

1 Introduction

During the beginning of the twenty-first century, Prahalad and Hart pushed the radical idea that global businesses should look upon the underserved poor as customers who could be engaged profitably with the right product, service offerings, and business models, rather than left aside as beneficiaries. They made a broad argument that approximately 4 billion people around the world were living in poverty, relying on informal market setups or government subsidies and grants for the fulfillment of their basic needs, and representing a vibrant underserved consumer market waiting for formal market inclusion with the right combination of value and price-based solutions (Prahalad & Hart, 2002). This idea of merging profit and purpose for the low-income segment was coined by Prahalad and Hart as Bottom of the Pyramid, also known as Base of the Pyramid (BoP) (Prahalad & Hart, 2002). During the last two decades (2000–2020), BoP as a radical concept has created a lot of buzz among academicians, businesses, governments, development institutions, etc., which in turn has generated a lot of positive and negative conversations around the feasibility and fitment of for-profit businesses in the BoP market. The central theme revolves around ways and means of alleviating poverty with or without the involvement of for-profit businesses.

During 2000–2020, the global poverty landscape has undergone a significant transformation in terms of socioeconomic inclusion and growth prospects, technology advancement and penetration, rise of social businesses, and growing awareness regarding environmental hazards. Following are the key highlights, which demand a fresh look at the BoP segment.

First, there has been a significant reduction in the count of people living in extreme poverty. According to World Bank estimates, around 1.1 billion people have moved out of extreme poverty (<\$1.9 per person per day at 2002 PPP)¹ between 1990–2015 (World Bank, 2019). Nearly 1.85 billion people lived on an average daily income of \$1.9 per day in 1990. This figure came down to around 736 million people in 2015 (World Bank, 2019). As a result, overall count of

¹ PPP (Purchasing Power Parity) relates to the rate of currency conversion that equalizes the purchasing power of different currencies by adjusting the price level differences between countries. PPPs are also known as price relatives that reflect the ratio of prices in national currencies of the same good or service in different countries. According to World Bank estimates, INR 18.15 is equivalent to USD 1 in terms of PPP in 2018. PPP calculation leads to the inter-country comparison in the real terms of GDP and its component expenditures. GDP represents the economic size of the countries and the economic well-being of their residents on a per-capita basis. Doing PPP analysis is the first step towards converting the GDP and its major aggregates, expressed in national currencies, into a common currency. www.oecd.org/std/prices-ppp/purchasingpowerparities-frequentlyaskedquestionsfaqs.htm; <https://data.worldbank.org/indicator/PA.NUS.PPP?locations=IN> (last accessed on 29 June 2019).

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people in the BoP segment has declined from around 4 billion in 2002 to 3.4 billion in 2017 (Prahalad, 2019; CS Global Wealth Report, 2017).²

Second, there has been consistent growth in the number of people on this planet. Globally, the population has increased from around 6.1 billion in 2000 to 7.5 billion in 2019 (UNDESA, 2019). This implies an ongoing need for concentrated action towards setting up a formal market ecosystem for the BoP segment, as well as environmental sustainability.

Third, internet and mobile penetration among the masses and economy pricing has eased out the last-mile challenges for social businesses in terms of creating last-mile market awareness, connection and reach, as well as offering services like bank payment, information, timely communication, etc. (Prahalad, 2019).

Fourth, the overall poverty challenge still remains a stiff target despite the progress made over the last two decades. Growth in population is mainly happening in African and South Asian economies. Also, the majority of the global poor, especially the extreme poor, is becoming concentrated in these developing and underdeveloped economies. If this population growth and socioeconomic inequality trend continues, then soon more than nine out of ten extreme poor individuals will be concentrated in sub-Saharan Africa and South Asian economies (Prahalad, 2019; World Bank, 2019).

Fifth, there has been a significant shift in the wealth concentration at the top versus bottom of the income pyramid. In 2000, 20 percent of the population controlled around 85 percent of global income (Prahalad, 2019). According to CS Global Wealth Report (2019), the richest 10 percent of people own 82 percent of global wealth with the top 1 percent controlling more than 45 percent of global wealth.

Due to these factors, it becomes necessary to realign today's BoP conversation from alleviating poverty to reducing the growing socioeconomic disparity and deep inequality. How and which types of smart social infrastructure can reduce the growing inequality between rich and poor? How can BoP individuals gain access to better income opportunities and the formal market ecosystem for the fulfillment of their basic needs?

The next question that comes up is: what exactly is the socioeconomic status of BoP individuals or households? The BoP segment comprises low-income people, the majority of whom are primarily illiterate or semi-literate and lack access to the formal market ecosystem for the fulfillment of their basic needs

² BoP segment of 4 billion comprises individuals earning less than \$3,000 per year (at US 2002 PPP level) (Hammond et al., 2007; Prahalad and Hart, 2002).

like food, energy, water, healthcare, education, cash flow, insurance, and housing. Due to insufficient income levels, lack of focus and attention by formal business enterprises, and scarcity of basic infrastructure in urban slums and rural areas, BoP individuals face significant challenges in making a transition from an informal economy to a formal market ecosystem to address their day-to-day needs (Neuwirth, 2012). Multiple approaches have been tried by governments (via subsidies and grants), enterprises (via Corporate Social Responsibility (CSR) initiatives), and global institutions to pay attention to the basic needs of the BoP segment and design an affordable, accessible, and acceptable ecosystem for the productive engagement of poor individuals in the formal market economy.

Another question that comes up is: what kind of inequality and challenges exist at the BoP. More than 1.1 billion people lack access to electricity and an estimated 2.8 billion people rely on biomass, coal, and kerosene oil for cooking and lighting in 2016 (IEA, 2017). Around 790 million people lack access to clean drinking water and an estimated 2.5 billion people do not have adequate sanitation facilities (CDCP, 2016). Similarly, access to healthcare remains a challenge especially in the developing economies across Africa and South Asia. Around 0.3 million (810 women daily) die every year during pregnancy or childbirth (WHO-IMR, 2019). More than 4.1 million infants die within the first year of life (WHO-MMR, 2019). Despite a comprehensive healthcare ecosystem across nations, there is a missing link resulting in so many maternal and infant deaths every year. Millions of people globally fall below the poverty line every year due to uneventful health issues in their families resulting in spiralling healthcare expenditure. This effects, for example, around 55 million Indians annually (Nagarajan, 2018). These people lack access to health insurance and rely on day-to-day earnings for addressing their basic needs. Regarding financial inclusion, there are more than 2 billion people and around 200 million MSMEs (Medium, Small, and Micro Enterprises) lacking access to the formal market setup for savings and short-term credit facilities (McKinsey Global Institute, 2016). Due to lack of financial inclusion, BoP people and businesses face poverty penalties and rely on the informal market setup for short-term money needs at substantial interest levels. This vicious cycle of private loans and high interest rates pushes BoP people and their future generations further below the poverty line.

Gradually, for-profit enterprises are realizing the socioeconomic potential, positive branding, and business logic behind targeting the unmet needs of the BoP segment. This has resulted in growth of social businesses, as well as transformation in CSR strategy of commercial enterprises from “pay-back business model looking at BoP as beneficiaries” to “self-sustainable business

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model looking at BoP as customers.” Then there are government institutions, nongovernmental organizations (NGOs), and community based organizations (CBOs) that are also moving beyond a philanthropic setup to self-sustainable business models at the BoP.

Social businesses are driven by a new belief that BoP individuals can no longer be considered as beneficiaries willing to accept anything but need to be looked upon as a high-potential consumer segment looking for right-value offerings in accordance with their willingness to pay (WTP) and ability to pay (ATP). Social businesses are finding innovative solutions to expand the last-mile connectivity and reach at the BoP by leveraging digital technologies for last-mile awareness building, accessibility, and availability, as well as engaging the locals across the value chain for affordability and social acceptance. All these social businesses are looking at the diverse needs of the BoP segment, ranging from basic requirements like food, energy, healthcare, water, sanitation, housing, education, financing, and insurance to other important needs like communication, market-based setups, higher-income opportunities, information, etc. In fact, more and more social businesses are looking at the BoP segment not only as a potential consumer base but also in terms of suppliers, employees, producers, micro-entrepreneurs, and change agents (UNDP & Deloitte, 2016).

The rapid advancement and growth of information and communication technologies (ICT) has emerged as one of the key levers in the success of social business models at the BoP. Over the years, rapid growth and penetration of digital technologies has led to the emergence of scalable, innovative, and low-cost social business models targeting the basic needs of the BoP segment. Last-mile connectivity, channels for sales and distribution, and building customer relationships are among the major challenges for enterprises targeting the BoP segment (SSG Advisors, 2016). Digital technologies have played a significant role as a key resource in addressing these last-mile challenges in a cost-effective manner. ICT has emerged as a significant enabler in bringing about the economic, social, and political transformation at the BoP. Affordable pricing and increasing quality of ICT related services has led to significant penetration among the BoP segment. This in turn has created an effective channel for the government and enterprises to build awareness, bridge accessibility barriers, and provide affordable solutions and value offerings at the BoP (Spence et al., 2010). ICT has enabled the last-mile reach of market-based offerings like banking and financial transactions, marketing and distribution, online employment opportunities, telemedicine, online education, access to global market for the rural suppliers, access to information like weather forecasts and market rates for different crops, etc. Besides economic well-being, ICT penetration is acting as a significant enabler for public services like disbursement of pensions and subsidies, as well as participation in different government

schemes. ICT is increasingly being seen as a catalyst and enabler for economic growth and social advancement globally. Adoption of ICT leads to operational efficiency, better transparency, social inclusion, and newer business models having wider connectivity and reach among the masses (EIU, 2007). High-speed internet and communication technologies are transforming the delivery of public services to the last-mile people living in rural areas, as well as providing access to the formal market ecosystem for micro and small entrepreneurs at the BoP. For example, increasing numbers of rural artisans and craftsmen from India are selling their goods globally via e-commerce platforms. This amplifies the socioeconomic impact of digital platforms on the lives of poor people living in rural and semi-urban areas and having no formal market experience. The farmers of South Africa are selling their produce directly to far-away restaurants and hotels via mobile phones thereby increasing their income levels, as well as avoiding exploitation by intermediaries. The rapid expansion and scale of Safaricom's M-PESA in Kenya proves the disruptive role of digital technologies in creating transformative social and economic impact among the poor in developing economies.

The primary focus of this Element is to understand the rise of “smart” social infrastructures in BoP emerging markets like India. Addressing this objective required looking at the BoP context in terms of existing challenges, alternatives, and the effectiveness of solutions across the need segments. This Element is divided into the following sections. Section 2 focuses on understanding the BoP as a market context. This includes understanding the key definitions and research focus areas related to BoP as well as identifying the key challenges and institutional voids faced by the BoP segment. This is followed by a review of the existing research literature on BoP. Section 3 highlights the preparatory phase including details about research methodology, sampling approach, and data collection. Section 4 analyzes the context, operation, and business models of social businesses that have been identified for this study. Section 5 connects the dots and summarizes the key focus areas that need attention for success at the BoP. Section 6 highlights limitations and future recommendations. Finally, Section 7 concludes the study by summarizing key points of smart social infrastructures at the BoP that can lead to a win-win relationship as well as significant socioeconomic impact at the BoP.

2 Understanding BoP: Market Context and Research Literature

2.1 BoP Market Context: Potential and Significance

Globally, the population has grown significantly over the years from 2.6 billion in 1950 to 7.4 billion in 2019 (UN-POP, 2019). Going by the current growth trends and increasing longevity, global population count is expected to reach

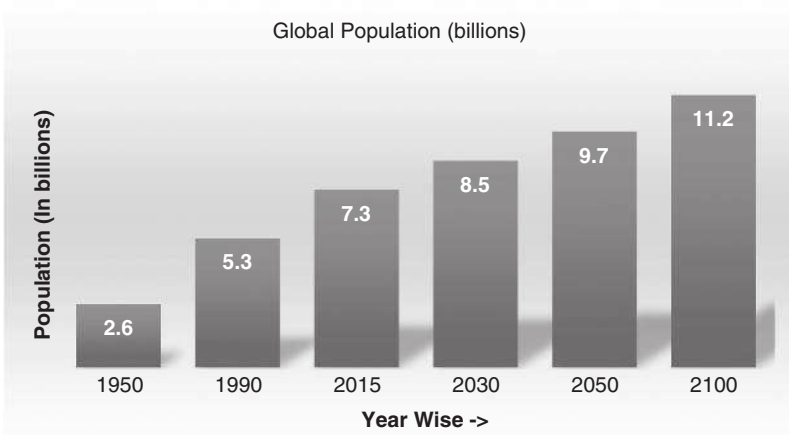


Figure 1 Global population trends (in billions)

Source: UN-POP (2019)

9.7 billion by 2050 (Figure 1). A few interesting points come up from the global population distribution and growth trends.

First, in 2019, around 61 percent of the global population lives in Asia (4.7 billion), 17 percent in Africa (1.3 billion), 10 percent in Europe (750 million), 5 percent in North America (370 million), and the remaining 7 percent in Latin America. At the country level, China is the most populated with more than 1.44 billion people followed by India with a population of more than 1.39 billion (UN-POP, 2019).

Second, Africa will account for more than 50 percent of the population growth between 2019 and 2050. The population of sub-Saharan Africa is expected to double by 2050. This signifies that future growth of businesses will be driven by developing and underdeveloped economies as these countries will account for the majority of the global population, reaching around 95 percent by 2050.

This population demographics and growth pattern has huge implications for global businesses and institutions. While the majority of the population in developed economies is categorized as of the mid- or upper-income segment and as having access to formal market ecosystems for the fulfillment of their basic needs, the same is not the case with developing economies where the majority of the population lies in the BoP category (Esposito et al., 2012). For example, India is one of the high-growth developing economies having 1.39 billion people (UN-POP, 2019) and an average GDP growth rate of 7 percent over the last five years. However, a significant proportion of the

population in India is considered to be poor and faces wealth poverty. Around 78 percent of the adult population in India (676 million) earns less than USD 10,000 per annum (CS Global Wealth Report, 2019). This includes around 70.6 million people who are living in extreme poverty and earning less than \$1.9 per day (Slater, 2018). The majority of the poor and low-income segment in India is concentrated in the rural areas thereby facing challenges in gaining access to the formal market ecosystem for access to basic needs like food, electricity, shelter, water, loans, insurance, and healthcare (Slater, 2018; Kapoor & Goyal, 2013; Esposito et al., 2012). The similar context at the BoP is prevalent across other developing nations especially in Asia and Africa.

A definitive change in the socioeconomic status of the BoP segment has happened over the years due to CSR initiatives by for-profit businesses, as well as social initiatives and measures by governments, global institutions, and NGOs. However, the change has been slow and driven by the choices of these actors. According to the research literature, socioeconomic change can be faster and more impactful if global businesses target the BoP segment as customers with cocreation-led business models.

This implies that global businesses need to review, assess, and design their product and market strategies as per the needs of the BoP segment rather than relying on the upper- and middle-income segments for their growth and sustainability. On the other hand, global institutions need to formulate goals and initiatives to bridge the socioeconomic gap between the BoP and non-BoP segments, developing and developed economies taking into consideration that future growth and stability requires bridging the socioeconomic inequality between developing and developed nations as well as ensuring a formal market ecosystem for the needs of the BoP segment.

2.2 BoP: Research Literature Overview

The need and urgency for a shift in the global mindset towards the BoP segment concentrated in developing economies is becoming more and more evident in recent research. During 2000–2019, increasing numbers of research articles and publications have been published, highlighting the trends, challenges, differentiated strategies, and social business models targeting the BoP segment across developing economies.

Three broad points of differentiation are evident from the research literature in the context of developed versus developing economies. The first point of differentiation is regarding the socioeconomic profile of the individuals in developing versus developed economies. As discussed, a significant proportion of the population in developing economies belongs to the low- and low-mid

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income segments, lives in semi-urban and rural areas, and relies on an informal market ecosystem for day-to-day basic needs. The second point relates to relative market opportunity in the developing versus developed economies. Developing economies, especially BRICS nations, are characterized by a positive GDP growth rate, growing infrastructure, growing consumption patterns, and an increasing youth population. This implies that the future scope of business lies in developing economies, especially the low- and low-mid income segments at the BoP. The third point of differentiation is regarding different types of challenges (consumer, market, competitive, infrastructure, and geographic) in the developing versus developed economies. Unlike developed economies, businesses, especially those targeting the BoP segment, need to review, assess, differentiate, and design their business models taking into consideration the socioeconomic limitations, behavioral challenges, and geographic complexities in the developing economies. The fourth point of significance relates to the growing disparity between rich and poor, as well as an overall decline in the count of extreme poor individuals earning less than \$1.9 per day. As discussed, the number of people considered to be extreme poor has declined from 1.85 billion in 1990 to 736 million in 2015 (World Bank, 2019).

These developments and trends call for a comprehensive action plan by the governments, development institutions, and commercial and social businesses aimed at targeting the underserved needs of the masses at the BoP via self-sustainable and profitable business models. This has led to the evolution of a separate stream of research literature aimed at understanding the context, opportunities, challenges, and business approach in these emerging economies. Considering the fact that the key market in developing economies corresponds to the BoP segment, research literature emphasizes the need for setting up social businesses that are socioeconomic or environmental-mission focused and drive the social or environmental impact at scale with a for-profit or self-sustainable business model (Prahalad, 2019; Esposito et al., 2012; Porter & Kramer, 2011; Yunus et al., 2010). Porter and Kramer (2011) defined this approach as "Creating Shared Value" comprising three areas of action for businesses aiming for a socioeconomic transformation – reconfiguring the products and markets, redefining productivity in the value chain, and enabling local cluster development. Simultaneously, Yunus et al. (2010) argued that setting up social business is the best way to achieve scale and create socioeconomic or environmental impact at the BoP. Yunus and colleagues defined social business as a non-loss company driven by a social mission. All the profits or surplus revenue generated gets reinvested in the social venture. Investors can claim their money back without any dividend (Cosic, 2017; Yunus et al., 2010).

Shared value and social business orientations are both driven by a social mission and a self-sustainable business model. However, unlike shared value, social business orientation highlights the need for pushing back the profits in scaling the business rather than rewarding the shareholders monetarily.

For the purpose of this research, any self-sustainable or for-profit business or enterprise having a social mission and BoP as a target segment is considered to be in scope and addressed as a social business, irrespective of the reinvestment logic used for the profits.

In this Element, the literature review has focused on a descriptive review of the BoP research articles, especially those articles that have been authored by well-known researchers and published in top peer-reviewed journals. The keywords used for identifying the relevant research articles included base of the pyramid, social businesses, social infrastructure, social enterprises, IT setup, and bottom of the pyramid. A systemic review of the BoP research literature enabled us to observe and identify its evolution, as well as understand the emergence of different research themes and interpretable research patterns. The following themes have been identified during the literature review: BoP context, segmentation, value proposition or offerings, experimentation and innovation, social embeddedness, networking and collaboration, and scaling (Table 1).

Table 1 BoP literature review: Research themes and subthemes

Main theme	Subthemes
Context	definition, opportunity, needs, challenges
Segmentation	heterogeneity, low-income, subsistence-income, extreme poor
Value offerings	awareness, affordability, acceptability, accessibility, availability, end-to-end solution
Experimentation & innovation	low-cost probes, prototyping, product innovation, process innovation, business-model innovation, embedded innovation paradigm, structural innovation paradigm
Social embeddedness	structural social capital, local engagement, local capacity building
Networking & collaboration	nontraditional partnerships, value cocreation
Scalability	impact, outreach, replication

Source: Authors' compilation

2.2.1 Understanding the Context

Definition and Opportunity

BoP is looked upon as a volatile and uncertain ecosystem, characterized by institutional voids and comprising low-income individuals or households living and transacting in an informal economic setup (Khan, 2016). BoP is a collective reference to around 3.5 billion people belonging to the suboptimal income strata in the world (Prahalad, 2019; CS Global Wealth Report, 2019, 2017). As we have discussed, there has been a significant transformation in overall population numbers and socioeconomic status of the BoP segment during 1990–2019. At one end, global population has grown from 5.2 billion in 1990 to 7.5 billion in 2019 (UNDESA, 2019). A significant proportion of this growth in numbers has taken place in the low-income strata in developing and underdeveloped economies. Another point of significance is the overall decline in numbers at the BoP despite the high rate of population growth in developing economies. The number of people in the BoP segment has seen a decline globally from 4 billion in 2002 to 3.5 billion in 2019 (World Bank, 2019). This count of 3.5 billion includes 736 million people categorized as extreme poor and living on \$1.9 per day (World Bank, 2019).

Considering these factors, the BoP segment as a market context has undergone significant transformation between the 1990s and 2019. During early 2000, the BoP segment was defined as a collective reference to around 4 billion people (65 percent of the global population) earning less than \$8 per person per day (2002 PPP) (Goyal, Esposito & Kapoor, 2016; Goyal & Sergi, 2015a, 2015b; Goyal, Esposito, Kapoor et al., 2014; Kapoor & Goyal, 2013; Viswanathan & Sridharan, 2012; Esposito et al., 2012; Hammond et al., 2007; Prahalad & Hammond, 2002). By 2017, the BoP segment had undergone a significant shift in terms of overall numbers, count of people in extreme poverty, minimal income levels, and disparity between rich and poor (World Bank, 2019; Prahalad, 2019; CS Global Wealth Report, 2019, 2018, 2017) (Figure 2). During 2000–2019, the rich–poor gap widened with the top 10 percent of the population controlling 82 percent of the overall wealth (CS Global Wealth Report, 2019).

All of these factors signify a mix of positive and negative trends in tackling the global poverty challenge. Poverty has decreased in terms of absolute numbers as well as minimum income tier. Technology penetration, affordability, and accessibility have undergone a significant increase to the last-mile. These are positive indications. However, rich–poor disparity has increased over the same time. Poverty (97 percent of the global poor) is becoming increasingly concentrated in the developing and underdeveloped economies thereby posing a huge challenge for the respective governments and development institutions