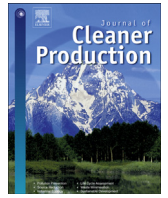




Contents lists available at ScienceDirect

## Journal of Cleaner Production

journal homepage: [www.elsevier.com/locate/jclepro](http://www.elsevier.com/locate/jclepro)

## Sustainable supply chain models for base of the pyramid

Julia C. Bendul, Eugenia Rosca<sup>\*</sup>, Darima Pivovarov

Jacobs University, School of Mathematics and Logistics, Campus Ring 1, 28759 Bremen, Germany

## ARTICLE INFO

## Article history:

Received 13 August 2015  
 Received in revised form  
 18 October 2016  
 Accepted 1 November 2016  
 Available online xxx

## Keywords:

Sustainability  
 Supply chain management  
 Social responsibility  
 Supply chain operations  
 Base of the pyramid  
 BOP  
 Developing countries

## ABSTRACT

Institutional barriers and constraints in developing countries require new supply chain models where economic, social and ecological aspects are integrated. Sustainable supply chain management discourse has focused on ecological aspects and neglected social issues, while Base of the Pyramid studies have neglected ecological considerations. This study links the sustainable supply chain management discourse with insights from Base of the Pyramid studies in order to suggest an integrated sustainability perspective. This work adopts a multiple case study design based on secondary data analysis in order to investigate supply chain concepts of 18 successful products and develop sustainable supply chain models in the areas of sourcing, making and delivering. Findings suggest that by employing localized and simplified approaches, companies targeting low-income markets can overcome existing local institutional barriers. We conclude that employing simplified and localized approaches to supply chains and simultaneously integrating local communities in the value creation activities can serve as success factors. Therefore, by linking sustainable supply chain with the Base of the Pyramid strategies discourse, we fill an important research gap in the literature. From a practitioner's perspective, the derived supply chain models serve as best practices for managers of multi-national companies, local entrepreneurs, non-governmental organizations and political institutions designing, operating and regulating supply chains for low-income markets.

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## 1. Introduction

Several important economic developments at the beginning of the new millennium forced Multi-National Corporations (MNC) to reconsider their strategies and market orientations. The economic slowdown and over-saturation of developed markets on one hand and the fast growing developing markets on the other hand compelled management executives to turn their attention to the largest target market in the economic pyramid - the Base of the Pyramid (BOP) markets estimated between 2.7 and 4 billion people (Karnani, 2007; Prahalad and Hart, 2002). Although there are several success stories of MNC serving the BOP markets, expansion into the BOP markets poses several challenges, especially related to supply chains (Parmigiani and Rivera-Santos, 2015; Karamchandani et al., 2011). Yet, the literature is sparse on supply chain models and best practices for BOP markets (Raja Usman Khalid et al., 2015). Most related studies focus on difficulties of product development (Ray and Ray, 2011), business models (Yunus et al., 2010; Seelos and Mair, 2007), partnerships (Hahn and Gold, 2014; Dahan et al., 2010),

marketing and distribution (Vachani and Smith, 2008; London and Hart, 2004), but an integrated supply chain perspective for BOP projects is missing. This is important since numerous scholars suggest that supply chains and business models at the BOP in developing countries require entirely different approaches mainly due to numerous existing constraints and institutional barriers (London and Hart, 2004).

Since the BOP literature shifted from a consumer-oriented perspective to co-creation and inclusion of BOP communities into the value chain activities (Simanis and Hart, 2008), there is need for cross-fertilization between the BOP and sustainable supply chain management (SSCM) literature streams. The cross-fertilization of the two disciplines seems suitable mainly because SSCM literature has been focusing mostly on environmental aspects and neglected social issues from the intellectual discourse (Sancha et al., 2015), while BOP has focused on socially and economically viable business models while neglecting the ecological dimension (Gold et al., 2013; Kolk et al., 2014). Therefore, by integrating the two perspectives, social issues could be joined into SSCM discourse and BOP literature can be complemented with insightful supply chain models and ecological aspects for BOP markets. Therefore, this study aims to fill this gap and investigates sustainable supply chain

<sup>\*</sup> Corresponding author.

practices at the BOP markets and attempts to develop models for sustainable supply chain activities in the areas of sourcing, making and delivering. To accomplish this, a sample of 18 cases of BOP products and their supply chains are investigated based on secondary data analysis. The BOP supply chain models aim to reveal best practices on how MNC can design their supply chains in developing countries for BOP markets while accounting for local societal development. In this manner, the developed BOP supply chain models serve as the basis for a comparison with traditional supply chains in industrialized markets and are evaluated in regard to their potential to overcome institutional barriers and constraints at the BOP.

This paper is structured as follows: section two provides a comprehensive literature review of the relevant streams of research aiming to identify research gaps and research questions. Section three details the research design including the case selection, data collection and analysis techniques. Section four reports the findings by presenting the BOP supply chain models. The discussion, theoretical and practical implications are contained in section five, six and seven, respectively.

## 2. Literature review and research gap

In this section, several research streams are reviewed in order to highlight the existing research gaps. Firstly, the BOP discourse is presented with the overview of main strategies and constraints encountered by MNC targeting the BOP. Secondly, the SSCM stream is explored in order to identify potential cross-fertilization points with the BOP discourse. Thirdly, SSCM issues in BOP research are presented. Fourthly, the research gap is highlighted and the objectives of this study derived.

### 2.1. Base of the pyramid (BOP) strategies

The core of the BOP proposition is that poverty can be alleviated through financially profitable activity. In their seminal article, Prahalad and Hammond (2002) emphasize the “*doing good and doing well*” feature of market entry at the BOP. They suggest that seeing low-income actors as consumers provides profit opportunities for MNCs and local enterprises through economies of size and scale and is a very effective way to fight poverty. Therefore, the BOP perspective lies at the intersection between two domains - poverty alleviation and business strategy (London et al., 2010). From a poverty alleviation perspective, the proposition is that market-based solutions can be an alternative to donation-based approaches in tackling one of the main Sustainable Development Goals, namely global poverty (Prahalad, 2005). From a business strategy perspective, companies can see the untapped potential at the BOP as business opportunities (London et al., 2010).

Due to the consumer-based approach adopted in the seminal articles, the innovation and business management disciplines focused solely on how MNC can develop new markets at the BOP. However, the BOP consumer based approach is highly criticized (Shivarajan and Srinivasan, 2013). As a result of this criticism, recently a growing consensus has emerged that local economic development is driven by alternative business models where BOP markets are actively involved in the value creation process as service providers, parts suppliers, employees, entrepreneurs and owners. Consequently, the BOP 2.0 model has been proposed in the literature to emphasize the value co-creation and inclusive business models (Simanis and Hart, 2008). The focus of BOP 2.0 is on co-creating value rather than selling to the BOP, and it suggests that fortune lies “*with*” the BOP rather than “*at*” the BOP (London and Hart, 2011; London et al., 2010). This is a fundamental shift on the role of the low-income actors, as they move from passive

consumers to active economic actors (Simanis and Hart, 2008). The overview of roles the BOP actors can play in the value chains thus included in BOP 2.0 are various and include suppliers of intellectual property (Shivarajan and Srinivasan, 2013), suppliers of unregistered assets (De Soto, 2000), employees, partners (Brinkerhoff, 2008), entrepreneurs (Dolan and Scott, 2009), product distributors (Johnson, 2007; Anderson and Billou, 2007), producers or suppliers (Sodhi and Tang, 2011; Altman et al., 2009; Hahn, 2009) and co-inventors (Johnson, 2007). The involvement of the BOP actors in value chain activities is aligned with the idea of shared value, which argues that MNC must intensify their efforts in connecting economic progress with societal development in order to be competitive in the global markets (Porter and Kramer, 2011).

Although the terms BOP and poor commonly used in the literature have a rather negative connotation and imply inferior status compared to higher levels in the economic pyramid, this work recognizes the immense intellectual capital (Shivarajan and Srinivasan, 2013) and the unregistered assets (De Soto, 2000) BOP markets comprise. In fact, the entire idea of BOP 2.0 assumes that BOP customers possess valuable know-how, skills and capabilities which can enable the long-term success of BOP ventures.

The literature suggests that BOP customers represent cognitive and social vulnerabilities, and there is a high risk that BOP ventures may take advantage of these vulnerabilities through exploitation strategies (Arnold and Valentin, 2013; Garrette and Karnani, 2010; Karnani, 2007). As such, Arnold and Valentin (2013) argue that in order to avoid exploitation by MNC, ventures targeting the BOP should be affordable, profitable and empower the locals through local capacity building. Similarly, Munir et al. (2010) distinguish between different types of BOP ventures based on the value creation mechanisms and involvement of the local actors, and they propose market, distribution, production and knowledge driven ventures. Additionally, they suggest that the latter are more likely to be sustainable and create significant societal development due to investments in training and education of the local low-income actors.

Existing institutional barriers and constraints at the BOP require new business models and supply chain models (London and Hart, 2004). In order to design new approaches, it is necessary to understand the differences between developing in industrialized countries. The BOP literature has thoroughly documented the constraints and barriers MNCs and BOP initiatives need to overcome in order to be successful. These studies (see Table 1) show strong emphasis on the lack of effective legal and regulatory systems, weak infrastructure, and weak financial markets, low levels of education and training and differences in terms of socio-cultural systems. Parmigiani and Rivera-Santos (2015) explicitly discuss the implications of institutional voids for supply chain operations at the BOP in developing countries and suggest that building supply chains and maintaining them in a sustainable manner is considerably more difficult in such settings.

### 2.2. Sustainable supply chain management

The cross-fertilization between the Supply Chain Management (SCM) and sustainable development research disciplines began in the past decade due to a number of factors that pushed companies in various industries to strive for a more sustainable supply chain performance (Seuring and Müller, 2008; Linton et al., 2007). On one hand, these factors can be related to external pressure from government policies and customers' or stakeholders' requirements (Hassini et al., 2012). On the other hand, drivers for change can sometimes be incentives such as gaining competitive advantage, maintaining company reputation or economic challenges (Gold et al., 2013; Wu and Pagell, 2011; Seuring and Müller, 2008).

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