, a coding technique called in vivo (or verbatim) coding, which is applicable in combination with other coding techniques (Saldaña, 2013). In this case, it was combined with the structural coding technique, thus the term ‘structural in vivo coding’. At this point of the project, no data from the semi-structured interviews were omitted. The aggregation of first-order codes took place in the second cycle of coding.
- *Second-order categories.* The purpose of the second cycle of coding was to aggregate the first-order codes into categories with similar themes. At this stage, we identified common emerging descriptions of elements in HPS’s context, different topics and dimensions and actions taken by entrepreneurs, customers, partners, etc., (Gioia et al., 1994) and organised these into categories. In this cycle, we coded structurally, with the main objective of reducing the material to a manageable entity.
- *Theoretical sub-categories.* In the third cycle, we reassembled second-order concepts into new categories, a coding process also known as axial coding (Saldaña, 2013; Boeije, 2010; Strauss and Corbin, 1998). At this stage, we applied a constant comparison technique, which ensured a close link between the data and the emerging theoretical concepts (Miles et al., 2013; Glaser and Strauss, 1967), and we asked ourselves ‘What is really going on here?’ (Gioia et al., 2013). Moreover, this was the stage in the coding process at which we excluded data that we considered irrelevant to the research question at hand, and as sub-categories emerged, outlier statements could be isolated and removed (Shepherd and Williams, 2014).
- *Aggregated theoretical dimensions.* In the fourth and final cycle of the coding, we extended the process started in the third cycle with the objective of aggregating the theoretical categories further and into theoretical dimensions. Numerous iterations between the second-order categories, the theoretical sub-categories, and the aggregated theoretical dimensions took place before the pieces of the puzzle came together – a process in which ‘recoding’ was certainly more apparent than ‘coding’ (Saldaña, 2013).

Figure 1 Data structure



There can be issues regarding reliability in qualitative data. We collected data from multiple sources in the firm both at the head office and in the field. This enabled cross verification of information provided. Furthermore, interview data were triangulated with field observations from HPS's operations in Bihar, with archival data provided to us by the Vice President of Operations (VPO) and secondary sources such as award announcements and UN reports (IFC, 2012). Using multiple sources and management levels provides improved reliability and richness to our study (Denzin and Lincoln, 2000; Healy and Perry, 2000). A study such as this can suffer from retrospective rationality of the respondents. By using triangulation in our data, however, we ensured that the events in the growth trajectory took place and in the order claimed. This lends support to the rationale offered by the main respondents, and this was further confirmed by other respondents.

6 Findings: gearing up for growth at the BOP

In this section, we present results on how HPS has overcome the contextual challenges in operating at the BoP to achieve scale. HPS installed 79 power plants and adjoining transmission lines (minigrids) in the first few years of its existence. In the same period, it also grew to 400 employees. To reach growth in line with the founders' ambitions, HPS has moved through different modes of growth. This process is explained in the following section, which demonstrates how the growth intentions of the founders, when faced with initial challenges posed by the context, led to the adoption of an approach to the development of contextualised capabilities within an initial growth mode, which later triggered shifts in the growth mode (see Figure 1).

6.1 Growth intentions

When the founders of HPS first started, they had a vision for the company, which set in motion the process of establishing and growing the firm.

“The idea has always been that you become a solution to a significant number of people worldwide. You know, disadvantaged people. Some significant development impact in a global sense. The word ‘significant’ is what makes us do all these things.” – CEO and co-founder

Our data revealed that the founders of HPS had high growth ambitions for their firm, and this was linked to their desire to create impact through scale.

6.2 Initial challenges

This intention to grow, however, was tempered by the challenges of their context. The entrepreneurs found that the context of operation was very different from more urban and developed economy contexts. This implied that ready-made solutions adopted from elsewhere would not necessarily work. To establish and grow its business, HPS needed to develop contextualised solutions.

“... the whole thing has to be very contextualised. The load requirement ... whole supply planning has to be very contextualised. It cannot be a blanket

system the way the grid does. That has to be well understood as well. And then pricing, pricing must also be very contextualised.” – CEO and co-founder

Furthermore, HPS was bringing in a previously untested technology – namely, a single fuel-based, small-sized biomass gasifier – to a customer base that was either unserved or underserved in terms of access to electricity. This meant that there were no tried-and-tested business models for delivering such a service. Nor were there technological or human resources available in the context to support their business concept. As the COO and co-founder stated, “an operator did not exist before we got the system working.”

The need for customised solutions, and the lack of appropriate technological and human resources to develop these, were challenges presented by the context that HPS needed to overcome in order to grow. These are common issues in the BoP context, and the need to adapt to local conditions and build upon locally available resources has been stressed in the BoP literature (Kolk et al., 2013; Hart and London, 2005).

6.3 Contextualised capabilities

To provide a solution that would be acceptable for the context, HPS needed to first develop an understanding of the context. The absence of transferrable prior knowledge necessitated close interactions with the context to learn more about it. In order to do so, the entrepreneurs stressed a local presence to help them understand local needs and which local resources they could use and how. Being embedded in the context was, therefore, necessary for HPS to develop contextualised solutions and constitutes their approach for developing these solutions. Furthermore, HPS needed to develop its offerings using locally available resources. The lack of appropriate ‘ready’ resources in the context, however, required HPS to develop these resources itself. “Due to a lack of everything, we are forced to do everything”, noted the COO and cofounder.

In-depth interactions with the local context are important for success at the BoP. Instead of trying to avoid the conditions found at the BoP, firms should include people on the fringe of society (Hart and Sharma, 2004), include local people in the innovation process (Simanis and Hart, 2009) and build on locally available resources and conditions to build native capabilities (Hart and London, 2005). For HPS, this meant starting out small and performing most of the activities themselves, including trying out the technology, training employees and developing operational routines, all of which constituted their approach to developing contextualised capabilities.

HPS’s approach of being embedded in the context to learn from it, and developing the relevant capabilities by doing things themselves, was instrumental in determining the mode for initial growth. The approach required direct interactions with end consumers and other stakeholders and direct involvement in most activities in the value chain.

6.4 Initial growth mode

In growth mode 1 (GM1), the initial organic mode of growth, HPS had close interactions with the end user and undertook most of the activities related to plant setup, viz. acquiring feedstock, managing day-to-day plant operations, and collecting payments from customers, and gained invaluable insight into what works and what does not work in its context. As a result, HPS was able to learn what is valued by its end users, how to attract

and acquire customers, and how to maximise the revenues and operational profitability of its power plants, thus developing its operational capabilities. This contextualised knowledge enabled HPS to, for example, develop operational rules of thumb, where they know how much demand and what procurement rate for rice husks is necessary to operate a power plant profitably.

“So, before deciding on setting up a plant at any location, the due diligence is done. So, you have to ascertain that you have a sale of electricity of 15,000 watts to make the system operationally profitable.” – COO and co-founder

It has been argued that effectively exploiting growth opportunities requires capable systems to be put in place (Hugo and Garnsey, 2005; Penrose, 1959). We find that the initial growth mode at HPS was aimed at being embedded in the local context to develop the systems that would enable it to effectively exploit growth opportunities. This process of determining which systems are required to best exploit the opportunity is a process of learning how to grow, in which the focus is on improving operational efficiencies at individual power plants and on the process of managing the setup and operation of power plants at multiple locations. This is reflected in the slow growth in the number of power plants in the initial three years (Table 2). Only after having mastered the technology and learning how to operate their power plants profitably at multiple locations simultaneously did HPS arrive at a position to scale up its operations. In fact, at this stage of development, having successfully demonstrated its ability to set up and operate power plants in more than one location, HPS was able to raise funds through investors to fund scaling up. HPS then began replicating power plants rapidly; in 2010, it established 32 new plants in GM1.

6.5 Shifts in growth mode

We found, however, that HPS did not continue growing in the initial growth mode for long. The next year, 2011, the number of new power plants set up in GM1 dropped to just seven (see Table 2). Our data revealed the introduction of different modes of growth at HPS. After growing initially in the first mode of growth, HPS shifted to a hybrid mode in which it engaged local village entrepreneurs to operate new power plants under a lease purchase scheme (GM2). This was followed by a third mode of growth, which involved the outright sale of power plants to village entrepreneurs (GM3). In 2011, when the number of new power plants in GM1 dropped to seven, 17 power plants were launched under GM2. In 2012, no new power plants were launched in GM1 and only one power plant in GM2. In 2012, HPS launched the most power plants in GM3. Table 2 presents the annual development of the firm disaggregated by the growth mode.

Table 2 Sequential deployment of power plants at HPS using different growth modes

	<i>Growth mode</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Total</i>
Power plants installed annually	GM1	1	2	7	32	7		49
	GM2				3	17	1	21
	GM3				3 ^a	1 ^a	5	9
Total		1	2	7	38	25	6	79

Note: ^aSpecial cases of power plants bought outright by primary agricultural cooperatives (PACS).

Table 3 Key features of the HPS growth modes

<i>Growth mode</i>	<i>Business model characteristics</i>		<i>Logic</i>
	<i>Strategic positioning</i>	<i>Activities</i>	
<i>GM1</i> Growth through acquiring new village households as customers	<ul style="list-style-type: none"> • Customer: village household • Offering: access to reliable, cheap electricity • Value proposition: <ol style="list-style-type: none"> a Reliability of electricity (versus central grid) b Quality of light, no indoor pollution and cheaper electricity (versus kerosene/diesel) 	<ul style="list-style-type: none"> Build, own, operate, maintain (BOOM) • Direct sales to end users of electricity • Daily operation and maintenance of power plants • Collection of payments, monitoring and repair of connections • Setting up new plants • Acquiring new customers 	Establish as much interaction as possible with all potential stakeholders, especially end-users, to learn and gain as much experience as possible from the context
<i>GM2</i> Growth through acquiring local village entrepreneurs as partners, in turn selling to more end users	<ul style="list-style-type: none"> • Customer: village entrepreneur • Offering: power plant and loans • Value proposition: <ol style="list-style-type: none"> a Access to loans through HPS and the ability to generate a profit using a proven technology b Access to free training 	<ul style="list-style-type: none"> Build, own, maintain (BOM) • Acquiring village entrepreneurs as partners • Providing training in the operation of power plants • Providing maintenance services 	Convince local banks of the technical and economic feasibility of power plants owned by local entrepreneurs, so that local banks will provide loans in the future
<i>GM3</i> Growth through increasing the direct sales of power plants	<ul style="list-style-type: none"> • Customer: village entrepreneur • Offering: power plant • Value proposition: <ol style="list-style-type: none"> a The ability to generate a profit using a proven technology b Access to training 	<ul style="list-style-type: none"> Setting up power plants Build, maintain (BM) • Selling power plants • Providing training in the operation of power plants • Providing advanced maintenance services • Setting up power plants 	Large-scale dissemination

Table 2 shows that HPS is a growing venture that has been able to spread its operations to numerous sites. This has been achieved through the use of three different modes of growth that occur in sequence. The growth of power plants under the initial mode peaked before the launch of the second mode, and a similar pattern followed before the launch of the third mode. Consequently, there was a movement toward the third mode of growth.

To explain this shift in growth modes, we present the key features of the three HPS growth modes in Table 3, highlighting the characteristics that distinguish them from one another. These modes are then discussed in more detail in the text that follows.

6.6 *Rationale for the sequence of growth modes at HPS*

6.6.1 *GMI*

In the first growth mode in which HPS operated, it installed a power plant and a minigrid system in a village and maintained full ownership of it. The daily operations were managed by staff employed by HPS and included procuring rice husks, operating the plant, ensuring the upkeep of the plant and the connections and collecting bills. The product offered was an electricity service, and it was sold directly to end consumers, who were either village households or small businesses, or even small village units such as milling units. This put HPS in close, direct contact with the end consumer of the electricity produced from their power plants.

Growth in this mode occurred by acquiring more customers for the electricity, up to a maximum imposed by the load capacity of the power plant, and also by installing more power plants at different locations (where the same logic of maximising the number of customers applied). Reflecting the need to develop the knowledge and contextualised capabilities to effectively match the resources to the opportunity, this growth mode involved a wide range of activities. The CEO and co-founder said, “BOOM! It is only the way to learn, and you have to know yourself before you can teach others.”

Growing organically to multiple sites in its initial growth mode exposed HPS to various challenges. While this was a good model for HPS to have close interactions with the context and to develop its capabilities, it was also a work-intensive model that was not suitable for the growth ambitions of its founders.

The nature of the off-grid rural electrification sector implies growth through the establishment of power plants in different geographical locations. Growing organically, as it did in its initial growth mode, meant that HPS needed to hire and train a number of staff to operate each plant and additional staff to monitor and manage the geographical expansion. This was not conducive to quick, efficient scaling up in an area with poor connectivity and a lack of trained personnel and infrastructure. The challenges of growing with its initial growth mode forced HPS to explore alternative means of growing. The company realised that by involving local entrepreneurs and selling its power plants to them, it could remove the need to operate plants itself and focus instead on selling its power plants and the associated knowledge it had developed.

6.6.2 *GM2*

The key difference from the first growth mode was that in the second growth mode, HPS partnered with a local village entrepreneur who leased the power plant from HPS and was in charge of the day-to-day operations of the plant. The village entrepreneur put up 10%

of the capital required for the plant (typically between USD 2–3,000 after subsidies), with HPS providing the remaining capital. The lease was to be paid back by the local entrepreneur over a fixed period (typically five to six years). The product being offered was thus, the power plant itself and a financial service in the form of a lease. Maintenance and operational support were also offered. Access to finance and free training in the operation of the power plant were the key value propositions offered to the local entrepreneur.

Growth under this mode occurred by partnering with local entrepreneurs, who can be seen as franchisees of HPS. While the franchisees grew sales revenues by acquiring customers for the electricity service (similar to HPS in its first growth mode), HPS achieved growth by increasing the number of franchise partners. The focus for HPS was thus finding and acquiring these franchise partners in different locations to achieve growth. Revenues were earned through the repayments of the leases.

Operating in the initial growth mode, HPS realised that involving local entrepreneurs and selling its power plants to them was both the quickest means of scaling up in terms of impact and also held the most revenue potential for HPS itself. However, local village entrepreneurs needed loans to acquire power plants from HPS, but local banks perceived the risks of such loans to be too high. The hybrid growth mode, launched second by HPS, was an attempt to overcome this challenge. The primary purpose was to demonstrate to local banks the feasibility of lending to local entrepreneurs. In the hybrid growth mode, HPS took on the role of a bank, financing up to 90% of the capital needed to setup and start operating a power plant, which was paid down over a period of five to six years. In partnership with local entrepreneurs, HPS demonstrated what it envisioned as the model (build, own, maintain – BOM) for the rapid scaling up of its activities. This mode was capital intensive, as HPS was still putting the costs of the power plants on its balance sheet. Accordingly, there was a limit to scaling up in this mode as well.

“[With BOM], you are still putting [power plants] on your balance sheet. Where are you going to get that much money? So, if you are doing 2,000 plants ... you can't do that.” – CEO and co-founder

Having served its purpose, this model was abandoned in favour of the preferred growth model.

6.6.3 *GM3*

In its third mode of growth, HPS sold the plant to a local village entrepreneur with an upfront payment, and the ownership of the power plant rested 100% with this entrepreneur. He financed the plant himself, typically by borrowing money from a local bank. HPS built the plant for the entrepreneur and provided advanced maintenance service. The village entrepreneur was in charge of making a return on his investment by performing the day-to-day operations, selling electricity, following up with customers and making collections through staff that he employed. In this mode, the customer for HPS was the local entrepreneur who bought its power plant, and the value offered was profit generation using a proven technology and support services.

In this instance, HPS was no longer directly concerned with servicing the end consumer of the electricity service delivered by its power plants. Growth in this mode occurred by the sale of power plants to local entrepreneurs, and HPS moved from being a provider of electricity services to being the provider of technology, operational guidance,

and maintenance services that could generate revenues for local entrepreneurs. ‘BM is the only way ... you can set up any number of plants’, said the COO and co-founder. In the sequence of growth modes observed at the firm, this was the final mode – the growth mode that was in line with the growth ambitions of the founders.

To summarise, we saw that the particularities of the growth process at HPS were related to its efforts to realise its growth ambitions while solving problems specific to its context. The context demanded embeddedness to develop knowledge for contextualised solutions and for the development of resources by the firm. This informed how the firm grew initially. Growing in this mode, in turn, helped the firm develop contextualised capabilities and knowledge for further growth. This helped HPS identify further opportunities for growth and develop a different business model. However, the context posed further challenges to achieving growth using this model, and the firm overcame these by growing in a hybrid mode aimed at overcoming a specific contextual problem to reach its desired growth path. It was this interplay among the growth intention, context, evolving knowledge of how to grow and efforts to procure and accumulate resources to support growth that shaped the growth process of the firm.

7 Discussion and implications

In this study, we show how a venture grows at the BoP, and by combining empirical and theoretical insights, we discuss below how new ventures at the BoP can overcome contextual challenges to achieve scale.

7.1 Growth process at the BoP

Our findings show that our case firm grew in three different growth modes and that there was a logical progression and path dependence in the sequence of growth modes used. The earlier growth modes represented attempts to solve resource problems in the context before growth could take place in line with the entrepreneurs’ ambition. We label this process of growing at the BoP ‘gearing up for growth’.

The need for different strategies for the BoP has been highlighted in the literature before, as solutions developed elsewhere rarely work as is at the BoP (Kolk et al., 2013; Simanis, 2011; Seelos and Mair, 2007). Entrepreneurs need to figure out what works best for their particular context, and this requires local knowledge; to gain that, entrepreneurs need to closely interact with the context to learn about it. Hart and London (2005) argue for the importance of building native capabilities at the BoP and emphasise the need to build upon local resources and conditions at the BoP. Our case firm did this by establishing a local presence to understand local needs and working with local resources. In addition, we show that it operationalises this by establishing as many points of contact and controlling as many parts of the value chain as possible, resulting in its initial growth mode. Thus, the initial growth mode may be considered the operationalisation of *how* to build native capabilities.

Furthermore, we found that to overcome the challenge of a lack of ready resources in the context that could support their business model, our case firm adopted a ‘do-it-yourself’ approach for capability development. This involved developing the resources themselves by treating their initial power plants as incubators for refining their technical

know-how, developing operational capabilities for improving the efficiency of operations of individual power plants (and for setting up multiple power plants) and training local people to operate different aspects of the power plants and their associated business model. As there is a lack of good-quality resources (Ramachandran et al., 2012) and strategic factor markets (SFMs) at the BoP (Webb et al., 2010; Milstein et al., 2007; Seelos and Mair, 2007), ordinary resources (Warnier et al., 2013) should be managed (Sirmon et al., 2007) and improved. By adopting an approach for capability development that emphasised learning by doing and involved training to develop the skills of locally available human resources, HPS demonstrated the management of resources (Sirmon et al., 2007; Hugo and Garnsey, 2005) so that the locally available resources went from ordinary to strategic. The initial growth mode of our case firm reflects this approach of developing resources.

New-venture growth is a process of entrepreneurial matching of resources to growth opportunities (Hugo and Garnsey, 2005; Garnsey, 1998; Penrose, 1959). By growing to multiple locations in the initial growth mode, HPS developed knowledge of further growth opportunities and the resource needs for them. The potential for using local villagers as entrepreneurs who could replicate their power plant in multiple locations represents the development of knowledge for growth opportunities by HPS. They realised that they could exploit their capabilities developed in the initial growth mode to quickly train these village entrepreneurs in operating their power plants, enabling both a reduction in operating costs for HPS and faster expansion more in line with their ambition for growth and impact through reaching a larger customer base. This reflects the growth process, described in existing literature, that shows that developing organisational capabilities triggers growth because managers try to find ways to efficiently use these capabilities to pursue growth (Penrose, 1959); and this can lead to changes in strategies such as new product launches and diversification (Coad and Guenther, 2014). Successfully pursuing this opportunity, however, required resources from the context in terms of bank loans for the village entrepreneurs. The institutional context of operation for HPS meant that the loans were not easily available. The second growth mode thus represents HPS's attempt to manage resources in the context, where they actively used a hybrid mode to demonstrate loan success and influence banks to release resources to support their growth model.

Two key aspects of our findings have implications for entrepreneurs and scholars of the BoP. First, we see that growth-oriented entrepreneurs engage in actively managing resources in order to pursue growth opportunities at the BoP. The BoP is a resource-constrained context, and resources that match growth requirements may not be readily available there. In such a case, it may be necessary to develop these resources in-house in order to develop capabilities for growth, a resource management process akin to 'accumulating' (Sirmon et al., 2007). This implies a slower trajectory to growth. However, the resulting capabilities from such resource development can enable the influencing of the context to release resources to support further growth, as evidenced by the hybrid growth mode at HPS, a resource management process akin to leveraging (Sirmon et al., 2007). Entrepreneurs with hybrid motivations can face challenges in raising resources from regular financial institutions (Battilana et al., 2015). We suggest that these entrepreneurs have some power in raising resources even in the face of these challenges.

Second, we see that there is path dependence in the process of growth, and there is a need to develop some native capabilities (Hart and London, 2005) through embeddedness

before these can be exploited for growth opportunities. Our case company could not have grown in the final mode without first learning about the growth opportunities and developing the necessary capabilities to support them in the prior modes. Some degree of embeddedness is necessary to succeed at the BoP (Kolk et al., 2013; Hart and London, 2005). We do not suggest that it is necessary for every venture to go through the same process as our case. For example, a firm entering the same market as our case firm, but with a standardised technology such as a solar lamp, would not require the same level of embeddedness. Given that BoP markets are typically underserved (that being the reasoning behind the BoP concept), however, knowledge about what works and what customers' preferences are, is not available beforehand or through means such as surveys. We therefore expect at least a two-phase growth process at the BoP, which starts with developing contextualised capabilities.

Therefore, entrepreneurs considering entering a BoP market need to factor in time for developing contextualised capabilities and generating knowledge and resources for growth. Depending on their growth ambitions, they can make strategic choices about how they develop knowledge, resources and capabilities, and that has a bearing on the growth path and pace of their firm.

The process of growth has not received much attention in BoP studies. Our study shows that this is a key part of understanding how scale is achieved at the BoP. While drivers of scale at the BoP and adaptations of strategies for the BoP are important, we suggest that focusing on the growth process – and in particular, resource management – will lead to a more comprehensive theoretical understanding of scaling at the BoP.

8 Conclusions, limitations and future research

There is a lack of knowledge of the growth process in firms (Wright and Stigliani, 2013; McKelvie and Wiklund, 2010). Our findings show how the interaction between actions taken to develop knowledge for growth and actions taken to mobilise resources to pursue growth influence the growth path of a new venture at the BoP.

We show how growth modes in new ventures in a resource-constrained environment such as the BoP, are the result of resource management attempts by entrepreneurs trying to overcome contextual challenges in order to realise their growth ambitions. Previous studies have examined how environmental contingencies and industrial contexts affect growth paths of firms (Clarysse et al., 2011; Gilbert et al., 2006; Delmar et al., 2003). Clarysse et al. (2011), for example, examined the influence of the environment in terms of its complexity and dynamism on the growth paths of young technology firms, while ignoring environmental munificence because their case firms were all operating in similar resource contexts. Others have argued that a lack of resources does not necessarily mean a lack of success for new ventures (Baker and Nelson, 2005; Sarasvathy, 2001). By demonstrating how new ventures may successfully grow through resource management in a resource-poor environment and, how this influences their growth path, we contribute to this stream of the literature.

Penrose (1959) discussed different modes of growth in firms, primarily organic growth and growth through acquisitions. In spite of this, very few firm growth studies have focused on growth modes, and most of the growth research implicitly assumes organic growth in firms, particularly in new and small ventures (Achtenhagen et al.,

2017; Davidsson et al., 2010; McKelvie and Wiklund, 2010). Our findings show that new ventures may use multiple modes of growth. Achtenhagen et al. (2017) identified eight different modes of growth in medium-sized firms in a developed-economy context. We contribute to the demand for more studies on the types, sequences and combinations of growth modes in firms (McKelvie and Wiklund, 2010) by demonstrating the use of multiple modes by a new venture even in a resource-constrained context such as the BoP.

This study explored the growth process of a firm in a specific context using a single-case study design. The complex nature of growth makes this a suitable approach for such a study. While the approach enabled this study to explore and map out the process of growth and links to solving resource problems at the firm and context levels, one limitation is that the generalisability of the case remains untested. Our finding that the growth mode is the result of strategic choices on how to manage resources is, potentially applicable in any context. Other researchers have argued that resource constraints can trigger novel ways of resource management by entrepreneurs. We suggest that this is linked to the shifts in growth modes. The combinations and sequences of growth modes in firms and the explanations for these is a developing field of study. Examining how shifts in growth modes are related to resource management efforts of growth oriented entrepreneurs in different contexts can contribute to develop this research stream.

Authors studying growth at the BoP have largely focused on the need for different strategies for the BoP and why the strategies need to be different because of the institutional context of the BoP (Chliova and Ringov, 2017; Desa and Koch, 2014; Sutter et al., 2014; Kistruck et al., 2011). While these studies emphasise the need for alternative approaches in order to grow at the BoP, our contribution lies in showing how the growth process actually unfolds at the BoP in a firm that has been able to achieve scale. That this is related to resource management in the context offers avenues for future research for BoP researchers. The various strategies suggested require different capabilities and resources and future researchers could examine the way resources are managed for these and the resultant growth modes and processes.

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