

Chapter 9

A Literature Review of Required Adaptations for Successful Implementation of Frugal Innovations in Emerging and Developing Markets

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Introduction

Historically, developed market firms (DMFs) tended to develop sophisticated and state-of-the-art products for the developed world (Zeschky, Winterhalter, & Gassmann, 2014) where businesses and consumers are affluent and can afford to buy such premium products. The prevailing mind-set for product innovation in these markets is based on assumptions of ‘affluence and abundance’ (Prahalad & Mashelkar, 2010). Mainly because of its high price-point (the result of highly-optimised product performance and richness in features), such products were mostly out of reach for businesses and consumers in emerging and developing markets. Over the past decade a myriad of studies have emerged on the needs of emerging and so-called base-of-the-pyramid (BOP) markets and the opportunities they offer product developers (Angot & Plé 2015; Davis, Plumlee, Brown, & Vaughn, 2018; Pervez, Maritz, & de Waal, 2013; Varman, Skålén, & Belk, 2012). As a result, DMFs are now increasingly targeting consumers in resource-constrained environments with frugal innovations. Baker and Nelson (2005) define a resource constrained environment as “an environment that provides new challenges without providing additional new resources”. For the purpose of this chapter, and based on the definitions of Zeschky et al. (2014), de Waal (2016) and Weyrauch and Herstatt (2016), we define FI as offering re-designed or newly designed products and services

to resource-constrained consumers in emerging markets at highly-reduced, affordable prices, at desired levels of performance, compared to the original premium product or service.

Since new product development (NPD) is a multi-disciplinary endeavour with inter-related tasks and activities (Ulrich & Eppinger, 2012), the 'rules' of and approaches to FI need to be considered across the spectrum. For example, DMFs must consider a paradigm change in existing R&D structures (Brem & Wolfram, 2014) in terms of the mind-set (Govindarajan & Trimble, 2012), development processes, and decision power in an international context (Zeschky, Widenmayer, & Gassmann, 2014). Govindarajan and Trimble (2012, p. 31) express the need for change very strongly when stating "the very organizational best practices that have made global corporations so successful to date actually get in the way of innovating in emerging markets". In the rest of this chapter we provide a partial overview of observed FI 'best practices' for some key business areas of DMFs that pioneered FI under challenging circumstances.

Required Adaptions across Functional Departments

The extant literature often implicitly treats the various business functions as somewhat isolated entities when analysing the product development process, while in reality the individual activities often overlap and span more than one functional area. In a similar vein, and for ease of assimilation, we present our findings separately for each of the main NPD decision areas and departments within DMFs.

Opportunity Spotting

When looking to introduce new products into emerging markets, FI innovators should not be blinded by the need for a novelty factor. Viswanathan and Sridharan (2012, p. 65) suggest it worthwhile to study the "usage of already existing products as a medium for new innovations", as this can be an important success factor. So-called 'necessity innovations' (de Waal, 2016) developed by resource-constrained consumers for meeting their own needs – the equivalent of 'lead users' in the developed world (Von Hippel, 1986) - can also be a useful source for new ideas that can be exploited in conjunction with local innovators.

Howard (2011) suggests that FI initiatives should stem from imaginative problem solving efforts and the intention to alleviate poverty and exigency in emerging markets as opposed to opportunistically trying to capitalise on new products of which surplus functions have been

abolished. Success is more likely when the objective is to maximise value for customers and minimise inessential costs (Seghal, Dehoff, & Panneer, 2010).

Innovation Strategy

In this section, we look at FI from a strategic perspective covering drivers, changes in mind-set, and the nature of collaboration. Pansera and Owen (2015) report that drivers for DMFs include the desire to help eradicate poverty through the creation of economic and social value for consumers in emerging markets, alongside the usual profit goal. As culturally empathic market entrants share a concern for social justice and environmental sustainability (so-called Greening concerns), through the principles of minimisation of energy and raw materials they pursue opportunities that deliver eco-friendly products that are the outcomes of eco-friendly value chains. Sharma et al. (2010) suggest that FI products categorised as 'green' can serve as a distinct source of competitive advantage. Firms achieve this through what appears to be emergent strategy within a “complex network of actors and power relationships where framings overlap” (Pansera & Owen, 2015, p. 301). Another driver is social empowerment (e.g. access to energy for rural people) that is important in attracting investors and public support. What can be considered an indirect driver is the potential opportunity cost to DMFs for not engaging in FI (Govindarajan & Trimble, 2012). The authors warn about the phenomenon where so-called ‘emerging giants’ - those are emerging market firms (EMFs) that are increasingly developing FI products that eventually trickle upstream into the developed markets (so-called reverse innovations) – can potentially upset incumbents in developed economies (Govindarajan & Trimble, 2012; Hossain, Simula, & Halme, 2016; von Zedtwitz, Corsi, Søber, & Frega, 2015).

In terms of change in mind-set, managers in DMFs pursuing FI must consider and accept paradigm shifts along three dimensions. The first is a change in the dominant logic of firms. Govindarajan and Trimble (2012) advise business managers to let go of the dominant logic that in the past served them well in rich countries as it is now imprisoning their thinking; to make ‘forgetting’ the first step when starting with FI. Puri et al. (2013) frame this attitude towards viewing BOP markets as viable opportunities in terms of the ‘unlearning’ of established business notions and modification of advanced market capabilities. In addition to unlearning traditional R&D approaches others (London & Hart, 2004; Ray & Ray, 2010) recommend Western firms to reduce the many complex and resource intensive steps in their

traditional NPD processes. Managers must embrace the concept of bricolage, defined as ‘making do by applying combinations of the resources at hand to new problems and opportunities’ (Baker & Nelson, 2005). In the context of FI scholars refer to it as resource bricolage (Puri et al., 2013), a situation where product developers use available resources creatively to come up with innovative solutions that meet the needs of BOP consumers.

Secondly, prospective frugal innovators must prepare themselves for unique and unexpected BOP market conditions. In terms of viewing a company’s entry into BOP markets, managers must also accept new challenges that go with the territory, which may include difficulty in accessing raw material, financial, and production resources (productivity constraints). Other challenges may manifest in the form of transactional constraints such as access to marketplace, missing market power, market security, and customers suffering from severe financial resource constraints (Khanna, Palepu, & Sinha, 2005). The authors also warn that strict social and cultural norms in BOP markets could hamper the successful development of FI products and services. It comes as no surprise that developing-world infrastructure that includes transport and logistics, technology, telecommunication, energy, water and sanitation systems is inadequate when compared to Western standards (Sheth, 2011). In addition to below-standard infrastructure in developing countries, Govindarajan and Trimble (2012) identified four more gaps between developing and developed economies, what they refer to as ‘gaps’ in performance, sustainability, regulation, and preferences. As emerging markets are also characterised by phenomena such as clientelism (Robinson & Verdier, 2013), corruption, gangs, clans and mafias or clandestine institutional structures (Oyedele, 2016), global business models that incorporate FI should integrate ideas of coevolution with these actors.

The third mind-set dimension that requires change is the choice of growth strategy. In rich-world markets DMFs are used to battle for market share, which is not the case for FI. Similar to export and glocalisation strategies, the objective of FI is all about creating new markets (Govindarajan & Trimble, 2012), but going about it in vastly different ways where ‘premium’ and ‘frugal’ can co-exist. One does not replace the other; they can be rather complementary. Export and glocalisation are aimed at new markets in developed world, while FI is aimed at the developing world. The message is clear: To capture growth in emerging markets, you must innovate, not simply export (Govindarajan & Trimble, 2012).

The final strategic consideration we present here is the nature of collaboration. Multi-national corporations (MNCs) are best placed to implement FI strategy (Kanter, 2008; Prahalad & Mashelkar, 2010). Despite their size and remarkable capabilities, several scholars suggest that collaboration with local actors and institutions in the form of ‘BOP alliances’ and ‘inclusive innovation’ (George, McGahan, Prabhu, & Macgahan, 2012) are key to creating legitimacy among beneficiaries, and achieving success in emerging markets (Govindarajan & Trimble, 2012; Sonne, 2012). Success is viewed when FI products emerge through collaboration within a ‘network of frugal actors’, instead of a single DMF (Bhatti & Ventresca, 2013). DMFs whose aim it is to establish social ventures in emerging markets are best advised to establish strategic relationships with both customers and civil society organisations or governments (Prahalad, 2006), with social development players, delivery providers, and local entrepreneurs (Altman, Rego, & Ross, 2009), and with government-approved non-governmental organisations (NGOs) (Liu, 2012). The reason for this is that NGOs are known for supporting projects that relate to cultural development and education of the local workforce. These are factors that DMFs in the for-profit space should not ignore.

Research and Development

As many consumers in BOP markets are unschooled and lacking general awareness, they are not always able to articulate their latent needs (Slater & Mohr, 2006). Slater and Mohr therefore urge DMFs to rethink their market research strategies, suggesting field trips and ethnographic studies as tools for understanding the unique contexts for which they are developing products. These approaches are also likely to provide valuable insights into value chain design.

Several scholars (Garud & Karnoe, 2003; Viswanathan & Sridharan, 2012) best describe NPD aimed at emerging and developing markets as a ‘bricolage’ approach (implying resourcefulness and improvisation) where multiple actors or ‘bricoleurs’ interact and co-invent because of the prevalence of innovation implementation challenges in these markets. They contrast this approach to traditional NPD characterised by high-tech, sophistication, breakthrough and availability of almost limitless funding by visionary capitalists. Pansera and Owen (2015) observed cases where product developers re-designed pre-existing technology such as solar panels, biogas or traditional cooking stoves. In doing so, they focused on deskilling processes, using local materials and local providers, and as much as possible, having minimal environmental impact (Gupta, 2011) and a low carbon footprint (Howard, 2011). Ray and Ray

(2010) encourage DMFs to invest in local R&D by looking to develop product architectures that include a mix of local technologies and knowledge with existing technology. Such practice may enable DMFs to more effectively meet the needs of their target markets. Top-of-the-mind considerations are always to make minimum use of materials and energy and to source local materials whenever possible.

However, Bound and Thornton (2012) caution that while FI is about low cost it should not necessarily imply low-tech. They observe that frugal innovation, for example, often requires or can be combined with frontier science and technology. When the required technological know-how falls outside the domain expertise of the pioneering firm, which is often the case, if available it can be imported from outside the company, and if not, created from scratch (Pansera & Owen, 2015). Govindarajan and Trimble (2012) advise DMFs to increase R&D spending specifically on the needs of BOP consumers and to use this funding to conduct low-cost experiments in incubation centres purposed for global growth innovation. As DMFs are often hampered by a lack of availability of formal market research brought upon by challenging emerging market conditions, they have to gauge user preferences through continuous iterations with BOP consumers before they can expect to arrive at products deemed fit for release (Puri et al., 2013). In order to avoid the entire process becoming resource intensive and the product overpriced, the authors suggest “investment in each iteration has to be minimal, to avoid resource wastage”.

Engineering

Starting with a clean slate, the FI approach is to work “backward to develop appropriate solutions that may be significantly different from existing solutions designed to address needs of upmarket segments” (Gupta, 2011). In addition, FI focuses on improved portability, reduction in size and tailored for environments with poor infrastructures (Zeschky, Winterhalter, et al., 2014). Bhatti (2012) states that it equally embraces modular, architectural, and business model innovation.

There are four specific design aspects that are not inconsistent with traditional user-oriented design, but of particular and greater importance to BOP markets (Viswanathan & Sridharan, 2012): (1) *Design for Multiple Purposes*: Developers must accept that in BOP contexts products are often used beyond their originally intended design in order to fulfil a huge diversity of needs, which is very different to non-BOP markets. Hence design requirements are

being phrased as 'multifunctional', 'contextually malleable', and having to serve 'multiple usage purposes'. (2) *Design for Customization*. Because of significant diverse needs of BOP customer base selling agents desire and value the ability to customise products at the point of purchase to better meet the needs of their customers. (3) *Design for Low Literacy Users*. Product usage instructions and communications should be delivered in ways that can be easily assimilated by BOP customers. 'Localising' of content such as making use of local icons and language succeed well in helping users better relate to products. (4) *Design for Local Sustainability*. This translates into the ability for local entrepreneurs to add value to the product offering by such means as local assembly, local manufacturing of some parts, and using packaging made from locally-sourced raw materials. In addition to these design practices, Ray and Ray (2010) identified *Design for Modularity* as another critical success factor. It is achieved through architectural innovation and fulfils the needs of affordability, functionality, and operability.

With regards to the NPD process, DMFs may still revert to conventional stage-gate and agile processes, but should be prepared to critically review and unlearn some of the traditional routines and practices which are likely to be more complex and include more steps than necessary for FI, thus being overly resource hungry (Ray & Ray, 2010). Pansera and Owen (2015) observed a greater effort by firms at leveraging local providers to reduce product costs. In similar fashion, local providers are chosen to deliver after-sales service in an extremely flexible, quick and cheap manner. But Bound and Thornton (2012) stress that FI does not only equate to the creation of cheap products. It also entails to making better things, of acceptable quality, not just to make cheaper things.

2.5 Manufacturing

Ray and Ray (2010) report on the practice in India where the indigenous enterprise Centre for Development of Telematics (C-DoT) (a public sector research organisation), instead of doing its own manufacturing, reverted to licensing the technology of its product to about 50 local manufacturers that were bound to source low-priced and guaranteed quality components from certified suppliers. They were able to implement a low-capital combined with labour-intensive strategy because FI emphasised design-for-assembly. Supporting tactics included substituting automation with manual manufacturing processes, repairing rather than replacing component assemblies during servicing, and where possible exploiting in-house talent. Anderson and Markides (2007) report similar tactics by Tata Motors (India) that trained local entrepreneurs

to assemble and service their cars, in the process eliminating large conventional distributor margins. While these cost-reduction tactics make sense, Ray and Ray (2010) also warn DMFs to consider possible downsides, which may include the creation of a fragmented manufacturing base where licensees compete against each other and struggling to attain economies of scale. Such tactics can also create problems of coordination and can be time-wasters because of the need to train multiple vendors. Samiee (1993) found it common for FI manufacturers to provide products in smaller caseloads and packages to retailers who prefer placing smaller-lot size orders.

Systems, Operations, L&SCM and Field Customer Service

Throughout this chapter we have argued that FI involves more than just changes to R&D and engineering. With regard to operations and supply chain management Moore (2011) supports this view in saying a high level of adaptation in response to hostile circumstances in emergent markets is required across the whole supply chain to achieve efficiencies in the operating environment. Because emerging markets are so extremely heterogeneous and fragmented, organising logistics for procurement and distribution of products could be very difficult (Puri et al., 2013). Consequently, strategic, product and process innovations are necessary for responding effectively to the numerous market constraints. Service adaptations are also required because of the absence of modern technology, fuel, and capital investment (Pansera & Owen, 2015). The authors call out the challenge for providing an efficient after-sales service to BOP customers scattered across the country, and to many who are often located in rural areas.

Zeschky et al. (2014) urge DMFs to carry out their R&D activities in conjunction with local subsidiaries in the resource-constrained environments so that engineers are directly exposed to the severe living conditions of BOP customers. The authors' case evidence strongly supports the importance of development teams consisting of both members appointed from the main operation and native members, as this will allow for proper adaptation to the local environment and requirements.

Viswanathan and Sridharan (2012) propose a strategy where DMFs should 'design for lacking infrastructure' by considering how they can involve local entrepreneurs or service providers to close the gap and also to leverage existing infrastructure as integral to their designs. Ray and

Ray (2010) propose making use of networks of local entrepreneurs to assist DMFs to link into local supply chains that can cost-effectively provide local inputs and raw materials. The necessity for such actions is not required in non-BOP markets. Viswanathan and Sridharan (2012) furthermore urge product developers not to view their new offerings as stand-alone entities, but to incorporate product-related infrastructure where possible in cost-effective ways, such as by building educational support into the product.

Samiee (1993) diagnosed poor communication in channels of distribution and offered as remedy what he observed to be channel intermediaries or brokers; entities that are observed to play significant roles as sales forces that earn commissions on services rendered. DMFs are advised not to try and bypass these actors as they play valuable roles in providing market information about suppliers to channel members, including types of supplies, price, and potential buyers and sellers.

Human Resource Management

From their extensive research on frugal innovation cases in China and India, Govindarajan & Trimble (2012) provide numerous recommendations on how MNCs should approach the organisation and deployment of human resources who will engage in frugal activities. Starting with leadership, firms should appoint people with some experience of emerging countries to these roles as they will have crucial understanding of and empathy towards the dynamics and people of those markets. It is preferable to create new senior executive roles for these leaders, as opposed to assigning additional responsibility to roles with oversight of developed markets. As such these new roles should have separate performance measures that are very distinct from that of similar 'traditional' roles that should reflect the nature of frugal activity in uncertain markets. At the second level of leadership, it is preferable to station critical decision makers within the markets they are serving. They must have the autonomy and authority to act without the burden of having to get approval from Head Office on operational and most strategic matters. Those people who are recruited from the existing pool of employees should be assigned to multi-year contracts in the target market, away from head office, enabling them to dedicate full-time effort to frugal projects. In a move to establish good working relationship between head office executives and frugal executives, the former should be given the opportunity of 'short-duration immersion experiences' in emerging markets where operations have been established. Key to success is the formation of so-called 'local growth teams'

(LGTs) that are not built for glocalisation, but for practicing disciplined experimentation. Govindarajan & Trimble (2012, p. 53) define an LGT as a “small, cross-functional entrepreneurial unit physically located in the emerging market. It has a full set of business capabilities and broad authority to set strategy and develop products and services”. Very importantly, LGTs must maintain strong relationship with Head Office and be able to leverage its resources. This principle will give it competitive advantage over entrepreneurial start-ups or new market entrants that do not possess this strategic and operational resource. Other considerations for LGTs include that they must only hire the best talent available after having identified the skills that are needed – which may well fall outside the current capability of the firm. The position titles and job descriptions for LGT members should be designed from scratch, and LGTs should report to very senior executives at Head Office. The reason for this is to make the strategic importance of this initiative important for all to see throughout the organisation.

Viswanathan and Sridharan’s (2012) research that involved 13 cases of NPD in BOP markets revealed some very important personal characteristics they deem necessary for individuals deployed in BOP product teams. These include 'an extremely open learning orientation' in order to cope with the uncertain and unfamiliar settings in BOP markets; a natural empathy towards BOP consumers and their needs and aspirations; and a cultural sensitivity to enable them in-depth examination of contexts outside their own cultural comfort zones.

While chronic shortage of resources (Sheth, 2011) in terms of power, running water, physical space and skilled labour characterise developing countries, there is plenty of unskilled labour. DMFs need to carefully assess whether the latter factor presents an opportunity, or whether it simply is a weakness they must work around. Work-around tactics to minimise the need for a specialised labour force include developing solutions that are simple to learn and easy to repair (Pansera & Owen, 2015). Ray and Ray (2010) regard the recruitment of local engineers and managers who are intimately familiar with the needs of BOP consumers and institutions in emerging markets as a critical success factor.

Marketing and Sales

We start this section by describing differences in approach to traditional NPD and FI in terms of understanding the marketplace. Whether designing products for rich or poor markets it is always a good idea to have a good understanding of customers’ needs, or, as Day (1994) refers

to it, a 'market sensing ability'. Viswanathan & Sridharan (2012) acknowledged this, but points out a set of factors that particularly relate to BOP contexts and that DMFs should consider, which are considerably different from what they normally do for affluent users. These are: (a) *Identification of Critical Basic Needs*. This category of needs represents the top priority in terms of required value that must be fulfilled for BOP customers. When met, it would yield the highest levels of satisfaction of all other categories. (b) *Identification of Key Aspirational Needs*. The researchers found ample evidence suggesting that this (social) aspect sometimes outweighs that of Critical Basic (functional) Needs, much more so than in non-BOP markets. (c) *Envisioning Product Usage Situations*. FI developers should be cognisant of the fact that local traditions and culture vary hugely from that in developed markets and that failure to take into account the situational context when designing and developing new products would be disastrous.

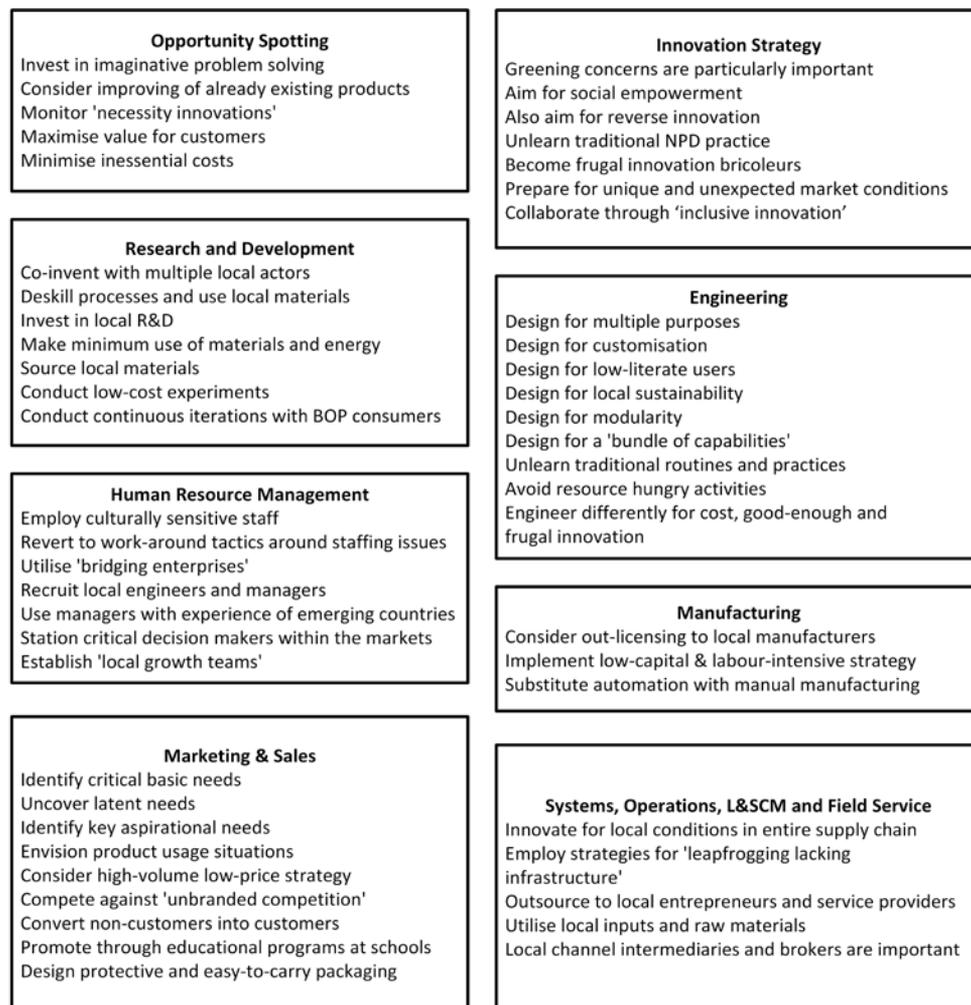
Sheth (2011) characterises markets in emerging markets as local, fragmented and small-scale. Markets are heterogeneous with respect to disparity in income of the populace, the majority living below the official poverty line. Consequently, price trumps convenience for non-routine purchases with forms of credit used for rather small purchases, and IOUs for larger ones (Oyedele, 2016). London and Hart (2004) recommend that DMFs adopt a high-volume low-price strategy when developing products for emerging markets.

Next we report on a number of crucial marketing and sales tactics that we found in the literature. Pansera and Owen (2015) report on how DMFs promoted their products through a mix of educational programs and marketing programs in schools, also doing so in an attempt to raise environmental awareness among their target market. From a more pragmatic perspective, Samiee (1993) reported the practice of firms being driven to design protective packaging that is needed to ensure safe delivery to retailers and enabling longer shelf-life. Such practice inevitably adds to product costs for both producers and consumers. In addition, Oyedele (2016) recommends easy-carry product packaging, a requirement that similar to the need for protective packaging, also stems from poor infrastructure.

Puri et al. (2013) found that DMFs encountered marketing challenges in the form of a lack of understanding and usability of FI products, especially at the initial stage of market development. The authors found that the main problem to new entrants is not competing with other companies, but competing with non-consumption. Often the target users would question

the importance of solving the perceived problem in the first instance, for example, questioning the importance of having access to clean drinking water. A successful response was to conduct direct-contact events which served a dual purpose of promoting the product while at the same time educating the audience and convincing them of their latent needs. To this end it was found that the 4As framework with its four main variables availability, affordability, acceptability and awareness, was a useful tool (Anderson & Billou, 2007).

Figure 9.1 Conceptual framework for required frugal innovation adaptations



Conclusion

Puri et al. (2013, p. 23) perfectly framed the context of this chapter in saying “Innovation is a path dependant process. That is, it is an outcome of not only the inputs, but also the way in which the inputs are managed and channelized in a process before the output is obtained”. Our review of the literature found that FI indeed travels a significantly different path to traditional

NPD. We demonstrated that there are fundamentally different approaches to innovation not only in some key decision areas of business implicated by NPD, but also in the mind-set of actors across the spectrum of engagement. Figure 9.1 depicts a conceptual framework with prominent adaptation examples that we found from the literature across the key areas of frugal innovation. Any attempt to stick with unaltered ‘best practices’ for Western markets in emerging markets, is sure to come undone.

References

- Altman, D. G., Rego, L., & Ross, P. (2009). Expanding opportunity at the base of the pyramid. *People & Strategy*, 32(2), 46-51.
- Anderson, J., & Billou, N. (2007). Serving the world's poor: innovation at the base of the economic pyramid. *Journal of Business Strategy*, 28(2), 14-21.
- Anderson, J., & Markides, C. (2007). Strategic innovation at the base of the pyramid. *MIT Sloan Management Review*, 49(1), 83–88.
- Angot, J., & Plé, L. (2015). Serving poor people in rich countries: the bottom-of-the-pyramid business model solution. *Journal of Business Strategy*, 36(2), 3-15.
- Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative science quarterly*, 50(3), 329-366.
- Bhatti, Y. (2012). Response to The Economist. Retrieved from <http://www.frugal-innovation.com/tag/frugal-innovation/>
- Bhatti, Y., & Ventresca, M. (2013). *How can “frugal innovation” be conceptualized?* Retrieved from <http://ssrn.com/abstract=2203552>
- Bound, K., & Thornton, I. (2012). *Our frugal future: Lessons from India's innovation system*. Retrieved from London: https://www.nesta.org.uk/sites/default/files/our_frugal_future.pdf
- Brem, A., & Wolfram, P. (2014). Research and development from the bottom up - introduction of terminologies for new product development in emerging markets. *Journal of Innovation and Entrepreneurship*, 3(9), 1-22.
- Davis, I., Plumlee, J. M., Brown, A., & Vaughn, D. (2018). Encouraging Innovation through Design in Resource Constrained Environments.
- Day, G. S. (1994). The Capabilities of Market-Driven Organization. *Journal of Marketing*, 58(4), 37-52.

- de Waal, G. A. (2016). An Extended Conceptual Framework for Product-Market Innovation. *International Journal of Innovation Management*, 20(7), 1-26. doi:<http://dx.doi.org/10.1142/S1363919616400089>
- Garud, R., & Karnoe, P. (2003). Bricolage versus breakthrough: Distributed and embedded agency in technology entrepreneurship. *Research Policy*, 32(2), 277–300.
- George, G., McGahan, A. M., Prabhu, J., & Macgahan, A. (2012). Innovation for inclusive growth: towards a theoretical framework and a research agenda. *Journal of Management Studies*, 49(4), 662-683.
- Govindarajan, V., & Trimble, C. (2012). *Reverse Innovation - Create Far from Home, Win Everywhere* (Unabridged ed.). Boston: Harvard Business Review Press.
- Gupta, V. P. (2011). Frugal Innovation: the new masters of management. Retrieved from http://www.indianmba.com/Faculty_Column/FC1283/fc1283.html
- Hossain, M., Simula, H., & Halme, M. (2016). Can frugal go global? Diffusion patterns of frugal innovations. *Technology in Society*, 46, 132-139.
- Howard, M. (2011). Will frugal innovation challenge the west? *Market Leader Quarter*. https://www.marketingsociety.com/sites/default/files/thelibrary/june-2011_17.pdf
- Kanter, R. M. (2008). Transforming giants. *Harvard Business Review*, 86(1), 43–52.
- Khanna, T., Palepu, K. G., & Sinha, J. (2005). Strategies That Fit Emerging Markets. *Harvard Business Review*, (June 2005). <https://hbr.org/2005/06/strategies-that-fit-emerging-markets>
- Liu, J. (2012). Social entrepreneurship takes off in China. *BBC News*. www.bbc.com/news/business-19652712
- London, T., & Hart, S. L. (2004). Reinventing strategies for emerging markets: beyond the transnational model. *Journal of International Business Studies*, 35(5), 350-370.
- Moore, K. (2011). The emergent way: how to achieve meaningful growth in an era of flat growth. *Ivey Business Journal*, 75(6), 1-3.
- Oyedele, A. (2016). Emerging market global business model innovation. *Journal of Research in Marketing and Entrepreneurship*, 18(1), 53-62.
- Pansera, M., & Owen, R. (2015). Framing resource-constrained innovation at the ‘bottom of the pyramid’: Insights from an ethnographic case study in rural Bangladesh. *Technological Forecasting and Social Change*, 92, 300-311. doi:<https://doi.org/10.1016/j.techfore.2014.10.004>
- Pervez, T., Maritz, P. A., & de Waal, G. A. (2013). Innovation and Social Entrepreneurship at the Bottom of the Pyramid - a Conceptual Framework. *South African Journal of Economic and Management Sciences*, 16(5), 54-66.
- Prahalad, C. K. (2006). *The Fortune at the Bottom of the Pyramid*. Upper Saddle River, NJ: Pearson Education, Inc. publishing as Wharton School Publishing.

- Prahalad, C. K., & Mashelkar, R. A. (2010). Innovation's holy grail. *Harvard Business Review*, 88(7/8), 132-141.
- Puri, M., Tavoletti, E., & Cerruti, C. (2013). *Resource Constrained Innovation at the Bottom of the Pyramid: Towards a Theoretical Framework*. Paper presented at the AIDEA, Italy.
- Ray, P. K., & Ray, S. (2010). Resource-Constrained Innovation for Emerging Economies: The Case of the Indian Telecommunications Industry. *IEEE Transactions on Engineering Management*, 57(1), 144-156.
- Robinson, J. A., & Verdier, T. (2013). The political economy of clientelism. *The Scandinavian Journal of Economics*, 115(2), 260-291.
- Samiee, S. (1993). Retailing and channel considerations in non-industrialized countries: a review and research propositions. *Journal of Business Research*, 27(2), 103-130.
- Seghal, V., Dehoff, K., & Panneer, G. (2010). The importance of frugal engineering. *Strategy + Business*. <https://www.strategy-business.com/article/10201?gko=24674>
- Sharma, A., Iyer, G. R., Mehrotra, A., & Krishnan, R. (2010). Sustainability and business-to-business marketing: A framework and implications. *Industrial Marketing Management*, 39(2), 330-341. doi:doi:10.1016/j.indmarman.2008.11.005
- Sheth, J. N. (2011). Impact of emerging markets on marketing: rethinking existing perspectives and practices. *Journal of Marketing*, 75(4), 166-182.
- Slater, S. F., & Mohr, J. J. (2006). Successful development and commercialization. *Journal of Product Innovation Management*, 23(1), 26-33.
- Sonne, L. (2012). Innovative initiatives supporting inclusive innovation in India: Social business incubation and micro venture capital. *Technological Forecasting and Social Change*, 79(4), 638-647.
- Ulrich, K. T., & Eppinger, S. D. (2012). *Product Design and Development* (Fifth ed.): McGraw-Hill Higher Education.
- Varman, R., Skålén, P., & Belk, R. W. (2012). Conflicts at the Bottom of the Pyramid: Profitability, Poverty Alleviation, and Neoliberal Governmentality. *Journal of Public Policy & Marketing*, 31(1), 19-35.
- Viswanathan, M., & Sridharan, S. (2012). Product Development for the BoP: Insights on Concept and Prototype Development from University-Based Student Projects in India. *Journal of Product Innovation Management*, 29(1), 52-69.
- Von Hippel, E. (1986). Lead users: A source of novel product concepts. *Management Science*, 32(7), 791-805.
- von Zedtwitz, M., Corsi, S., Søber, V. P., & Frega, R. (2015). A Typology of Reverse Innovation. *The Journal of Product Innovation Management*, 32(1), 12-28.
- Weyrauch, T., & Herstatt, C. (2016). What is frugal innovation? Three defining criteria. *Journal of Frugal Innovation*, 2(1), 1-17. doi:<http://dx.doi.org/10.1186/s40669-016-0005-y>

Zeschky, M. B., Widenmayer, B., & Gassmann, O. (2014). Organising for reverse innovation in Western MNCs: The role of frugal product innovation capabilities. *International Journal of Technology Management*, 64(2/3/4), 255 – 275.

Zeschky, M. B., Winterhalter, S., & Gassmann, O. (2014). From Cost to Frugal and Reverse Innovation: Mapping the Field and Implications for Global Competitiveness. *Research-Technology Management*, 57(4), 20-27.