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The Role of Proximity in Business Model Design: Making Business Models work for those at the Bottom of the Pyramid

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Abstract

This paper explores the role of proximity in designing business models that work for those at the BoP. BoP markets represent an extreme setting where actors struggle to access and organise limited resources and develop appropriate socio-economic-political practices. Drawing on Boschma's (2005) concept of proximity, we analyse three historical cases of business at the BoP to uncover the spatial-temporal dimensions of business model design in practice. Findings suggest that 1) business model design practices iteratively structure connections with markets and open up new spaces for market activity. This means that business models are necessarily understood as plastic and continuously in-the-making; 2) by taking into account the stability and change of proximity dimensions and the dynamics between them as they relate to business activities, managers are better equipped to identity opportunities that create, shape and connect with markets; and 3) the spatial-temporal dynamic of the business model proximities framework reveals that some proximities strengthen others through time, with negative and positive consequences.

Keywords: business models, bottom of pyramid, markets, market architecture, proximity

Introduction

How do managers and entrepreneurs organise their business activities to connect with business networks and markets? The relationship between organisational and market structures has long been of interest (DiMaggio and Powell 1983; Meyer and Rowan 1977); though today business models (Doganova and Eyquem-Renault 2009; Magretta 2002) and market architectures (Fligstein 1996; Fligstein 2001) are more familiar terms. The relationship between these phenomena is often referred to as the sociology of markets (Callon, Millo and Muniesa 2007; Fligstein and Dauter 2007; Knorr-Cetina and Preda 2004). The concern remains: how market actors enrol others, mobilize resources and organise markets (Araujo, Kjellberg and Finch 2010).

Bottom of the pyramid (BoP) businesses offer an extreme setting that foregrounds efforts to imagine and put into practice organisational structures that connect with markets (Dolan and Johnstone-Louis 2011; Lindeman 2012; Viswanathan and Rosa 2010). The *'bottom of the pyramid'* is a term coined by Prahalad and Hammond (2002) to describe the large numbers of people living in subsistence conditions, typically earning less than $2 per day, having inadequate access to food, education, transportation, consumption choice. Because BoP actors have limited available resources their proximity is likely to have a significant influence on how business activities are imagined and organised. Weidner, Rosa and Viswanathan (2010) suggest that social relations, cognition and geographical spread impact on the success of business activities at the BoP. However, they do not theorise these dimensions of proximity as shaping organising structures. In the economic geography literature, proximity is understood as a multi-dimensional, socio-spatial construct that impacts on economic life (Bathelt 2005; Boschma 2005; Capello and Faggian 2005; Torre and Rallet 2005). Yet the impact of proximity on BoP business structures is rarely discussed (see, Reficco and Márquez 2012 as a notable exception).

Zott and Amit (2010) conceptualise business models as abstract organising structures and suggest that designing a firm's structure in relation to its network and markets is directly related to firm performance (also see, Doganova and Eyquem-Renault 2009; Mason and Spring 2011). Despite these valuable observations, the socio-spatial-temporal dimensions of the business modelling process remain unexplored. How businesses are organised *in situ*, and which proximities taken into account, has largely been ignored. We set out to address this gap.

In this paper, we bring together the theoretical lenses of proximity and business models to explicate business at the BoP. We examine the role of proximity in designing business models that work for those at the BoP. Proximity is understood here as a multi-dimensional construct, comprising five dimensions: (1) *cognitive proximity*: the similarities and complementarities between the knowledge-base of firms that collaborate and trade, manifest as the intra-organisational routines and actions that shape the production and circulation of technical and market knowledge; (2) *organisational proximity*: the inter-organisational routines controlling the circulation and production of technical and market knowledge across firm boundaries; (3) *social proximity*: individual actors' competences that can be reliably connected in practice, (4) *institutional proximity*: the norms, rules and values of the broader environment that enable reliable actor connections, and (5) *geographical proximity*: the physical space and distance between economic actors (Boschma 2005).

Business models are understood as being epistemic devices that represent, order and organise business activities connecting the firm and the market. At an abstract level, business models are conceptualised as a three-dimensional construct, including: (1) *technologies*: used in structuring the product/service offerings, and delivery management; (2) *market offerings:* the structuring of the producer-user interactions that generate the firm's offering; and (3) *network architectures*: the structuring of business activities of all buyers and sellers needed to make that market offering possible (Mason and Spring 2011). We emphasise the *structuring* role of each element here to foreground proximity issues. We understand the practice of *designing business models* as an ongoing iterative, reflexive process of deliberate change to the business model dimensions, performed through reactions to events, other market actors and new understandings (cf. Romme, 2003).

The paper begins with a brief literature review to explicate the relationship between firm and market structures in BoP markets. We then propose and apply a *business model proximities framework* to an historical analysis of three BoP businesses that have made deliberate structural changes to their activities. Findings suggest that different dimensions of proximity impact on, or are invoked by, managers and entrepreneurs at different times in the business model design process. Understanding proximities helps managers work out how to frame problems and reorganise their business activities – sometimes opening up new spaces for market activities. The paper concludes by discussing the relevance of insights for non-BoP contexts and suggests an agenda for future research.

Literature Review

Firm and Market Structure

Since Coase (1937), scholars have studied the relationship between the firm and the market as alternative and inter-connected structures for co-ordinating resources for production. Much of the work preceding Coase's seminal paper focused on understanding economic systems, and specifically the role of price in shaping markets. Coase argued that price as an organising mechanism was not sufficient to explain the allocation of resources: '*entrepreneurial-co-ordination'* replaces price as a coordination mechanism when social relations are *'desired for [their] own sake'* (Coase 1937: 390). Social relations are invoked when the costs of using the price mechanism are too high: costs are high when information is not available, and/or the work to be done is uncertain and innovative (also see, Schumpeter 2009). Williamson (1975; 1979) referred to these costs as transaction costs. When transaction costs are high (or undetermined), actors organise their activities within the boundaries of a *'firm'*: this is *'the nature of the firm'* (Coase 1937: 386). The assumption is that firm structure is affected by market costs and uncertainties. Dimensions of proximity are implicitly taken into account: market costs are understood to rise when resources are geographically distant; firms need to be organised in ways that reduce uncertainty (organisational proximity).

By the 1970s, research on firm structure began to consider the influence of the broader institutional setting. Chandler (1969) describes how firms grow through vertical integration in an effort to remove transaction costs and increase profits. While he does not use the term proximity explicitly, Chandler foregrounds geographical proximities: for example, the impact of the development of railroads and other technologies on the way firms grew their scope and scale of activities. Chandler's interest in the scope and scale of the firm, lead him to argue that firm structures are designed to achieve a specific purpose or strategic intent: *"[M]ulti-unit business enterprise replaced small traditional enterprise when administrative coordination permitted greater productivity, lower costs, and higher profits than coordination by market mechanisms"* (Chandler 1977: 6). This view emphasises organising for efficient administration and management. Other scholars suggest that such practices necessarily produce inefficient routines and bureaucracy and that in time, these begin to shape firm structure. In other words, different social and institutional proximities shape firm structure. Meyer and Rowan (1977) observe the impact of the professions, policies and programmes created alongside products and services. Policies and programmes become institutionalised rules expected or legislated as organising requirements: *"…organizations are driven to incorporate the practices and procedures defined by prevailing rationalized concepts of organizational work and institutionalized in society",* (Meyer and Rowan 1977:

340). The assumptions here are that firm structure is shaped by both market institutions and practices, and the strategic intent of managers and entrepreneurs. Cognitive, social, institutional, and geographical dimensions of proximity are implicit in these authors' descriptions of what it means to organise in markets. Yet no explicit consideration is given to proximity.

Meyer and Rowan's (1977) thesis recognises the multiple and varied forms and roles of market actors. 'The Architecture of Markets' (Fligstein 2001) argues that markets are structured by the social actions that take place in organised social spaces or 'fields'. The theory of fields focuses on understanding how new social spaces are opened. These spaces contain collectives of actors who attempt to dominate a particular space through the systems they produce. However, domination can only be achieved through the production of a local culture, defined by localised social relationships. In this sense, social structures are understood to be formed *in* markets. The assumption is that firms and other market actors are embedded in the social structures that constitute markets, and that these social structures are, in turn, transformed through the performance of markets (Araujo 2007; Fligstein and Dauter 2007; Granovetter 1985). The dynamics of proximity are foreground in this view, as it suggests that different dimensions of proximity are taken into account in different ways, places and times, by different actors as the market is performed.

Taking proximity seriously requires a focus on the relatedness of proximity dimensions to each other through time. Such an approach stands to generate a deeper understanding of how market architectures emerge. By focusing on the role of proximity in designing business models at the BoP, we take the first tentative steps in developing this agenda.

Firm and Market Structures at the BoP

The particularities of proximity in BoP markets are challenging because of the extreme scarcity of resources and extant socio-political-economic practices[1] (Thompson and MacMillan 2010). Many people at the BoP live in one of a group of underdeveloped countries known as the BRICs – Brazil, Russia, India and China (Sridharan and Viswanathan 2008), where poor infrastructures, problems of distribution and communication can appear insurmountable - yet trade goes on. London and Hart (2011:8) define BoP as the *"low-*

[1] As others have noted, BoP sites are often rich with resources that remain beyond the reach of people at the BoP for a complex combination of socio-political-economic reasons that range from limited education to corruption or lack of technological expertise). Socio-political-economic practices that are institutionalised routines in developed markets (such due diligence or developing and reviewing models of practice that compete with and threaten established organisations and institutions), are often inoperable in BoP settings (see for example, Thompson, James D., and Ian C. MacMillan. 2010. "Business Models: Creating New Markets and Societal Wealth." Long Range Planning 43(2-3):291-307.; de Soto, Hernando 2000. The mystery of capital: why capitalism triumphs in the West and fails everywhere else. New York: Basic Books.)

income socioeconomic segment that is not well-integrated into the formal economy" and address the challenge of business development where there is an absence of a 'westernized' market, characterised by enforceable contracts and property rights protection. A key focus in the BoP literature has been the mapping-out of the connections between consumers/customers, producers, their organisations and geographical spread across 'westernized' and underdeveloped country settings (Prahalad 2006; Singh, Ang and Sy-Changco 2009). De Soto (2000) claims that the majority of BoP communities are excluded from the predominantly western capitalist system because substantial bureaucracy forces people with limited resources to operate in an extra-legal environment. When property rights are not officially recorded and contracts lack mechanisms for enforcement, actors rely on other governance systems: social relationships with strong social and geographical proximity.

BoP markets are often categorised as the *informal economy*[2], comprising unregistered production units, or micro-enterprises, that *"typically operate at a low level of organization, with little or no division between labour and capital, and on a small scale"* (Becker 2004:12). These micro-enterprises are owned and operated by individuals that seldom engaged in formal contractual agreements. However, they are subject to the same market laws and principles (i.e. supply and demand) as the formal economy. The informal economy is an important source of employment: between one-third and three-quarters of total employment in most developing countries (World Bank, 2010). Extant BoP research has focused on producer-consumer communities where market actors have strong cognitive proximity because they live in close geographical proximity.

The concept of business models is often invoked in the BoP literature. Prahalad and Mashelkar (2010: 136) describe how companies such as the Bharti Airtel, a provider of mobile phone services in India, innovated their business *"not by developing state-of-the art technologies but by creating new business models."* Thompson and MacMillan (2010) emphasise the importance of culture and the institutional norms in shaping business model design, offering a set of *'principles-in-the-making'* (2010: 294). Here, business models are used as analytical frames to help entrepreneurs work out resource combinations to deliver market offerings *in situ*. This emphasiss business model design and suggests proximity as an important dimension.

[2] The International Labour Organisation coined this phrase and is responsible for drawing up and overseeing international labour standards. ILO is an United Nations agency that brings together representatives of governments, employers and workers to jointly shape policies and programmes promoting Decent Work for all. http://www.ilo.org/global/about-the-ilo/lang--en/index.htm

Transformations in business model design emerge through situated practice. Dolan and Johnstone-Louis (2011) observe the work of Avon employing the local community to sell personal care products in South Africa. Viswanathan, Rosa and Ruth (2010) look at the local relationships that sustain business for BoP producers. Weidner et al. (2010) describe a characteristic of these markets as the one-to-one interactions between small neighbourhood store owners and local consumers that combine economic and social relationships among actors in these marketplaces (cf. Granovetter 1985). In this literature, the different dimensions of proximity are often raised in reference to the deliberate process of organising, ordering and structuring business activities. However, no systematic effort has been made to explore the spatial-temporal dimensions of the business model design process.

A Business Model Proximities Framework

Conceptualising Proximity

In economic geography, the term proximity was initially used to explain the geographical space between firms, with the co-location of firms claimed to improve knowledge flows, and the production of knowledge and learning (Amin and Cohendet 1999; Amin and Wilkinson 1999; Loasby 1999). Howells (2002) argues for the need to isolate analytically the effect of geographical proximity to determine whether this matters to the production of new knowledge and innovation, leading to a more sophisticated understanding of proximity. Boschma (2005) identifies five dimensions of proximity: cognitive, organisational, social, institutional and geographical.

Cognitive proximity is the closeness (or otherwise) of an actor's collection and interpretation of technological and market knowledge, relative to those of other firms in the network. Boschma understands cognition as socially distributed rather than as individualistic and psychological (*c.f.* Hutchins 1995). Cognitive proximity is not always seen as a good thing because while it can aid communication between firms (Boschma and Lambooy 1999), novelty and difference in bodies of knowledge can trigger new ideas and creativity (Cohendet and Llerena 1997). Business models need to design-in actors that have complementary routines for searching different forms of market and technological knowledge.

Organisational proximity is the compatibility of knowledge-sharing routines between actors in the network. According to Boschma (2005), the more compatible these routines are, the more control the firm has of knowledge flows in the business network. Business models need to take into account how communication mechanisms will work between various networked market actors.

Social proximity is the micro-level social relations between market actors with different forms of expertise. While Boschma (2005) describes social proximity as being based on trust in social relations, to understand the process of business model design at the BoP we focus on the competences and connections between actors that are designed to support the sharing of knowledge and the performance of openness in the network.

Institutional proximity operates at the macro-level and is concerned with the norms, rules and values of conduct of the broader institutional environment. It sets out to understand how these norms become embodied and performed as part of specific economic relations (cf. North 1990).

Finally, *geographical proximity* is the spatial or physical distance between economic actors both in its absolute and relative meaning. This conceptualisation of proximity links the micro with the macro, and suggests the need for interdependent multiple scales of analysis. Business models need to take into account multiple sites of actors so that business activities can be organised in relation to their multiple sites of practice.

Cognitive, social and organisational proximity suggest that business model design needs to take into account how the network operates and the types of value that are likely to be generated through specific forms of interaction. We draw on Boschma's five dimensions of proximity to explore the spatial-temporal dimensions of business model design in practice.

Conceptualising Business Models

The term business model became widely used in the dot.com boom as the internet offered opportunities for firms to restructure their activities, opening markets to new forms of online retail (Chen 2003; Gulati and Garino 2000). Since then business models have been seen as central to organizational success, because they structure or 'model' a firm's value chain activities (Baden-Fuller and Morgan 2010; Chesbrough and Rosenbloom 2002; Osterwalder, Pigneur and Tucci 2005; Teece 2010). Business models are widely conceptualized as descriptions, or representations of a reality, identifying business model components (Osterwalder, Pigneur and Tucci 2005; Weill and Vitale 2001; Zott and Amit 2007) or sets of activities (Demil and Lecocq 2010). Mason and Spring (2011) reviewing the different conceptualisations of business models, identify three dimensions: technology, market offering and network architecture.

Technologies structure the productions of product/service offerings, and their delivery management (Chesbrough and Rosenbloom 2002; Chesbrough 2007) and are a key resource

in many business models (cf. Osterwalder and Pigneur 2010). A business model should prompt users to consider product technologies that constitute their product platforms and market offerings (Chesbrough and Schwartz 2007; Teece 1987; Twiss 1992), as well as process technologies that facilitate the production of products/services (Cusumano 2008; John, Nightingale and Syed 2009), and the infrastructure technologies that connect market actors in ways that enable production, distribution and consumption: for example, the internet, mobile telephone networks, systems for container shipping (Metters and Vargas 2000). Technologies are not environmental variables. They are part of the network that performs the business model in practice (Mason and Spring 2011: 1034).

Market offerings are what are offered by the firm to the customer and how. This conceptualisation is concerned with how producer-user interactions are structured, rather than any essential feature of particular products or services (Araujo and Spring 2006). Thus market offerings are understood as programmes of action aimed at coordinating a network of distributed activities (cf. Callon 1991; Demil and Lecocq 2010; Normann 2001). Including market offerings in a business model requires users to consider the sets of activities the organisation should be involved in, the way these activities generate specific types of value, and the artefacts needed to support customer and company access to that value (Coombes and Nicholson 2013; Demil and Lecocq 2010; Osterwalder and Pigneur 2010).

Network architectures represent the configuration of business activities of buyers and sellers needed to make that market offering possible. Zott and Amit (2008: 1) see the business model as *"a structural template that describes the organisation of a focal firm's transactions with all of its external constituents"*, while Osterwalder and Pigneur (2010) refer to *'channels', 'business partners'*, and *'forms of relationships'* as being central to understanding how a firms develops and maintains a network of key actors that support their activities. Using this dimension as part of the business model requires users to question the firm's capabilities in relation to those in the network; consider how relationships with networked actors are performed and managed (both within and across firm boundaries); explain the standards and institutional rules that shape how the network operates or influences how resources and capabilities can be accessed externally or in-house.

To date the development and use of these conceptualisations has been focused on generating tools for practitioners to analyse their context and adopt or develop frames that enable them to strategize (Osterwalder and Pigneur 2010; Teece 2010). Morris et al. (2005) see business models as being used at multiple levels of aggregation – at the level of economic exchange,

operations, and strategy. At the level of exchange, Morris et al. (2005) define business models in terms of the company's economic model. At the operational level, they represent the connections that configure the network. At the strategic level, business models emphasize the purpose and direction in the firm's market positioning and growth opportunities. These multiple perspectives act as interconnected links in a chain, suggesting that business models can be used to answer different types of questions, helping managers calculate their actions to connect with markets (Araujo 2007; Doganova and Eyquem-Renault, 2009).

Entrepreneurship scholars have shifted the view of the business model as a description of reality to a functionalist perspective which emphasizes envisaging a future venture and the value creation logic it will involve (Doganova and Eyquem-Renault, 2009). However business model have not yet been adopted by academics as analytical tools to understand changing organisational structures through time or their connections with markets. Mason and Spring (2011) offer a notable exception, and we adopt their business model because it broadly encompasses many of the components or dimensions adopted by other authors (see for example, Amit and Zott 2001; Osterwalder and Pigneur 2010; Seely Brown 2006; Teece 2010; Zott and Amit 2007), it is abstract enough to be applied at multiple levels (Morris et al. 2006), and it offers guidance to using the business model as an analytical frame to generate questions that might be asked of a situation. We adopt this framework to analyse the designing of the business model and their associated activities. We foreground the spatial-temporal dimensions of business models, by adding the five dimensions of proximity (Boschma 2005) to the framework, and additionally use these to generate questions about the specific forms of proximity pertaining to each business model dimension (Figure 1).

Figure 1. Analytical Frame for Understanding Business Model Proximities

TIME t_1-t_n	**Business Model Elements**		
Proximity	Technology: That structures product/service offering and their delivery	Market Offering: That structures what is offered to the customer and how.	Network Architecture: That structures the business activities between buyers and sellers
Cognitive: shared interpretation of technical and market knowledge	What forms of technical and technological knowledge reside within the case firm, and how are they understood in relation to: ▪ other firms in the market, ▪ key others in our network Does the case firm share process technologies with customers/buyers/suppliers?	What forms of market knowledge reside within the case firm in relation to: ▪ other firms in the market, ▪ key others in our network Does the case firm have or share product technologies with buyers or suppliers? What are the *cognitive* challenges of connecting with markets?	Do network actors offer novelty/difference in market or technical knowledge? How is technical and market knowledge accessed and made use of by the case firm?
Organisational: Compatibility of knowledge sharing routines	What are the communication technologies in place between firms? What are the technologies in the case firm that allow for management of business activities?	How is the deliver and management of market offerings monitored and managed? What are the *organisational* challenges of connecting with markets?	What market knowledge sharing practices does the firm have? What technical sharing practices does the firm have?
Social: Different forms of expertise and competence in the network	What technological expertise exists in house?	What are the key competences and forms of expertise that enable us to deliver value to customers? What are the *social* challenges of connecting with markets?	What competences and forms of expertise are accesses from the business network?
Institutional: Norms, rules and values of broader institutional environment	Are there communications or technological infrastructures necessary for accessing ▪ the labour force ▪ the market ▪ the business network? What are the cultural, legislative or administrative laws that affect the way the firm operates on a day to day basis?	What are the cultural, legislative or administrative laws that affect the market offering and its delivery? What are the *institutional* challenges of connecting with markets?	What are the institutional rules that the case firm needs to obey or subvert in order to operate?
Geographical: Spatial or physical distance between economic actors	Are there specific technologies that reduce geographical distance?	How are the resources and competences needed to create the market offering, geographically distributed? What challenges or special arrangements does it require for the case firm to access them? What are the *geographical* challenges of connecting with markets?	What are the spatial or physical distances between actors (in absolute and relative terms)? How do these affect other forms of proximity in the case firm and its wider business network?

In proposing a business model proximities frame (Figure 1), we set out to identify specific events that bring about changes in proximity, causing the different dimensions of proximity to collide and/or invoke concerns that lead managers to redesign their business model. By introducing a spatial-temporal dynamic to the framework we are better positioned to see if some proximities strengthen others through time, or if different dimensions of proximity have

negative or positive consequences at different moments in time through their transformative effect on the business model. Thus, we see the business model design as a spatial-temporal process unfolding through time, implicated by multiple, interconnected and dynamic dimensions of proximity. This process involves designing, structuring and organising a productive, value-generating system to work, across specific, dynamic settings.

Methodology

To understand the role of proximity in business model designs at the BoP we adopted a staged approach. Stage one involved searching leading academic and practitioner-oriented management journals from the period of 1998 to August 2012 (Table 1) for cases that described businesses at the BoP. We screened secondary data (Geiger and Finch 2011) by looking for contrasting organising structures. Drawing on the BoP literature's argument that emphasises the significance of geographical spread of connected actors across developed and LDCs (cf. Prahalad 2006; Singh, Ang and Sy-Changco 2009), we mapped buyers, suppliers, and their organisations to visualise network and market structures. We selected three cases as exemplars of typical structures found in BoP markets (Figure 3), labelled the Ecosystem Business Model, the Import/Export Business Model and the Access Business Model (Table 2). The breadth and depth of published data available on each case also influencing our selection. Stage two involved in-depth research on each case, including gathering together source materials and looking for additional information. We accessed leading practitioner reports e.g. Monitor Group, expert websites (http://www.nextbillion.net and http://www.bop-protocol.org/), newspaper stories, documentaries, documents produced by the organisation to advertise, recruit or publicise activities, blogs and websites generated by the organisations and their associates, YouTube, documentaries and presentations generated by those working for these businesses (See Table 2.) We also contacted the founders/leaders of each business and secured three interviews with Richter (Case 2).

With little primary ethnographic research being conducted, we relied on secondary data. While we recognise a key limitation of this method is the separation of the researchers from the actual sites of practices, we have made use of materials produced by the managers and entrepreneurs themselves, including their participation in documentaries and videos. We acknowledge that documentaries and presentations by their nature represent the creative treatment of actuality derived through authentic footage and subject testimony (Ellis and McLance 2004), but also suggest that the particular narrative and filmic techniques reveal purpose and organisational practices to the audience. We also acknowledge that such

presentations are necessarily partial and may conceal other aspects (Richardson-Ngwenya and Richardson 2013). However, in considering film as a form of 'being there' Parker (2012: 28), argues that such teleographies are valuable, explaining, *"whilst the questionnaire and the interview prefigure the world on behalf of those asking the questions, the ethnography supposedly establishes a more ideal speech situation, one which others can speak, and be heard, and the ethnographer modestly apologetically claims credit as a conduit but hopes to have avoided the violence of representation. If modern ethnography has a politics, this is it, as a way of turning an epistemology into an account of the politics of showing things…".* Narratives that explain how and why these BoP businesses are organised are of value to us and can act to bring about change and understanding (cf. Richardson-Ngwenya and Richardson 2013). We draw on these narratives to help us see how proximities change and force the changing practices of those performing the business model *in situ*.

Table 1: A Summary of Case Search Criteria and Sources

Criteria for case selection: search terms	Journals	Other Sources
Base of the pyramid **Bottom of the pyramid** **Bottom up approach** **Business models** **Emerging markets** **Emerging models** **Firm structure** **Inclusive models** **Organising business** **Social ventures** **Social engagement** **Social marketing models** **Strategic business models** **Subsistence markets** **Sustainable business models**	Journal of Marketing Journal of the Academy of Marketing Science Industrial Marketing Management Journal of Business Research Journal of Management Studies Academy of Management Journal Organization studies Strategic Management Journal Academy of Management Review Journal of Public Policy and Marketing Journal of International Business International Business Review Academy of Management Review MIT Sloan Management Review California Management Review Harvard Business Review	**Books:** The Fortune at the Bottom of the Pyramid Eradicating poverty through profits, Socially Responsible Distribution: Distribution Strategies for Reaching the Bottom of the Pyramid, Business Solutions for the Global Poor, Next Generation Strategies for the Base of the Pyramid **Websites:** http://www.nextbillion.net http://www.bopprotocol.org/ http://thebopproject.net/ http://www.wharton.upenn.edu/socialimpact/ Practitioner Reports and Relevant Research Groups: Endeva Group (Enterprise Solutions for Development); Monitor Group; The Erasmus Research Institute of Management (ERIM), Wharton Global Consulting Practicum, Wharton Social Impact Initiative, Market Studies Group. (http://marketstudi.es/)

Stage three involved the production of time lines for each case (Figure 2). In our time lines *'events'* precipitated organisational change. Because these organisational changes became stabilised and institutionalised, we associated each re-organisation event with the period of stability that followed. Consequently, events are depicted on the time lines as covering three (Figure 2a, 2b) or four (Figure 2c) distinct proximity/business model changes in association with the period of stability that followed. Stage four involved applying the business model proximities frame to each of the events (t_1-t_n) to explicate how changing proximities or concerns relating to different dimensions of proximity had brought about business model change through time.

Figure 2. Timelines for the Three BoP Businesses

Figure 2a: Timeline for the Nutan Mumbai Tiffin Box Suppliers Charity Trust (NMTBSCT): the Dabbawalas of Mumbai 1890-2014

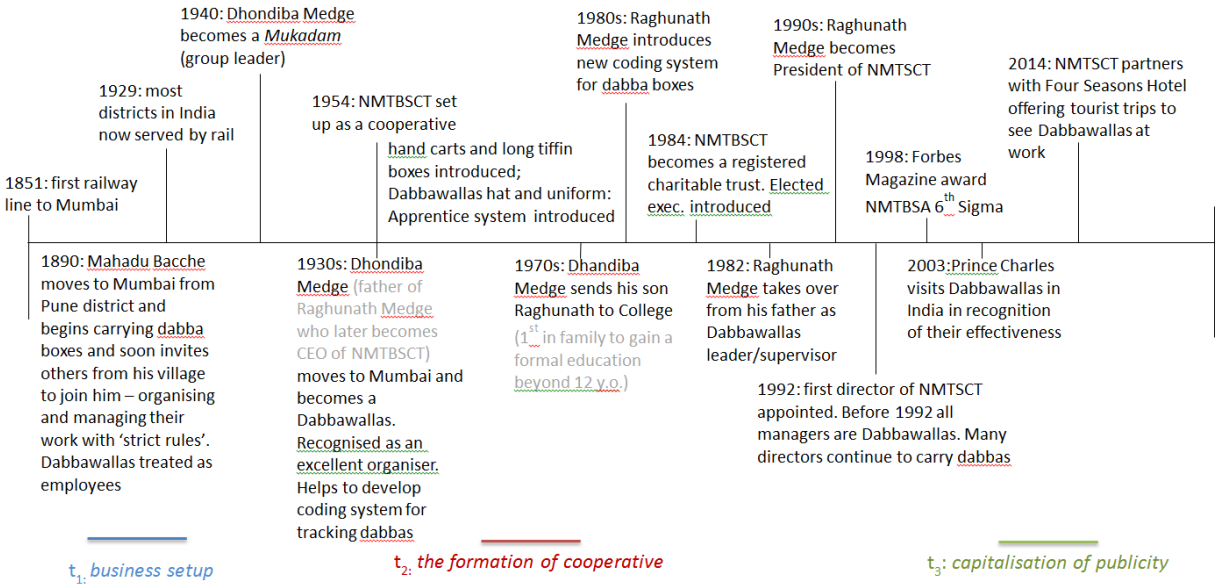


Figure 2b: Timeline for Kachile: 2009-2012

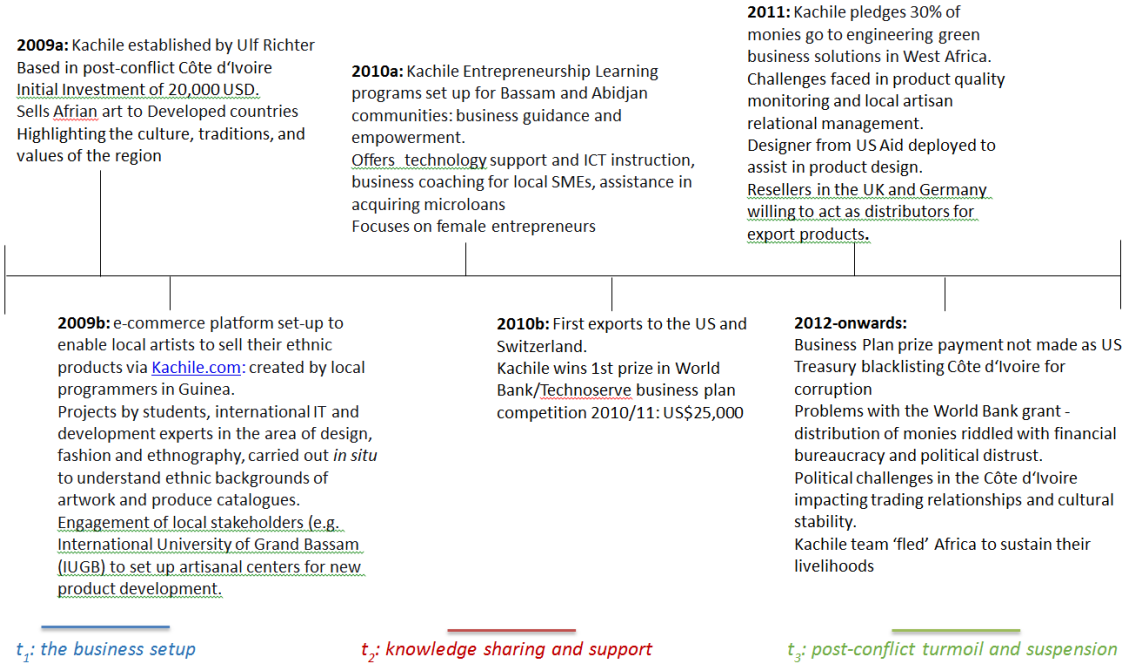


Figure 2c: Timeline for One Laptop Per Child (OLPC): 2005-2012

2005: Dr Negroponte set up OLPC with US$20m.
Mission : reduce poverty by providing education to the poorest and most remote children in the world via laptop.
Multiple Partners: Quanta contracted to build Laptop
Target: 7-10 million laptops in 2007
Target countries: China, India, Thailand, Egypt, Nigeria, Brazil and Argentina. Multiple partnerships.
Product Spec: 500 MHZ AMDx86 processor, 128 DRAM, windup, 4 USB ports, Wifi mesh network, rugged and dual mode display, OS and software in local language

2006: The United Nations agreed to support OCPL to reach remote and unconnected countries. Developer and educational prototypes of machines continued.

2007: Warehouses stocked with laptops for shipment. 7000 machines in Cambodia tested by children.
New Product Spec: longer battery life, dual mode sunlight display and Wifi. Focus on good design for inexpensive products. Users tasked to build their own Wifi network connections. Design included keyboards in 12 languages, with 6 new Keyboards in development
Strategy: targets Argentina, Brazil, Libya, Nigeria, Pakistan and Thailand
Laptopgiving.org website set up to accept direct donations via a "Give 1 Get 1" (G1G1) offer.

2008/9: 500,000 laptops distributed. 250,000 in transit. Another 250,000 being ordered.
Columbia: working with Ministry to distribute due to disconnected landscapes effected by war. 31 countries involved.
Improved reading: Children acting as the agents of change teaching parents to read
Laptopgiving.org 2nd G1G1 campaign generated 100,000 laptops and allowed them to access Haiti, Rwanda, Afghanistan etc. Program sold 12,500 laptops (US$2.5 million) 93% decline. No longer advertises direct to consumers, focus on fundraising. Doubts about the exclusive use of open source software ; suggestions to adopt Windows XP. Charles Kane: President and Chief Operating Officer.

2010/1: New Miami office to support overseas sales
Funding from Marvell, enabled the 1Q 2012 completion new laptops and tablets.
OLPC taking orders for mass production of the XO-1.75; 2.5 million XO-1 and XO-1.5 laptops shipped.
Launched a new website designed by Pentagram and Upstatement.

2012-onwards: OLPC reports over 2.4m laptops shipped. Criticisms of OCPL remains, over a lack of support for teachers training, debugging issues with open source platforms, lack of filters for child protected content, environmental and health impact of laptops, lack of support for breakages.

t_1: *the business setup*

t_2: *technical access and government support*

t_3: *children as change agents*

t_4: *socio-technical and ethical dilemmas*

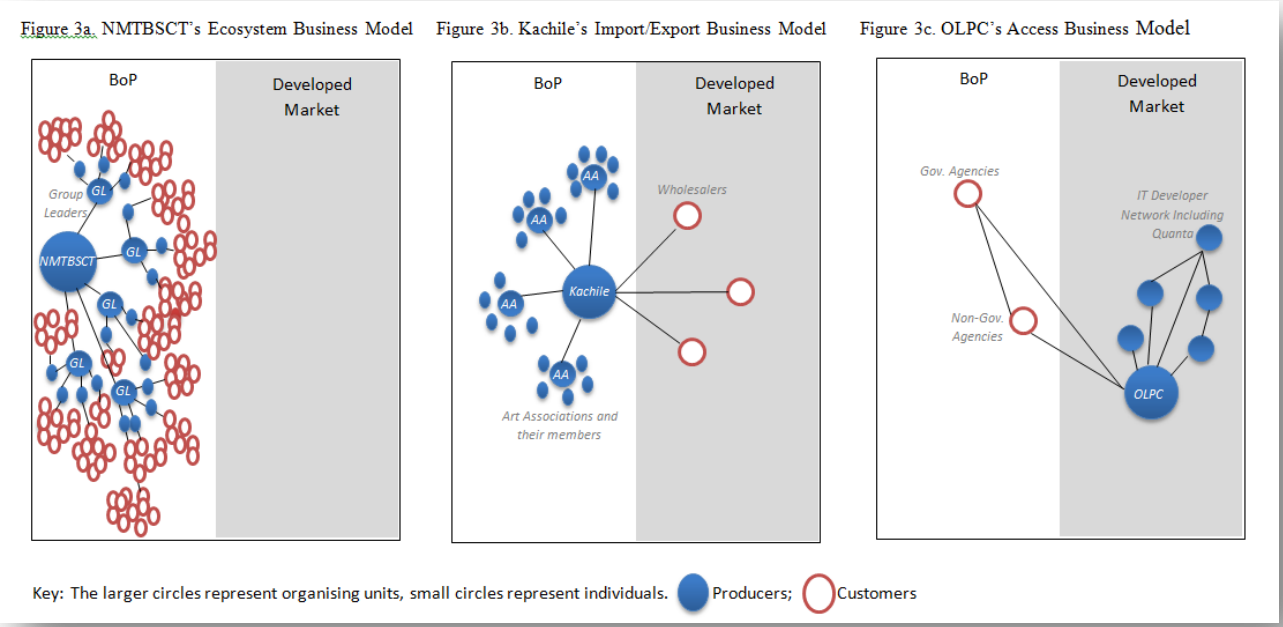
Table 2: A Summary of Three Selected Cases and Sources

Illustrative Cases	Business Model	Sources
NMSTSCT: Dabbawallas deliver dabba (lunch) box to workers in Mumbai	Ecosystem Business Model	▪ Presentation by Arvind Gangaram Talekar, who represents the Nutan Mumbai Tiffin Box Suppliers Charity Trust of Mumbai and presents a TedxDehli talk October 2010. https://www.youtube.com/watch?v=X9IfwZ8f8TI (see for coding and colour system – managing the dabba boxes) ▪ Presentation by Dr.Pawan Girdharilal Agrawal, CEO of the Mumbai Dabbawallas at TEDxSSN February 2011. https://www.youtube.com/watch?v=N25inoCea24 ▪ Bondre, Shobha, (2013) 'Mumbai's Dabbawalla: The uncommon story of the common man, Westlan Ltd, New Delhi, Translated by Shalaka Walimbe ▪ P{resentation by Pawan Agrawal at the IMM Calcutta institute Lecture Series, July 2012. https://www.youtube.com/watch?v=EZVTZivWwbg ▪ Mumbai Dabbawallas Documentary, by Prof M.s. Pillai, Founder Director, The Sadhana Centre for Management and Leadership Development, Pune, India: https://www.youtube.com/watch?v=W2OBH7KxIEk ▪ Film: The Six Sigma Dabbawallas of Mumbai, Jan 2015. https://www.youtube.com/watch?v=W2OBH7KxIEk ▪ Sangle, S. and Gavande K. (2014), 'Lunchbox Legends: the Dabbawallas of Mumbai', Indian Summer in Partnership with Nature's Path and the SFU Office of Community Engagement, July 10. Vancouver https://www.youtube.com/watch?v=Z88bIk-9HQc ▪ Dabbawallas Documentary: http://www.youtube.com/watch?v=s1ZNwqBJUW8&feature=related; https://www.youtube.com/watch?v=yjqZhJfKses ▪ News Article: http://www.straight.com/food/680526/dabbawalas-food-delivery-system-attracts-attention-around-world
Kachile: Sells art from BoP producers to developed markets through an e-marketplace.	Import/Export Business Model	▪ Interviews and correspondence with Kachile Founder. ▪ http://www.facebook.com/Kachile ▪ Kachile Documentation: https://mmd4d.files.wordpress.com/2009/04/kachile-executive-summary.pdf ▪ New article: eLearning Africa; 'how 'Kachile' Creates 'Digital Opportunities' in Cote d'Ivoire, 28th September 2010: http://ela-newsportal.com/277/ ▪ Kachile documentation: call for expertise: https://www.uni-kassel.de/aaa/Newsletter_Go%20international/Newsletter_2010/Anhaenge/Kachile%20-%20Internship%20Opportunities.pdf; https://www.uni-kassel.de/aaa/Newsletter_Go%20international/Newsletter_2010/Anhaenge/Kachile%20-%20Internship%20Technology%20Deveopment.pdf ▪ Richter U., and Ferris V. 'Sustainability Strategies at the bottom of the pyramid – fostering entrepreneurship in a post-conflict environment, oikos UNDP Young Scholars Development Academy 2009; Growing Inclusive Markets; http://backup.oikos-international.org/fileadmin/oikos-international/international/UNDP_Academy_2009/Papers/oikos_UNDP_2009_Paper_Ulf_Richter.pdf ▪ Introduction Kachile African Art, Presented by Founder Ulf Richter (April 2012):https://www.youtube.com/watch?v=T5053q1TyH0
One Laptop Per Child: designs and subcontracts mass production of cheap, child friendly roughed laptops and sells to governments of developing countries for US $150 to drive education and inclusion. Economies of scale are central to this business initiative.	Access Business Model	▪ One Laptop Per Child Official Website: http://one.laptop.org/ ▪ Presentation by Nicholas Negroponte (Feb. 2006), Chair of MIT Media Lab and founder of One Laptop Per Child: https://www.ted.com/talks/nicholas_negroponte_on_one_laptop_per_child#t-7611 ▪ Presentation by Nicholas Negroponte (Dec. 2007), Chair of MIT Media Lab and founder of One Laptop Per Child: https://www.ted.com/talks/nicholas_negroponte_on_one_laptop_per_child_two_years_on ▪ Film made by founder Nicholas Negroponte: Taking OLPC to Colombia: https://www.ted.com/talks/nicholas_negroponte_takes_olpc_to_colombia ▪ Media report and statement by OLPC (March 2014):http://www.wired.co.uk/news/archive/2014-03/12/olpc-not-dead ▪ Leaning M (2010) 'The One Laptop per Child Project and the problems of technology-led educational development' in, Ilene R. Berson and Michael J. Berson (2010) High-Tech Tots: Childhood in a Digital World, Information Age Publishing: Charlotte, NC ▪ Kenneth L. Kraemer, Jason Dedrick, Prakul Sharma, (2009) 'One Laptop Per Child: Vision vs. Reality', Communications of the ACM, Vol. 52 No. 6, Pages 66-73 10.1145/1516046.1516063 ▪ Documentary by Michael Kleiman, 2014, 'Web: connecting is just the beginning', follows Peruvian families living in remote villages in the Amazon Jungle and Andes Mountains as their children experience the One Laptop per Child (OLPC) program. Available from https://itunes.apple.com/us/movie/web/id914258786?ls=1 ▪ Beitler, Daiana (2013), National Programmes, Technical Projects: An ethnography of the One Laptop per Child (OLPC) programme in Uruguay; published as an PhD e-thesis, available through LSE library: http://etheses.lse.ac.uk/791/ ▪ Quelch, J. A., & Knoop, C.-I. (2008). Marketing the "$100 Laptop" (A) [Case Study]: Harvard Business School Case 508-024

Findings

In this section we present the three case studies to illustrate how different dimensions of proximity have been encountered or invoked by managers and entrepreneurs at the BoP as they work out how to design their activities for the market. Using the business model proximities framework (Figure 1), we explore how some dimensions of proximity strengthen others or have negative or positive consequences at different moments in time and ultimately how they are taken into account in designing and developing the business model. The business models in each case are different. Each is labelled with a brief description that explains how they are designed to connect with markets: NMTBSCT adopted an Ecosystem Business Model, Kachile an Import/Export Business Model and OLPC an Access Business Model (Figure 3). Our analysis explains how BoP businesses come to be organised in this way and suggests how managers might go about designing business models that work for their particular context.

Figure 3. Three Business Model Designs at the BoP



Case 1: The Ecosystem Business Model at NMTBSCT 'Dabbawallas'

NMTBCT[3], also known as *'the Dabbawallas',* offer a lunch delivery service of home cooked food to workers in the city of Mumbai, India. The *dabba* is the lunch box and the *Dabbawalla* the person delivering the lunch. The Dabbawalla collects the dabba from each household each morning and delivers it to the customers' place of work, sometimes travelling long distances (150km plus). The Dabbawallas work as relay teams. As such we see the Dabbawallas' activities structured through what we label the *Ecosystem Business Model* (Figure 3a). The Ecosystem Business Model connects producers and consumers through a locally generated system of exchange, and operates as a closed ecosystem. Its purpose is to keep economic value and revenues circulating within the local economy, by connecting local resources with existing and new practices to generate a self-sustaining business and market systems (Hart and Milstein 2003).

The Dabbawalla service began in 1890, after the introduction of the Indian railways (1851), as those struggling to make a living in the rural districts of India began to travel to Mumbai for work. At this time a young man named Mahadu Bacche moved to Mumbai from the Pune district (some 200km away), and began delivering dabba boxes. The job required almost no resources except a bike to collect the dabba and the competence to navigate the city and organise collections and deliveries (Bondre 2013; Roncaglia 2013). Too much work led Bacche to invite friends from Pune to work with him. Pune offered few education opportunities. Bacche's friends lacked organisational and literacy skills so Bacche became the organiser of activities, managing his friends as employees. Coming from Pune, Bacche's employees shared his culture and (religious) values[4] and these were drawn on to shape working practices. By the early 1930s, business had grown and the number of Dabbawallas working together required new forms of organising. A uniform was introduced, based on the local attire from Pune, including a distinctive hat to help the Dabbawallas see each other easily at increasingly crowded railway stations. Hand carts and long dabba tray-carriers were introduced as new technologies in their transportation system.

By 1940, business had grown again and group leaders were introduced to organise the Dabbawallas into sophisticated relay teams, working along and across different railway lines. Dabbas were marked with coloured ribbons to show where they were to be collected and

3 Nutan Mumbai Tiffin Box Suppliers Charity Trust

4 For a useful explanation of how these religious values are formed and inform daily work, see Roncaglia, Sara. 2013. *Feeding the City: Work and Food Culture of the Mumbai Dabbawalas*: Open Book Publishers. pp.37-85; Flood, Gavin, *An Introduction to Hinduism* (Cambridge: Cambridge University Press, 1996).

delivered. This coding system facilitated service reliability. Group leaders could *'buy a line'* so taking responsibility for all the business coming from one location, on a specific railway route to Mumbia.

One of the Dabbawallas was Dhondiba Medge. By the mid-1940s Medge was taking a key role in reorganisations. Having saved and *'bought a line'*, he became a *'Mukadam'* – group leader (Bondre 2013). There were problems with employees that did not work hard enough (Bondre 2013; Roncaglia 2013). Two key organisational solutions were developed: NMTBSCT was restructured as a cooperative so each member had an interest in the performance of the organisation and an apprenticeship scheme was set up to train young, inexperienced Dabbawallas. As business grew, so did aspirations. Medge saved money from his work to send his son Raghunathan to school and later, in 1974, to college – it was unheard of for anyone from this community to go to college. The group began to think about helping others in their community and, in 1984, the group registered a charity. Raghunathan Medge noticed the fragmented way in which the coding systems had developed on different 'lines' as business had grown. He developed a standardized coding system, teaching the Dabbawallas how to use it. The code provided more flexibility in how they organised relays – for many, using the new code was their first literacy training.

By 1990 Raghunathan Medge had become the President of the NMTSCT and by 1998 the scale of the Dabbawallas' operations and their reputation for efficiency and trust was such that Forbes Magazine awarded them '6^{th} Sigma'. This bought media attention and, in 2003, Prince Charles, Richard Branson and others visited the Dabbawallas, to learn from their organising and operations. Following media attention, Medge led an international public lecture tour, engaged with writers to publish books, create documentaries and TED talks telling their story (see Table 2). As a result new forms of business and philanthropic opportunities emerged. In 2014, NMTSCT partnered with the Four Seasons Hotel group to offer tourist trips to see the Dabbawallas at work. This venture might be short-lived, but at present contributes to their philanthropic activities, including access to education, literacy and computing skills.

The story of the unfolding Dabbawallas' organising structure is told in brief here, but using the business model proximities framework we identified three key moments of change. We use these moments of change (and the following period of stability) to show how different dimensions of proximity were invoked, connected and collided to transform the Ecosystem Business Model and evolve the structure of activities. We label the three key moments of

change: t_1: *the business setup*; t_2: *the formation of a cooperative* through centrally co-ordinated activities, and t_3: *the capitalisation of publicity* (Figure 3a).

Our analysis of t_1: *the business setup* identifies all five dimensions of proximity as being taken into account. Bacche's business emerged from his observations of 'difficult commutes'[5] and the everyday workplace practice of having a dabba box lunch, thus taking geographical and institutional proximities into account. He had travelled from Pune to Mumbai to look for work and on seeing this opportunity brought a network of Dabbawallas in-the-making to Mumbai because of their shared values, practices and work ethics (taking account of cognitive and geographical proximities); he developed a coding system so that a reliable service could be offered to customers (organisational, social and cognitive proximities). Proximities come to Bacche's attention in combination, as entangled and attached to observed 'problems' or 'opportunities'. By using the proximity lens we are better positioned to unpack problems, seeing how proximities shape the business model, and understand how BoP market actors imagine, access and locate business activities, enrolling key actors to overcome problems and/or taking advantage of distributed resources (cf. Baraldi, Gressetvold and Harrison 2012; Finch, Wagner and Hynes 2012).

Our analysis of t_2: *the formation of a cooperative* suggests that cognitive, social and organisational proximities shaped the business model. These three proximities become attached to the problem of managing the productivity of the workforce at a distance. It became difficult to closely monitor Dabbawallas as they were geographically spread around the city (geographical proximity) and to maintain the shared understandings of how the work should be performed (social and cognitive proximity). Action taken to restructure into a cooperative increased the rewards for each actor as productivity increased. While the overarching business activities did not change much, the way actors were rewarded and incentivised did. With organisational change came new technologies and working practices, in the context of stabilised institutional proximities: the narrative suggests that workers are all from the same region and religious group (Roncaglia 2013). Geographical and social proximity destabilise the business model as the business grows. The complexities of the different dimensions of proximity, and how they become entangled, are revealed through the framing of situated problems, e.g. the problem of *'managing the growing network'* (TEDxDehli, Oct 2010).

[5] Mumbai's suburban train services move 6.1 billion commuters on 302km of train track, in 2000 train trips every day (https://www.youtube.com/watch?v=yjqZhJfKses).

t_3: *the capitalisation of publicity*: the organisers of NMTBSCT framed the Forbes 6th Sigma award as an opportunity to publicise their activities, expertise and the value of their market offering. Representing these in a public lectures, (see Table 2), NMTBSCT publicised their understanding of technical and market knowledge, explaining their coding systems[6] and routines (stabilised cognitive and organisational proximities), and expressing their work ethic based on their religion and Pune community values (stabilised institutional proximity). In t_3, the spatial dynamic between cognitive and institutional proximities strengthen through time, ruling out some forms of structural change and sustaining others.

Since its conceptualisation as a micro-enterprise, NMTBSCT has moved a long way, entering the formal economy as it has grown (cf. de Soto 2000; Becker 2004; Meyer and Rowan 1977). In re-designing their business model to take multiple and changing proximities into account, and capitalising on stabilities in cognitive and institutional proximities, NMTBSCT has achieved continuity in the logic of its business model structure and narrative, making it recognisable as the same business today.

Case 2: The Import/Export Business Model for Kachile.com

The central purpose of Kachile.com was to address the problem of global market access for African artists, living and working in post-conflict Africa. In 2009 CEO Ulf Richter (a German entrepreneur) secured a US$20,000 investment to set up Kachile, as a limited company and social venture start-up. Kachile which means *'change'* in the local language Baoulé, reflected Richter's vision to change the lives of West African communities in conflict-ridden contexts at the BoP. Richter set out to create access to *"unreachable global, western markets"* (Richter, interview 1) and based his business in Grand Bassam, about 30 km from Abidjan:

Richter developed an e-commerce platform for African art (Kachile.com) to secure fair payment for local artists through online sales. He then formed an operating team, led by Ansoumane Berete, Chief Technology Officer and Ksenia Kopylovas, Creative Director. Kopylovas met with local artisans to study and photograph their art practices for inclusion in product catalogues. Artists and painters were organized in associations. The majority of the artists were members of a cooperative called the 'Maison des Artistes'. Through this association Kachile sought to promote artists. using various mediums, including 'masks'

[6] See, Roncaglia, S. (2013). *Feeding the City: Work and Food Culture of the Mumbai Dabbawalas*: Open Book Publishers: Figure 10: The work flow logic, p96; Figure 11, Dabba symbols used in coding system, p102; Figure 12: Coding system evolution, p. 106

showcasing the main Ivorian ethnic groups of Baoulé, Sénoufo and Gouro; 'Batik methods' for colouring cloths; and 'paintings' using methods of Sénoufo art, Vohou Vohou[7], assemblage, cubism, abstract, naïve and impressionism.

Team building continued: hiring students, marketing and sales managers, IT system, processing and data storage managers, and development experts in the area of design and fashion. Development experts conducted an ethnographic study to help the team refine the e-commerce platform so that it worked for the group, and the development of marketing materials, providing a deeper understanding of the ethnic backgrounds of the art. Kachile was in a stronger position to map out target markets, identifying potential consumers, including those in Europe and the United States. Kachile also engaged local organisations, including the International University of Grand Bassam (IUGB), who set-up artisanal centres for new product development.

In 2010, the Kachile business model expanded to include an Entrepreneurship Learning programme for the Bassam and Abidjan communities, providing business guidance and support; creating jobs at the BoP by supporting self-employment through small grants and training for entrepreneurs. Women were an important group targeted for these activities. At this time the first line of exports to the US and Switzerland was secured and Kachile won 1st prize in the World Bank/Technoserve business plan competition. Despite this progress, critical problems began to emerge. By 2011 Kachile started to face quality problems with its product. Management problems emerged within local artisan networks as they struggled to produce art on demand. The demands of a 'large market' were at odds with the local practices of art production and Kachile struggled to achieve the economies of scale necessary to reduce shipping costs and achieve competitive market prices. In 2012 a resurgence of political conflict engendered major payment problems, as the US treasury blacklisted Côte d'Ivoire for corruption, freezing trading relationships. Kachile's business was suspended.

Kachile adopted an Import/Export Model (Figure 3b.). This business model aims to create a trading system to bridge BoP and developed markets: *"Kachile operates under a market dynamic, moving away from pure charity and philanthropy to a pro-poor business model"* (Richter 2011: 2). Import/export business models typically generate a platform for connecting geographically distant consumers and require the development of new skill sets and innovative, technical processes that link actors to global supply chains (Arnould and Mohr

[7] Vohou Vohou translates as *'putting anything and everything together'*

2005; Prahalad 2005; Richter 2011). Through the short time frame of the Kachile.com initiative, we noted three key moments of stability and change (Figure 2b): t_1: *the business setup*; t_2: *knowledge sharing and support*; t_3*: post-conflict turmoil and suspension.*

Our analysis of t_1*: the business setup* identifies all five dimensions of proximity. The intention was to unleash the potential of an artisan sector, underdeveloped due to a lack of entrepreneurial opportunities, in post-conflict territories. Richter set out to build a *'digital bridge'* (Richter, interview 2) between African artists and international markets. Much of Richter's work involved bringing together different forms of expertise and competences both within the Côte d'Ivoire and from his wider international network of contacts. Social and institutional proximities were central to understanding the structure and associations between networked market actors. The organizing effort delineated roles and connected activities by reviving artistic practices and establishing new practices through the use of technologies: Kachile.com. African art could now be sold to developed markets: geographical, organisational and cognitive proximities were invoked in the framing of the problem to realize this business model structure.

The proximities lens is useful to show how entrepreneurial vision and action create a pro-poor business model. The business model is designed to bridge multiple social worlds by structuring organisational and institutional proximity to overcome the lack of geographical proximity between the producers and the market. Kachile is then able to reframe the economic value of BoP art and orchestrate multiple dialogues between artists and others to build the network architecture. The Kachile network architecture has important implications for social proximity, requiring Kachile to exploit the complementarities between the different actors' competences, and also to configure new routines between actors. Kachile did this by introducing technologies.

Our analysis of t_2*: knowledge sharing and support* reveals how Kachile invoked organisational, cognitive and social proximities to include in their business model the means to educate local communities, expanding their network architecture to achieve this. Note geographical and institutional proximity were stable and not invoked at this time. Training on small tools and machinery for was provided better design and finishing of products to help producers develop quality market offerings. The need for local artisans to standardize production and understand supply chain management for western markets created tensions between artisans and the Kachile team. In response, a designer from US Aid was deployed to assist in product design and to share best practices (cognitive and organisational proximities).

The founder invoked social proximity by bringing a set of skills to a group of producers, and competences and knowledge sets from outside the BoP community. Social proximities were also invoked with the purpose to sponsor African culture, history and identity, focusing on business coaching for women's groups and offering ICT training. BoP actors who previously had *'nothing to do'* in a post-war environment (Richter, interview 1) were re-configured and mobilised as market actors. The proximities invoked here are entangled and unpacking the problems of one dimension of proximity (cognitive issues around understanding product quality) reveals others (the social issues of women with nothing to do). This work transformed the network architecture.

Our analysis of t_3: *post-conflict turmoil and suspension* demonstrates distancing. By distancing we mean, generating a physical space between the business model structure and its practice: where practices cease, are transformed or are reproduced in another context. This contrasts with the bridging and entanglement of proximities that were identified in t_1 and t_2. This event (t_3) saw disruption of institutional norms: the US treasury blacklisting of Côte d'Ivoire, and the introduction of new, temporary institutional rules, The World Bank grant being put *'under review'* and the distribution of monies restricted by financial bureaucracy and political distrust (institutional proximity). Norms surrounding trading practices were subverted and instability led to social unrest. New rules distanced Kachile from their operating context, their broader institutional environment making the circulation and routine sharing of information almost impossible (organisational proximity). While, initially institutional proximity had lead Richter to align his business ideas with the World Bank's *'development partners'* roundtable in April 2011[8], now Richter had to distance himself from these institutional and geographical proximities: *"in order to survive and earn a living ... I had to leave the country"* (Richter, interview 3).

In the Kachile case we see how the five proximities are invoked through the framing of problems and opportunities that emerge in the business setup period, and how these problems come to shape action, enrolling and mobilising others in new practices. We also see how,

[8] The roundtable was set up as part of World Bank International Monetary Fund Spring Meetings, in Washington DC, with the remit of understanding the challenges faced and support needed for the recovery of Côte d'Ivoire. Following the disrupted presidential elections in 2010, the Côte d'Ivoire economy was in turmoil. The World Bank reported the concerns: *"For the first time in Cote d'Ivoire's history we found ourselves unable to pay salaries in March 2011... Unless something is done urgently, we may find ourselves in an infernal spiral of arrears*." (Economy and Finance Minister of Cote d'Ivoire, Charles Koffi Diby http://go.worldbank.org/B6S8DK4HE0)

through practice, the import/export model reveals the lack of cognitive proximities between different social worlds (between Richter, his team and the artists), and how this becomes framed as a problem that social and organisational routines (the new learning programmes) can address. In this sense, deficiencies in one form of proximity are addressed by invoking other dimensions of proximity to structure pragmatic programmes of action. In contrast, the disruption of a single dimension of proximity also disorders the other dimensions of proximity and so the continued practice of the business model.

Case 3: The Access Business Model of One Laptop Per Child (OLPC)

Dr Nicholas Negroponte, the founder of One Laptop Per Child (OLPC) argued that *'children learn by doing'*, and could be lifted out of poverty through internet-facilitated self-learning. In 2005, OLPC was set up as a non-profit organisation. Laptops were to be made available to children in BoP communities who traditionally had little access to education and educational tools (Quelch and Knoop 2008). Children thus equipped would be able to later engage with economic life. The short-term goal was to create a child-friendly, robust, lightweight, low energy, WiFi enabled laptop, for US$100. This low price was to be achieved through economies of scale. The plan was to secure US$5m worth of orders before the laptop went into production. Laptops were delivered to BoP markets where local actors were left to work out distribution and usage, coordinating their own activities.

OLPC raised charitable contributions of US$20 million from partners including blue chip electronic companies, MIT Media Lab, a Taiwanese laptop manufacturer, and Google, building a network of experts to support product design. OLPC's suppliers were situated in developed economies, mostly close to MIT where the founder was based. The markets they sought to access were geographically distant, situated in Lesser Developed Countries (LDCs): Brazil, India, China, Africa (Figure 3c). OLPC formed a relationship with Quanta to develop the first OLPC laptop in December 2005, which in turn helped secure funding from Google. These relationships were critical in establishing the prototype. OLPC worked to combine technological know-how, making an open innovation operating system (cf. Hellström et al. 2015). By 2006, OLPC had the support of the United Nations. This led to government agencies in countries procuring laptops, giving them 'free' to BoP consumers (usually through schools). BoP user communities were responsible for building and maintaining their own WiFi connections so that machines were able to talk to each other. After 7000 machines had been tested by children in Cambodia, the product specification was changed to extend battery life, add a dual mode sunlight display and WiFi mesh network. OLPC also worked

with UNESCO[9] to gain access to educational materials and government education agencies. OLPC secured enough orders to bring down laptop costs per unit. By selling directly to governments and negotiating with ministries of education, OLPC avoided sales, marketing and distribution costs. By 2009, 31 countries were involved with OLPC and improved reading skills of children with OLCP laptops were being reported.

The challenge for the OLCP team was achieving the *'US$100 laptop'* that would work reliably. The *'low cost'* issue was framed as *'a problem of scale'*. Thousands of laptops had to be sold in order to make this venture feasible. Laptopgiving.org was set up in the US in 2007. With a "Give 1 Get 1" (G1G1) offer, US consumers could purchase an OLPC laptop for US$399 (plus US$25 shipping cost) and send another to a child in a developing country. A second G1G1 campaign ran post-2008. This initiative expanded OLPC's geographical reach to Haiti, Rwanda, and Afghanistan. The second GIGI programme only sold 12,500 laptops generating a US$2.5 million – a 93 per cent decline from the year before. OLPC decided to no longer advertise directly to consumers, focusing instead on fundraising efforts. By 2010 management changes at OLPC saw Charles Kane becoming the president and chief operating officer. A new office was set up in Miami with Rodrigo Halaby overseeing sales and laptop development. The foundation now focused on the development of future software and hardware, including the ARM-based OLPC XO-1.75 laptop and the OLPC XO-3 tablet, secured by funding from Marvell. Currently OLPC is taking orders for the mass production of the XO-1.75 and, to date over 2.5 million XO-1 and XO-1.5 laptops have been shipped.

We see OLPC as an example of how market entry is structured to assemble resources from developed markets and deliver market offerings to BoP communities. We label this the Access Business Model (Figure 3c) as it seeks to overcome problems where local resources are inaccessible, non-existent or cannot be mobilised within BoP markets (London, Anupindi and Sheth 2010; Prahalad and Hammond 2002). Our analysis using the business model proximities framework identifies four key change events in the unravelling of this business model: t_1: *the business setup*; t_2: *technical accessibility and governmental support*; t_3: *children acting as agents of change*; t_4: *socio-technical and ethical dilemmas* (Figure 2c).

Our analysis of t_1: *the business setup* provides evidence of all five proximities influencing the business model design. Establishing OLPC as a non-profit meant organising a local *'pro bono'* team that bought in to the concept of OLPC at the BoP. This constructionist way of

[9] UNESCO's work: building of peace, the eradication of poverty, sustainable development and intercultural dialogue through education, the sciences, culture, and communication.

organising unfolded a model and a particular form of market offering. The complex task of designing, building, and selling robust BoP laptops demanded the team live its *'learn by doing'* philosophy (Kay 2007: 2), widening its network to solve development problems and in the process invoking organisational and cognitive proximities. In contrast, the distribution and usage-support of laptops within BoP communities was seen as the responsibility of the customer (local government agencies). OLPC's network architecture engaged the UN, UNESCO and entrepreneurs and invoked institutional and geographical proximities. This politicised the network as NGOs and private sector firms became important actors and expert meditators (social proximity).

Our analysis of t_2: *technical access and government support* reveals both institutional and geographical proximities being taken into account. From a technologies and market offering perspective, changes in institutional standards for hardware (e.g. keyboard development in different languages) and technology standards (e.g. improving battery life), ensured design and technological innovation continued. Much of the emphasis of the business model design in t_2 was on getting the product technologies right for use in a harsh BoP environment – for the founders, this meant a focus on building the right innovative supply network (cf. Hellström et al. 2015). Infrastructure technologies were important for enabling the laptops to connect with the internet – this required local government provision in BoP markets. Local networks and geographical proximity were central in generating new, technologically relevant market offerings, and to supporting the sustained use of laptops *in situ* (which was beyond the OLPC remit).

The institutional challenge for OLPC lay in connecting with so many *'unknown markets'*. OLPC's ability to build institutional support through government agencies began by targeting Argentina, Brazil, Libya, Nigeria, Pakistan and Thailand. The thought was that smaller countries would piggyback on the purchasing patterns of larger countries. This did not happen. Smaller countries were then targeted (Uruguay, Peru, Rwanda, Ethiopia, Mongolia). Institutional proximities acted as a catalyst for political action among nations with neighbouring geographies. Our analysis also reveals how the characteristics of BoP markets act to prevent access to goods and services (because of poor infrastructure, transport, health and war (cf. de Soto 2000).

Our analysis of t_3: *children acting as agents of change* illustrates how technological interventions at the BoP impact both the targeted consumer and the wider community, revitalising their skills and competencies – cognitive proximity was taken into account by

OLPC and invoked to encourage this phenomenon. Children began teaching their parents how to read and write using materials accessed through the internet. The children in the BoP communities acted as agents of change because of their emergent social proximity as laptop and research experts. Specific proximities were invoked to overcome literacy barriers as shared technological objects empowered younger generations to act as teachers as well as learners. The act of *'learning by doing'* (Kay 2007: 2), grounded in OLPC's philosophy and designed into the Access Business Model, was adopted and adapted by BoP communities in their practices, through their consumption of OLPC's market offering.

Finally, t_4: *socio-technical and ethical dilemmas* suggest that social proximity plays a critical role in shaping Access Business Models. OLPC made good use of social proximity in relational management with government agencies, with public and private companies, developing effective network architectures to support the technical development of the market offering and to enable market access. However, OLPC underutilised social proximity to unpack the ongoing socio-technical support needed for the prolonged and sustained use of laptops in BoP communities. A lack of support for technical problems (e.g. laptops, WiFi or electricity not working) became an issue: children were given one laptop with no means to fix a broken device or to source a replacement (a lack of organisational proximity); BoP educators had no debug-software skills, (a lack of cognitive proximity), Western concerns emerged around the lack of filters for child-protected content and the need for associated ethical standards to be included in the offering (institutional proximity).

These findings suggests that it is not enough to organise on the basis of customer needs and that some business models need to take into account the unfolding, longer-term consumption practices. This breaks down the traditional divides between consumer and business markets, so often seen in marketing literature and foregrounds the value of the business model proximities framework. The framework unpacks the ways in which business structures, networks and market systems are entangled through interconnected practices, that invoke multiple and complex assemblages of proximities. Such practices transect national, cultural and community boundaries. By asking questions of the specific situated practices of the different business model elements *in relation to* those of network and markets practices, we are better positioned to unpack the spatial-temporal aspects of business at the BoP. This also suggests that business model practices can be understood as the daily actions and routines that perform and sustain the structure of the business and its connections with markets.

Our findings suggest that combinations of cognitive, organisational, social, institutional and geographical dimensions of proximity are invoked through managerial work, and used to frame problems and opportunities revealed through managers' evaluations of their business model in practice. The business model proximities framework (Figure 1) can help managers to identify and make judgements about the resources and actions needed to overcome problems and take advantages of opportunities. Adaptations take place in a continuous and iterative designing process. We argue that business model design is best understood as a temporal-spatial and situated *becoming* process, where managers and entrepreneurs continuously attempt to *design it all,* conceptualising the network architecture to encompass everything from supply to the support of continuous consumption.

Conclusions and Implications

This paper set out to explore the role of proximity in designing business models that work for those at the BoP, by asking *'how do managers and entrepreneurs organise their business activities to connect to business networks and markets?*' By exploring BoP markets as extreme settings where actors struggle to overcome limited access to resources and engage with often unfamiliar, distributed, socio-economic practices, we sought to understand the role of proximity in designing business model: as a process of structuring, connecting, and organising activities. Our analysis makes three key contributions.

First, we extend understandings of business and market structures at the BoP by invoking the concept of proximity. Our findings show that the purpose of the BoP businesses is always and necessarily situated (cf. Chandler), and as it is put into practice the significance of different aspects of proximity are foregrounded. By taking into account actual/possible relations between proximities in the process of organising for market engagement managers are better placed to take decisions about how to structure market interactions and achieve their purpose. New understandings of what needs to be done are revealed through practice. Particular dimensions of proximity are invoked to understand, frame and organise business activities in relation to markets. The Dabbawallas set out to develop a local producer-consumer business and used geographical, social and cognitive proximities to structure business activities. Kachile set out to provide African artists with access to western markets and invoke organisational, cognitive and social proximities to shape how trade is organised in order to compensate for a lack of geographical proximity. OLPC set out to develop BoP market architectures by enabling education. They developed organisational, cognitive and social proximities to compensate for a lack of geographical proximity. We argue that invoking

different dimensions of proximity helps actors wanting to engage with BoP markets to design, develop and adjust their business model in a more informed way. As business models are put into practice, different proximities reveal themselves as problematic, or changed. Observing and engaging these dimensions seems central to developing business models that work at the BoP. This conceptualisation of business models in practice means their structures are understood as necessarily plastic, and need to be adjusted in relation to cognitive, social, organisational, institutional and geographical changes in network and market structure.

While Fligstein (2001) argues that markets are structured by the social actions that take place in organised social spaces, we additionally show the role of proximities in helping managers open up new social spaces to make markets. We also show how different proximities are invoked to shape organising activities that perform and stabilize new markets, and how changes in proximities can equally disrupt and destroy markets. This observation has important implications for managers and entrepreneurs attempting to work out how best to intervene at the BoP. Taking into account the stability and change of the specific dimensions of proximity, as well as the dynamic relationships between them (as they relate to the structuring process of business activities), appears central in identifying opportunities to create, shape and connect with markets (Araujo 2007; Doganova and Eyquem-Renault 2009).

Second, we contribute to the business model literature by proposing an analytical framework for business model proximities. In so doing, we foreground the spatial-temporal dimensions of business models that we claim are central to understanding the practice of business models. The business model proximities framework is used in this paper as a diagnostic device to explore three business-at-the-BoP cases. However, the framework can also be used by managers as a prognostic device to help question and make judgements about the processes and practices of continuous business model (re)design (cf. Doganova and Eyquem-Renault 2009). Explicating proximity and the inter-relationships of proximity dimensions through the practice of business models, managers can compensate for limitations in one dimension, by invoking combination of others to suggest new ways of organising innovative action.

Finally, we contribute to understandings of proximity by building on Boschma's (2005) work through its application to businesses in three very different BoP contexts. By introducing a spatial-temporal dynamic to the business model proximities framework, we are better positioned to see how specific proximities strengthen others through time and come to have negative/positive consequences at different moments in time (Boschma 2005). We see how

assemblages of proximities become framed in problems and opportunities, putting them at the centre of action and resulting in the formation of three distinct business model designs.

A key limitation of this research is that it is based on an historical review of published and publicly available resources. Materials included academic and non-academic sources (Table 2), and as such offer a valuable narrative (Geiger and Finch. 2011; Parker 2012; Richardson-Ngwenya and Richardson 2013). However, real-time, longitudinal studies of the impact of proximity dynamics, managers' understandings of them and how they are invoked in practice to inform the business model design process would be valuable.

Our analysis reveals some of the implications of institutional proximities (and the associated socio-political practices) for business at the BoP. This suggests that there may well be other ways for governments to support micro-businesses that go beyond building expensive 'incubators' and 'technology parks' – by providing managerial education helping entrepreneurs at the BoP evaluate their context and practices and by taking action to ensure institutional proximities support rather than prevent or hinder business development at the BoP. Such observations may hold beyond BoP contexts but and more research is needed in this area.

We identify three distinct business model structures at the BoP (Table 1), which we found to be widely adopted, but there were others. Developing a typology of business models at the BoP, or in other industries, exploring their relationships with specific dimensions of proximity, may provide useful indications as to which models are likely to work in which contexts. Finally, we anticipate that the business proximities framework will be valuable in non-BoP settings. For example, the particular challenges of healthcare, social care and wellbeing markets may be better understood through the application of this framework and could reveal new ways of socio-economic organising to deliver care. The business proximities framework could help us see if we are sacrificing, trading-off or overturning key social values. By taking into account the spatial-temporal dimensions of the business model design process, we are likely to expand our understanding of the business model concept and its much valued practical application.

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