Inclusive healthcare at base of the pyramid (BoP) in India

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Abstract: The need for inclusive healthcare is one of the key areas, where the lack of accessible, affordable and reliable product and service offerings has created a big barrier in the social and economic development of the economically weaker segment living predominantly in rural areas across the world. Realising this as a challenge as well as an opportunity, many entrepreneurs have made an entry in this socio-economic landscape with self-sustainable business ventures. The purpose of this research study is to undertake an in-depth analysis of three such social business ventures in healthcare in India, which are making a difference in the lives of the poor with their self-sustainable and innovative business models. The empirical context (research approach) involves the use of case study research methodology, where the source of data is the published case studies of healthcare business ventures at the base of the pyramid.

Keywords: healthcare in India; base of the pyramid; social business challenges; social business approach; inclusive healthcare.


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1 Introduction

The critical drivers, which are reshaping the competitive and economic landscape across the globe, involve rapid advancement in information and communication technologies, growth of ecommerce, potential growth in emerging markets, untapped population striving for basic solutions at base of the pyramid (BoP or low income segment), increasing number of virtual competitors, decreasing resource mobility barriers, decreasing product life cycles, increasing cost of R&D and new product development and emerging categories of new target segments (prosumers, online consumers and value for money consumers) (Hamel and Prahalad, 1989; Hitt et al., 1998; Ireland and Hitt, 1999; Markides, 1999; Hamel, 2000; Nidumolu et al., 2009). These dynamic trends in competitive landscape call for measures, which lead to disruptive innovation of competitive logic regarding strategic positioning (Porter, 2001), value proposition, value creation, value delivery, value appropriation and future viability (Markides, 1997; Markides, 1999; Hamel, 2000).

Schumpeter’s (1934) ideas of “creative destruction” and “technological innovation” are considered to be one of the most critical and relevant thoughts, which are necessary for economic transformation of capitalist enterprises and nations as a whole. The principle argument is that the three main pillars of economic transformation are entrepreneur (actor), technology and innovation. How the entrepreneur assesses the environment and makes use of technology and innovation is what decides the competitiveness of a particular enterprise. In the last few decades, this aspect has been widely acknowledged and studied in contrast to the developed economies. With developed economies getting saturated and developing economies growing at an impressive GDP rate of 5–8% since 2006, it becomes important to assess the Schumpeter’s (1934) theories of “creative destruction” and “technological innovation” in the context of developing economies.

India is one such developing economy, which is emerging as a promising market having a consistent GDP growth rate of more than 7% since 2006 and having a huge untapped population base (>1.2 billion as in year 2011). As per UNICEF (2009), 70% of the population in India resides in rural areas. As per the World Bank estimates, 41.6 percent of India’s population lives below $1.25 per day and 75.6% live below $2 per day (Haub and Sharma, 2010). The BoP context differs from mid- and high-income context with respect to increasingly prevalent market imperfections like information asymmetries, market fragmentation, weak legal institution, weak infrastructure, resource scarcity and poverty penalty (Viswanathan et al., 2007). The BoP segment lacks access to basic social needs like healthcare, education, food, water, sanitation, information, communication, banking, insurance and financial inclusion. The organisations on the other hand are having a missed out opportunity by not having differentiated market-oriented solutions for a sizeable population living at the BoP, primarily in rural areas. These differences necessitate understanding of key success factors, which can enable sustainable business models (Nidumolu et al., 2009) at the BoP. True to the words of Schumpeter (1934), the collective role of technology, innovation and entrepreneur (actor)
holds importance as a critical dimension to bring about context specific product and service offerings for bridging the gap between the rural and urban, rich and the poor in developing economies.

The need for inclusive healthcare is one of the key areas, where the lack of accessible, affordable and reliable products, services and information has created a big barrier in the social and economic development of the rural poor population. Realising the importance of this social challenge as well as the potential of this economic opportunity, this area has witnessed the emergence of healthcare providers (products, services and information), who are bundling entrepreneurial attitude and passion, information and communication technology and innovation to design and implement cost-effective, reliable and scalable market solutions for providing the healthcare inclusion of the rural poor in the mainstream.

The objective of this paper is to understand the key operating principles for success of the inclusive healthcare business ventures at the BoP. The empirical context involves the use of case study research methodology, where the source of data is the published case studies from reliable sources as well as supporting literature from other published sources. For data collection and analysis, the study follows the directives for case-based research (Yin, 2009) and is based upon multiple sources of evidence as archival data, industry publications and interviews. The criteria for choosing case-based research are that BoP is a complex phenomenon in terms of customer profile, operating environment and actors involved. To assess the same, it is required to undertake phenomenon driven research, which requires interpretive approach derived from multitude of information available from multiple sources. The sample involves theoretical sampling of inclusive healthcare business ventures in India.

The research work will attempt to contribute to the research community by bringing forth the understanding on key operating principles for inclusive healthcare business ventures in India. This holds importance both for the academic and practitioner world.

The subsequent research study is divided into seven further sections. Section 2 will elaborate the existing literature regarding BoP and Healthcare in India. Sections 3, 4 and 5 will elaborate the research design, sample selection and research methodology, respectively. Section 6 will present the analysis and findings resulting from with-in and cross-case analysis. Section 7 will be the conclusion of the study and Section 8 will present the recommendations for future research.

2 Literature overview

2.1 Base of the pyramid (BoP)

As per WRI (2007), BoP represents an estimated four billion population around the world, who are relatively poor, have limited or no access to fulfilment of basic needs as food, energy, water, healthcare, etc. (see Figure 1). The people in this socio-economic group earn less than $8 per day per person (as per year 2002 Purchasing Power Parity (PPP) level). As per London and Hart (2004), BoP is a socio-economic segment that lives and transacts in informal economy. As per Landrum (2007) and Karnani (2007, 2011), the promised $4 trillion worth market does not simply exist and has some misconstrued assumptions, which need be understood and corrected by organisations entering the BoP.
There is no universal agreement on what comprises the BoP? Does it comprise the population living at less than $2\textsuperscript{3}$ or does it comprise the population living at anywhere $2\textsuperscript{4}$ to $8\textsuperscript{5}$ per day and so on? Are there multiple segments within BoP? As per Karnani (2011):

“BoP is a fuzzy phrase. The poor should be considered in terms of absolute poor. What is unique about the BoP idea as Prahalad and Stuart Hart first talked about it is that you could make a profit from it, not do it as a charity. I think we should impose three strict conditions on BoP logic: That it's profitable. It's actually (serving) the poor. It's good for the poor. Now, you put these three conditions together and there are very few positive examples (of BoP enterprises)“.

India itself serves as a good example of differing estimates of the number of people who are below the poverty line (BPL\textsuperscript{6}). Figure 2 below reflects the comparative numbers of Indian population classified as BoP, as projected by different studies.

This research paper considers the World Bank definition as the classification of BoP segment (<$2$ PPP per day). To understand and operate in the BoP segment, it becomes necessary to understand the perspectives of the organisations involved and BoP target segment. The first aspect is the organisational perspective (see Figure 3), which pertains to the market complexities being faced by the organisations, who want to operate at the BoP.

The second aspect pertains to the kind of challenges and constraints faced by BoP consumers and producers (see Figure 4). Understanding these constraints and challenges helps to understand the business approach required for addressing the needs of a particular target segment.
Going by the available research studies on BoP, from economic perspective, BoP segment is the potential source of large revenues and profits but low margins. From social perspective, if products and services can be created to address the unmet needs of the BoP segment, then this will bring about a systemic change in the ecosystem leading to positive social value. Considering the huge untapped potential of BoP consumers, there is a shift happening towards social capitalism, wherein the success lies in creating market solutions (products and services), which address the basic needs of the people at the BoP. The important research articles in this direction involves that of London and Hart (2004), Seelos and Mair (2006), Dahan et al. (2010), Sanchez and Ricart (2010), Yunus et al. (2010) and Porter and Kramer (2011).
London and Hart (2004) have examined the strategies required for exploring economic opportunities at base of the economic pyramid in emerging economies. They realise that to be successful, rather than adopting western-style patterns, business strategies need to include building relationships with non-traditional partners, creating high quality-low cost custom solutions with profits derived from volumes rather than margins, building local capacity and creating social embeddedness – ability to create competitive advantage based on a deep understanding of and integration with the local environment.

Research by Seelos and Mair (2006) as well as Mair and Marti (2006) have studied the ‘How’ part of doing business in underdeveloped (developing) countries. What kind of business models can be implemented to play a dual role of fulfilling the social objective (meeting the unmet social needs of the poor people) and economic objective (justifiable returns and profits for organisations involved)? What kind of resource and capabilities and network helps to build the ecosystem to achieve the social and economic objectives?

Dahan et al. (2010) have highlighted the role of NGO’s in the success of businesses in developing markets. Multinational enterprises need to collaborate with NGOs to address the social, environmental, political and cultural challenges of developing markets. They highlight that to be successful in developing markets; the focus of multinational enterprises should be on both social and economic aspects of value creation. The successful corporate-NGO collaboration requires complementary resources and skills, trust building, common goals, understanding of infrastructure and business environment.

Yunus et al. (2010) have brought forth the lessons learnt from Grameen experience to recommend as to what kind of social business models are required to create social value? The authors have highlighted the different ways of addressing social needs like social entrepreneurship, philanthropic business models, bottom of pyramid business models and social business models. How do they differ in the fulfilment of core objective and social needs? As per Yunus et al. (2010), the social business involves a no-loss, no-dividend self-sustaining company that sells goods or services and repays the owner’s investments.
but the main focus remains serving the society and improving the lives of the poor. Depending upon the social need addressed, it can be both for-profit and not-for-profit. The focus is more on social wealth creation, which also involves economic value creation as secondary aim, to ensure sustainability and financial self-sufficiency (Mair and Marti, 2006). The surpluses generated from social business are reinvested in the business to enable better prices, services, quality and reach. For a social business to be successful, the critical factors involve challenging conventional thinking, finding complementary partners, undertaking continuous experimentation, recruiting social-profit-oriented shareholders and specifying social profit objectives clearly and early.

Porter and Kramer (2011) have highlighted the shift in focus of capitalism from maximising stand-alone economic profits to the profits linked with fulfilment of social need. They have coined this concept as ‘shared value’, which is defined as policies and operating practices that enhance the competitiveness of a company, while simultaneously advancing the economic and social conditions in the communities in which it operates. The authors emphasise that by connecting economic value with social needs, it enables the organisations to serve new needs, gain efficiency, create differentiation and expand markets.

2.2 BoP healthcare in India

The healthcare industry in India is on a strong growth curve and is growing at a CAGR of 14%. This accounts for 8% of the GDP in 2012 as compared to 5.5% of the GDP in 2009 (KPMG, 2011; see www.ibef.org IBEF). As per IBEF, the market size is expected to grow from $40 billion (Year 2009) to $79 billion (Year 2012E). This includes hospitals (71%), pharmaceuticals (13%), medical equipment and supplies (9%), medical insurance (4%) and diagnostics (3%). The demand for primary, secondary and tertiary healthcare in India is in the ratio of 60:30:10.

As per WHO (2010), there are few significant comparative indicators, which reflect the skewed urban-rural and public-private distribution of healthcare in India as compared to rest of the world. The India healthcare spend is less than half the global average in percentage of GDP terms. India spent around 5.1% of the GDP on healthcare in 2002. This included infrastructure setup, salaries, drugs distribution, etc. The government contributed only 20% of the same with remain 80% coming from private sector. This is unlike the healthcare system in most of the other developed and emerging economies of the world. India has an infrastructure of around 16000 plus hospitals, though most of these are based in urban areas as against majority population living in rural areas. The public-private contribution ratio is 20:80, which is very much negatively skewed as compared to other developed and emerging economies. This raises a big question mark on the availability of affordable and good quality healthcare for the majority of the population, which lies in the BoP segment and lives primarily in rural areas. The private healthcare is mainly focused on profitable urban markets. The per capita healthcare spend is the lowest in India on PPP basis. As per PWC (2007), India lags behind other developed and emerging economies in terms of the number of available skilled doctors, nurses and physicians for each 1000 population. The number of doctors in India is 0.6 per 1000 people as compared to the global average of 1.23. The number of beds in India is 1.27 per 1000 people as compared to the global average of 2.6.
These figures get skewed further when mapped to rural-urban distribution of population in India. As per IBEF, India has 700 million people (approx) residing in 636,000 villages (approx). This accounts for 70% of the total population in India. The rural doctor to population ratio is lower by six times as compared to urban areas. The rural bed to population ratio is lower by 15 times as compared to urban areas.

The people in rural areas are dependent on local quacks and government hospitals (unhygienic, over-crowded, poor equipment, lack of skilled doctors and nurses). As stated by Srinivasan (2002), as per survey of government-run healthcare centres, it is revealed that only 15% of them have a paediatrician, 23% have a physician, 26% have gynaecologists and 26% had a surgeon. As per Yadav et al. (2009), a total of 74% of the graduate doctors live in urban areas, serving only 28% of the national population, while the rural population remains largely underserved.

Considering all these factors, it becomes evident that there is a severe shortage of accessibility and availability of affordable healthcare facilities compounded by lack of skilled resources (doctors, nurses, physicians, medical equipment, etc.) in rural areas. The situation is further compounded by lack of adequate health insurance schemes for the people at BoP in both rural and urban areas. As per estimates, around 22 million people are pushed below the poverty line annually due to healthcare expenditure alone. This is a cause for concern and attention for all. A World Bank report on Indian healthcare in the year 2002 noted that, “One episode of hospitalization is estimated to account for 58% of per capita annual expenditure, pushing 2.2% of the population below the poverty line. 40% of those hospitalized have to borrow money or sell assets”. This reflects that 22 million of the population is pushed below the poverty line annually due to healthcare expenditure alone. This is a cause for concern and attention for all.

3 Research study design

As stated earlier, the objectives of this paper are to evaluate the role of technology, innovation and entrepreneurs in the design and implementation of profitable market solutions for the inclusive healthcare at BoP as well as to compare the existing and emerging BoP healthcare business models of prominent BoP healthcare providers (products, services and information) in India. To address these objectives, a case study approach has been adopted to understand and analyse the issues and relationships, which are complex and inter-disciplinary and which cannot be made evident by survey-based statistical analysis. The research that focuses on complexity often relies on qualitative, case-oriented or small-N methods, while research that provides generalisation is often quantitative, variable-oriented or large-N focused (Hvass, 2008). A multi-organisation case study design allows for an in-depth analysis across different contexts and enables researchers to better understand how and why outcomes occur (Huberman and Miles, 1994). A multi-case study design also offers the opportunity to conduct both within-case and cross-case analysis. Tentative explanations found in a within-case analysis can be tested across other cases, enhancing reliability and validity of the conclusions drawn (Yin, 1981).
4 Sample selection

The case-based theory building research relies on theoretical sampling, that is, the cases are chosen for theoretical fitment and not for statistical fitment (Glaser and Strauss, 1967).

The sample includes organisations operating at BoP in India as healthcare service providers (hospitals) for primary and secondary healthcare, healthcare related product offerings to the end consumers, healthcare related information and awareness service offerings and medicines (see Figure 5). The other key attributes of these organisations are:

- Target low-income people in semi-urban (Tier II cities) and rural areas.
- For profit businesses that are profitable or at least self-sustainable through revenue generation.

Figure 5 Inclusive healthcare sample selection (see online version for colours)

<table>
<thead>
<tr>
<th>S No</th>
<th>Company</th>
<th>Primary Offering</th>
<th>Type</th>
<th>BoP Inclusion Type</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Narayana Hrudalaya</td>
<td>Tertiary care</td>
<td>Service</td>
<td>Consumer</td>
<td>UNDP</td>
</tr>
<tr>
<td>C2</td>
<td>Vaatsalaya</td>
<td>Primary &amp; Secondary Care</td>
<td>Service</td>
<td>Consumer</td>
<td>UNDP</td>
</tr>
<tr>
<td>C3</td>
<td>VinconSpring</td>
<td>Spectacles</td>
<td>Product</td>
<td>Consumer, Entrepreneur</td>
<td>WDI</td>
</tr>
</tbody>
</table>

5 Research methodology

The research methodology involves iterative data analysis process. The details for each of the selected case studies has been compiled from the multitude of secondary sources, which includes published case studies as well as published literature from online sources, websites of selected organisations, published books, etc. The first step involves creating a standard template and documenting the details for each of the selected organisations (see Appendix A–C). This is necessary to ensure the compilation of data from various secondary sources (published case studies, online, company websites, books, etc.) into a standard template. The second step involves content analysis (with-in) for each of the selected case studies using Atlas.ti® software. The third step involves doing the cross-case analysis to understand the similarities and differences across different business models for inclusive healthcare. This will help to understand the key attributes for inclusive healthcare related business ventures in India.

6 Analysis and findings

The key building blocks of the overall business strategy of any organisation include value offering, operational strategy to enable value creation, customer interface strategy to
enable customer relationship and delivery network and financial strategy. The three selected companies are analysed with respect to the approach being taken across these building blocks.

Regarding *value offering*, Vision Spring (VS), Vaatsalya Healthcare (VH) and Narayana Hrudayalaya (NH) had one thing in common. All of them focused on providing product or service offerings at BoP, which were affordable, accessible, having right product/service-quality mix, available to the masses and were complemented with spreading the awareness of preventive healthcare. All these three healthcare organisations operating at the BoP recognised the fact that any BoP offering had to eliminate the accessibility, affordability, availability, awareness and product/service-quality mix constraints. VS ensured the same by creating a wide network of last mile connectivity via “vision entrepreneurs”, wholesalers and franchise partners. VH achieved the same by adopting a hub-N-spoke model of hospitals, day cares and clinics and by undertaking a rapid expansion of new hospitals providing primary and secondary healthcare in Tier II cities and sub-urban towns. NH achieved the same by adopting an integrated network of hospitals, mobile outreach vans and telemedicine network.

Regarding *operational strategy*, there are two key aspects, which get noticed in VS, VH and NH. The first aspect is the organisational structure and leadership. All these three organisations had been started and managed by the founders, who had a deep passion and goal to bring about a fundamental transition in the availability and accessibility of affordable and quality healthcare for the masses at the base of the socio-economic pyramid. Each of them had a mission to build up an institution in itself, which can plug the gaps in the existing infrastructure and eliminate the targeted issue in totality. The founders set up an orbit shifting challenge for them selves and went about the same while balancing the speed of execution, cost of execution and outreach. They always aimed at the business venture to be self-sustainable rather than relying on charity and grants. The logic behind this was that relying on charity and grants limits the scale of the organisation and benefits get restricted for the target segment. The second aspect is the continuous focus on cost control across the complete value-chain via short-term agreements with suppliers, decisions on lease versus rent, processes, technology adoption, innovations and local capacity building. All the three organisations have adopted the cost control as a prime objective in their operational strategy. VS achieved the same by focusing on the cost optimisations on the supply side like having imports from China, use of web-based software for sales tracking, use of inventory management software for global inventory and distribution management, replacing air-freight by ships, hiring locals as direct sales force in the form of vision entrepreneurs, leveraging existing distribution network of entrepreneurs, government cooperatives, community health workers, civil society organisations, etc. VH achieved the same by adopting a ‘no-frills hub-n-spoke’ model. No-frill approach included minimising the non-core expenditure on hospital infrastructure set-up like choice of location in cheaper semi-urban areas, having building on lease, having equipment on rent, having rooms with only essential items and so on. Other cost control measures included engaging locals as nurses and paramedical staff, having centralised procurement terms and conditions to attain bargaining power with suppliers. Hub-N-spoke model included a network of hospital, day care and clinics placed in a manner that more patients can access the overall healthcare facility. Other operational strategy measures included focusing on achieving a capacity utilisation of at least 80% at each hospital and having rapid expansion of the network of hospitals. NH achieved the same by adopting a lean organisational structure.
with specialists focusing only on surgeries and consultations rather than administrative tasks, training girls from poor communities as nurses for doing the intensive and complex healthcare related tasks, facilitating high volumes of surgeries and catheterisation procedures by adopting capacity utilisation and productivity measures as well as extended working hours for doctors and extended availability of operation theatres. Other cost control measures included short-term (weekly) procurement contracts with suppliers to have increased bargaining power, preferring lease over buy-outs for most of the medical equipment, volume-based purchase agreements, unbundling of hardware and software for ECG machines, use of digital X-ray plate, use of software to transmit images over internet, use of mobile outreach van and telemedicine network for implementing a hub-N-spoke model to provide a cost-effective access to treatment for poor people living in remote areas.

Regarding customer interface strategy, the two key aspects, which need attention are: customer relationship and delivery channel. All the three organisations had focused on building trust and transparency with the BoP consumers. VS, VH and NH had gone a step further by undertaking the skill-building of locals and engaging them for last mile connectivity with the consumers. VS engaged the locals as vision entrepreneurs while VH and NH engaged the locals as nurses and support staff. The hiring of locals helped in gaining the trust of the consumers. VS went one more step further by asking the referrals from each consumer as next target consumers. This helped to gain access with the subsequent consumers. VH also went one more step further by complementing their value offerings by organising preventive healthcare camps like rural birth centres, test lab for checking the fluoride content in water, etc. NH created a dynamic shift in customer relationship by enabling the affordability of healthcare for BoP consumers via micro-insurance schemes like Yeshaswini and Arogya Raksha. Regarding delivery channel, VS being a product company, focused on building a multi-layered distribution and direct sales network of vision-entrepreneurs, franchise partners and wholesalers. The idea behind vision entrepreneurs and the franchise partners (civil society organisations) was to leverage the strength of locals for making connect with the consumers. VH on the other hand, believed in implementing hub-N-spoke model and scaling up by building a network of hospitals, day care and clinics, as a solution to increase volumes and ensure value delivery to consumers. NH also adopted the mixed approach for value delivery by building an integrated network of hospital setups, mobile outreach vans and telemedicine network using video-conferencing. All the issues for remote patients are screened via video-conferencing and mobile outreach vans and whatever required an advanced treatment are taken up at the main hospital facility. This hub-N-spoke made a significant contribution in bridging the accessibility gap for remote BoP patients and at the same time distributed the load factor at different levels of hub-N-spoke model.

Regarding financial strategy, all the three organisations had an ongoing focus on cost control and optimisation by integrating technology based innovations in their operational processes, bargaining with suppliers on volumes and inventory, taking decisions on lease versus buy, hiring locals for operations and distributions, no-frills offerings having best of quality with optimal packaging, etc. Over a period of time, with ongoing focus on cost and productivity related innovations, VS, VH and NH reduced their operational cost and salary overheads below market averages. Regarding revenues, VS and NH followed the cross-subsidised approach, wherein they targeted the high- and mid-income segments as well apart from low-income segment and charged them as per their paying capacity. This
helped them to offer a high performance/price ratio to the BoP segment. VH on the other hand mainly generated the revenues from surgeries and consulting fees for the patients. So, the main focus was on cost control measures, scale out, volumes and scalability to keep the venture profitable. Considering the need segment targeted, VS, VH and NH had great scope for scaling up and scaling out to generate profits from volumes and cross-utilisation of resources.

7 Conclusion

Despite the common intent, objective and passion of creating an institution to deliver the inclusive healthcare to the poor, each of these three organisations took a different trajectory to achieve the success and sustainability in their respective BoP business ventures. This brings the realisation that BoP healthcare is a multi-dimensional construct/phenomenon and there exist no standard guidelines to build the business venture around BoP. The processes, controls, technology and offerings can be copied but the passion, which integrates the different building blocks of business strategy, is something, which cannot be replicated. All these three organisations are founder-driven and thereby carried forward the passion, vision and mission of the founders into their BoP business venture, despite the operating challenges and infrastructural constraints. This brings forward a fundamental question regarding the sustainability of the non-founder-driven BoP business ventures. The key principles, which emerge as important recommendations for the sustainability of BoP inclusive healthcare business ventures are as follows:

- First, the healthcare related BoP business ventures need to design product/service offerings, which are affordable, accessible, available, having high performance/price ratio and create awareness on preventive healthcare. The product/service offerings, which bundle these attributes, are likely to generate a significant positive impact on the overall sustainability of the BoP business venture.
- Second, there is a need to view the BoP segment not only as a consumer but also as a producer, employee and micro-entrepreneur. To be sustainable, the inclusive healthcare business venture should focus on local capacity building and engage the BoP segment across the value-chain.
- Third, doctors and nurses are the core resources for any healthcare venture. There has been a continuous scarcity of these skilled resources, especially in small towns and villages. There is a need to follow the NH approach of having focused training and education programmes for the inclusion of the low-income local population as nurses, support staff and intermediate specialists. This is required to bridge the demand-supply gap of these skilled resources as well as contribute in local skill building and economic welfare of the BoP segment.
- Fourth, there is a need to complement the product/service offerings with complementary access to preventive healthcare related awareness as well as access to micro healthcare insurance. A major part of the rural BoP segment suffers from lacks of basic education (literacy), lack of regular per-capita income, low disposable income and lack of access to savings infrastructure. This limits their capability in withstanding any major economic shock. VH ensured the same by complementing
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their value offerings by organising preventive healthcare camps like rural birth centres, test lab for checking the fluoride content in water, etc. NH ensured the same by establishing telemedicine network, mobile outreach vans and launching micro-insurance schemes like Yeshaswini and Arogya Raksha.

- Fifth, there is a need to maintain ongoing focus on leveraging the technology for design and implementation of innovative solutions, which are affordable, available, accessible and having high performance/price ratio. NH focused on technology and innovation as a part of their core business objective. The creation and use of telemedicine network, mobile outreach vans, e-image software, digital X-rays, unbundling of hardware and software for ECG are some of the examples of technology and innovation in NH.

- Sixth, there is a need to scale-out and scale-up the value offering to ensure the sustainability of the inclusive healthcare business venture at BoP. The sustainability comes from volumes and hybrid revenue streams. To neutralise the high operational and infrastructure costs and low margins, it becomes necessary to have the ability and capacity to drive volume-based revenues as well as being able to target the mid and upper segments to get higher margins to balance the lower margins from the BoP segment. This has proved to be quite successful because there is an institutional void in the existing healthcare ecosystem in India. NH diversified into availability of non-cardiac related healthcare facilities to increase the economies of scale and scope. VH specialised into treatment of wide range of primary and secondary healthcare diseases. VS developed a premium customer segment for their vision glasses.

- Finally, at a macro-level, there is a need to move from isolation to collaboration among different BoP business ventures. Most of the healthcare business ventures are operating individually in their respective area of expertise. Considering the complexity and the magnitude of the healthcare issue at BoP, it would be better to integrate the individual BoP healthcare organisations into a uniform network. This development of an integrated ecosystem of inclusive healthcare is required to maximise the reach and impact and resolve the scalability limitations with individual organisations.

To summarise, this research paper is an original attempt to understand the key principles for sustainable healthcare business ventures at BoP. This research holds an implication both for the research community and the practitioner community. Considering the business opportunity, complexity and multi-dimensional aspect of the healthcare need and challenge for the BoP segment, it becomes important to understand and bring forth the learning and guiding principles, which act as a catalyst for the future business ventures in inclusive healthcare.

8 Future research

This research study has been limited to in-depth evaluation of published case studies and other secondary date pertaining to three healthcare organisations operating at BoP in India. The findings from this research can be enhanced further, by extending the scope of this study with field studies of other prominent healthcare products/services providers at BoP in India. The studies selected in this research paper are founder-driven. It is
recommended to undertake the study of inclusive healthcare business ventures in India, which are not founder driven and compare thee organisations with the ones, which are still driven by the founders.

References


Notes

1 As per WRI (2007), The base of the pyramid (also referred to as the bottom of the pyramid or low-income segment) refers to the estimated four billion people around the world, who are poor by any measure and have limited or no access to essential products and services such as energy, clean water and communications. Globally, people in this socioeconomic group earn US$1 to US$8 in Purchasing Power Parity (PPP) per day. Yet these households often pay higher prices (poverty penalty) than wealthier consumers do for lower-quality goods and services because of uncompetitive markets.

As per London (2008), BoP is defined as the socio-economic segment that primarily lives and transacts in the informal economy.

As per National Sample Survey Organization (NSSO, 2004/2005), round 61 of consumer expenditure survey), the rural Indian base of pyramid market is defined as households in the bottom four expenditure quintiles that spend less than Rs. 3453 Indian rupees ($75) on goods and services per month. This definition represents a market of 114 million households, or 76% of the total rural population. The overall count (rural and urban) is 237 million (approx) individuals among a population of one billion (see www.mospi.gov.in).

As per Karnani (2011), BoP logic should meet three necessary conditions as that it is profitable, it is actually serving the poor and it is good for the poor.

2 As per World Commission on Environment and Development (WCED, 1987, p.43), Sustainable development is defined as one that ‘meets the needs and aspirations of the present without compromising the ability of future generations to meet their own needs’. Sustainable development embodies three inextricably connected principles: environmental integrity, social equity and economic prosperity. Performance in one area has effects on the other two areas.

As per Ashley (2009), sustainable business models explore the synergy between social, economic and environmental benefits.

As per Hart, a sustainable enterprise is one that through its work, and not through its philanthropy, solves social and environmental problems and makes money while doing this.

3 In terms of USD per person per day (@ Year 2002 PPP).

4 In terms of USD per person per day (@ Year 2002 PPP).

5 In terms of USD per person per day (@ Year 2002 PPP).

6 As per Haub and Sharma (2010), India’s official poverty measure has long been based solely upon the ability to purchase a minimum recommended daily diet of 2400 kilocalories (kcal) in rural areas where about 70% of people live and 2100 kcal in urban areas.

7 NGO refers to Non-Government Organisations.


9 www.atlasti.com
Appendix A

**Vision Spring (2002) in India**

- **Founded by:** Dr.ordan Kaslow
- **Source:** Christiansen and London (2008); http://www.visionspring.org/home/home.php (accessed on 27 January 2012)

**Overview**

An innovative social enterprise dedicated to reducing poverty and generating opportunity in the developing world through the sale of affordable eyeglasses. It trains local wllagers to conduct outreach & vision screening and sell high-quality, low-cost eyeglasses in their communities. It provides each Vision Entrepreneur with a "Business in a Bag" - a start kit containing the products and materials needed to launch a successful business.

**Actors:** (5+ Partners)
- Poor: Consumers & Vision Entrepreneurs (VE)
- Strategic Partners: Funding, Franchise channel, Technology & Sourcing.
- Referral Partners: Vision 2020 & LV Prasad Eye Institute

**Positives**
2. Focus on integrated supply chain, training the locals, win-win relationship with channel partners driven by trust and transparency.
3. Follow an experimental strategy by conducting a test market with each channel partner before launching fully.
4. Global Organization having operations in 6 countries.
5. Mark.”

**Challenges**
1. Revenues scale-up.
2. Expansion of market or product offerings.
3. Availability of funding/insurance issues.
4. Informal market competition.
5. Decision on best approach to measure & maximize social impact.

**Results**
- **Economics: [Year 2012]**
  - **Revenue:** INR 82 million
  - **Net Profit:** INR 7 million
  - **Social:** [Year 2009]
  - **No. of glasses sold:** 66,000
  - **Active VE (8000)
  - **Visitor Impact to date:** $234 million
  - **Economic & social empowerment

Appendix B

**Vaatsalya (2004)**

- **Founded by:** Dr. Arti P. M. Niharika
- **Source:** Mukherji (2010); http://www.vaatsalya.com/ (accessed on 27 January 2012)

**Overview**

70% of the population living in semi-urban and rural areas while 80% of India’s healthcare facilities are located in urban India. Vaatsalya is bridging this gap by building and managing hospitals in semi-urban and rural areas and bringing healthcare services where least needed most. Vaatsalya is the first hospital network focused on Tier II/III towns.

**Actors**
- Rural & Semi-Urban Poor: Consumers
- Funding Partners: DFID Foundation, Angel Investors, Equity Investors - 49% share.
- Operational Partners: External partners, Government hospitals, Diagnostic laboratories, Pharmaceuticals, Blood banks
- Starting Partners: Medical colleges.

**Positives**
1. H20-Model Hub (50 bed hospital with specialists & clinics).
2. No FICA: Low Cost approach - 448,300 skilled staff (hospital, 50 beds), 2.20 - 6.60 per bed per night, consultancy fee 6.65 - 3.20.
3. Doctor-certified pre-evdation (29 - 68 bed capacity utilization: 89%).
4. Patients: personalized/consistent, trust & transparency in treatment and billing.
5. Rapid expansion via greenfield or Acquired case.
6. Launch of Preventive Healthcare schemes for rural women, test laboratory setup for checking fluoride content in water, creating online database of blood donors.

**Challenges**
1. Patients are still unaffordable for the poorest in the bottom 30%.
2. Retention of scarce resources - skilled doctors.
3. Lack of financial & insurance risk-sharing. Assistance to economically weak patients.
4. Lack of Government support like 50% health insurance scheme for private treatment.
5. Lack of financial viability of extending the portfolio of services like Dialysis.
Inclusive healthcare at base of the pyramid (BoP) in India

Appendix C

<table>
<thead>
<tr>
<th>Narayana Hrudayalaya (2001)</th>
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<tr>
<td>Founded by: Dr. Devi Shetty</td>
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<td>Outreach: India (Karnataka)</td>
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<tr>
<td>Business Model: Cross-Subsidized, Hub &amp; Spoke</td>
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Overview

- In 2001, Devi Shetty founded Narayana Hrudayalaya. Its mission is to deliver state-of-the-art healthcare to poor people by leveraging technology, streamlining care giving and extending innovative health insurance to the poor. The hospital never declared patients who are unable to pay, the successful business model is driven by aligning focus on measures related to cost control, accessibility, affordability and availability of core resources. The success rate of cardiac surgeons are comparable to best in the world and the business model is scalable and sustainable with profit (Rs 277 cr) in the range of soft.

Actors

- Rich & Poor: Consumers & employees (paramedical staff)
- Strategies: Funding partners (family, loan, grants), Technology partners (like i2i), government, industry (for micro-insurances etc)
- Operational: government hospitals, diagnostic & equipment providers

Positives

- Inclusive care for all irrespective of the paying capacity
- Lean organizational structure with minimal administrative involvement of specialists
- Capacity utilization via long hours, technology, innovation & productivity measures
- Affordability: Low-cost Cross-Subsidized & Micro-insurance (Venturist & Angel investors)
- Accessibility: Mobile outreach vans, telemedicine network (onsite, tele-consultation, family-physician), ICT & video-conferencing access, e-health conversion software
- Cost index: Volume, patient infrastructure & capacity utilisation - cataracts under 22% of total cases. Sourcing: minimal inventory, leases versus own, supply contracts - 75% cost savings, Technology & innovation: information technology, end to end solutions, strategic partnerships (infrastructure, insurance coverage, technology & innovations etc)
- Human Capital - Cataract & Dialysis at 18-20 PG courses & skill up

Challenges

- Government support for financial incentives, tax subsidies, resources for medical training centers, public and for constructing newer medical facilities
- Lack of adequate number of skilled manpower
- Need for micro-insurance coverage and government recognition of private sector for availing government healthcare schemes
- Funds for Expansion.