

Unravelling inclusive business models for achieving food security in low income markets.

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Abstract: Business actions to strengthen food value chains in developing countries can fulfil important roles in achieving future food security. But hardly anything is known about such initiatives going beyond pilot phase, or have been replicated or scaled up. The complexities of the food value chain, the inter-dependence of its different components, and the challenging contextual conditions encountered in low income markets, present both a challenge and an opportunity for the private sector to develop successful business models. This article aims to answer the research question “What are the characteristics of the business models used by the private sector to contribute to food security for low income markets?”. Five business intervention strategies on food security for low income markets are analysed on business model components, local embedding and innovation strategies and business eco system building strategies. Important findings are the added value of marketing and distribution strategies for successful business model development on food security, the use of coalition building to overcome institutional and cultural gaps, and the added value of intermediary organisations.

Key words: food security, business model, IB, upgrading, business “business ecosystem”, BOP

1. Introduction

“Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food, which meets their dietary needs and food preferences for an active and healthy life” (FAO, 2013). However, the world still faces a persistent food security challenge. Scholars and policymakers increasingly look at the involvement of the private sector in the fight against poverty issues such as food security (Gradl & Knobloch, 2010; Kubzansky, Cooper, & Barbary, 2011; Prahalad, 2004). Rather than the aid and charity approaches that have dominated the scene for the past few decades, the alternative line of discussion around inclusive business (IB) and base of the pyramid (BOP) approaches emphasize the role of innovation and pro-poor entrepreneurship (Halme, Lindeman, & Linna, 2012).

Local and international organisations invite the private sector to more proactively engage in order to improve food security in developing countries (fao, 2014; Forum, 2010). Roughly 60% of the 2.5 billion people whom live of USD2 or less a day, live in rural areas and are directly dependent on a small farm for their household income (World Bank 2016). The other 40% are often closely linked to the food value chain, either through business linkages (e.g. as agricultural input retailers or small traders), or through other means (Forum 2010). The private sector is interested to enter into these low income markets because they offer growth opportunities, a source of innovation, efficiency advantages, and reputation advantages (Christensen, Craig, & Hart, 2001; Hamilton, 2013; Hammond & Prahalad, 2004; Hart & Christensen, 2002; Reardon, Barrett, Berdegué, & Swinnen, 2009; Steidlmeier, 1993). Expanding private sector involvement could also bring sizeable gains to poor, food-insecure communities through research and extension services, inputs, infrastructure, farm equipment, food processing and marketing (Tuttle, 2012). It requires (re)designing the product, process or the institutional arrangements of the value chain (Danse & Vellema, 2005; Gradl & Jenkins, 2011; Kaplinsky & Readman, 2001; Prahalad, 2004; Simanis & Hart, 2006) to meet the marketing mix for the BOP: awareness, accessibility, affordability and availability (Chikweche, 2013; Chikweche & Fletcher, 2012).

There is some clear distinction between the IB and BOP approach (Halme et al., 2012). The BOP proposition emphasizes on the untapped opportunities for win-win business as companies engage in serving the BOP market (Goyal, Esposito, Kapoor, Jaiswal, & Sergi, 2014; Hart, 2005; Prahalad, 2004). While being a popular approach, there have also been criticisms on the extent it has been effectively realized (Arora & Romijn, 2012) and as to its negative effects (Hall, Matos, Sheehan, & Silvestre, 2012; Karnani, 2009, 2010; Landrum, 2007). To overcome negative effects, inclusiveness has been advocated (Arora & Romijn, 2012). IB is a sustainable business that benefits low-income communities. It is a business initiative that, keeping its for-profit nature, contributes to poverty reduction through the inclusion of low income communities in its value chain (Heeks, Foster, & Nugroho, 2014; Veglio, 2011). This differs from the value chain approach, as IB aims at economic and social benefit engaging low income groups purposely, while the value chain approach aims to optimize chain performance and maximize benefits. Some scholars indicate that IB may be the way to reach scale in BOP markets (Gradl & Jenkins, 2011). In this article we use the term BOP when talking about the low-income socio-economic population segment, and IB when describing business efforts in this area.

So far, in the context of food security at the BOP a number of IB approaches have been identified (Colin Poulton, 2010; Nicolas Chevrollier, 2012) (Sanchez & Ricart, 2010; Vorley, Lundy, & MacGregor, 2009). However, a systematic mapping of initiatives and a better insight in their structure is lacking, specifically with regard to the following points: 1) The different roles actors can play in IB initiatives (Kolk, Rivera-Santos, & Rufin, 2013) 2) a better understanding of the initiators, which can shed light on the differences between multinational-led and locally-led IB initiatives (Kolk et al., 2013) (Calton, Werhane, Hartman, & Bevan, 2013); 3) understanding companies' business models as this is a prerequisite for better decision making for the parties involved to scale up to serve more poor people with products and services or for replicating these models in different geographic context (London & Hart, 2004) (Seelos & Mair, 2007) (Goyal et al., 2014), and; 4) while IB models can compensate for some of the gaps in the market environment in developing countries, or work around them, (Gradl & Jenkins, 2011) (Dolan & Roll, 2013) there is a need to assess how business "business ecosystem"s perform to realize optimal performance of the IB initiative (Calton et al., 2013). These are "communities or networks of interconnected, interdependent players whose actions determine whether or not a company's inclusive business model will succeed" (Gradl & Jenkins, 2011), p. 27).

This paper aims to fill some of these gaps by unravelling how the local and international private sector has been shaping business models and intervention strategies with their business "business ecosystem" in order to contribute in a sustainable and scalable way to food security for BOP markets by strengthening food production of BOP farmers, and increase the access to affordable nutritious food for BOP consumers. This is done by analysing case studies of private sector driven initiatives that aim to improve food security on; 1. business model, 2. business eco system influence, and 3. the complex interdependence of actors in the food value chain. Section 2 provides a review of pertinent literature followed by section 3 that explains the research method used. Section 4 presents the findings followed by a discussion of the merits and limitations of the private sector in supporting scalable solutions on food security, concluding with theoretical and practical implications of the findings.

2. Building blocks to analyse IB models

It is often argued that the success at the BOP requires innovative business approaches of which the logic significantly differs from approaches used at other tiers of the pyramid (London & Hart, 2004; Seelos & Mair, 2007) (London & Anupindi, 2012). Disruptive innovation in distribution, value chain management, workflows, organization, payment schemes, customer education, and human resource management can be necessary (Klein, 2008): 16. It is assumed that success in the BOP requires innovation in multiple aspects of the business approach (Prahalad, 2004) (London & Hart, 2004) (Seelos & Mair, 2007) (Oodith & Parumasur, 2013). This may require an integrated approach that brings together various theories (Wright, Filatotchev, Hoskisson, & Peng, 2005) (Klein, 2008):16 .

2.1 Elements of business models

Understanding business models in a poverty context requires explorative approaches able to deal with rich contextual data (Seelos & Mair, 2007). (Morris, 2005) proposes a framework that allows designing, describing, categorizing, critique, and analysing a business model for any type of company. The attractiveness of the framework for this research is that it allows to

analyse the model at three increasingly specific levels of decision making, termed the 'foundation', 'proprietary' and 'rules' levels. For this research the foundation level is most relevant as it allows to compare business initiatives (Klein, 2008). The *foundation level* consists of six components: the offering of the firm, market in which the firm operates, internal capability (e.g. production systems, supply chain management), competitive strategy, economic factors (e.g. pricing and revenue sources, volumes), personal/ investor factors (e.g. pricing and revenue sources).

The framework is useful for the analysis of IB models that aim to contribute to improved food security at the BOP as it allows comparing across different business models from a broad universe of ventures. Also, the framework provides features to analyse the adaptability of business models to complex environments. There is *internal fit* when there is a coherent configuration of foundation factors. The *external fit* addresses the appropriateness of the configuration given specific and often changing external environmental conditions. Consequently, the model responds to the presence of many in-company and external interdependencies.

However, conventional business model scholars presuppose a well-functioning and supportive environment for business to develop and function (e.g., well-functioning infrastructure, clear institutional frameworks). IB scholars emphasize different circumstances in low income markets, which may influence the configuration of the business model (Prahalad, 2004) (Goyal et al., 2014; Gradl & Jenkins, 2011; Gradl, Sobhani, Bootsman, & Gasnier, 2008; London & Anupindi, 2012). 'Institutional voids' are extremely important in this context (Khanna & Palepu, 1999; Khanna, Palepu, & Sinha, 2005). The lack of formal market institutions in low-income markets causes high transaction costs and thus the firm has to look for alternative ways to organize such transactions. One way to work around this is engaging non usual partners, so called "fringe stakeholders" such as community leaders or development agencies, which help to embed the business model in the local context (London & Hart, 2004). Deliberately improving the "business ecosystems" around IB models can also help overcome the market gaps that make those models high-touch, high-cost, and- often – small-scale (Foster & Heeks, 2013; Gradl & Jenkins, 2011).

2.2. Local embeddedness

The generic classification for businesses embedding in their context is by creating horizontal, vertical- and diagonal alliances (Macartney, 2012; Mensik, 1998). Horizontal alliances- e.g. producers in a cooperative -, and vertical alliances-e.g. producers and suppliers are most commonly used to improve the performance of the value chain. Diagonal alliances, also dubbed cross sector partnerships (Akanksha, Krithika, Debajit, Smita, & Sovacool, 2012; Calton et al., 2013; Deb, 2013; Faulconbridge, 2013; Kaplinsky & Readman, 2001; McKenzie, 2013; Prost, 2012; Termeer, Hilhorst, & Oorthuizen, 2010) are mostly among public and private sector actors, and aim at improving the business "business ecosystem" context. Business strategies on the food production side of food security mainly use horizontal and vertical alliances to improve its external fit (Forum, 2010; Nicolas Chevrollier, 2012; Reardon et al., 2009). While in the case of developing and selling nutritious food to BOP consumers, diagonal alliances are more frequently developed, in order to solve institutional challenges, e.g. absence of infrastructure, that complicate the connection between the company and its market (Kaplinsky & Readman, 2001; Macartney, 2012; McKenzie, 2013; Nicolas Chevrollier, 2012; Reardon et al., 2009; Woodhill).

Alliance building strategies support the development of an appropriate external fit of the business model. The opportunity for upgrading of the business in the value chain is an important aspect of this fit. A commonly used categorization of (Humphrey & Schmitz, 2004) is: process (i.e. introducing quality standards), product (i.e. add vitamins to a food product), functional (i.e. from primary production to food processing) and inter-chain (i.e. target raw food materials at cosmetic market) upgrading. Obviously, depending on the complexity of the upgrading strategy, alliances need to be built with more or less value chain actors.

2.5. IB “business ecosystem” strengthening

(Gradl & Jenkins, 2011) argue that companies may be unable to engage lower-income segments commercially at any kind of scale without high operating margins or the ability to cross-subsidize to cover costs. Many IB models are “high-touch”, involving significant customer education; supplier, distributor, and retailer training; provision of financial services, even among non-financial institutions; And “high-touch” can become expensive. To overcome this challenge, deliberately improving the “business ecosystem” around IB models additional to business model innovation can help overcome the market gaps that make those models high-touch, high-cost, and as such often small-scale (Altenburg & Lundvall, 2009; Foster & Heeks, 2013). Given the institutional voids (Peng, Wang, & Jiang, 2008; Vellema & Danse, 2007) within BOP markets, economic activities are supported more strongly by informal network-based mechanisms, such as societal norms, trust, and familial ties (De Soto, 2000). Without formal institutions in place to mitigate the contractual hazards of transacting with parties outside a firm’s own social network, opportunity exploitation is often constrained. Evidence supporting this assertion can be found in the limited presence of medium-sized enterprises (Dia, 1996) and the presence of large informal sectors in BOP markets overall (Schneider, 2002).

(Gradl & Jenkins, 2011) suggest 6 IB “eco system” strengthening strategies; BOP awareness raising and capacity building, research, information sharing, public policy dialogue, and creating new organisations. While large donors and development finance institutions have a long tradition in supporting such interventions, more recently also MNC started to support these.

2.6. Analytical framework

Figure 1 presents the key features of an IB model. Table 1 summarizes for each feature its specific variables.

Figure 1. Key variables of an IB model for food security

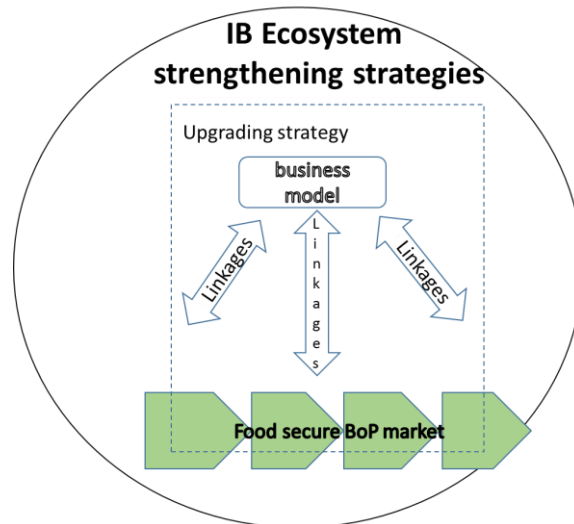


Table 1: Variables of IB model

Feature	Specific variables
Business model	Offering, market, internal capability, competitive strategy, economic, personal
Linkages	Horizontal, vertical, diagonal
Upgrading	Process, product, functional, interchain
“business ecosystem” strengthening strategy	Awareness raising and capacity building, research, information sharing, coalition building, public policy dialogue, creating new organisations.

3. Research method

This research builds on a database of 71 private sector driven initiatives on food security for the BOP by (Nicolas Chevrollier, 2012). They clustered these 71 cases in 5 business intervention strategies (BIS);

1. Farmer development services: smallholders as customers of goods and services that aim to improve their food production. Food security improves by improved income of farmers and more foods on the local market.
2. Secured sourcing schemes: smallholders as suppliers to larger local or international processors or traders. Improved food security mainly through the increased income of value chain actors.;
3. Rural retail hubs: acting as intermediary between (smallholder) producers and consumers. Increased income for value chain actors and potential to make quality food products more easily accessible and more affordable;
4. Food product adaptation: adaptation of existing products, services, processes to serve BoP consumers. Improved food security by increased availability and affordability of food and food products.
5. Hybrid market creation: Innovative strategies that seek to create new markets at the BoP, through the introduction of new (specialized) products. Improved food security by improved access to and availability of quality foods.

For the research presented in this article, 3 cases per BIS were selected randomly. In the case of BIS2 four cases were selected to compensate for the higher number of cases in the database. These 16 cases were analysed based on online available secondary sources (publications, project reports, business website, information available on social media), and verification interviews with at least one key representative of the lead organisation.

Overall, 2 of the 16 cases are led by Local Companies (LC), 5 by Multi National Enterprises (MNE), 4 by Small and Medium Sized Enterprises (SME), 4 by social enterprises, and 1 by a Public Private Partnership (PPP). Only one case refers to Latin America, 9 to Asia and 6 to Africa, which maybe due to English search terms used. All cases are partially or fully funded by private sector, which was one of the selection criteria used to build the database.

4. Results

4.1. Business model

In line with (Klein, 2008) the 16 business cases are analyzed at foundation level (see annex 1 for details). Twelve out of sixteen cases offer primarily standardized products. At the same time, for 13 out of 16 cases product or service quality appears an important competitive feature of the business model, contrary to the assumption that business strategies for low cost markets are about low quality. Technology development and R&D appears mainly important in the BIS1 and BIS2 cases, as well as the BIS5 case Valid Nutrition. For this data set, most cases aim at producers and entrepreneurs rather than food consumers, though it appears that almost all cases develop overtime a diverse market strategy, reaching out to both food producers as well as food consumers.

The most prevalent internal capability appears to be selling/marketing. Besides that, supply chain management is also a key factor for cases ranging from BIS1 to BIS4. The production/operating system is also a key factor in most cases but the BIS3 as these aim at retailing. This competence enables firms to generate big volumes of low price products and to get them to the right location.

The cases do not provide a singular answer to the question for whom value is created, the low income food producer or the low income food consumer. In time, all cases seem to evolve from a narrow focus on either producers or consumers, into strategies where they target both. This might be a response to institutional voids in the food system, that force firms to take care of multiple activities in the value chain, to safe guard their competitive position. In the case of BIS1 and BIS2, consumers need to buy the products of the farmers to create demand for the inputs, processing and/ or distribution services. In the case of BIS 4 and BIS 5, raw materials need to be available and brought to the processing units to assure food product availability. The type of market (general/broad/niche) and the nature of the customer relationship (transactional/relational) differ considerably across cases and there is no specific distinction between different BIS types.

4.3. Linkages and up grading strategies

Within this data set none of the lead organisations established horizontal alliances to create linkages. Cases where the social enterprise is the lead agent appear to develop mostly in diagonal alliances. These cases are all BIS4 and BIS5 aiming at BOP food consumers. In all

diagonal alliances at least one NGO is involved. Other alliance partners identified in these diagonal alliances are government (2 cases), businesses (2 cases) and multilateral organization (1).

All four upgrading strategies could be observed in the 16 cases. Product upgrading strategy has happened in the retail oriented BIS3 and the food consumer oriented BIS4 and BIS5. This means that the products introduced in the market have been adjusted f.e. by adding micro nutrients. Process upgrading strategy seemed to be the second preferred strategy by producer oriented BIS. This means that adjustments have been made in the process, f.e. by introducing an innovative processing technology to process cassava at farm site such as in the BIS1 Dadtco AMPU case in Nigeria. Only in one case interchain upgrading happened, which is the Heineken sorghum case in Sierra Leone. In this case small holder farmers were stimulated to supply sorghum for local beer production. Sorghum was not a major food staple in the target country, for which it did not compete with local food availability. Farmers were taught to produce sorghum that complies to the brewery requirements. The extra income generated by selling sorghum to Heineken, provided farmers more financial means to take care of their food security.

For some cases, more than one upgrading strategy could be observed such as product and process upgrading. The time that the business is already active in the BOP market seems to influence this result. Most cases that are active in the BOP market for quite some time show a number of consecutive upgrading strategies that have been implemented over time.

3.4. “business ecosystem” strengthening strategies

All cases engaged one or more ecosystem partners during the implementation of the IB model development. NGO’s are the most common used type of partner, followed by governments. Interestingly, in the cases where NGOs were partners the lead organisation is never an SME’s but always a MNE or LC. Except for the cases of BIS4 Valid Nutrition South East Africa and BIS5 KeBal Indonesia in which case the social enterprise was setup by the NGO itself for a very specific purpose.

None of the strategies is exclusively used by one type of BIS. In fact, the cases selected for each BIS show that all strengthening strategies can be used in every type of BIS. All cases invested in awareness raising and/ or capacity building strategies, and almost all the cases have developed some form of new organization.

The case studies show that MNCs have developed less research, coalition building and public policy dialogue in their ecosystem strengthening strategies than BIS developed by other lead organisations. Overall, always more than one strengthening strategy is used, and in all cases there is BOP awareness raising or capacity building. Research as strengthening strategy seems to be the least used. In general, PPP’s and social enterprises seem to be using the full array of strengthening strategies, more than other lead agents.

4. Discussion and conclusion:

The purpose of this article is to unravel how the private sector has been shaping business models and intervention strategies with their “business ecosystem” in order to contribute to food security for the BOP market. We analyze the results based on research gaps identified

in literature and the key variables of an IB model as summarized in table 1: business model characteristics, linkages and upgrading strategies, and eco system strengthening strategies. We will also reflect on issues that require further research.

4.1. Food security involves bigger companies, but mostly multi-actor initiatives

In the case of business driven food security initiatives 34% of the 71 cases identified by (Nicolas Chevrollier, 2012) are led by MNEs, in contrary to the findings of (Kolk et al., 2013) that revealed hardly any MNE engagement in business model development for BOP markets. This can be explained by the global nature of food industry, driven by MNEs (Filippaios & Rama, 2008). As well as the declining economic growth of their home markets which has stimulated them to search for new growth markets (Anita Regmi and Mark Gehlhar, 2005).

Still a considerable number of BIS is initiated by small, rather than large, and local, rather than multinational firms. In fact, not all BIS were initiated by for-profit firms but also by social enterprises and one PPP. The business model on food security in BOP markets is often initiated as a partnership between the private sector and parties active in the “business ecosystem” instead of a pure private sector lead initiative. This may be because the collaboration is instrumental to improve the external fit by incorporating internal capabilities of other parties into the over IB model such as the distribution systems of food aid organizations.

The research data did not allow for a more in-depth analysis of the characteristics of the initiators of BOP initiatives. However, this could be relevant in future research as this can shed light on the differences between MNE-led and SME and/or locally-led IB initiatives, as well as private sector led or NGO led initiatives. Also, the significance of not-for-profits in IB initiatives points to a more complex relationship between profitability and poverty alleviation than originally thought (Kolk et al., 2013; London & Anupindi, 2012).

4.2. Business models based on low cost big volume standardized products of quality contribute to BOP food security

Overall, the most relevant foundation level components of the IB model on food security appear to be; end user focused (either small holder farmers or low income food consumers), highly standardized products, supplied in big volumes, but based on quality.

The higher number of producer oriented business models in the dataset can be explained by the additional advantages it provides to the BOP as well as the business to strengthen the food production capacity at the BOP as it also creates sources of income and spurs economic activity at the BOP (Calton et al., 2013; Nicolas Chevrollier, 2012). Additional, it enables co-creation, using the valuable insights of BOP people and BOP enterprises as input for innovation processes, (Simanis & Hart, 2006) (Oodith & Parumasur, 2013). The higher number of producer focused BIS can also be a time bound result. All BIS4 and 5 are from recent dates(Nicolas Chevrollier, 2012). More recently the attention has moved from strengthening food producers to improving the access and quality food for low income consumers(Godfray et al., 2010).

The results of the case analysis confirm that the marketing mix for BOP markets focus on awareness, accessibility, affordability and availability (Chikweche 2013; Chikweche and

Fletcher 2012; J. B. a. C. K. Prahalad 2007). But it appears that food security related BIS differentiate among themselves especially on the accessibility and availability characteristics. Marketing, sales and supply chain management are key internal capability components present in most cases. This can be explained by the contextual characteristics of BOP food market. Many BOP food producers are based in remote rural areas, while many BOP food consumers are based in crowded urban slum areas that lack proper infrastructure.

For some cases it appeared to be complicated to analyze the business model using (Morris, 2005)s framework as they seem to develop double (or mixed) business models over time. This may be because companies engage in service delivery in addition to their core activities (Macartney, 2012). And this could be to overcome value chain challenges (Woodhill) and institutional voids (Reardon et al., 2009) (London & Anupindi, 2012). In these cases some initiatives started out as product delivery activities but developed into end-market distribution and marketing activities over time to enable the businesses they were serving to sustain themselves.

4.3. Uniqueness of business models in sales and marketing strategy

None of the cases shows clear evidence of developing a competitive advantage through radical technological innovation despite the unique opportunities for radical innovation provided by the BOP (Hang, Chen, & Yu, 2013; Hart & Christensen, 2002; Ray & Kanta Ray, 2011). However, it confirms (Vellema & Danse, 2007) (Altenburg & Lundvall, 2009) findings on the relevance of adaptation instead of innovation, and the importance of business model innovation instead of technological innovation in BOP markets.

The key element through which the BIS try to distinguish is by investing in infrastructure and/or distribution system. Most cases develop indirect distribution strategies leveraging on existing networks by establishing innovative partnerships with organisations that already reach the BOP. This confirms findings of (London & Hart, 2004; Sharma, 2004) that leveraging on networks of fringe stakeholders enables the BIS to enter immediately and benefit of the trust base already established in these markets. These partnerships appear to be established mainly for BIS aiming at BOP food consumers (BIS4 and BIS5), rather than BOP producers (BIS1 and BIS2).

4.4. Linkages aim more at achieving upgrading rather than establishing economies of scale

None of the lead organizations established horizontal alliances. Horizontal alliances often aim at reaching economies of scale or to improve the countervailing power. It appears that the lead organisations did not focus specifically on that strategy at this initial stage of development in which collaboration for scaling up was not yet the focus.

Most of the alliances built for the BIS analyzed chose for a vertical orientation. This can be explained by the fact that most cases focus on strengthening producers, and as such functional and process oriented upgrading strategies. Three of the four consumer oriented cases were based on diagonal alliances and were led by social enterprises. In these cases product upgrading strategies were developed.

Recently, a growing number of donor and policy making organizations combine food and nutrition security challenges and invite firms to propose strategies to solve them. This

analysis reveals important differences in business model characteristics and embedding strategies between producer and consumer oriented food security initiatives. It requires further research to obtain a better understanding on the prerequisites that should be taken into account if businesses and other parties want to engage in either producer oriented or consumer oriented food security strategies.

4.5. “business ecosystem” strengthening focused mostly on creating awareness and coalition building

The results confirm the relevance of interaction with eco system actors for the development of an IB business model. All cases incorporated activities that aimed at raising awareness on the product, new technology or new way of working being introduced at the BOP. The strategy least used to strengthen the “business ecosystem” appears to be research. Maybe because the low costs, high volume business model does not leave a lot of space for research. But it may confirm that the relevance of research in IB or innovation processes is often neglected (Altenburg & Lundvall, 2009).

In most BIS awareness raising activities aim at the target group of the food security strategy, thus farmers in the case of the producer oriented strategies and consumers in the case of the food consumption oriented strategies. Awareness raising is a strategy that can contribute to an improved external fit of the business model to the market, as suppliers and/ or consumers obtain a better understanding of the unique proposition (e.g. product, functional or process upgrading) that is being introduced.

The eco system strategy on coalition building appears to be a commonly used strategy. It confirms that coalition building strategy appears to be used to overcome risks on institutional voids (De Soto, 2000) (Altenburg & Lundvall, 2009) e.g. Metro Vietnam, cultural differences (Ma, Kaldenbach, & Katzy, 2014) (Sharma, 2004) (Prost, 2012) f.e. Danone and Grameen foundation, and to overcome innovation challenges f.e. Dadtco (Sonne, 2012; Stewart & Hyysalo, 2008).

Also, in most BIS one or more organisations are involved that facilitate the development of the business case and the process of embedding. This confirms findings on the relevance of intermediary or brokering organisations to develop innovation strategies in a developing context in general (Colin Poulton, 2010; Ma et al., 2014; Prost, 2012; Stewart & Hyysalo, 2008) as well as a agri-food context specifically (Klerkx & Leeuwis, 2008) (Kilelu, Klerkx, & Leeuwis, 2013). The research approach and the data quality of this research do not allow an in depth analysis on the characteristics of this intermediary role. It requires further research to obtain a better understanding on the way the business “business ecosystem” of the BOP market influences the business model, as well as the characteristics of intermediaries to facilitate the development of IB in BOP markets.

5. Conclusion

This article aimed to provide more insight on the way the private sector has been shaping business models and intervention strategies with their ecosystem in order to contribute to food security for the BOP market. A combination of variables were identified to obtain a better insight on internal functional characteristics of the business models as well as features to enable the private sector to locally embed and respond to institutional voids. Applying these variables to a set of 16 private sector supported food security cases, provided a more

detailed insight in the functional factors of the business models developed, but it also confirmed that for each case linkages with other actors in the food ecosystem have been established to improve the performance of the food value chain. In the case of producer oriented BIS the focus is on functional and process upgrading strategies, while for the consumer oriented BIS it is more focused on product upgrading strategies.

Recently, a growing number of donor and policy making organizations combine food and nutrition security challenges to invite the private sector to propose strategies to solve them. However, this analysis reveals that there are important differences in business model characteristics as well as embedding and upgrading strategies among producer and consumer oriented food security initiatives, which requires further research in order to obtain a better understanding on the prerequisites that should be taken into account if businesses and other parties want to engage in either producer oriented or consumer oriented food security strategies.

Finally, the research revealed the relevance of building coalitions to strengthen the IB ecosystem, and the role of intermediary organisations to develop these coalitions as well as other ecosystem strengthening strategies. It requires further research to obtain a better understanding on the way the business ecosystem of the BOP market influences the business model, as well as the characteristics of intermediaries to facilitate the development of inclusive business in BOP markets, as it appears to be a neglected feature in the research on business model development for the BOP that may provide more insights on embedding and ecosystem strengthening strategies.

Literature

- Akanksha, C., Krithika, P. R., Debajit, P., Smita, R., & Sovacool, B. K. (2012). New partnerships and business models for facilitating energy access. *Energy Policy*, 47(Suppl. 1), 48-55.
- Altenburg, T., & Lundvall, B. (2009). Building inclusive innovation systems in developing countries: challenges for IS research. *Handbook of innovation systems and developing countries: Building domestic capabilities in a global setting*, 33-56.
- Anita Regmi and Mark Gehlhar, e. (2005). New Directions in Global Food Markets. *Agriculture Information Bulletin*(794).
- Arora, S., & Romijn, H. (2012). The empty rhetoric of poverty reduction at the base of the pyramid. *Organization*, 19(4), 481-505.
- Calton, J. M., Werhane, P. H., Hartman, L. P., & Bevan, D. (2013). Building Partnerships to Create Social and Economic Value at the Base of the Global Development Pyramid. *Journal of Business Ethics*, 117(4), 721-733.
- Chikweche, T. (2013). Marketing at the bottom of pyramid: Market attractiveness and strategic requirements. *Marketing Intelligence and Planning*, 31(7), 764-787.
- Chikweche, T., & Fletcher, R. (2012). Revisiting the marketing mix at the bottom of pyramid (BOP): From theoretical considerations to practical realities. *Journal of Consumer Marketing*, 29(7), 507-520.
- Christensen, C., Craig, T., & Hart, S. (2001). The great disruption. *FOREIGN AFFAIRS-NEW YORK-*, 80(2), 80-95.
- Colin Poulton, A. D. a. J. K. (2010). The future of small farms: new directions for services, institutions and intermediation. *World Development*, 38(10), 1413-1428. doi:10.1016/j.worlddev.2009.06.009
- Danse, M., & Vellema, S. (2005). Small-scale farmer access to international agri-food chains. *Greener Management International*, 2005(51), 39-52.
- De Soto, H. (2000). *The mystery of capitalism*: New York, Basic Books.
- Deb, M. (2013). An integrated framework to serve the bottom of pyramid. *International Journal of Business and Globalisation*, 11(2), 171-186. doi:10.1504/ijbg.2013.055610
- Dia, M. (1996). *Africa's management in the 1990s and beyond: Reconciling indigenous and transplanted institutions*: World Bank Publications.
- Dolan, C., & Roll, K. (2013). Capital's new frontier: From unusable economies to bottom-of-the-pyramid markets in africa. *African Studies Review*, 56(3), 123-146. doi:10.1017/asr.2013.82
- fao. (2014). *Fao strategies for partnerships with private sector*.
- Faulconbridge, J. R. (2013). Situated bottom of the pyramid markets and the multinational corporation. *Marketing Theory*, 13(3), 393-396.
- Filippaios, F., & Rama, R. (2008). Globalisation or regionalisation? The strategies of the world's largest food and beverage MNEs. *European management journal*, 26(1), 59-72.
- Forum, W. E. (2010). <NextBillionsUnleashingBusinessPotentialUntappedMarkets.pdf>.
- Foster, C., & Heeks, R. (2013). Analyzing policy for inclusive innovation: the mobile sector and base-of-the-pyramid markets in Kenya. *Innovation and Development*, 3(1), 103-119.
- Godfray, H. C. J., Beddington, J. R., Crute, I. R., Haddad, L., Lawrence, D., Muir, J. F., . . . Toulmin, C. (2010). Food security: the challenge of feeding 9 billion people. *science*, 327(5967), 812-818.
- Goyal, S., Esposito, M., Kapoor, A., Jaiswal, M., & Sergi, B. S. (2014). Linking up: inclusive business models for access to energy solutions at base of the pyramid in India. *International Journal of Business and Globalisation*, 12(4), 413-438.
- Gradl, C., & Jenkins, B. (2011). Tackling barriers to scale: From inclusive business models to inclusive business ecosystems. *CSR Initiative, Harvard Kennedy School, Cambridge MA*.
- Gradl, C., & Knobloch, C. (2010). Inclusive business guide: how to develop business and fight poverty. *Berlin: Endevo*. Online at http://www.endevo.org/fileadmin/user_upload/publications/IBG_final.pdf (accessed August 20, 2011).
- Gradl, C., Sobhani, S., Bootsman, A., & Gasnier, A. (2008). Understanding the markets of the poor: A market system approach to inclusive business models. *Sustainability challenges and solutions at the base of the pyramid: Business, technology and the poor*, 29(50), 22.
- Hall, J., Matos, S., Sheehan, L., & Silvestre, B. (2012). Entrepreneurship and innovation at the base of the pyramid: a recipe for inclusive growth or social exclusion? *Journal of Management Studies*, 49(4), 785-812.
- Halme, M., Lindeman, S., & Linna, P. (2012). Innovation for inclusive business: Intrapreneurial bricolage in multinational corporations. *Journal of Management Studies*, 49(4), 743-784.
- Hamilton, H. (2013). Sustainable Food Lab Learning Systems for Inclusive Business Models Worldwide. *International Food and Agribusiness Management Review*, 16(A).
- Hammond, A. L., & Prahalad, C. K. (2004). Selling to the poor. *Foreign Policy*, 30-37.
- Hang, C. C., Chen, J., & Yu, D. (2013). An assessment framework for disruptive innovation. *IEEE Engineering Management Review*, 41(4), 109-118. doi:10.1109/emr.2013.2288146
- Hart, S. L. (2005). *Capitalism at the crossroads: The unlimited business opportunities in solving the world's most difficult problems*: Pearson Education.
- Hart, S. L., & Christensen, C. M. (2002). The great leap: Driving innovation from the base of the pyramid. *MIT Sloan management review*, 44(1), 51.
- Heeks, R., Foster, C., & Nugroho, Y. (2014). New models of inclusive innovation for development. *Innovation and Development*, 4(2), 175-185.
- Humphrey, J., & Schmitz, H. (2004). 13. Chain governance and upgrading: taking stock. *Local enterprises in the global economy: Issues of governance and upgrading*, 349.

- Kaplinsky, R., & Readman, J. (2001). Integrating SMEs in global value chains: towards partnership for development. *Vienna: Unido*.
- Karnani, A. (2009). Romanticising the poor harms the poor. *Journal of International Development*, 21(1), 76-86.
- Karnani, A. (2010). Failure of the libertarian approach to reducing poverty. *Asian Business and Management*, 9(1), 5-21.
- Khanna, T., & Palepu, K. (1999). *Emerging market business groups, foreign investors, and corporate governance*. Retrieved from
- Khanna, T., Palepu, K. G., & Sinha, J. (2005). Strategies that fit emerging markets. *Harvard business review*, 83(6), 4-19.
- Kilelu, C. W., Klerkx, L., & Leeuwis, C. (2013). Unravelling the role of innovation platforms in supporting co-evolution of innovation: Contributions and tensions in a smallholder dairy development programme. *Agricultural Systems*, 118, 65-77.
- Klein, M. H. (2008). *Poverty Alleviation through sustainable strategic business models: essays on poverty alleviation as a business strategy*: Erasmus Research Institute of Management (ERIM).
- Klerkx, L., & Leeuwis, C. (2008). Matching demand and supply in the agricultural knowledge infrastructure: Experiences with innovation intermediaries. *Food Policy*, 33(3), 260-276.
- Kolk, A., Rivera-Santos, M., & Rufin, C. (2013). Reviewing a Decade of Research on the " Base/Bottom of the Pyramid"(BOP) Concept. *Business & Society*, 0007650312474928.
- Kubzansky, M., Cooper, A., & Barbary, V. (2011). *Promise and Progress: Market-based solutions to poverty in Africa*.
- Landrum, N. E. (2007). Advancing the "base of the pyramid" debate. *Strategic Management Review*, 1(1), 1-12.
- London, T., & Anupindi, R. (2012). Using the base-of-the-pyramid perspective to catalyze interdependence-based collaborations. *Proceedings of the National Academy of Sciences*, 109(31), 12338-12343.
- London, T., & Hart, S. L. (2004). Reinventing strategies for emerging markets: beyond the transnational model. *Journal of International Business Studies*, 35(5), 350-370.
- Ma, X.-F., Kaldenbach, M., & Katzy, B. (2014). Cross-border innovation intermediaries-matchmaking across institutional contexts. *Technology Analysis & Strategic Management*(ahead-of-print), 1-14.
- Macartney, C. P. a. J. (2012). Can Public Private Partnership leverage private investment in agricultural value chains in Africa? *World Development*, 40(1), 96-109. doi:10.1016/j.worlddev.2011.05.017
- McKenzie, F. (2013). Pathways to collaborative actions. Transforming agricultural, land and food systems.
- Mensik, T. V. a. S. (1998). The Role of Trust in Creating Effective Alliances: A Managerial Perspective. *Journal of Business Ethics*, 17, 987-994.
- Morris, M., M. Schindehutte and J. Allen (2005). The entrepreneur's business model.pdf>. *Journal of Business Research*(58), 726/735. doi:10.1016/j.jbusres.2003.11.001
- Nicolas Chevrollier, R. B., Thom Sprenger, Myrtille Danse, Birgit Poniatowski, Kirstin O'Neill. (2012). Access to food and improved nutrition at the base of the pyramid: five business interventions to achieve social impact, financial sustainability and scale.
- Oodith, P. D., & Parumasur, S. B. (2013). Tapping into the bottom of the pyramid (BOP) market in South Africa: Possible? and how? *Corporate Ownership and Control*, 11(1 C), 280-294.
- Peng, M. W., Wang, D. Y., & Jiang, Y. (2008). An institution-based view of international business strategy: A focus on emerging economies. *Journal of International Business Studies*, 39(5), 920-936.
- Prahalad, C. K. (2004). *The fortune at the bottom of the pyramid: Eradicating poverty through profits*. 2004: Philadelphia, PA: Wharton School Publishing.
- Prost, L. S. a. G. (2012). How broker organisations can facilitate public private partnership for development. *European management journal*, 30, 32/46. doi:10.1016/j.emj.2011.10.002
- Ray, S., & Kanta Ray, P. (2011). Product innovation for the peoples car in an emerging economy. *Technovation*, 31(5-6), 216-227.
- Reardon, T., Barrett, C. B., Berdegue, J. A., & Swinnen, J. F. M. (2009). Agrifood Industry Transformation and Small Farmers in Developing Countries. *World Development*, 37(11), 1717-1727. doi:10.1016/j.worlddev.2008.08.023
- Sanchez, P., & Ricart, J. E. (2010). Business model innovation and sources of value creation in low-income markets. *European management review*, 7(3), 138-154.
- Schneider, F. (2002). *Size and measurement of the informal economy in 110 countries*. Paper presented at the Workshop of Australian National Tax Centre, ANU, Canberra.
- Seelos, C., & Mair, J. (2007). Profitable business models and market creation in the context of deep poverty: a strategic view. *The academy of management perspectives*, 21(4), 49-63.
- Sharma, S. L. H. a. S. (2004). Engaging fringe stakeholders for competitive imagination. *academy of management executive*, 18, 7-18.
- Simanis, E., & Hart, S. (2006). Expanding Possibilities at the Base of the Pyramid. *innovations*, 1(1), 43-51.
- Sonne, L. (2012). Innovative initiatives supporting inclusive innovation in India: Social business incubation and micro venture capital. *Technological forecasting and social change*, 79, 638-647. doi:10.1016/j.techfore.2011.06.008
- Steidlmeier, P. (1993). The business community and the poor: Rethinking business strategies and social policy. *American Journal of Economics and Sociology*, 52(2), 209-221.
- Stewart, J., & Hysalo, S. (2008). Intermediaries, users and social learning in technological innovation. *International Journal of Innovation Management*, 12(03), 295-325.
- Termeer, C., Hilhorst, T., & Oorthuizen, J. (2010). Facilitating north-south partnerships for sustainable agriculture. *Journal of Agricultural Education and Extension*, 16(3), 213-227.
- Tuttle, J. N. (2012). Private sector engagement in food security and agricultural development.
- Veglio, V. B. a. F. (2011). inclusive-business-for-sustainable-livelihoods. 5, 1-5.

- Vellema, S., & Danse, M. (2007). Innovation and Development: Institutional perspectives on technological change in agri-food chains.
- Vorley, B., Lundy, M., & MacGregor, J. (2009). Business models that are inclusive of small farmers. *Agro-industries for Development, Wallingford, UK: CABI for FAO and UNIDO*, 186-222.
- Woodhill, J. 4. Multi-stakeholder collaboration and the scaling of inclusive agri-food markets. *Value chain development by the private sector in Africa*, 27.
- Wright, M., Filatotchev, I., Hoskisson, R. E., & Peng, M. W. (2005). Strategy research in emerging economies: Challenging the conventional wisdom*. *Journal of Management Studies*, 42(1), 1-33.

Annex 1: Cases specified on functional factors of the business model, linkages and upgrading strategies

Case name	BIS	Lead org	Component 1 (factors related to the offering): How do we create value?	Component 2 (market factors): Who do we create value for?	Component 3 (internal capability factors): What is our source of competence?	Component 4 (competitive strategy factors): How do we competitively position ourselves?	Component 5 (economic factors): How we make money?	Component 6 (personal/investor factors): What are our time, scope, and size ambitions?	Linkages	Upgrading
Dadtco AMPU Nigeria	1	SME	heavy mix; some customization; medium breadth; shallow; product itself; internal manufacturing; direct distribution;	B2B; regional; upstream suppliers and downstream processors; niche market; relational;	Technology, Production system, supply chain management	Innovation leadership	mixed; NA; high; low;	growth model	Vertical	Process Upgrading
East West Seeds Thailand	1	SME	primarily products; standardized; narrow line; deep; product itself; internal manufacturing; indirect single channel distribution;	B2B; international; upstream suppliers; niche market; transactional;	R&D; marketing	image of dependability; product quality	fixed; NA; high; low;	growth model	Vertical	Process Upgrading
Tanga Fresh Tanzania	1	SME	heavy mix; some customization; medium breadth; shallow; product itself; internal manufacturing and service delivery; indirect multichannel;	B2B and B2C; regional; upstream suppliers and final consumers; multiple segments; B2C transactional; B2B relational;	Production system; Technology and innovative Capability; Supply chain management; Marketing	B2C: product quality and availability; B2B intimate customer relationship	mixed; NA; high; low;	growth model	Vertical	Functional upgrading
Alquería Dairy Colombia	2	SME	primarily products to consumers and primarily services to businesses; standardized; narrow line; shallow; product itself; internal manufacturing; indirect distribution;	B2B and B2C; national; upstream suppliers and final consumers; broad market; B2C transactional; B2B relational;	Production system and supply chain management	B2C: product quality; B2B intimate customer relationship	fixed; NA; high; low;	growth model	Vertical	Process Upgrading

Case name	BIS	Lead org	Component 1 (factors related to the offering): How do we create value?	Component 2 (market factors): Who do we create value for?	Component 3 (internal capability factors): What is our source of competence?	Component 4 (competitive strategy factors): How do we competitively position ourselves?	Component 5 (economic factors): How we make money?	Component 6 (personal/investor factors): What are our time, scope, and size ambitions?	Linkages	Upgrading
Sierra Leone Breweries	2	PPP	primarily products; standardized; narrow line; medium depth; product itself; internal manufacturing; indirect multichannel;	B2B and B2C; national; final consumers and downstream suppliers; broad market; transactional;	Supply chain management/innovative capability	Product quality	mixed; NA; high; low;	growth model	Vertical	Chain upgrading
Metro AG Vietnam	2	MNC	primarily products; standardized; broad line; deep; access to products; internal service delivery; direct distribution;	B2B; regional; retailers; multiple segment; transactional;	Supply chain management	Operational excellence; low cost	mixed; NA; high; low;	growth model	Vertical	Functional upgrading
Unilever Kecap Bango Indonesia	2	MNC	primarily products; standardized; narrow line; medium depth; product itself; internal manufacturing; indirect distribution;	B2C; national; final consumers; broad market; transactional;	Marketing; Supply chain management; innovative capability	Product quality; image of operational excellence	fixed; NA; high; low;	growth model	Vertical	Functional upgrading
DCM Hariyali Kisaan Bazaar India	3	MNC	heavy mix; some customization; broad line; deep; access to products/services; value added reselling; direct distribution;	B2B and B2C; national; upstream suppliers and final consumers; broad market; relational;	Marketing; Supply chain management	Product selection; Intimate customer relationship	mixed; NA; high; low;	growth model	Vertical	Functional upgrading

Case name	BIS	Lead org	Component 1 (factors related to the offering): How do we create value?	Component 2 (market factors): Who do we create value for?	Component 3 (internal capability factors): What is our source of competence?	Component 4 (competitive strategy factors): How do we competitively position ourselves?	Component 5 (economic factors): How we make money?	Component 6 (personal/investor factors): What are our time, scope, and size ambitions?	Linkages	Upgrading
MCC Kheir Zaman Egypt	3	MNC	primarily products; standardized; broad line; medium depth; access to products; reselling; direct distribution;	B2C; national; final consumers; broad market; transactional;	Resource leveraging; Marketing; Supply chain management	Low cost; product selection;	fixed; NA; high; low;	growth model	Vertical	Product upgrading
Suguo supermarket China	3	LC	primarily products; standardized; broad line; deep; access to products; reselling; direct distribution;	B2C; national; final consumers; multiple segment; transactional;	Marketing; Supply chain management	Product selection and availability; low cost	fixed; NA; high; low;	growth model	Vertical	Functional upgrading
Britannia Biscuits India	4	LC	primarily products; standardized; medium breadth; deep; product itself; internal manufacturing; indirect multichannel;	B2C; national; final consumers; broad market; transactional;	Production system and marketing	Product quality/features; low cost	mixed; NA; high; low;	growth model	Diagonal	Product upgrading
Coca Cola Minute Maid Uganda	4	MNC	primarily products; standardized; narrow line; deep; product itself; internal manufacturing; indirect single channel distribution;	B2C; international; final consumers; broad market; transactional;	Production system, supply chain management, marketing	Product quality/features	fixed; NA; high; low;	growth model	Vertical	Product upgrading
Danone Grameen Shokti Doi Bangladesh	5	Social enterprise	primarily products; standardized; narrow line; shallow; product itself; internal manufacturing; indirect single channel distribution;	B2C; regional; final consumers; broad market; relational;	Selling/marketing	Product quality/features; low cost	fixed; NA; high; low;	growth model	Diagonal	Product upgrading

Case name	BIS	Lead org	Component 1 (factors related to the offering): How do we create value?	Component 2 (market factors): Who do we create value for?	Component 3 (internal capability factors): What is our source of competence?	Component 4 (competitive strategy factors): How do we competitively position ourselves?	Component 5 (economic factors): How we make money?	Component 6 (personal/investor factors): What are our time, scope, and size ambitions?	Linkages	Upgrading
KeBal Indonesia	5	Social enterprise	primarily products; standardized; narrow line; medium depth; product itself; internal manufacturing; direct distribution;	B2C; local; final consumers; niche market; transactional;	Production system; Selling/marketing	Product quality/features	fixed; NA; medium; low;	growth model	Diagonal	Product upgrading
Pushtikona Bangladesh	5	Social enterprise	primarily products; standardized; narrow line; shallow; product itself; internal manufacturing; indirect multichannel;	B2C; national; final consumers and service providers; multiple segment; transactional;	Selling/marketing; production system	Product quality/features	mixed; NA; high; low;	growth model	Diagonal	Functional upgrading
Valid Nutrition South East Africa	5	Social enterprise	primarily products; standardized; narrow line; shallow; product itself; internal manufacturing; licensing; indirect multichannel;	B2B; international; government/institutional; market niche; relational;	Production system; technology/R&D and intellectual capability	Product quality/features; low cost	mixed; NA; high; low;	growth model	Vertical	Product upgrading

Annex 2: Cases specified on IB ecosystem strengthening strategies.

Case name	BIS	Lead org	BOP Awarenes	Research as strengthening strategy	Coalition building	Public policy dialogue as strengthening strategy	Creating new organizations as strengthening strategy
Dadtco AMPU Nigeria	1	SME	Yes	Yes	Yes	No	Yes
East West Seeds Thailand	1	SME	Yes	Yes	Yes	Yes	No
Tanga Fresh Tanzania	1	SME	Yes	No	Yes	Yes	Yes
Alquería Dairy Colombia	2	SME	Yes	No	No	Yes	Yes
Sierra Leone Breweries	2	PPP	Yes	Yes	Yes	Yes	Yes
Metro AG Vietnam	2	MNC	Yes	No	No	No	Yes
Unilever Kecap Bango Indonesia	2	MNC	Yes	No	Yes	No	Yes
DCM Hariyali Kisaan Bazaar India	3	MNC	Yes	Yes	Yes	Yes	Yes
Kheir Zaman Egypt	3	MNC	Yes	No	No	Yes	Yes
Suguo supermarket China	3	LC	Yes	No	Yes	Yes	Yes
Britannia Biscuits India	4	LC	Yes	Yes	Yes	Yes	No
Coca Cola Minute Maid Uganda	4	MNC	Yes	No	No	No	Yes
Danone Grameen Shokti Doi Bangladesh	5	Social enterprise	Yes	Yes	Yes	No	Yes
KeBal Indonesia	5	Social enterprise	Yes	Yes	Yes	Yes	Yes
Pushtikona Bangladesh	5	Social enterprise	Yes	Yes	Yes	Yes	Yes
Valid Nutrition South East Africa	5	Social enterprise	Yes	Yes	Yes	Yes	No