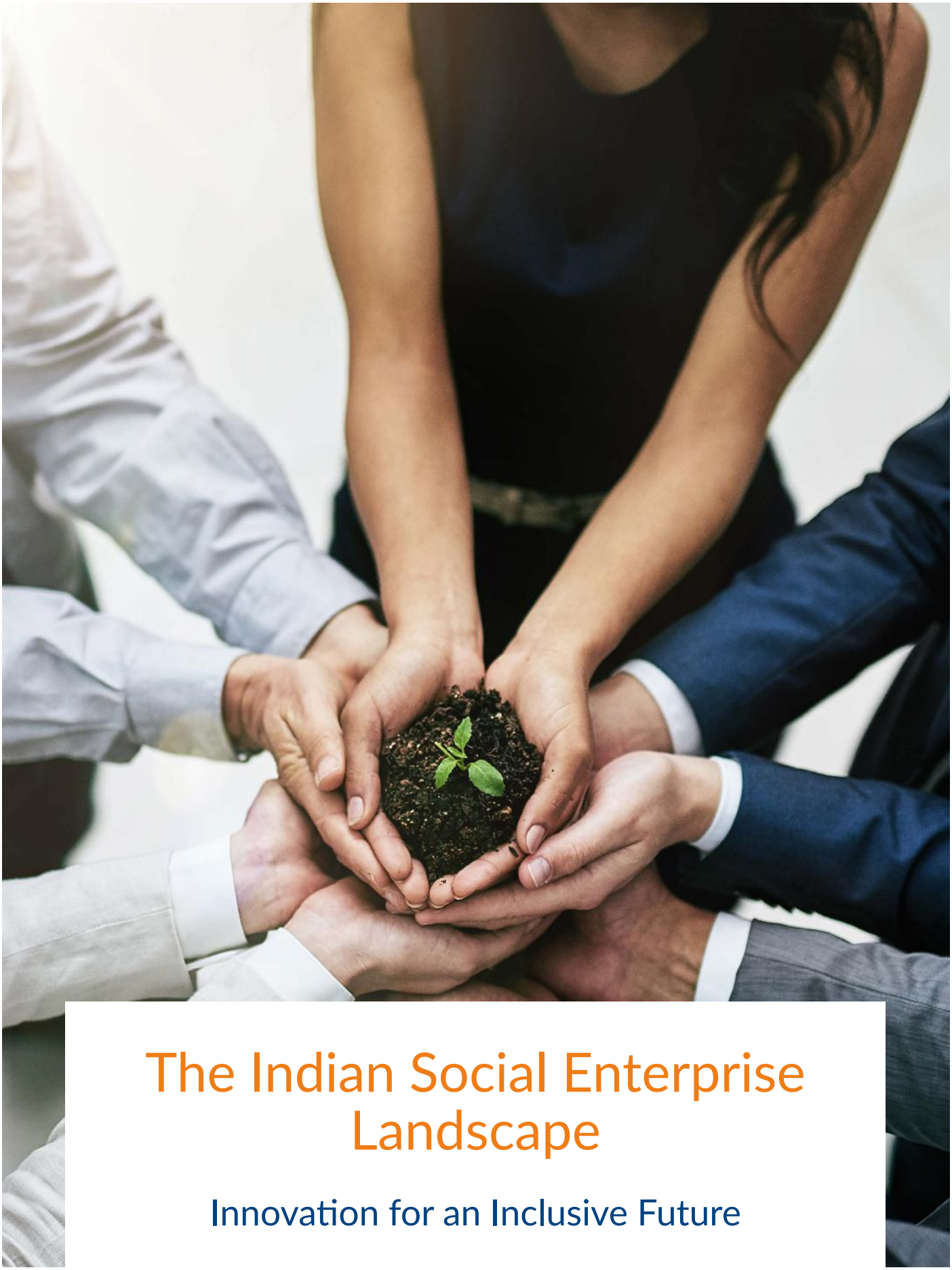

The Indian Social Enterprise Landscape

Innovation for an Inclusive Future

BertelsmannStiftung

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Innovation for an Inclusive Future

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Foreword

Over the last three years, the Bertelsmann Stiftung has been pioneering several studies in the field of innovation in Asia, covering India and China. We have chosen to focus on this topic for Asia as we are convinced that there no single epicenter of innovation, but a network of global hubs. This shift away from the West has consequences for Germany and the rest of the industrialized world. With its reliance on high-technology products and services, Germany is especially dependent on maintaining its edge. In an increasingly interconnected world, this is possible only through mutually beneficial partnerships with emerging champions. We aim to contribute through our Learn, Connect, Transfer model, which allows us to help achieve informed decision making in Germany through our studies, while networking decision makers through our various platforms and supporting the transfer of knowledge through a rigorous exchange of ideas and best practices.

Another reason for our focus is the enormous strides which emerging Asian countries have made in their socioeconomic development by embracing technology-driven economic growth, starting with the Asian tigers, then spreading to China and India, now? We are convinced that the spreading of economic prosperity from the West to the rest of the world will go a long way in solving many global challenges like mass migration and political instability. The transformation process which emerging countries go through to achieve this prosperity is a difficult one. We at the Bertelsmann Stiftung aim to support them through our studies, which address current developments in Asia such as digitalisation, social cohesion etc.

This study on the social entrepreneurship landscape in India is particularly befitting to this objective as India is soon going to become the most populous country in the world. India's socioeconomic development in the last decades has been impressive, but it still faces challenges in the fields of education, healthcare and equitable economic growth, among others. Only by enabling its young people to reach their full potential can India continue to build an inclusive and prosperous society. The study is aimed to help policymakers, impact investors and social entrepreneurs in India and abroad understand the Indian ecosystem better and plan targeted interventions such as innovative partnerships between corporations, impact investors and the government or public funded labs that allow social entrepreneurs to prototype their products before launching them.

Stephan Vopel
Director, Germany and Asia
Bertelsmann Stiftung

Preface

With an estimated two million social enterprises, India is one of the most dynamic social entrepreneurship environments globally. A vibrant start-up community as well as sustained interest and support from impact investors in India and the world have resulted in hundreds of projects providing access to basic services and making dramatic changes in the lives of millions of Indians. There are excellent reports on social entrepreneurship in India which provide an overview of growth trends and the challenges faced and our study is aimed at complementing them.

We first identified seven sectors based on their contribution to the Sustainable Development Goals and validated them through interviews with key experts. The sectors are Agriculture, Clean Energy, Education, Financial Inclusion, Water, Sanitation and Healthcare. We then proceeded with the study, pursuing the following three objectives. We first portray the social entrepreneurship ecosystem with the key stakeholders and their focus areas. Then we do a deep dive into the seven chosen sectors, highlighting policy initiatives as well as start-ups working on meeting the SDGs in their sector. Finally, we identify the key trends for the sector, from both an entrepreneur's and an impact investor's perspective in the coming five to ten years. Since we are a Germany-based foundation, our recommendations naturally focus on how India and Germany can cooperate to create a mutually beneficial partnership.

I hope that this report will help policymakers identify key interventions, help impact investors fine-tune their sectoral focus and help social entrepreneurs tweak their value propositions. We are grateful to Intellecap for sharing their profound sectoral knowledge and for tapping into their network to provide insightful case studies.
I hope that this report will prove useful to the actors in the ecosystem as they navigate their impact journeys.

Murali Nair
Senior Project Manager
Bertelsmann Stiftung

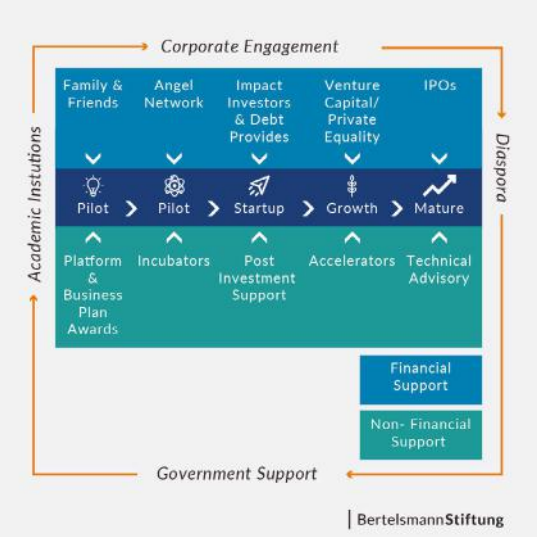
Executive Summary

Close to 70% of India's population lives in rural areas with limited to no access to basic sanitation, health services, and electricity. The lack of access to these basic services has created multiple challenges to development, such as widespread poverty, unemployment, and increasing indebtedness of households. A number of social enterprises have emerged since the early 2000s in response to the access and affordability challenges that low-income and underserved populations face, and the movement has gained traction in the last few years. Over the past decade, sustainable and scalable social enterprises have received increased investor interest, with the quantum of investments also increasing every year. Intellecap's report on impact investing in India found that social enterprises had raised US$ 1.6 billion (€ 1.4 billion) in equity capital from 2004 to 2011. Other reports indicate social enterprises in India have attracted US$ 5.2 billion (€ 4.6 billion) since 2010 in impact investments, with the average deal size for social impact investments growing from US$ 7.6 million (€ 6.7 million) to US$ 17.6 million (€ 15.4 million) between 2010 and 2016.

This research is aimed at studying the social enterprise landscape and its key stakeholders in India. By reviewing and building upon existing literature, this report focuses on business model innovations, key trends and opportunities, social enterprises' alignment with the sustainable development goals (SDGs), and challenges that they face in scaling their businesses.

India's social enterprise ecosystem comprises financial and non-financial support providers in addition to entrepreneurs. Additional stakeholders include the government, which monitors and regulates the impact sectors closely; academic institutions that support with research, typology, and frameworks, as well as incubation, to promote entrepreneurship; large corporate entities that engage with social enterprises and other stakeholders to leverage market development opportunities and to meet their corporate social responsibility goals; and a range of domestic and diaspora high-net-worth individuals and family foundations seeking to give back to society and to invest in India's inclusive growth agenda. This report assesses the landscape from the viewpoint of the key stakeholders in the ecosystem.

The report leverages a database of approximately 600 social enterprises[1] in India, spread across the sectors of agriculture, health, clean energy, financial inclusion, education, water, and sanitation to assess sector-specific social enterprise activity in India. This database was collated through online research and from the Intellecap-Aavishkaar group's wide network in the sector.



Definition adopted:
Social enterprises are predominantly for-profit private sector small businesses that engage with the low-income population to address challenges of access and affordability in critical needs sectors.

De-constructing the definition

'for-profit'- social enterprises usually work with a financial objective, and hence are more likely to expand their services.

'small-businesses' and 'critical needs' sector - social enterprises usually start small; these are enterprises that can be established locally to address the challenges in vicinity in sectors that are of prime importance such as health, agriculture, and financial services, among others.

'low-income' and 'challenges of access and affordability'- social enterprises mainly target low income population, which is usually underserved by the mainstream enterprises to provide them required services/ products with easy access and at affordable rates.

In the absence of a standard definition for social enterprises, different studies have adopted different definitions when estimating the number of social enterprises existing in India. Given the group's deep roots in the sector across its finance, advisory, and knowledge service verticals, the database of almost 600 enterprises analyzed for this study is a true representation of the landscape of for-profit social enterprises in line with the definition adopted. Intellecap collected the relevant secondary data for these almost 600 enterprises, and validated the secondary findings through primary data collated by means of interviews with enterprises, investors, and ecosystem enablers. Some of the key findings were:

- Close to 60% of the enterprises listed in the database are in the growth stage[2], as they are scaling in terms of new customers and markets, even as they refine their business models.
- Most of the enterprises listed in the database are headquartered in metro cities, with a strong presence in west and south Indian states.
- 60% of all enterprises in the database are focused on providing access to basic services and products for low-income populations in an affordable and effective manner. The remaining 40% support the low-income population by either building their skills for employability or by building awareness and sharing information to inculcate behavior change.
- Technology plays an increasing role in the business models of enterprises in the agriculture, healthcare, and financial inclusion sectors, particularly those that have been established over the past three years (2015–2018).

This report examines the social enterprise landscape at the sectoral level, assessing their geographical presence and maturity, modes of engagement with the low-income and underserved population, business model innovations, and the uptake and adoption of technology for last-mile reach and efficient delivery of products and services. Key findings for each of the sectors are as follows:

Agriculture

- The study analyzed 230 agricultural social enterprises in India, each working in distinct ways to improve productivity, market linkages, and farmer incomes.
- A majority of the enterprises are clustered around Maharashtra and Karnataka, followed by Telangana, the National Capital Region, and Tamil Nadu.
- More than 50% of the enterprises are focused on providing access to products and services ranging from equipment to financing for smallholder and underserved farmers across the country.
- Agricultural enterprises often leverage technology to efficiently reach more customers and provide services in difficult-to-reach markets. Of those that are technology-based in the sector, most are geared towards providing market and pricing information, and advisory services to farmers and other stakeholders in the post-harvest and market linkage phase of the agricultural value chain.

Clean Energy

• The study analyzed 108 clean energy social enterprises in India, engaged either in manufacturing clean energy products or delivering services to customers.
• While 56% of the enterprises are present in south Indian states, as compared to only 21% in the northern part of the country, a number of enterprises are providing solutions in some of the most remote and hilly areas of India.
• Three-quarters of the enterprises provide access to renewable energy solutions at the last mile, while many enterprises have an embedded awareness building and knowledge components into their business model.
• Clean energy enterprises have adopted innovative models that leverage data science, ICT, and other technologies to reach and engage with their customers, and create systems-level efficiencies.

Education

• The study analyzed 55 education enterprises, focused mainly on providing affordable education and leveraging technology to improve access to and the quality of education services.
• More than half of the education enterprises are headquartered in Maharashtra and the National Capital Region. A number of education enterprises are also present in southern Indian states.
• The enterprises engage with customers primarily by increasing their access to affordable education, and enabling them to be employed in various capacities.
• Technology plays an increasingly important role in the business models of education enterprises, so much so that education technology or "ed-tech" is a cluster of enterprises that base their solutions on technology. Other education enterprises leverage technology to improve teaching-learning outcomes and teacher training and to reach out to stakeholders.

Financial Inclusion

• The study analyzed 68 enterprises in the financial inclusion sector in India, focused on providing financial services to the underserved in one of four ways: lending, payments, online or mobile banking services, and investment management.
• A majority of the financial inclusion enterprises are based in Maharashtra, with a strong presence of enterprises across the south Indian states of Karnataka, Tamil Nadu, and Telangana.
• Technology adoption by enterprises in the sector is mainly towards customer interactions and acquisition, even though there is an increased focus on digital solutions in the sector.

Healthcare

• The database included 60 healthcare enterprises that provide products and services across the continuum of care from prevention and diagnosis, to treatment and monitoring for a range of diseases and health related states.
• Affordable treatment has been the focus of most enterprises in the healthcare sector, followed by the adequate availability of diagnostics services.
• Most healthcare enterprises are headquartered in Maharashtra and Karnataka, with some operating in eastern states such as Odisha, Assam, and West Bengal.
• More than 60% of the enterprises provide affordable healthcare, with an emphasis on maternal and childcare, eye care, and dialysis solutions, while some support customers with healthcare knowledge and information.
• The increased mobile and internet penetration across the country is catalyzing a shift in the healthcare sector towards "health-tech," where enterprises are increasingly using technology such as artificial intelligence and machine learning to provide products and services.

Sanitation

• The database included 50 enterprises working in waste collection, segregation, treatment, recycling, and disposal of waste (solid, liquid, and e-waste) from a variety of sources.
• More than 60% of the enterprises in the database are based in larger cities in the states of Maharashtra, Karnataka, and the National Capital Region.
• Enterprises offer a range of services and products including affordable sanitation products, and waste disposal and management systems.
• Sanitation enterprises leverage technology to aggregate stakeholders and create formal structures in otherwise informal segments. Enterprises also use digital platforms to connect the vast network of waste collectors to sources of waste. India generates nearly 150,000 tons of municipal solid waste (MSW) each day, as per March 2018 estimates. While around

83% of this waste is collected, less than 30% is treated[3]. Informal waste pickers play a major role by collecting, sorting, and trading waste. They save approximately 14% of the annual municipal budget[4].
• Only a small fraction of the 5 million sanitation workers or their equivalents[5] are formally recognized. Nearly 2.5 million face high occupational hazards at their work. Over 500,000 urban sanitation workers are women, who are mostly engaged in cleaning school toilets and drains[6].

Water

• The study analyzed 15 water enterprises dedicated to solving water safety and access issues in underserved geographies across the country. They have been able to scale across the country and provide water harvesting, storage, treatment, and supply solutions to various communities.
• There is a stronger presence of water enterprises in the central and southern states of India.
• A majority of the enterprises provide access to water treatment systems and harvesting solutions, while others generate awareness and knowledge about the benefits of using clean water and deliver clean water to households.
• Less than 15% of the enterprises leverage technology. Those that do focus on monitoring water levels and quality. They also promote co-generation through waste heat recovery during desalination or effluent treatment.

SDGs[7] addressed

The study analyzed the different ways in which social enterprises contributed towards achieving the SDGs and their targets. The study also delves into the key challenges faced by social enterprises within each sector.
• In the agriculture sector, social enterprises help address three key challenges that align with the SDGs: doubling farmer incomes and productivity, creating sustainability in the food system, and reducing post-harvest food losses.
• In the clean energy sector, most clean energy enterprises address either one or a combination of the three SDG targets under the seventh goal focused on promoting affordable and clean energy.
• In the education sector, enterprises work to promote access to affordable quality education as well as provide tertiary education and vocational training to customers, achieving the targets laid out in the fourth SDG pertaining to quality education.
• Financial inclusion enterprises in India align their business objectives with the SDGs to ensure equal rights to economic resources, development of sustainable economic infrastructure, and use of technology to make the system robust and efficient.
• Healthcare enterprises address SDGs related to achieving universal health coverage at affordable rates, and reduction of maternal and child mortality.
• In the sanitation sector, enterprises provide solutions geared towards achieving the sixth goal and its targets pertaining to resolving the open-defecation problem in India, and creating access to sanitation facilities, particularly in rural areas. Some enterprises are focused on recycling e-waste, municipal waste, and industrial waste.
• In the water sector, enterprises tackle at least two of the six SDG targets that form the sixth goal: promoting safe, affordable, and quality drinking water to all, reducing pollution, and improving water use efficiency.

Challenges faced by social enterprises

Lack of access to finance and skilled manpower are some of the many factors that may potentially inhibit the growth of a social enterprise, along with government regulation and bureaucracy. Secondary research suggests access to finance is a common challenge for social enterprises across sectors in India. While funding is not unavailable, it is not accessible to all. Successful enterprises in different sectors are able to access multiple rounds of funding from investors. Secondly, a number of enterprises across sectors echo the view that they are not able to attract the required talent because of the nature of business. Lastly, some regulatory requirements that are applicable to social enterprises in India prevent them from being profitable and growing. Our discussion with enterprises indicates that while access to finance and appropriate incubation support is a cross-cutting challenge across sectors, the enterprises also face several other sector-specific challenges. For instance, a number of financial inclusion enterprises shared that regulatory changes such as demonetization and the new goods and services tax (GST) has impacted their business significantly. Likewise, major challenges in agriculture include making upfront payments to farmers, particularly in contract farming models, and marketing the product and ensuring uptake. Education-based enterprises shared that it is difficult to convince people to pay for education services. People still consider the enterprises in the sector as

NGOs that should provide services for free.

Policy initiatives

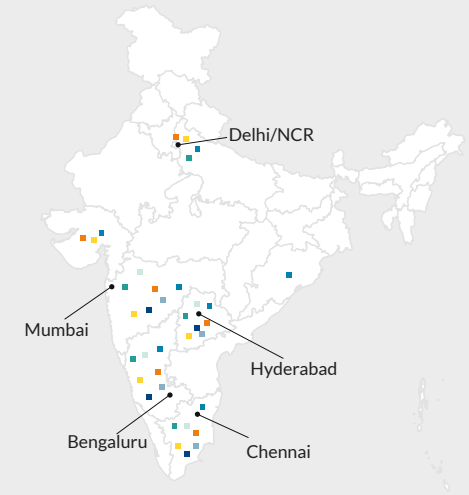
The Government of India is also encouraging enterprises in the seven impact sectors through enabling policies, budgetary allocations, special committees, schemes, programs, and indirect incentives to help address critical challenges. Some of the facilitative programs and schemes released by a range of government ministries and their departments in India include the Pradhan Mantri Fasal Bima Yojana[8] and Prime Minister Krishi Sinchayee Yojana[9] in agriculture; the National Energy Policy 2017[10] for clean energy; the New Education Policy[11] and Solid Waste Management Rules (SWM) 2016[12] for water and sanitation; and the new Health Policy[13] and the Digital India[14], Start-up India[15], and Stand-up India[16] schemes, among others. The government has also eased a number of processes for social enterprises in India. For instance, the number of trademark filing forms has been reduced to 8 from 75. This is in addition to the 10% subsidy that the enterprises receive on filing for trademarks. Likewise, the government bears more than 50% of the patent cost[17]. This report concludes each sector analysis with public policies and schemes that have created an enabling policy environment, and allowed key shifts and emerging trends to take shape.

The study examines the role and evolution of ecosystem enablers, investors, and capital support resources for social enterprises in India. Investors mainly comprise impact investors, and ecosystem enablers include incubators, accelerators, sector experts, policymakers/implementers, industry associations, awards and showcase events, and enterprise advisory service providers. The research highlighted several challenges as well as positive developments that will provide an impetus to the evolution of the social enterprise ecosystem. Key takeaways include:

- Emerging stakeholders: A number of new stakeholders from traditionally mainstream groups such as corporates and academia are now actively exploring the space.
- Leveraging partnerships and technology: Social enterprises face challenges in achieving last-mile reach and pricing their products and services to be viable and affordable. They also suffer from limited customer awareness. In response, they are increasingly building partnerships and collaborations, leveraging technology, and exploring ways to redefine traditional roles and sectors.
- Emerging geographies: Ecosystem enablers face the dual challenges of funding constraints and lack of mentoring talent, which is critical to groom and train the burgeoning number of social enterprises. Despite these challenges, they have been driving deeper into India's smaller towns and cities.
- Exit Strategies: Impact investors have seen some exits in the last five years, but most of them have been in the financial inclusion sector. In other sectors, investors continue to face challenges in the lack of a strong pipeline of investable enterprises and high return expectations. To address them, investors are diversifying their portfolios to include investments in mature and high-return sectors like financial inclusion, and investing in strengthening the ecosystem's support to enterprises.

This report concludes with recommendations for promoting the participation of German businesses in India's social enterprise ecosystem. Germany and India have mutually benefited from trade and business partnerships over the years. India is a key market for a host of large German corporates. While their interests in India have primarily been focused on mainstream sectors, opportunities exist that would allow them to participate in India's inclusion journey.

Figure 1 **Illustrative representation of geography spread of Social Enterprises**



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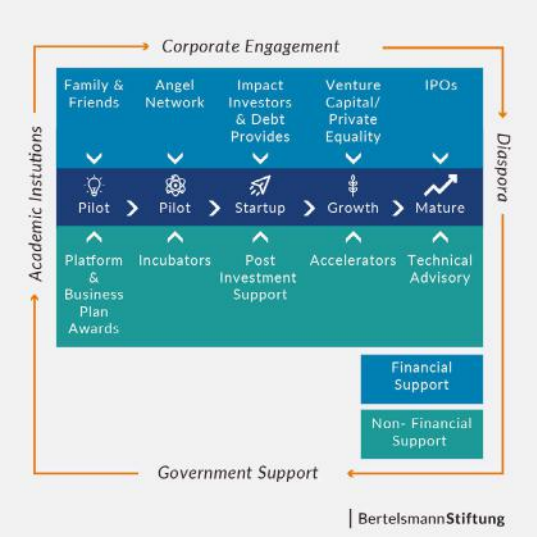
Chapter 1: Introduction

Underserved and low-income communities in India face multiple challenges in accessing quality and affordable basic services. Close to 70% of India's population lives in rural areas with limited access to basic sanitation, healthcare, or electricity[18]. More than 30% of the population lives on less than US$ 2 (€ 1.75) per day[19], 14.5% currently faces rising food insecurity[20], and around 60% of all deaths are caused by the growing burden of non-communicable diseases[21]. Solving these issues requires concerted efforts from the private and public sector in India – efforts that are remunerative, sustainable, and scalable. Activities that meet these criteria often coincide with the work done by social enterprises at different community levels as they try to solve challenges for low-income communities.

Social entrepreneurs along with financial and non-financial support providers together constitute the social enterprise ecosystem in India. Besides these, the government/policymakers are also important constituents regulating the ecosystem by means of relevant laws and policies. Moreover, in recent times, academic institutions and large corporates have also increasingly participated in ecosystem building by supporting activities like research, typology, and frameworks, incubation, and market development opportunities to promote entrepreneurship. Additionally, several domestic and diaspora high-net-worth individuals and family foundations also support India's social enterprise ecosystem to give back to society and invest in India's inclusive growth agenda, and hence become an integral part of it.



Social enterprises in India

Our research indicates that social enterprises are predominantly for-profit, small, and growing businesses that engage with low-income populations to address challenges of access and affordability in critical needs sectors. They play an important role in catalyzing development at the base of the pyramid and for underserved populations in India. While social enterprises do not have a legal definition within Indian regulatory frameworks, they form a subset of the larger group of Micro, Small, and Medium Enterprises (MSME)[22]. Estimates from a study conducted by the British Council, Ennovent, and the Aspen Network for Development Entrepreneurs in 2016 on both for-profit and not-for-profit social enterprises in India suggest the presence of close to 2 million such enterprises across the country23.

Impact sectors with extensive social enterprise activity in India

In India, social enterprises tend to cluster around seven high-impact sectors: agriculture, clean energy, health, financial inclusion, water and sanitation, and education. Each of these sectors is critical to low-income communities in India, given the fact that more than 50% of the Indian population is dependent on agriculture that is costly and underproductive[24]. Further, only 7.3% of India's 18,452 villages have 100% household connectivity to the grid, although the potential for solar and other decentralized renewable energy solutions is high[25]. The lack of electricity and high dependence on agriculture has clear multiplier effects on development outcomes in health and on general living standards. For instance, low-income households tend to use unsustainable and harmful resources such as firewood to cook food and light their homes. In addition, 65% of India's population is of working age, and only 5.5 million of the 12 million jobs needed to satisfy growing demand are created annually in the country due to the lack of employment opportunities and skilled labor[26]. Similarly, the rural and urban poor face

health risks due to poor waste and sanitation services as well as lack of access to safe water. The concentration of for-profit enterprises addressing such critical needs is higher among the seven sectors chosen for this study.

Investor interest in the seven high-impact sectors in India

Over the past decade, each of these sectors has received increased investor interest, with the quantum of investments also increasing every year. Over US$ 42 billion (€ 36.7 billion) has been invested in India's renewable energy sector since 2014[27] across social enterprises, private companies, and other organizations; and close to US$ 8.4 billion (€ 7.3 billion) has been invested in the food processing sector in India[28] between 2000 and 2017. While these investments are not specific to social enterprises, the high influx of capital into the sectors is a sign of growing public and private interest that is also evidenced by the growing investment in social enterprises in India. Reports indicate that social enterprises in India have attracted US$ 5.2 billion (€ 4.6 billion) since 2010 in impact investments, with the average deal size for social impact investments growing from US$ 7.6 million (€ 6.7 billion) to US$ 17.6 million (€ 15.4 billion) between 2010 and 2016[29]. The estimated market opportunity and potential for social enterprises in India is pegged to grow to US$ 8 billion (€ 7 billion) by 2025[30].

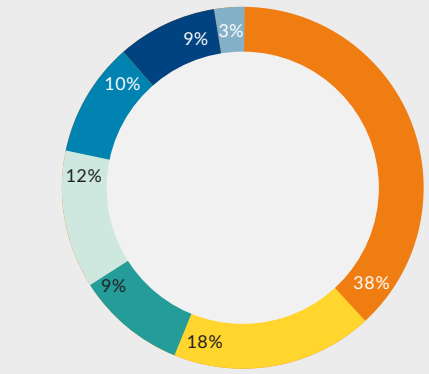
The potential for impact investments is also high across emerging economies, such as Indonesia and East Africa. According to surveys done by the Global Impact Investment Network (GIIN), between 2007 and 2017, US$ 904 million (€ 777 million) was deployed as impact capital across Southeast Asia in 225 direct deals by impact investors. While the quantum of capital flowing into other emerging economies is not as high as in India, major stakeholders expect the region to attract more capital over the next few years due to the growth of an enabling ecosystem. East Africa has also seen a surge in impact investments over the past few years. In 2015, GIIN released a survey of impact investments into East Africa highlighting an influx of US$ 9.3 billion (€ 8.1 million) as impact capital over 1,000 deals by impact investors, bi- and multi-lateral bodies, and development finance institutions (DFIs), with DFI investments forming the majority.

FIGURE 2 **Impact investments in India, 2010-2016**

Emerging perspectives on the social enterprise landscape in India

This study examined a database of 581 social enterprises and found that most enterprises had nascent but growing operations geared towards solving key development challenges in the country. Of these, 38% are in the agriculture sector, where many enterprises are primarily engaged in delivering products and services in the post-harvest phase of the value chain. 18% of the enterprises are in the clean energy sector and offer products and services that span solar, biomass, hydroelectric/hydrokinetic power, wind, and other forms of decentralized renewable energy. 10% are in the healthcare sector, primarily treating a range of negative health conditions. 12% of the enterprises represent the water and sanitation sectors, focused on wastewater treatment and waste management. Financial inclusion enterprises comprise 12% of the database, and are primarily engaged in lending activities, including microfinance and housing finance. The remaining 9% of the enterprises are in the education sector, engaged in education technology provision, teacher training, tertiary education, and vocational training – among other activities.

FIGURE 3 **Distribution of database by sector**

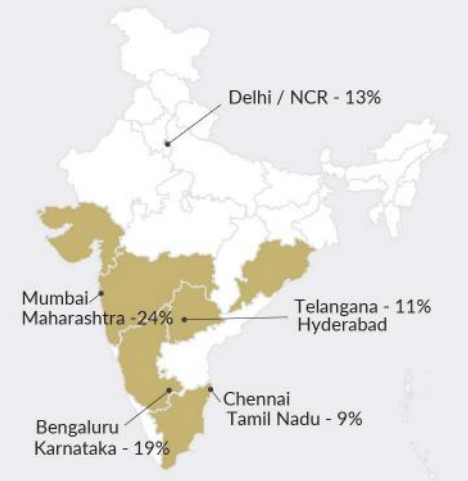


Source: Intellecap Analysis | BertelsmannStiftung

Growth stages of enterprises

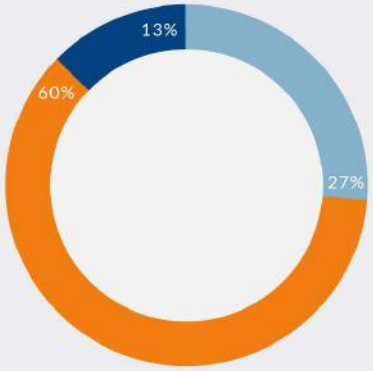
Close to 60% of the enterprises listed in the database are in the growth stage[31], as they are scaling in terms of new customers and markets, even as they refine their business models. The remaining 40% are in the pilot, startup, or mature phases. Of the enterprises in the database, 76% have been operational for more than five years. Only 16% were established two to five years ago, of which 47% are from the agriculture sector and 20% from the sanitation sector. The database also evidences a prevalence of agriculture and financial inclusion enterprises with operations of more than 10 years: 40% of the enterprises in agriculture and 46% of those in financial inclusion have been operating for more than a decade.

FIGURE 4 **Geography (headquarters) across database**



Source: Intellecap Analysis | BertelsmannStiftung

FIGURE 5 **Enterprise distribution across the three modes of engagement**



Ability	*Enterprises that provide critical goods & services to low income & underserved populations*
Access	*Enterprises that increases the purchasing power of low income populations by including in their value chains or by building their skill for employment*
Knowledge	*Enterprises that builds awareness & share information to build markets & inculate behavior change*

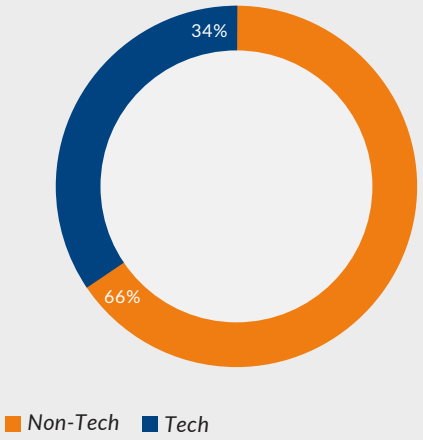
Source: Intellecap Analysis | BertelsmannStiftung

Geographic distribution of enterprises

Most enterprises are based in metro cities and in west and south Indian states. While headquarters tend to cluster around Maharashtra and Karnataka, the enterprises' geographies of operation are most often found in more rural and remote parts of the country. An interesting point to note here is that enterprises whose headquarters are in cities such as New Delhi need not conduct operations in regions that are proximate. Some enterprises based in cities such as Mumbai and New Delhi, for instance, have operations spread across north and northeast India;

enterprises based in Hyderabad operate not only in south India, but also in some eastern regions such as Odisha and Jharkhand. While the reasons for this geographical spread range from the kind of work the

FIGURE 6 **Tech/Non-Tech distribution for entire database**



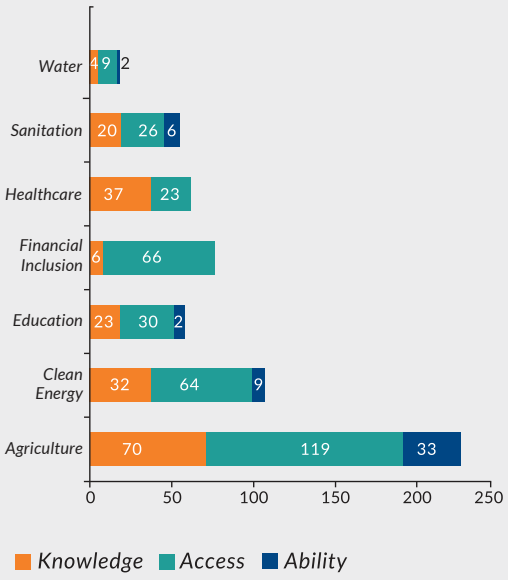
Source: Intellecap Analysis | BertelsmannStiftung

enterprise is engaged in to the sectoral preference and kind of support required, it indicates a healthy social enterprise ecosystem across the country that is catering to a variety of needs and working to solve challenges in regions that require greater development at the grassroots level.

Mode of engagement of enterprises with customers

The study categorized and analyzed social enterprises across sectors by the modes in which they engage with customers. Intellecap used its "enterprise-mode of engagement" framework to categorize the enterprises into "access," "ability," and "knowledge" enterprises. Access enterprises are those that provide critical goods and services to low-income and underserved populations. Ability enterprises increase the purchasing power of low-income populations by including them in their value chains or by building their employability skills. Knowledge enterprises increase awareness and share information to build markets and inculcate behavior change. Of all the enterprises in the database, 60% focus on providing access to basic services and products for low-income populations in an affordable and effective manner; 27% were categorized as improving or provisioning ability and 13% as providing knowledge to their customers. The

FIGURE 7 **Mode of engagement by sector**



Source: Intellecap Analysis | BertelsmannStiftung

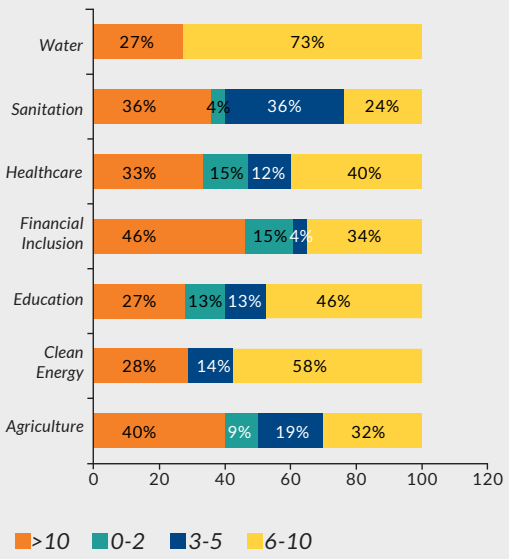
database indicates access to be a prevalent engagement model across sectors, followed by ability and, finally, knowledge.

The data also indicates that 62% of the enterprises that have been operational for 6 to 10 years are access-based. Only 7% of the access enterprises have been operational for less than two years, which is interesting considering the prevalence of access-based enterprises in the overall dataset. 25% of the ability enterprises, on the other hand, have been operational for less than five years, with 18% in operation for between two and five years. There is a prevalence of access enterprises in the zero-to-two-year and two-to-five-year category, followed by ability enterprises reaching 25% in the under-five-year category. This is also interesting from a sector perspective, wherein healthcare and education witness a larger number of knowledge enterprises compared to financial inclusion, a sector where knowledge is not necessarily a need-gap that has to be addressed.

Role of technology

Technology plays an increasing role in the business models of enterprises, particularly those that have been established over the past three years in the agriculture, healthcare, and financial inclusion

FIGURE 8 **Age distribution by sector**



Source: Intellecap Analysis | BertelsmannStiftung

sectors. 34% of the database comprises enterprises focused solely on technology solutions and innovations. Furthermore, most of the growth-stage enterprises in the database for the study engage with technology. Our interactions with stakeholders highlight that ICT and technology leveraging data science have the potential to transform social enterprise business models, increasing revenues and optimizing operations of enterprises, especially those in sectors where reaching customers and engaging with them is difficult. The database also showcased a prevalence of technology adoption among younger enterprises, i.e. those that have been operational for between zero and two years, with 74% of them being tech-based, compared to less than 15% of all the enterprises with more than 10 years of operations. The agriculture, education, and clean energy sectors have the greatest number of enterprises leveraging technology.

The database indicates an overlap in headquarters of technology-based enterprises with key information technology hubs in India. The database reports 50% of all pilot, early, and growth-stage enterprises in Bengaluru are tech-based, as are 41% of the enterprises in Mumbai and 35% in Hyderabad. Interestingly, of the agricultural technology-based enterprises, 33% are based in Karnataka and 10% in Telangana. There is also a prevalence of technology-based enterprises in the education, financial inclusion, and health sectors in Maharashtra.

The following chapters in this report aim to enable an understanding of the social enterprise activity within each sector by providing an overview of the context within the sector, the level of social enterprise activity, and the role within the sectoral value chain. Further, the chapters will utilize insights and analysis from the database to create an overview of the different parameters the database covers, including the three modes of engagement, the role and prevalence of technology in operations, and the enterprises' alignment with the targets of the sectors' sustainable development goals. The chapters will also highlight key public sector schemes and government policies and surface insights into the key shifts within each sector over the past few years.

Chapter 2: Sector Landscape – Agriculture

Indian farmers are trapped in cycles of low earnings, depleting assets, and indebtedness that result in high instability and vulnerability; 83% of all Indian farmers are smallholders, who own less than two hectares of land that is highly under-productive[32]. Limited access to information about markets and the prevalence of middlemen in the supply channel also results in inadequate price realization for the farmers. In addition to this, infrastructural inadequacies in storage, farm logistics, processing, and financing lead to harvest and post-harvest losses that impact the sector and the economy. In 2016, harvest and post-harvest losses were estimated to be US$ 13 billion (€ 11.4 billion) in India[33].

Distribution of enterprises across the value chain

This study analyzed 230 agricultural social enterprises in India, each working in distinct ways to improve productivity, market linkages, and farmer incomes. 18% of the agri-enterprises operate across the value chain providing integrated agricultural services that cut across two or more of the four value chain segments. For instance, Wingreen Farms supports farmers in the pre-harvest and harvest phases to reduce the use of unsustainable agri-chemicals and increase productivity. The enterprise also brings post-harvest activities such as primary and secondary processing closer to the farm gate and sometimes even on-farm. 22% of enterprises support farmers with market linkages, providing either digital marketplaces, such as those provided by VegFru and Farmily, or direct to consumer linkages that facilitate purchase and sale of produce, such as the solutions offered by enterprises like Moksha Yug Access and DeHaat.

31% of the enterprises operate in the post-harvest phase, offering loss-reduction solutions, processing facilities, and innovative storage and financing mechanisms to farmers. StarAgri Warehousing and Collateral Management offers warehousing, procurement, and collateral management for agricultural commodities. Through

FIGURE 9 **Agriculture – Value chain components**

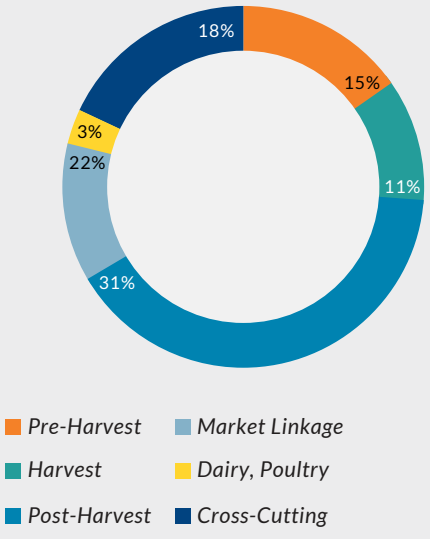


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Table 1 **Agriculture – Value chain components with examples**

Pre-harvest	Harvest	Post-harvest	Market Linkage
Agrosaw Dhaanya Seeds Skymet One Ulink Organics	Siri Flybird Innovations Vdrone Agro Eruvaka Technologies	Ecozen GRoboMac I Say Organic StarAgri Warehousing	Farm2Kitchen Kisan Point Sabziwala Ninjacart

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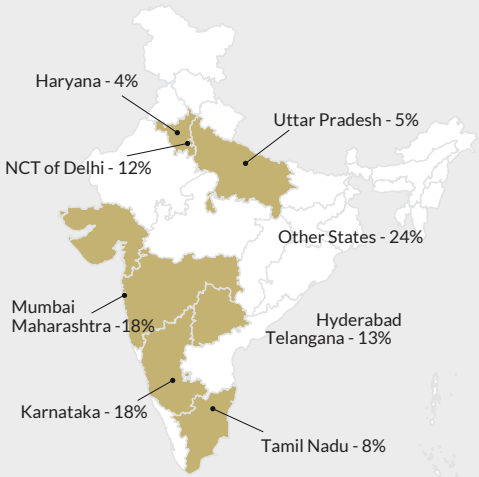
its subsidiary StarAgri Finance, the enterprise also provides warehouse receipt financing and other agricultural financing products such as loans and value-chain financing. Most of the enterprises in the pre-harvest phase such as Dhanuka Agritech, an agri-chemicals provider, and Ulink Organics, a fertilizer and micronutrient manufacturer, provide inputs, while other enterprises such as Agrosaw manufacture and provide farm equipment. Enterprises in the harvest phase such as Green Max Technology and Zamindara Farm Solutions provide cultivation support resources such as harvesting equipment.

Geographic distribution of enterprises

A majority of the enterprises analyzed in this study are clustered around Maharashtra and Karnataka, followed by Telangana, Delhi, Haryana, and Tamil Nadu. Over 22% of the agri-enterprises are headquartered in one of the five southern Indian states. 17% of the enterprises were based in the west – in states such as Rajasthan, Gujarat, and Maharashtra. Some of the more recently established (less than five years) enterprises are also based in the northeast and in the hilly regions of the north such as Himachal Pradesh[34].

Many agri-enterprises have scaled beyond their home state. 64% of the enterprises listed in the database have operations in more than one state, tending to focus their operations in specific regions or within the vicinity of their home state. Enterprises such as Dodla Dairy, with headquarters in Hyderabad, Telangana, and Lawrencedale Agro (popularly known as Lawrencedale Estates & Farms or LEAF), with headquarters in Ooty, Tamil Nadu, confine their work to the five southern states. Similarly, Farm2Kitchen, an enterprise based in Haryana, has its operations in the National Capital Region (NCR), Haryana, and Uttar Pradesh. Around 36% have focused on scaling operations to more villages and towns within their home state. For instance, FarMart scaled to 10 villages in Uttar Pradesh, while Ninja Cart, which is based in Bengaluru, expanded to different parts of Karnataka.

FIGURE 10 **Agriculture - Geography (headquarters)**

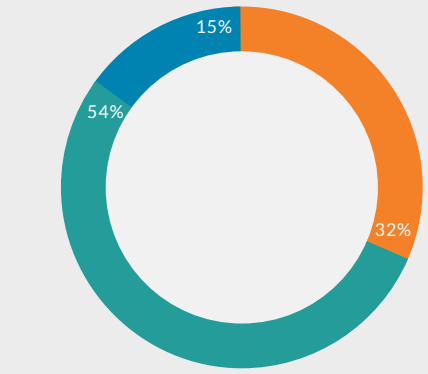


Source: Intellecap Analysis | BertelsmannStiftung

Engagement with customers

54% of the agri-enterprises are focused on providing access to products and services ranging from equipment to financing, while a smaller number work with farmers as partners to improve their livelihoods. Access enterprises such as Ecozen and Ergos provide access to critical infrastructure such as cold storage and warehouses, respectively or to financing solutions such as commodity-based finance provided by enterprises like Arya Collateral, and warehouse receipt financing by enterprises like Kisan Dhan. 32% of the enterprises improved the ability of farmers through either contract farming models, crop purchasing and extension support, or through the provision of high-quality, affordable, and sustainable inputs that could help reduce costs and allow farmers to increase their non-farm livelihood opportunities. Around a third of the knowledge enterprises have been in operation for less than seven years, indicating their recent establishment when compared with access or ability enterprises. Knowledge enterprises constitute a minor category in the agriculture sector. These offer information and advisory support to the farmers, either in the form of market information on prices and demand, or in the form of weather-related information. Enterprises such as Skymet One work in the weather-advisory segment, while enterprises such as Agroman provide price-discovery services on their online marketplaces.

FIGURE 11 **Agriculture – Mode of Engagement**



Source: Intellecap Analysis | BertelsmannStiftung

Over the past few years, agri-enterprises have been exploring innovative models to create affordable and contextualized solutions for farmers in India. Enterprises such as Flybird Innovations, for instance, work on creating low-cost and small-scale technology that is suited to the needs of small and marginal farmers. Enterprises are beginning to innovate with business models too; for instance, some enterprises are adopting the "farming-as-a-service" model, which reduces the need for heavy capital expenditures by small farmers towards machinery, equipment, and other cultivation support resources across the value chain. Farming-as-a-service models transform fixed costs of farming into variable costs, thereby ensuring small and marginal farmers can also afford services and products. Enterprises such as EM3 and Oxen Farm Solutions are working in the farming-as-a-service space towards creating robust cultivation support economies – both provide equipment on a pay-per-use and on-demand basis to farmers. Technology is also being increasingly used to link farmers to markets and other stakeholders, such as input and extension support providers, equipment manufacturers, and post-harvest processing and storage facilities, allowing farmers to access services on-demand and closer to the farm gate.

EM3

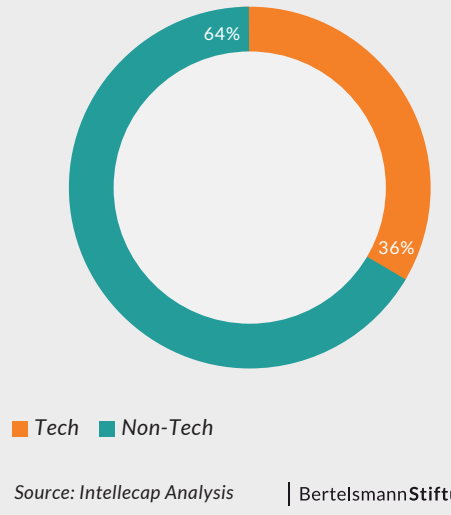
Founded in 2014, EM3 aims to change the way farming is practiced in India. Their innovative model is inspired by ridesharing firms like Ube r, in that EM3 is looking to "Uberize" farm services that require equipment use. Their unique farming-as-a-service model is also based on a pay-per-use system. Using its network and the need for its services, EM3 also aims to become an integrated agriculture marketplace that offers a range of cultivation services across the value chain. Through their platform, they hope to provide credit and insurance to farmers, and to create market linkages for farmers in more remote and rural areas with limited access to farm equipment and market infrastructure. In August 2017, EM3 had raised US$ 10 million in a Series B fundraise from the Global Innovation Fund, based in London. The enterprise also has agreements with state governments such as the government of Rajasthan to develop more than 1,000 farm service centers across the state. The firm also trains local workers in managing the equipment they possess, and provides farm services. The team at EM3's headquarters in Noida focuses on mapping usage patterns through data to optimize equipment and administrative costs in their operational geographies.

Adoption of technology

Agri-enterprises leverage technology to efficiently reach more customers and provide services in difficult-to-reach markets. Around 36% of the enterprises are technology-based, and most of them are geared towards providing market and pricing information or advisory services to farmers and other stakeholders. Interestingly, a majority of the technology-based enterprises provide services and products in the post-harvest and market linkage phase. Some interesting models such as WayCool are geared towards making agri-logistics and the supply chain more efficient by providing low-cost refrigerated transport and storage and integrating shelf-life extension technologies into the supply chain for produce sourced directly from farmers

anddelivered to clients and customers. Enterprises like DeHaat and Farm Guru focus on assisting farmers with crop purchasing and equipment supply across the value chain. A small subset, around 5% of the enterprises in the database, have digital platforms and online marketplaces that operate across the country. These models are also able to gather data from numerous agricultural markets and share it with stakeholders through their platforms. However, technology uptake is still low in the sector, and farmers require some level of handholding before they begin to rely on data and ICT to plan, manage, and execute farm-level activities. Incorporating ICT into the business model is an emerging trend: Of all the technology-based enterprises, 16% were established less than two years ago and 37% less than five years ago. CropConnect, which was founded in 2013, aims to leverage technology to create a sustainable and demand-driven value chain by matching the sourcing requirements of bulk-buyers and retailers of produce on the platform to farmer groups that can meet this demand. EkGaon Technologies is another such enterprise that provides digital marketplace and aggregation services for farmers and buyers of agricultural produce.

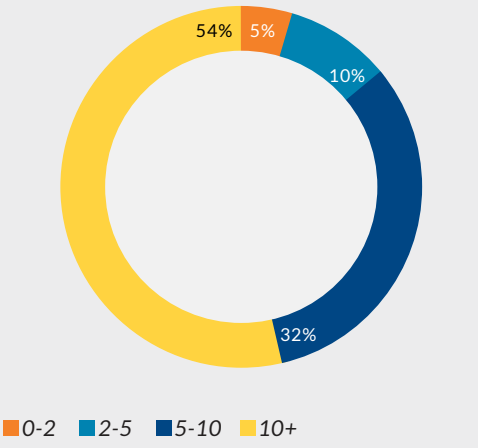
FIGURE 12 **Agriculture – Tech/Non-Tech**



Source: Intellecap Analysis | BertelsmannStiftung

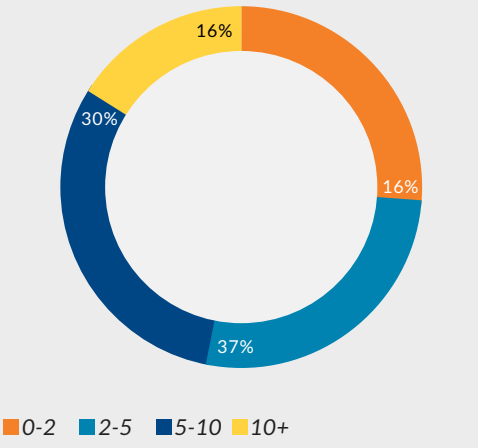
64% of the agri-enterprises that do not leverage technology focus on improving the farmer's abilities on-farm and provide access to services and products that are essential to ensuring vitality in the farm economy. These enterprises tend to be older, with only 15% of them established in the last five years

FIGURE 13 **Agriculture - Distribution of age for non-tech enterprises**



Source: Intellecap Analysis | BertelsmannStiftung

FIGURE 14 **Agriculture – Distribution of age for tech enterprises**



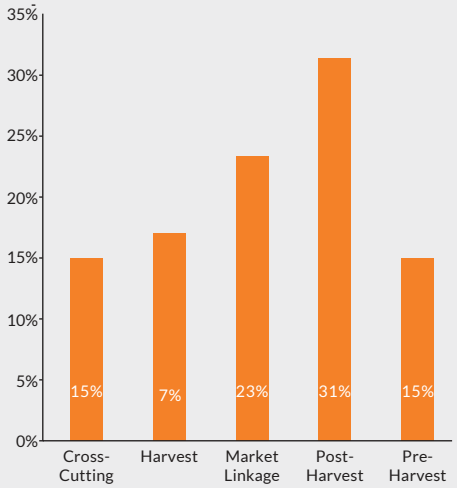
Source: Intellecap Analysis | BertelsmannStiftung

and 54% more than 10 years old. Mother Dairy's Safal was established in 1974 and provides a range of post-harvest solutions from processing and storage to transportation, packaging, and retail. These traditional enterprises also tend to cluster around the post-harvest and market linkage phases of the value chain; their solutions, however, are focused on providing post-harvest facilities near-farm. Only 7% of the enterprises provide solutions in the harvest phase, supplying harvesting and irrigation equipment. Enterprises such as Basant Products, for example, established in 1982, have been

manufacturing and providing agricultural machinery and irrigation equipment to farmers for more than 30 years now.

Social enterprises in agriculture work across the value chain to help solve three key challenges that align with the sustainable development goals: doubling farmer incomes and productivity, creating sustainability in the food system, and reducing post-harvest food losses. 77% of enterprises in the post-harvest value chain aim to reduce food losses

FIGURE 15 **Agriculture – Distribution of non-tech enterprises across the value chain**



Source: Intellecap Analysis | BertelsmannStiftung

through a variety of service offerings. Edanta Food provides near-farm gate primary processing, SiloBag manufactures high-quality grain storage bags that can store large amounts of grain, Green Max Technology manufactures a solar produce dryer that aims to extend product shelf-life, and enterprises like Freshleafy provide better transport to minimize waste and improve farm-to-market linkages.

66% of the enterprises in other pre-harvest and harvest stages of the value chain seek to double farmer incomes and productivity. Global Easy Water Products (GEWP) is a distributor of low-cost irrigation technology that has the potential to improve crop yields by 30% to 70%. Kamal Kisan, on the other hand, provides access to mechanized farm equipment that can help farmers improve productivity and profitability. While GEWP and Kamal Kisan work by providing farmers with targeted solutions, Kheyti works across the value chain and develops low-cost farming solutions for small farmers in India. Kheyti's "greenhouse-in-a-box" is an affordable, customized, and modular greenhouse that has the potential to improve farm productivity and income on produce, while reducing water use.

CROPIN

CropIn is a technology-based enterprise that provides farm management software and apps to enable connected and data-driven farming. It aims to provide users with real-time data and insights that can improve various aspects of agriculture. One of its offerings, SmartFarm, is a dynamic farm management solution which enables "complete digitization of farms, empowers data-driven decision-making, and provides complete visibility of people, processes, and performance on the field." CropIn has also developed a climate-smart advisory service that generates season-wise crop configurations for all the major crops and provides weather-based advisory services and predictions to farmers in local languages to help them with measures that can protect crops from environmental losses due to erratic weather patterns. So far, CropIn has digitized more than 3 million acres of farmland across its operational geographies, which comprise 18 states in India and seven countries across the globe. By late 2017, CropIn had raised close to US$ 4 million. With the aim to digitize farms in India and become a global leader in the agri-tech space, CropIn has as recently as June 2018 partnered with the Government of Karnataka to assist farmer producer companies advise farmers with the right package of practices across 20 of the state's districts.

Regulations and policy support to the sector

The growing traction and intent among social enterprises in India to solve challenges in agriculture is supported by government policies and initiatives. The recent establishment of a dedicated committee focused on providing strategies and solutions to "double farmers' incomes" and the rollout of the agriculture-specific policies indicate growing promise in the sector. The government's push to make agriculture and its allied sectors more remunerative, productive, and integrated with markets and

infrastructure indicate a growing concern to solve key challenges that hinder farm-based livelihoods in the country. Some of the recent schemes from the central government focused on incentivizing the private sector to set up post-harvest infrastructure include a) the cold chain, value addition, and preservation infrastructure scheme and b) the primary processing centers (PPCs) and primary collection centers (PCCs) in rural areas scheme. The government has also subsumed smaller schemes under single umbrella schemes in order to offer a range of support to farmers such as the launch of the Krishunnati Yojana. The government announced the new APMC model law in April 2017, and is encouraging states to reform their APMC acts and allow farmers to sell their produce through multiple channels.

"Although schemes such as the soil health card and other farmer-related benefit schemes should enable enterprise growth, they don't have the desired impact. The input market is dominated by middlemen and intermediaries, who promote usage of products based on their margin gains rather than the crop needs"

Abhiram Seth,
Managing Director, AquaAgri Processing

Figure 16 **Agriculture – Alignment of SDGs across the value chain**

	AGRICULTURE			
SDG Targets	Pre-harvest	Harvest	Post-harvest	Market Linkage
2.3 Double the agricultural and non-agricultural productivity, incomes, and opportunity for all farmers				
2.4 Ensure a resilient, nourishing, and sustainable food system				
2.5 Maintain, preserve, and share the genetic diversity of crops, livestock, and critical species				
12.3 Cut food & post-harvest losses by half across the agricultural value chain				
NEED GAPS	High cost of quality inputs leads to overuse of low-quality inputs Lack of easy access to farmers at the last mile for extension and advisory support	High prevalence of manual harvesting techniques and resource-intensive practices	Limited access to packhouses and processing facilities for farmers in rural areas	Uncontextualized warehouses for small farmers Limited access to accurate and real-time market information

Little to no activity *Moderate activity* *High level of activity*

Source: Intellecap Analysis

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Table 2 **Key policies impacting the agriculture sector in India**

Policy/Scheme Name	Ministry/ Department	Description
Krishi Unnati Yojana	Ministry of Agriculture and Farmers' Welfare	"Green Revolution – Krishunnati Yojana" is an umbrella scheme that has been implemented since 2016-17 by gathering several schemes/missions under one umbrella scheme. The umbrella scheme comprises 11 schemes/ missions. These schemes look to develop agriculture and allied sectors in a holistic and scientific manner to increase the income of farmers by enhancing production, productivity, and returns on produce.
National Agriculture Market (e-NAM)	Department of Agriculture, Cooperation & Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare	National Agriculture Market (NAM) is a pan-India electronic trading portal which networks the existing APMC mandis to create a unified national market for agricultural commodities. The NAM portal provides a single window service for all APMC-related information and services.
The State/UT Agricultural Produce and Livestock Marketing (Promotion & Facilitation) Act, 2017	Department of Agriculture, Cooperation & Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare	The new model act aims at building a level playing field for both public sector and private sector players to enter into the domain of agriculture marketing and build appropriate market structure. It also provides a framework that catalyzes fair conduct and performance of marketing to the advantage of farmers in particular and consumers in general.
Modified National Agricultural Insurance Scheme (MNAIS)	Department of Agriculture, Cooperation & Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare	The objectives of the scheme are i) to provide insurance coverage and financial support to farmers in the event of prevented sowing and failure of any of the notified crop; ii) to encourage farmers to adopt progressive farming practices, high-value inputs and better technology, and iii) to help stabilize farm incomes, particularly in disaster years.
Drought Management Plan (DMP)	Department of Agriculture, Cooperation & Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare	Drought Management Plan (DMP) is designed to help reduce the time taken in mobilizing resources for an effective response and enable a harmonious relationship among stakeholders.
Paramparagat Krishi Vikas Yojana	Department of Agriculture, Cooperation & Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare	Paramparagat Krishi Vikas Yojana is an elaborated component of soil health management (SHM) of the major project National Mission of Sustainable Agriculture (NMSA). Under PKVY, organic farming is promoted through adoption of organic villages using a cluster approach and Participatory Guarantee System (PGS) certification.

Source: Department of Agriculture, Cooperation & Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare

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Emerging trends in the sector

By leveraging innovative models, agri-enterprises are striving to make farm systems more efficient and increase farmer incomes through innovative service delivery models. Some enterprises have shown promise to scale, and have attracted significant funding. Interesting models such as those that promote "farming as a service," digital aggregation of aggregators, and demand-driven production are promising and investible opportunities in the agriculture sector in India, since they represent the shift from small-scale and local models of extremely high-touch advisory and farm management, to more low-touch but reliable farm management and crop planning.

Challenges to scale

Though enterprises show promise for scale and sustainability, the volatility of the Indian agricultural market and the sizeable population of small farmers with limited access to farm services remain key challenges. Enterprises cite the limited access to agricultural finance to be one of their biggest challenges. Interactions with enterprises such as AquaAgri Processing indicated that small and marginal farmers could not afford high-quality inputs, which are expensive due to the high costs of production and marketing. Another key challenge was the fragmented nature of farm holdings across India, considering 100 million farmers in India are smallholders with parcels of land less than two hectares in size. The disaggregated and fragmented nature of landholdings is a rather high barrier for enterprises to provide solutions at scale. However, with growing interest in innovation and the tangible willingness and intent from all stakeholders, the outlook for agri-enterprises in India is optimistic.

Over the past few years, a number of models that create efficiencies within existing systems have emerged. The introduction of more market-oriented solutions that can integrate demand and supply to create efficiencies in production systems and in allied services, such as transport, processing, storage, and retail, has resulted in the development of institutions in the sector. The growing number of technology-led enterprises, especially those promoting precision farming, soil health monitoring, and real-time information delivery/advisory to farmers, highlights the greater flow of information to all stakeholders in the sector. Finally, the emergence of the aggregator of aggregators – focused on making markets more remunerative and promoting the diversification of crop mixes to mitigate losses due to over-supply and market-related issues – addresses key challenges that the agriculture sector has to overcome in order to achieve improvements in productivity and profitability.

> *"One of the biggest challenges for enterprises in the dairy segment in India is the fact that most people do not consider a dairy farmer to be an 'entrepreneur.' It is important that we change that, because a dairy farmer has no brand or measure for themselves against traditional brands and cooperative models like Amul."*
>
> *Santosh D. Singh,*
> *Founder, Amrutha Dairy Farms*

Chapter 3: Sector Landscape – Clean Energy

According to an April 2018 report titled "The Evolving Energy Landscape in India"[35], although energy use in India has doubled since 2000, per capita energy consumption is lower than the global average. Nearly 17% of rural households in the country still do not have access to 100% electricity, and 33 million households (approximately 240 million people) do not have access to grid-based electricity[36]. The lack of electricity hampers productivity, leading to lower income generation, concentrated workload (during periods when electricity is accessible), and increased exposure to health risks due to use of alternative energy sources.

> *"People living in slums and the streets of Mumbai do not have access to an uninterrupted supply of electricity. We found that there is a dearth of quality products at affordable prices, and there is an unmet customer need for solutions that fill the middle ground between quality and price."*
>
> *Bhushan Trivedi,*
> *Founder & CEO, Piconergy*

Social enterprises in India leverage the potential of renewable energy to decrease the dependence on fossil fuels, and simultaneously promote a cleaner, greener environment. Most clean energy social enterprises in India work in the off-grid energy space, providing either renewable energy products or delivering services to customers. Enterprises such as SELCO Solar and Simpa work to provide solar home lighting and electrification solutions for low-income populations. Solar energy comprises close to 50% of the renewable energy segment in India and a similar trend can also be observed among the enterprises, with a majority focusing on solar. The established majority of solar energy enterprises in the clean energy sector is also reflected in the database, with 56% of the enterprises, like Azure Power, Cosmos Ignite, and Frontier Markets, listed as either manufacturers of affordable solar products or providers of solar solutions to customers living in rural and remote locations which are underserved.

Other service providers dependent on "non-solar" forms of renewable energy are also increasing their share of the energy mix. 19% of the enterprises, such as First Energy, Jwala Fuel Technologies and Phoenix Products, are solely in the biomass space. The remaining 25% work in the wind and hydroelectric space, with some enterprises providing a mix of clean energy services. Enterprises such as Prakruti Hydro Labs manufacture small-scale hydroelectric turbines, Rural Renewable Urja manufactures biomass briquettes, and other enterprises such as Akshaya Solar manufacture and provide solar photovoltaic panels to customers.

ORB ENERGY

Orb Energy (Orb) is a private limited company established in 2006 that provides distributed solar PV and solar thermal (solar water heaters) solutions to residential, commercial, and industrial customers across eight states in India. It caters to its market through a strong retail network with a major presence in Karnataka, Andhra Pradesh, and Maharashtra. Orb leverages an in-house platform to provide finance to small and medium enterprises by helping them set up a rooftop solar system to reduce electricity costs. In addition, it also markets basic products such as solar lanterns and "plug and play" systems in domestic and international markets through partner organizations. Since its inception, the enterprise has installed over 150,000 rooftop solar systems in India – with a cumulative installed capacity of more than 30 MW across its operational geographies. In January 2018, Orb Energy raised close to US$ 15 million from FMO (the Dutch development bank), the Overseas Private Investment Corporation (OPIC), Pamiga, and DEG (a German development finance institution) to expand its operations in India and enter into parts of Kenya.

Table 3 **Clean Energy – Value chain components with examples**

Clean Energy Products	Service Delivery
Prakruti Hydro Labs Barefoot Power India Dlight Design Phoenix Products	Husk Power Systems Jagriti Solar Vayam Renewable Esyasoft

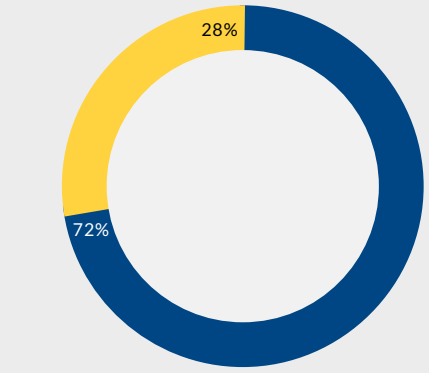
Source: Intellecap Analysis | BertelsmannStiftung

This sector also includes enterprises like OMC Power that build mini-grid solutions for communities and local businesses in rural areas. Some enterprises offer advisory and technical support. For instance, Dawner Energy monitors energy data to create efficiency analytics, while Jagriti Solar focuses on designing, installing, and maintaining renewable energy solutions for their customers.

Distribution of enterprises across the value chain

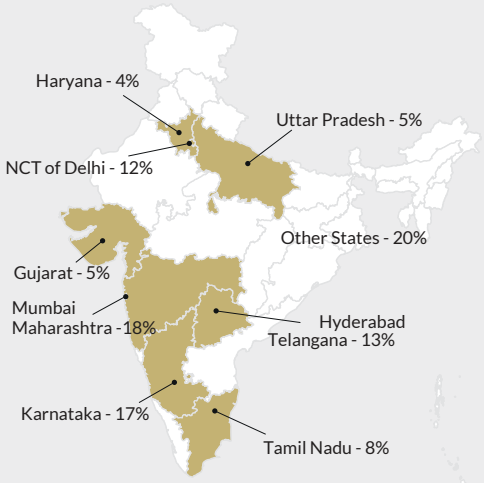
This study analyzed 108 clean energy social enterprises in India that work across these two key value chain segments. 72% of the enterprises in the database offer products that help customers access renewable energy. Their offerings include solar rooftop solutions, PV panels, solar home systems, hydrokinetic turbines, and biomass briquettes, among others. Akshaya Solar Power, for instance, manufactures solar PV panels for customers. Rooftop Urja, while focused on solar PV systems, also provides micro hydro turbines to customers, and Rural Renewable Urja Solutions manufactures and supplies biomass briquettes which are an efficient alternative to low-income communities using kerosene or firewood. The remaining 28% of enterprises offer a range of services to customers, both end-users and other renewable energy enterprises. These include Essmart Global, which is a marketplace for renewable energy products to last-mile customers; Pushan Renewable Energy, which provides solar financing for the purchase of renewable energy systems; and Urja Bio Systems, which designs and installs renewable energy systems such as biomass plants.

FIGURE 17 **Clean Energy – Value chain components**



Source: Intellecap Analysis | BertelsmannStiftung

FIGURE 18 **Clean Energy – Geography (headquarters)**



Source: Intellecap Analysis | BertelsmannStiftung

Geographic distribution of enterprises

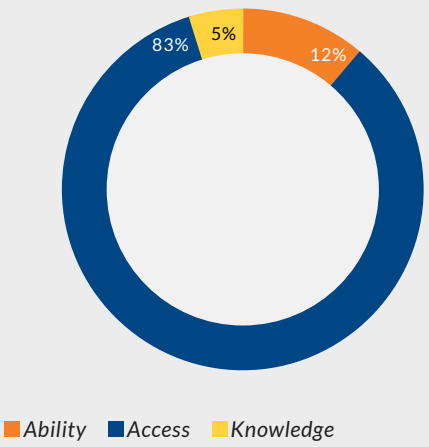
Clean energy social enterprises are present across the country, providing solutions at the last mile in some of the most remote and hilly areas of India. The number of social enterprises is much higher in South Indian states when compared with those in the northern part of the country. 17% of the enterprises are based in different cities in Karnataka, most commonly Bengaluru, with operations across states such as Andhra Pradesh, Telangana, and Tamil Nadu. Vana Vidyut for instance, is an enterprise based in Bengaluru and is engaged in manufacturing biomass plants with operations around Tamil Nadu and Karnataka.

12% of the enterprises are based around the National Capital Region (NCR), with operations across India, from Rajasthan to Manipur. Clary Energy, based in New Delhi, provides solar water-pumping solutions for irrigation and to meet drinking water needs in off-grid rural areas across 14 Indian states. Enterprises that are operational in the north and northeast, for instance in places such as Uttarakhand and Manipur, tend to focus on the provision of hydroelectric solutions and innovative renewable energy solutions. Avani Bio Energy, for instance, based in Kumaon, Uttarakhand, has an innovative and contextual renewable energy production system that leverages the highly flammable pine needles found scattered across the terrain and gasifies them for use as a raw material in the fuel station.

Engagement with customers

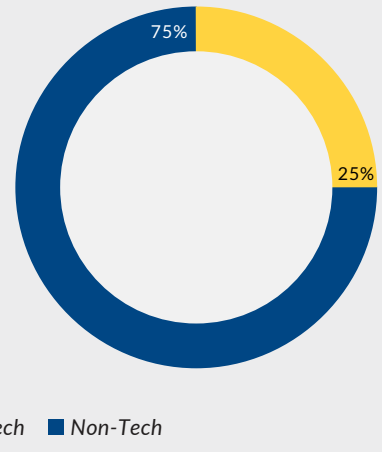
83% of the listed enterprises are providing access to renewable energy solutions at the last mile. While many enterprises have embedded the "knowledge" component into their business model, only 5% of enterprises focus solely on providing information to customers about clean energy and its benefits. Some knowledge enterprises such as WattMan train customers to increase energy efficiency rather than switching completely to renewable sources. WattMan's model, while made for retail chains and automated teller machines across the country, is based on providing energy governance solutions through an automated and intelligent control mechanism. 12% of the clean energy enterprises in the database support the sector by enabling and skilling people through financing linkages, alternate livelihood options, and training to create energy efficiencies that save costs and increase earnings. Enterprises such as Desi Power, for instance, develop, promote, and package renewable energy-based independent rural power plants that are used as demonstration and training centers that help local communities to adopt more environmentally sustainable renewable energy solutions. Bhaskar Solar provides renewable energy financing for both institutional and non-institutional clients in rural areas. Awareness building is also emerging as a key component of business operations among the sector's social enterprises. Of the enterprises that focus on improving the abilities of their customers to

FIGURE 19 **Clean Energy - Mode of engagement**



Source: Intellecap Analysis | BertelsmannStiftung

FIGURE 20 **Clean Energy - Tech/Non-Tech**



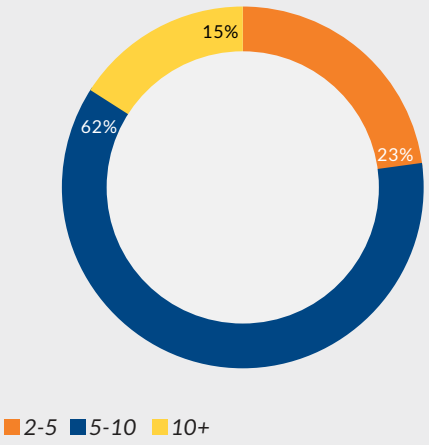
Source: Intellecap Analysis | BertelsmannStiftung

access renewable energy products and services, enterprises such as Sakhi Unique Rural Enterprise work with models that promote clean energy solutions by reaching out to those at the bottom of the economic pyramid, e.g. through women entrepreneurs at the village level.

Adoption of technology

Clean energy enterprises have adopted innovative models that leverage technology to engage with their customers. 25% of the enterprises in this sector leverage data or ICT in their operations, using technology to reach customers at the last mile, or create systems-level efficiencies. They are geared towards supplying knowledge of energy use, efficiency, and other data to customers to make systems sustainable and energy-efficient. Such technology-based clean energy enterprises use a range of innovative technologies to create systems-level efficiencies. Cygni Energy, for instance, is an enterprise which provides a "direct current micro-grid" that removes the need to convert alternating current to direct current and vice versa, thereby reducing the cost of power production per unit watt. Some enterprises also provide "smart" solutions in solar and hydrokinetic energy while promoting technology and innovation adoption to make systems more efficient. Most commonly, technology-based enterprises such as Husk Power Systems provide innovative "pay-as-you-go" models that leverage digital payments and monitoring to enable use-based payments. Others such as VayuGrid are focused on building the supply chain and transaction base for renewable energy solutions so they can improve access to solar, wind, hydroelectric, and biomass-powered solutions.

FIGURE 21 **Clean Energy - Distribution of tech enterprises by age**



Source: Intellecap Analysis | BertelsmannStiftung

23% of the enterprises that leverage technology have been in operation for two to five years, while only 15% have been operating for more than 10 years. Enterprises such as Smart Joules, established in 2014, use data and analytics to track real-time energy consumption so customers can discover energy-saving options and make energy-utilization operations seamless. On the other hand, enterprises that have been operational for more than 10 years, such as Aditya Wifi Metering and Husk Power Systems, are engaged in smart-metering solutions for customers. A majority of the technology-based enterprises in clean energy have been in operation for five to ten years, with 62% of the enterprises falling into this category. Enterprises within this age bracket tend to provide services that promote energy conservation and efficiency – especially in the case of solar energy. For instance, Quasar Enviro Solutions, established in 2011, focuses on energy conservation and cost reduction for all customers, including individual households, organizations, communities, and others.

Enterprises that do not leverage data or ICT for last-mile reach tend to work closely with low-income communities, both as customers and village-level partners in market development. Enterprises such as Barefoot Power (founded in 2012), Boond Engineering & Development (founded in 2010), and Frontier Markets (founded in 2009) are engaged in affordable solar product manufacturing and sale. Interestingly, enterprises with operations of more than 10 years also cluster around the product segment across different kinds of renewable energy solutions. For instance, Phoenix Products has been manufacturing biomass solutions for the non-farm rural segment since 1989, while d.Light has been providing solar products to customers since 2006. Most have built deep last-mile institutions, such as village-level entrepreneur (VLE) networks and connections with microfinance institutions and farmer groups, to achieve last-mile reach. Some enterprises offer technical consulting and operational support. Reinenergy Infratech, founded in 2015, is engaged across the renewable energy spectrum, offering design and consulting solutions

Figure 22 **Clean Energy – Alignment of SDGs with value chain components**

	OFF-GRID ENERGY	
SDG Targets	Clean Energy Products	Service Delivery
7.1 Ensure universal access to affordable, reliable and modern energy services	⚡⚡	⚡
7.2: Increase substantially the share of renewable energy in the global energy mix	⚡⚡⚡	⚡⚡
7.3: Double the global rate of improvement in energy efficiency	⚡	⚡⚡
NEED GAPS	Reductions in upfront costs of manufacturing clean energy products, creating efficient technologies at scale	Generating clean energy requires integrated management systems that are not contextualized to target markets Distribution network is mostly comprised of small stand-alone systems that are most often not grid integrated

⚡ *Little to no activity* ⚡⚡ *Moderate activity* ⚡⚡⚡ *High level of activity*

Source: Intellecap Analysis

BertelsmannStiftung

for wind, solar, hydro, and bio-energy. Another enterprise in this group, Ohm Solar, is engaged in operating renewable energy plants.

Alignment with SDGs

Most clean energy enterprises address either one or a combination of the three SDG targets under the seventh sustainable development goal (affordable and clean energy). Enterprises aimed at promoting solar energy in India are also geared towards increasing the efficiency of solar cells, even as they innovate and economize on the costs of purchasing and installing high-efficiency solar PV cells. Some enterprises that are technology-based and focused on developing smart-metering solutions and thereby making existing systems more efficient ensure that both producers and customers save on costs. 11% of enterprises providing clean energy products ensure that they are affordable and sustainable for low income populations. 17% of enterprises that are working to set up clean energy systems such as biomass cookstoves and plants in rural areas are attempting to increase the share of renewable energy in the global energy mix.

Regulations and policy support to the sector

In alignment with the SDGs, the Government of India supports the sector by enabling energy policies and opening up channels for private investments. The National Energy Policy 2017 drafted by NITI Aayog includes a few revolutionary reforms, including opening up the entire power sector value chain to private investment in order to create an efficient electricity market. The distribution companies are assured of government support for implementation of renewable purchase obligations (RPO) and renewable energy certificates (REC). The Reserve Bank of India has also included renewable energy under the priority sector lending list. Recently, the government also revised its renewable energy targets from 175 GW to 225 GW, indicating a push to improve and expand renewable energy use across the country.

Table 4 **Key policies impacting the clean energy sector in India**

Policy/Scheme Name	Ministry/ Department	Description
Deendayal Upadhyaya Gram Jyoti Yojana	Ministry of New & Renewable Energy	Deendayal Upadhyaya Gram Jyoti Yojana, the erstwhile National Solar Mission, was launched on January 11, 2010. The mission has set the ambitious target of deploying 20,000 MW of grid-connected solar power by 2022. Its aim is reducing the cost of solar power generation in the country through (i) long-term policy; (ii) large-scale deployment goals; (iii) aggressive R&D; and (iv) domestic production of critical raw materials, components, and products, and thereby achieve grid tariff parity by 2022.
National Wind-Solar Hybrid Policy	Ministry of New & Renewable Energy	The main objective of the policy is to provide a framework for promotion of large grid-connected wind-solar PV hybrid systems for optimal and efficient utilization of transmission infrastructure and land, reducing the variability in renewable power generation and achieving better grid stability.
National Policy on Biofuels	Ministry of New & Renewable Energy	The policy aims at mainstreaming biofuels and, therefore, envisions a central role for them in the country's energy and transportation sectors in coming decades.

Source: Ministry of New & Renewable Energy | BertelsmannStiftung

Emerging trends in the sector

Over the past few years, clean energy solutions across the spectrum have been growing and seeing investment from private investors, development finance institutes, and impact investors. Over the past four years, India's renewable energy sector has received US$ 42 million (€ 36.6 million) in investments of various kinds such as foreign direct and impact investments[37]. There have been significant investments into enterprises working to promote different forms of renewable energy apart from the traditional solar, although solar solutions continue to lead the market. Wind energy is also gaining ground; for instance, Greenko's June 2018 acquisition of ReNew for an enterprise value of approx. US$ 1 billion (€ 871 million) is testament to higher and bigger investments in the space. SELCO, a Bengaluru based sustainable energy solution company, also received investment from the DOEN Foundation in early 2018. Biomass and wind power have seen increased interest due to the policy push from government ministries, as well as the potential of biomass and wind to be retrofitted into existing rural systems – where farm activity can contribute to biomass generation and conversion into energy, and wind turbines can be installed to supply electricity to remote areas.

Challenges to scale

Despite the higher investments in the space, clean energy enterprises in India still face three key challenges: the high cost of production, access to finance, and a less-aware but serviceable customer segment. Interactions with enterprises indicate access to finance as a common challenge for enterprises to scale and deliver services and products at low costs across India. Enterprises providing biomass cookstoves find it challenging to reach last-mile customers. Many of them have developed last-mile logistics by partnering with MFIs (to leverage their agent networks and financing capabilities) and VLEs who are agents for a variety of brands and products. Also, the growing interest from private investors and the public push for renewable

> *"There should be a combination of philanthropy and investor funding for successful implementation of ecological restoration projects, as it requires considerable awareness building in addition to other mechanical activities."*
>
> *Rajnish Jain,*
> *Founder, Avani Bio Energy*

energy in the country indicate positive and sustainable outcomes in the near term.

There are a range of innovative models that have also emerged over the past few years in the clean energy space in India. Enterprises such as Eco Emerging Technologies are working on creating small-scale hydro-kinetic turbines that can power villages and communities in areas with little to no grid connectivity. Enterprises are also engaging in innovative partnerships with manufacturers and other stakeholders within the clean energy sector in India to promote the use of clean energy. Enterprises such as Pico Energy have partnered with manufacturers and vendors, as well as local community leaders to promote their clean energy solutions.

With increasing public and private interest, the clean energy sector in India is set to grow over the next few years, especially considering some of the key shifts that have taken place in the last five to seven years. While solar power remains interesting for social enterprises, a number of entrepreneurs are also exploring opportunities in biogas, hydroelectricity, and wind energy. Interesting overlaps between clean energy and other sectors such as water & sanitation and agriculture open up new areas for the sector. For instance, sanitation enterprises are exploring ways to efficiently provide material for biomass plants and other integrated waste management models that promote waste-to-energy. Similarly, water purification models explore solar solutions to power their units in remote and grid-deficient regions. Similarly, there is significant investor interest around solutions that tackle the agri-energy nexus, due to the potential in saving water, promoting energy efficiency, reducing costs, and improving sustainability in the food system.

> *"Behavior change around clean cooking requires public-private partnerships. Companies have a role to play in making sure that consumers have access to the right product at the right price, but the government has the influence and resources to reach the masses. If you look at the Beti Bachao, Give-it-up, and hand wash campaigns, they were all successful because of the role the government played in getting the message across to the population."*
>
> *Harish Anchan,*
> *Managing Director – Envirofit*

SELCO SOLAR

SELCO is the pioneer in solar home-lighting systems in India, and its business outlook hinges on two key perspectives: technology and financing. The company provides doorstep services and financing to those who need it. The enterprise is engaged in understanding the customer's needs through a "bottom-up" approach that it uses to create a customized or needs-based product or service. SELCO offers a range of solutions, from indoor home appliances to digital education tools catering to rural, urban, migrant, and tribal segments. SELCO's innovation department is a dedicated experimental arm of the enterprise. The department engages in innovation in technology, financing, and service delivery to the end-customer through customized, needs-based solution development. SELCO has recently begun partnering with external networks and partners, such as NGOs and academic, technical, and financial institutions, to promote innovation in reaching the last mile and ensuring every customer has access to renewable energy solutions. Having impacted over a half million lives through 45 energy service centers in its operational geographies around Karnataka, Gujarat, Bihar, Maharashtra, and Tamil Nadu, the enterprise has installed upwards of 200,000 solar home-lighting systems since 1995. In early 2018, SELCO received funding from the DOEN Foundation to increase its offerings and geographical scope.

Chapter 4: Sector Landscape – Education

Despite its ranking as one of the top three education systems globally, India faces challenges with respect to quality and access to education for all. Globally, India has the third largest higher education system in terms of number of institutes, after the United States of America and the Republic of China. With 795 universities, 39,671 affiliated colleges and over 1 million teaching faculty, the country produces nearly 2.5 million graduates annually[38]. However, this caters to only 10% of India's youth[39]. This has resulted in a high unemployment level which is currently projected to be 18 million[40]. On the other hand, several employers in the country find it difficult to access and hire suitable and skilled talent[41]. Despite achieving an enrollment rate of 95%, the ASER Report 2016 found that nearly half of the students failed to match the reading, writing, and arithmetic abilities expected as per the standard (class) they were in[42].

Distribution of enterprises across the value chain

Social enterprises in India seek to address this gap in access to quality education and skills in the country by providing affordable education and leveraging technology to improve access and quality. This study analyzed 55 enterprises in the education sector. These enterprises offer solutions across the value chain, including in the areas of schools (enterprises offering affordable education services including pre-schools for low income communities), technical and vocational education and training (enterprises offering skill development programs that bridge the gap between academia and industry), and ed-tech (enterprises supporting game-based learning, providing education management services), and job portals (for the blue-collar workforce). Some social enterprises also support the sector in other ways such as providing finance and consulting services for schools focused on providing low-cost services, and special coaching classes for competitive exams for the underserved population, among others.

Around 45% of the enterprises support the education sector through their activities in the ed-tech segment. Some of the ed-tech enterprises include Hole-in-the-Wall Education Limited (HiWEL), which sets up playground computer learning stations (PCLS) to provide a playful learning environment to underserved kids, and Butterfly Edufields, which designs products and services for hands-on learning and provides concept-based testing and evaluation support for schools, as well as teacher training. This segment is followed by enterprises that provide skill development support. For instance, Edubridge and eJeevika provide several training interventions to make Indian youth employable. Another component of the value chain is schools that provide affordable education opportunities to low-income communities. Some of the examples include Dheya Career Development, Empathy Learning Systems, and Gyanshala.

KNUDGE.ME (Game-based learning)

Game-based learning (GBL) is a type of game play that has defined learning outcomes. Knudge.me is a mobile learning platform to help people improve their English, leveraging artificial intelligence and gamification. The new-age learning platform is designed as a social gaming platform, where users can challenge their family and friends on the go. It simplifies the learning process by using various teaching methodologies, including gamification, personalized adaptive content, and spaced learning to help people excel in English. The enterprise is also developing a plug-and-play model which will allow its users to create, share, and play games on any topic of their interest. Knudge.me was founded in 2017 and has over 2 million users globally. The mobile application was also selected as the "best hidden gem" by Google Play in 2017. This enterprise was previously part of Axilor's Summer 17 Accelerator Batch and has raised funding from Indian Angel Network (IAN).

Table 5 **Education – Value chain components with examples**

Schools	TVET	Ed-Tech	Others
Gyanshala Hippocampus Rumi Schools Sudiksha Knowledge Solutions	Elements Academia Gram Tarang SkillTrain v-shesh	ButterFly Fields Chalkpad Technologies Karadi Path Maid in India	Indian School Finance Company K-12 Techno Services Propelld Super 30

Source: Intellecap Analysis

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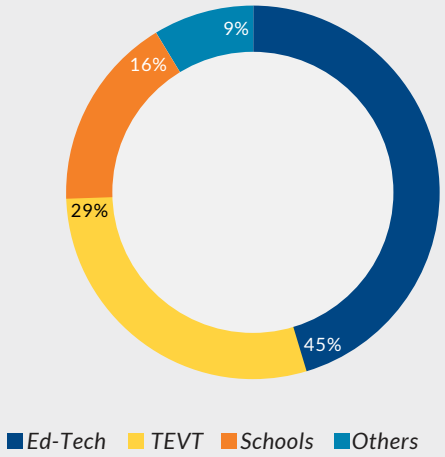
FIGURE 23 **Education - Value chain components**



Source: Intellecap Analysis

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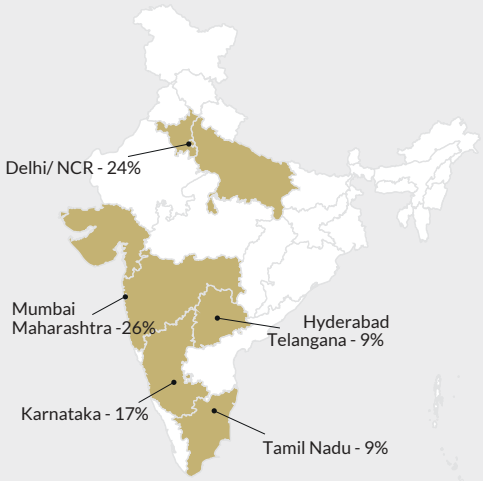
Geographic distribution of enterprises

Almost 50% of the education enterprises are headquartered in Maharashtra and Delhi/NCR. Southern Indian states of Karnataka, Telangana, and Tamil Nadu also host a number of education enterprises. All of the enterprises headquartered in these top five states have expanded operations. 88% of these enterprises are present across India, mainly because of their online service offerings, such as game-based learning modules, language development modules, and blue-collar job portals.

Over one-fourth of the education enterprises have a decade old history, while nearly 46% of the enterprises have been in existence for the last 6 to 10 years. Enterprises that have been in existence for over 10 years mostly include schools that provide affordable education and skill development support to low-income communities. Some of the examples include Elements Akademia, a Gurugram-based enterprise that focuses its work in the semi-urban and rural areas of North India, training and providing placement services to students who have passed Class 7. It has a training module that runs for 6 to 8 weeks and bridges the gap between academia and industry by making youth employable. Unsurprisingly, most of the technology-based enterprises have been launched in the past five years. For instance, Edsix Brain Lab, which was incubated by IIT Madras Rural Technology Business Incubator (RTBI) and is headquartered at IIT Research Park Chennai, was established in 2013. It is an emerging enterprise in the edutainment industry

FIGURE 24 **Education - Geography (headquarters)**



Source: Intellecap Analysis

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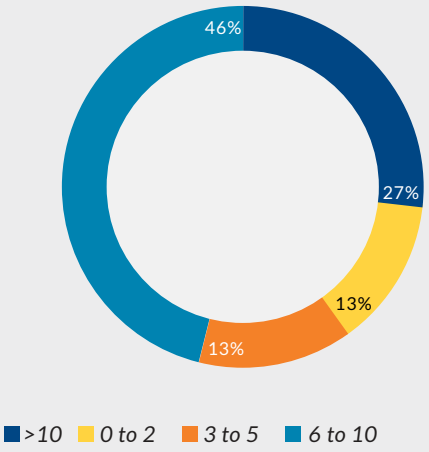
that develops and publishes interactive skill and curriculum-based products. Tactopus, established in 2017, is an educational platform for children with visual impairment. The enterprise builds interactive

FIGURE 25 **Education - Vintage**



Source: Intellecap Analysis | BertelsmannStiftung

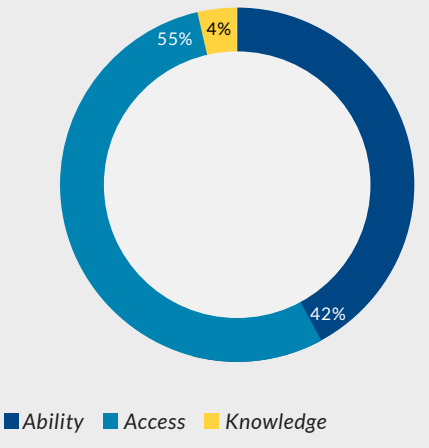
tactile graphics and tangible learning solutions for visually impaired children. It delivers the solutions through books and games augmented with audio through a smartphone application. Almost all of these enterprises are expanding to new geographies outside their home states.

Engagement with customers

Education enterprises support their customers primarily by increasing access to affordable education and qualifying them for employment. Almost 55% of the education enterprises provide increased access to education and allied courses for low-income communities in the country. For instance, Empathy Learning Systems operates a chain of low-cost private schools in Hyderabad. Levelfield Schools, headquartered in West Bengal, provides affordable, quality education to students in smaller cities and towns. Another enterprise, Callystro, which is a game-based learning startup from Mangalore, helps children carry out activities and learn in actionable form through their flagship product CoBELS. 42% of the education enterprises are focused on providing skill development training and vocational courses for youth. These include enterprises such as GRAS Education and Training Services, which is an initiative of IIM Kolkata graduates and which empowers unemployed and out-of-work youth by training them in vocational skills, and Chennai-based Skillveri, which operates a platform for vocational skill training in welding. This is followed by a small set of enterprises which are catering to the "knowledge" lever. For instance, CarenGrow monitors the physical, psychological, and behavioral health profile of children in school through an objective and non-invasive decision-based intelligent monitoring system.

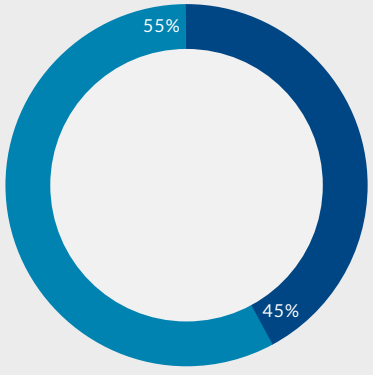
Nearly 55% of the sample has adopted technology as a core component in their solutions. In education, there is big set of enterprises categorized as ed-tech that explicitly base their solution on technology. For instance, Embibe is an ed-tech enterprise that leverages its AI platform to help students improve their test scores and charges fees for advanced analysis and personalized learning

FIGURE 26 **Education - Mode of engagement**



Source: Intellecap Analysis | BertelsmannStiftung

FIGURE 27 **Education - Tech/Non-Tech**



Source: Intellecap Analysis | BertelsmannStiftung

recommendations. The enterprise's "first look accuracy metric" trains students to maximize scores in a given test by first answering the questions they can attempt confidently and then moving on to the tougher ones. Naandi Education Support and Training Pvt. Ltd (NEST), another ed-tech enterprise, has a unique "Tech-N-Brick" education model. NEST has two physical learning centers under the brand Alphabyte – The Learning Terminal. It leverages technology to fast track learning of students through customized learning modules. Mimyk, which is an independent enterprise started at the Indian Institute of Science (IISc) in Bengaluru, has developed a platform using advanced simulation technology to offer immersive medical simulations for training healthcare practitioners. There is also a small set of enterprises within ed-tech which leverage technology to offer solutions for the country's differently abled people. For instance, Thinkerbell Labs and Touchétech Labs leverage technology to build literacy devices for the visually impaired. There are other enterprises outside of ed-tech that use technology in the delivery of their solutions. Examples include Trans Neuron Technologies (TNT), which bridges the gap between education, skills, and employment through innovation and technology. The enterprise provides industry-relevant certifications, projects, and internships. Another enterprise, K-12 Techno Services, provides technology, content, pedagogy, training and consulting services, and amenities to various educational institutions across Bengaluru, Mumbai, Pune and Hyderabad.

Alignment with SDGs

Large numbers of enterprises focus on quality education and ensuring effective learning outcomes, including affordable technical and vocational training and early childhood education. In the education sector, there is a wide range of business models that enterprises adopt to cater to the different value chain components. These include schools (pre-schools and K-12), skill development institutes, and other support services, such as language development tools and school management solutions. Game-based learning enterprises, such as Butterfly Edufields and Callystro, and affordable education providers, such as Empathy Learning and

Figure 28 **Education – Alignment of SDGs with value chain components**

	EDUCATION			
SDG Targets	Schools	TVET	Ed-Tech	Others
4.1: Ensure equitable and quality primary and secondary education leading to relevant and effective learning outcomes	✒	✒✒		
4.2: Ensure access to quality early childhood development, care and pre-primary education			✒✒✒	
4.3 and 4.4: Ensure access to affordable quality technical, vocational, and tertiary education, including university	✒	✒	✒	✒✒
NEED GAPS	Government schools mainly cater to primary education in India; there is a huge gap in the quality of education	Although skill development is picking up, there is a need for focused support on specific skills in emerging sectors such as hospitality, retail, and information technology	Since ed-techs are based on technologies and smartphones, infrastructure in terms of internet connectivity or smartphone penetration becomes critical for extensive outreach to customers	There is a need for more practical approaches to support education and skill development

✒ *Little to no activity* ✒✒ *Moderate activity* ✒✒✒ *High level of activity*

Source: Intellecap Analysis

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Table 6 **Key policies impacting the education sector in India**

Policy/Scheme Name	Ministry/ Department	Description
National Education Policy 2017 (NEP)	Ministry of Human Resource Development	The NEP aims to equip students with the necessary skills and knowledge and eliminate the shortage of manpower in science, technology, academia, and industry. It focuses on girls' education, sports, and mathematics at the school level, strengthening public institutions with an emphasis on traditional knowledge, and addressing regional inequality.
Green Skill Development Programme (GSDP)	Ministry of Environment, Forest and Climate Change (MoEF&CC)	GSDP, an initiative for skill development in the environment and forest sector, aims to enable India's youth to find gainful employment and/or become self-employed. The program seeks to help attain the Nationally Determined Contributions (NDCs), Sustainable Development Goals (SDGs), National Biodiversity Targets (NBTs), and Waste Management Rules (2016). The GSDP will train 80,000 people during 2018-19, 225,000 people during 2019-20 and 500,000 people by the year 2021.
Pradhan Mantri Kaushal Vikas Yojana	Ministry of Skill Development & Entrepreneurship	PMKVY aims to provide training to build a skilled and job-ready workforce catering to the evolving demands of industry. It was launched in November 2016 and intends to skill 10 million youth by 2020. As of May 2018, the ministry has certified over 1.8 million candidates under its various programs, while providing employment opportunities to 525,000 youth. Nearly 78% of the candidates have been placed in wage employment, and 22% in self-employment/entrepreneurship[44].
National Apprenticeship Promotion Scheme	Ministry of Human Resource Development	The main objective of the scheme is to promote apprenticeship training and increase the engagement of apprentices from 230,000 at present to 5 million cumulatively by 2020. Some of the sectors covered under this scheme include agriculture, apparel, construction, electrical, IT and ITeS, tourism and hospitality, retail, and logistics, among others.

Source: Ministry of Human Resource Development; Ministry of Skill Development & Entrepreneurship; Ministry of Environment, Forest and Climate Change

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Hole-in-the-Wall Education, cater to the SDG target that focuses on affordable education. Skill development enterprises, such as Pipal Tree Ventures and v-shesh, provide services related to tertiary education and vocational training. Blue-collar job portals, such as Maid in India and Mirakle Couriers, work towards decreasing the number of unemployed youth, including those who are differently enabled. There are white spaces in the skill development space, considering the enabling regulatory conditions and prevailing employability gap in the country.

Regulations and policy support to the sector

The government has enacted a number of reforms to ensure robust development of the education sector. The new National Education Policy (NEP) 2017 aims to address seven key areas: access and participation, quality, equity, system efficiency, governance and management, research and development, and financial commitment to education development. The government also plans to launch the Revitalizing Infrastructure and Systems in Education (RISE) scheme to improve the quality of higher education in the country. This is estimated to require an investment of INR 1 trillion (€ 12.5 billion) by 2022 and would primarily cater to the development of research and related infrastructure at premier educational institutions in the country[43]. Skill India and Startup India are other Government of

India initiatives designed to promote skilling and entrepreneurship development in the country.

Challenges to scale

Lack of customer awareness, resulting in greater time and investment for customer acquisition, pose challenges to scaling education enterprises. Tactopus and Stones2Milestones highlighted that people tend to spend more on entertainment than on improved educational tools and techniques. As education is often seen as a public good, enterprises face customer requests for discounts or free services, particularly for online solutions. Given the considerable participation of the government, especially in K-12 education, and the poor quality of learning outcomes, customer perception of the education sector is negative, which poses issues in attracting talent to this sector. Karadi Path shared that getting the right people is a major challenge, as is the cost of customer acquisition, which can be as much as 55% of revenue. For enterprises such as Utter, which develops educational content, the major challenge is to understand and assess the impact of the content on users, and continuously improve or refresh it accordingly.

> *"There is a dichotomy in the sector between noble hearts and able minds. This is the biggest challenge for the sector."*
>
> *Kavish Gadia,*
> *Co-founder and CEO, Stones2Milestones*

ANANT LEARNING AND DEVELOPMENT
(Blue-collar job portals)

In India, information about informal sector jobs such as driver, barber, carpenter, and plumber is limited, as are institutions that can help formalize them. Hence, semi-skilled and unskilled people in this sector find it very difficult to find a job, fair pay, facilities, or incentives, or even to switch jobs. Anant Learning and Development is an initiative of experts in community development and inclusive growth. The enterprise provides innovative and sustainable solutions for marginalized and underprivileged populations, including women. The enterprise engages with the informal sector workforce through its mobile application Mazdoor Adda, through which it is trying to reduce the engagement of middlemen and offer jobs directly to workers through their mobile phones and provide them with social security. Over 3,500 workers are already registered on the platform across five Indian cities.

Emerging trends in the sector

Education enterprises are increasingly collaborating and building partnerships with other ecosystem actors to improve reach and content quality as well as to access funding support. Enterprises such as Stones2Milestones work with schools, colleges, and NGOs for reach and content development. Utter partners with leading institutions for curriculum development and other organizations such as Tata Strive to get learners to use their application. Karadi partnered with UNICEF to support government schools in adopting their solution. Enterprises also build partnerships for technical support. Tactopus, for instance, is supported by the TATA center lab at IIT Bombay. Enterprises are also experimenting with different pricing models (for students, teachers, parents, and schools) to ensure affordability for users, while allowing them to be sustainable. These strategies will help education enterprises to attract both donor/CSR and investor support in the future. Recently, there have been several private sector investments in the education sector. In 2017, for instance, NEST raised INR 40 million (€ 548,800) in follow-on funding from the Michael and Susan Dell Foundation (MSDF) and angel investor and Mahindra Group chairman Anand Mahindra[45]. In 2018, Chrysalis, a Chennai-based enterprise that focuses on improving education in K-12 schools, raised a pre-Series A funding round from Indian education sector-focused investor Gray Matters Capital[46] .

Table 7 **Selected education enterprises and their pricing strategies**

Karadi Path	Stones2 Milestones	Utter	Tactopus	Zaya Labs[47]
The prices for the three different categories of customers are as follows: **First category: INR 1,000–1,200 (€ 12.5–15) per student/year** **Second category: INR 500–700 (€ 6.25–8.75) per student/year** **Third category: INR 45,000–80,000 (€ 564–1,000) per school/year**	The enterprise follows a subscription model, prices for which are: Parent: INR 1 (€ 0.01) per day per child Teacher: INR 12 (€ 0.15) per day per child School: INR 30 (€ 0.38) per month per child The enterprise plans to launch a pay-per-use model soon.	B2B: End customer decides the price – avg. of ca. INR 100 (€ 1.25) per learner B2C: INR 190 (€ 2.38) per year, which unlocks the entire year and all content on the platform, which is constantly updated	Around INR 700 (€ 8.75) for each book (with tactile features). The publication is in the form of a series and consists of three books. The set of three books is sold for INR 2,000 (€ 25).	The enterprise offers three different labs for a monthly fee primarily focussed on schools offering education at low cost: First category: INR 100–400 (€ 1.25–5.00) Second category: INR 400–1,200 (€ 5–15) Third category: INR 1,200–2,500 (€ 15–31.25)

Source: Intellecap primaries with enterprises, Business Standard

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Chapter 5: Sector Landscape – Financial Inclusion

According to the latest Global Findex database released by the World Bank, 11% of the world's unbanked adults live in India. Currently, there are nearly 190 million adults who still lack a bank account[48]. Financially excluded people lack fair and safe avenues for credit access and tend to save or invest in unsecured and non-productive assets. They turn to alternate informal providers of credit that come at a very high cost, leading them into a cycle of poverty that transcends generations. Between 2014 and 2017, however, the percentage of people having bank accounts in India increased from 53% to 80%[49]. These include 1,646 million deposit accounts and 196 million credit accounts (with banks or MFIs)[50]. The CRISIL Inclusix[51] score, which measures the extent of financial inclusion in India, rose to 58.0 in FY 2018 from 50.1 in FY 2013; there are 14 districts with a CRISIL Inclusix score of 100[52]. However, given the vast under-banked population, there are significant gaps in effective financial inclusion that can truly aid a gradual climb out of poverty.

Social enterprises aim to plug this gap in the sector by providing a range of services, such as microfinance, digital peer-to-peer lending, affordable housing finance, and cashless transactions. The scope of financial inclusion extends beyond banking services to insurance, equity products, pension products, and more. Microfinance enterprises have leveraged a major gap in the financial inclusion sector in India by providing easy and affordable credit to those who are not part of the traditional banking system. Other enterprises support access to credit and insurance by leveraging technology for credit and risk assessment, and facilitation of easy credit to individuals or SMEs. The penetration of mobile and internet services has catalyzed the emergence of digital banking service providers.

Distribution of enterprises across the value chain

This study examined 72 enterprises that provide several financial services to underserved customers. The services provided by these enterprises can be classified broadly into four categories, namely lending (enterprises engaged in providing debt to individuals, groups or SMEs), payments (enterprises enabling a transfer of money from one party to another), online/mobile banking services (enterprises offering banking services through a digital medium), and investment management including robo-advisory[53] (enterprises offering financial management services to individuals and enterprises). Nearly 88% of the enterprises in the sample are engaged in lending activities. These include microfinance institutions, housing loan providers, and other lending platforms. While most of the enterprises have developed their operations and processes around technology for efficiency improvement, only 26% adopt technology for customer interaction. Online/mobile banking enterprises provide an online interface to the customers to conduct financial transactions. For instance, IRIX Technologies provides technology to business correspondents (BCs) of banks. Its "face recognition" technology reduces cost, increases accuracy, and limits fraud. Another enterprise, eSureCoin, is an online platform that facilitates online remittance to the beneficiary's digital wallet.

Table 8 **Financial Inclusion – Valuechain components with examples**

Lending	Payments	Online/Mobile Banking	Investment Management and Robo Advisory
Aadhar Housing Finance AnyTimeLoan SMILE Microfinance Vistaar Livelihood Finance	A Little World Fingpay PayMart Rezofin	DonateKart e-sureCoin Eko Financial Service IRIX Technologies	Open

Source: Intellecap Database

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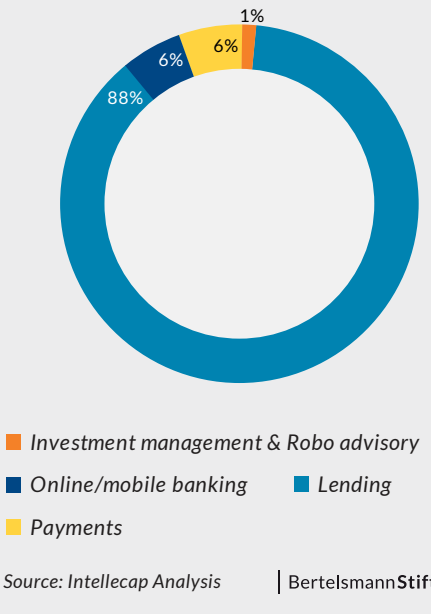
FIGURE 29 **Financial Inclusion - Value chain components**



Source: Intellecap Analysis | BertelsmannStiftung

OPEN (Neo-banking)

Neo-banks provide services similar to traditional banks, but do not have a physical presence. They operate only digitally. Asia's first neo-bank, Open provides a modern digital banking experience and services to small businesses and helps them automate and run their finances effectively. It offers quick and easy on-boarding of customers. The Open dashboard has characteristics similar to that of enterprise resource planning (ERP) solutions, with an AI-based accounting engine that automates bookkeeping and expense management, supporting small businesses to send and receive payments.

Despite the ease of operations and services offered, prices are lower than those charged by traditional banks. Moreover, banks consider Open an acquisition channel which can help them open online accounts and save around INR 5,000 per customer. Open charges 1.8% for using the online payment gateway, INR 15 for receiving payments using bank transfers (NEFT, RTGS, IMPS), and INR 15 or 1% (whichever is less) for sending payments. Launched in 2017, Open is operational in seven states.

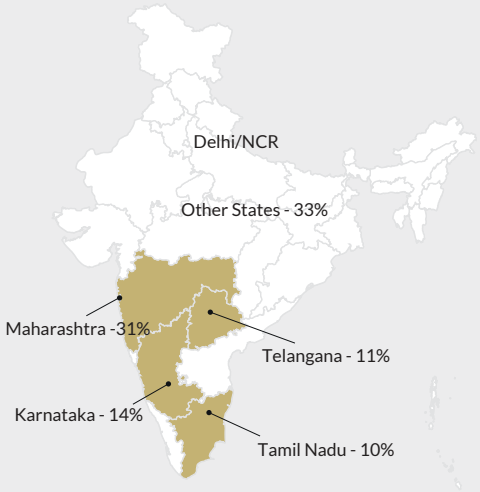
Geographic distribution of enterprises

31% of the financial inclusion enterprises across the value chain are based in Maharashtra. With the emergence of tech-based solutions and development of other markets such as affordable housing finance, Maharashtra leads other states in the financial inclusion sector. Financial inclusion enterprises are also based in Karnataka (14%), Telangana (11%), and Tamil Nadu (10%). Nearly 70% of the enterprises operate in more than three states. The wide geographical spread is mainly because of the high number of MFIs, and increasing use of digital technologies in the sector. A number of MFIs, such as Svasti Microfinance and Vistaar Livelihood Finance, headquartered in Maharashtra, have been able to scale beyond their home state. Tech-enabled enterprises have also expanded rapidly beyond their home states. For instance, Mumbai-based Rezofin, a person-to-business (P2B) discounting platform that was established in 2016, is currently operational in 10 states across India. Open, an enterprise established in 2017 based on the neo-banking concept[54], is already present in seven states. Likewise, Toffee Insurance, which is a digital-only service platform founded in 2017, and Bengaluru-based SmartCoin, founded in 2016, provide their services pan-India.

93% of the enterprises that have emerged in the last five years are tech-based. These include enterprises with innovative business models across the value chain. For instance, Fingpay is a payments enterprise that has integrated Aadhar Enabled Payment System (AEPS)[55], Bharat Bill Payment System (BBPS)[56],and Unified Payments Interface (UPI)[57] into a single merchant application. It allows customers to make a point of sale (POS) from any of their bank accounts or wallets with just a scan of a finger. Another enterprise, DonateKart provides a platform where NGOs can display the products they need. In response, donors can choose the organization and donate towards the products that they wish to support. Hyderabad-based CredRight is another such example of a tech-based innovative enterprise. Founded in 2016, the enterprise partners with chit funds[58]. However, it employs a reverse auction to distribute pooled funds across the country, using previously untapped chit data along with other data points to underwrite loans for customers. The enterprise provides credit to underserved MSMEs through its data-driven lending platform.

46% of the enterprises have been in existence for more than 10 years. Many of them are MFIs, such as

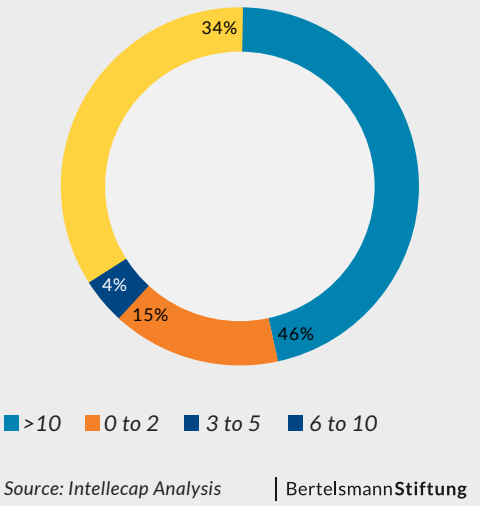
FIGURE 30 **Financial Inclusion - Geography**



Source: Intellecap Analysis | BertelsmannStiftung

Arohan Financial Services, Disha Microfinance, Grama Vidiyal Microfinance, and Sahayata Microfinance. Most of the recently established enterprises that are less than five years old are

FIGURE 31 **Financial Inclusion - Vintage**



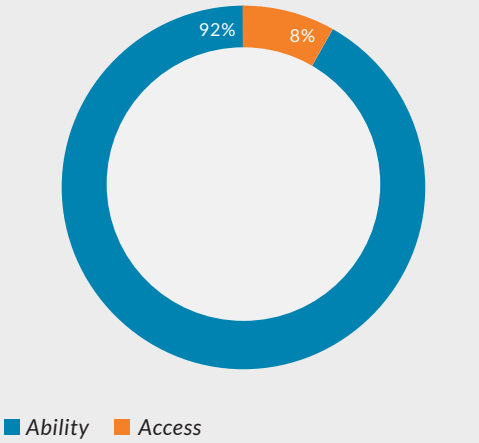
Source: Intellecap Analysis | BertelsmannStiftung

financial technology-based solution providers, such as Paymart, which is a merchant payment platform, and MyFundbucket, a matchmaker that connects loan seekers with loan providers. The majority of these enterprises are growth-stage enterprises that have expanded beyond their home state to as many as 14 states across the country.

Engagement with customers

Financial inclusion enterprises mainly address gaps in access to finance in underserved communities in India. 92% of the studied enterprises support the low-income population in accessing financial services and products that suit their requirements and capacity. These mainly include MFIs, such as Annapurna Microfinance and

FIGURE 32 **Financial Inclusion - Mode of engagement**



Source: Intellecap Analysis | BertelsmannStiftung

Chaitanya India Fin Credit, and housing loan enterprises, such as Aptus Housing Finance and VBHC Value Homes. 8% of the enterprises in the sample offer services to other small businesses. These include Artoo, which leverages IndiaStack (eKYC, eSign) and cutting-edge technology (OCR, Image Scanner) to enable paperless, error-free, instant customer on-boarding, thereby making the process easier for the MSME lender. The segment also includes Open, a neo-bank that enables accounting and automates cash-flow for small businesses.

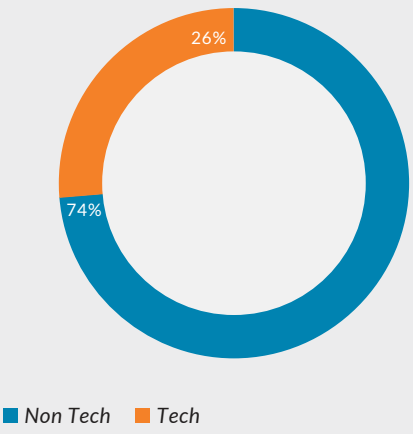
Adoption of technology

Although there is increased focus on digital solutions in the financial inclusion sector, only 26% of the enterprises in this study have adopted technology for customer interaction and acquisition. One reason for the small number of enterprises using

> *"In today's world for the kind of business we are in, information technology is critical from a portfolio management and control perspective."*
>
> *Manoj Nambiar,*
> *Managing Director*
> *Arohan Financial Services Limited*

technology could be the relatively high number of MFIs (in the research database and the sector in general) that traditionally prefer in-person interactions with customers. MFIs typically engage in direct customer meetings for trust building and subsequent acquisition. A few MFIs have started leveraging technology at the collection stage. However, the role of technology cannot be neglected in the space, which has burgeoned with fin-techs in recent years. Traditional financial institutions are also partnering with technology enterprises to leverage the effectiveness and ease of use for customers, and ease in processing, recording and monitoring transactions for the enterprises. For instance, Open, which is based on the concept of neo-banking, enables accounting and automates cash-flow and access to credit for SMEs. Another enterprise, IRIX Technologies, provides a mobile platform for banks. CreditMantri, a fin-tech that has established partnerships with over 45 lending partners in India, including public, private, and foreign banks and NBFCs, leverages technology to support consumers with information regarding their credit scores and ways to improve them.

FIGURE 33 **Financial Inclusion - Tech/Non-Tech**



Source: Intellecap Analysis | BertelsmannStiftung

Alignment with SDGs

Financial inclusion enterprises in India align their business objectives with the sustainable development goals to ensure equal rights to economic resources, development of sustainable economic infrastructure, and use of technology to make the system robust and efficient. MFIs and housing finance institutions support the goal of ensuring equal access to financial services. Enterprises such as A Little World, the developer of ZERO, India's first domestic payment system which can be accessed with a minimum of communication infrastructure, contribute towards improving economic infrastructure. Other fin-tech enterprises such as eSureCoin, an online remittance platform, and Paymart, a merchant payment platform, leverage technology to improve processes in the sector, which eventually reduces the cost of the offerings and they thus become more accessible to populations beyond urban areas. Other fin-tech enterprises such as eSureCoin, an online remittance platform, Paymart, a merchant payment platform, and Rezofin, a bill discounting platform that helps corporates optimize their working capital, leverage technology to improve processes in the sector.

While the sector is developing at a rapid pace, it is constrained by challenges such as poor awareness about technology-backed financial products and services, especially in rural areas. There are white spaces in payments and investment management and advisory services for greater financial inclusion in the country. Solutions to provide information on borrowers' credit worthiness are also limited, although the government has been proactive about introducing credit bureaus. For instance, data is currently present in silos that are not enabled for cross-tabulation within a credit bureau: Data on MFI borrowers is stored in the MFI portal or segment, while data on bank borrowers is in the bank portal or segment. The government is working towards addressing this challenge through standardization and creating a financial profile based on Aadhaar[59].

Regulations and policy support to the sector

Favorable policies have supported a wave of development in the financial inclusion sector in the past few years. The Pradhan Mantri Jan Dhan Yojna (PMJDY), which was announced on August 15, 2014,

Figure 34 **Financial Inclusion – Alignment of SDGs with value chain components**

	FINANCIAL INCLUSION			
SDG Targets	Lending	Payments	Online/Mobile Banking	Investment Management and Robo Advisory
Target 9.1: Develop quality, reliable, sustainable, and resilient infrastructure to support economic development and human well-being	$	$		$
Target 1.4: Ensure equal rights to economic resources, appropriate new technology and financial services, including microfinance			$ $ $	$
Target 17.8: Fully operationalize the technology bank and the science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology	$ $ $			
NEED GAPS	Although credit bureaus provide the credit history of borrowers, there is no regulation yet regarding non-lending to delinquent customers	Merchant service charge inhibits the increased usage of digital mode of payments	Fraudulent activities that duplicate Aadhar or other bank details subvert the whole purpose of online/mobile banking	There is very little awareness about these platforms in India Despite claims that the investment process has been simplified, it is still complicated for a new investor

$ *Little to no activity* $ $ *Moderate activity* $ $ $ *High level of activity*

Source: Intellecap Analysis

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entered into Guinness World Records for the number of bank accounts that were opened within a fortnight of its launch. The scheme also resulted in the subsequent rapid increase in Jan Dhan accounts, microfinance institutions (MFIs) being converted into small finance banks (SFBs), and licensing of payment banks, among others. A number of insurance and pension schemes, such as Pradhan Mantri Suraksha Bima Yojna (PMSBY), Pradhan Mantri Jeevan Jyoti Bima Yojna (PMJJBY), and Atal Pension Yojana (APY), were also introduced by the government subsequently. Other policies such as Pradhan Mantri Mudra Yojana (PMMY) have been specifically launched to promote and ensure access to finance for SMEs.

Table 9 **Key policies impacting the financial services sector in India**

Policy/Scheme Name	Ministry/ Department	Description
Pradhan Mantri Jan Dhan Yojna (PMJDY)	Department of Financial Service, Ministry of Finance	PMJDY is a national mission on financial inclusion that envisages universal access to banking facilities with at least one basic banking account for every household. It also targets financial literacy, access to credit, insurance, and pension facility. Moreover, beneficiaries are to get a RuPay debit card having inbuilt accident insurance coverage of INR 100,000 (€ 1,254). Under this scheme, all government benefits from central and state governments or local bodies will be directly transferred to the beneficiaries' accounts. In addition, there are plans to use centers established as cash-out points by telecom operators for financial inclusion.
Pradhan Mantri Jeevan Jyoti Bima Yojna (PMJJBY)	Ministry of Finance	PMJJBY is a life insurance scheme available to people in the age group of 18 to 50 years that have a bank account. The coverage starts on June 1 of each year to May 31 of the subsequent year. The scheme is being offered by Life Insurance Corporation of India (LIC) and all other life insurers who are willing to offer the product on similar terms with the necessary approvals and affiliation with banks for this purpose. Risk coverage under this scheme is for INR 200,000 (€ 2,507) in case of death of the insured, due to any reason, while the premium is INR 330 (€ 4.14) per annum. As of May 14, 2018, nearly 53.5 million people had enrolled under PMJJBY, and the total number of claims received was nearly 1 million.[60]
Atal Pension Yojana	Ministry of Finance	The scheme addresses the longevity risks among the workers in the unorganized sector and encourages them to voluntarily save for their retirement. The unorganized sector constitutes 88% of the total labor force in India. The subscribers of this policy receive a fixed minimum pension of between INR 1,000 (€ 12.50) and INR 5,000 (€ 62.50) per month at the age of 60, based on their contributions and the age at which they joined the scheme. The minimum age for joining the scheme is 18 years and the maximum is 40 years.
Pradhan Mantri Mudra Yojana (PMMY)	Ministry of Finance	PMMY is a scheme launched to provide loans up to INR 1 million (€ 12,500) to non-corporate, non-farm small/micro enterprises. These loans are given by commercial banks, RRBs, small finance banks, cooperative banks, MFIs, and NBFCs. The borrower can also apply online through the scheme's portal. The scheme offers three products (Shishu, Kishore, and Tarun) to match the stage of growth and development and the funding needs of the beneficiary micro unit or entrepreneur and to provide a reference point for the next phase of graduation or growth.

Source: Department of Financial Service, Ministry of Finance

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Challenges to scale

Financial inclusion enterprises face challenges in accessing suitable human resources and ensuring repayment of loans by customers. Several enterprises shared that payment collection from customers has always been a challenge. Artoo Finance, a fin-tech that specializes in MSME lending, highlighted that it is developing innovative methodologies to ensure ease in the collection process and reduce cases of default. The enterprise uses direct sales agents (DSAs) to service rural markets, for both loan disbursement and collection. It leverages technology for allocating, managing, and monitoring collection agencies that are on-ground. Artoo is also planning to experiment with models that suit the needs of low-income customers such as providing options to pay only interest for the first few months, and then begin paying interest and principal. Arohan, a Kolkata-based MFI, also shared similar challenges related to repayment. Established MFIs such as Vistaar Finance also face challenges in retaining employees, which are much in demand given the increasing number of MFIs in the country seeking trained, experienced staff. Ananya Finance shared that there are a few one-time regulatory changes, such as demonetization and the goods and services tax (GST), which have had a huge impact on their operations.

Emerging trends in the sector

The financial inclusion sector is increasingly connecting with mainstream financial services, as larger companies see potential business opportunities in addressing the needs of the base-of-the-pyramid population. As a result, social enterprises are also developing and refining cutting-edge solutions to ensure financial inclusion for all. The ubiquity of mobile phones and ICT access coupled with the emergence of digital payment technologies, peer-to-peer lending platforms, and neo-banking will bring about major shifts in the financial services sector. These, coupled with government policies supporting financial inclusion, will encourage social enterprises to develop innovative solutions to bank the unbanked. The Government of India, along with the Reserve Bank of India (RBI), has made an effort to contain non-performing assets (NPAs) while improving credit grantors' portfolio quality by establishing the first credit bureau in the country, CIBIL. Later, RBI provided licenses to other credit bureaus as well. At present, there are four credit bureaus for MFIs in India: Highmark, Experian, Equifax, and CIBIL. Investors, both impact and mainstream, have exhibited interest in supporting the financial inclusion enterprises in India. For instance, in May

ANY TIME LOAN (Peer-to-peer lending)

In India, there are limited formal alternatives available for small ticket loans; the ones that are available charge very high interest rates. Peer-to-peer lending emerged in response to the need for small loans. The solution has been well received particularly because it connects unknown individual lenders and borrowers over a platform, and facilitates a paperless lending process.

Any Time Loan is a peer-to-peer lending platform that works with an algorithm using data science and machine learning to offer instant loans by connecting eligible borrowers with listed lenders. After a simple registration process using the permanent account number (PAN) card and proof of address, a bot scans the borrower's digital footprint, such as social media accounts and recent online spending, to assess credit eligibility. Once the borrower is declared eligible, a credit limit is granted, the bot matches the borrower with a lender and an instant transfer is done to the borrower's bank account. The maximum time it takes for a transaction is 15 minutes.

Personal and business loans carry an interest rate of less than 0.05% per day, while education loans (K-12) have an interest rate of 0.1% per day. For personal loans, the loans range from INR 1,000 to INR 60,000, to be paid within a maximum of 30 days. For the education loans, the amount varies based on the school fees the client must pay. For the business loans, the borrower can take out loans of between INR 10,000 and INR 1 million, and the repayment period is 30 days (for the one-time repayment option), while it ranges from 6 to 36 months (for term-based repayment options).

Lenders register on the platform with an investment commitment that can be increased. A number of high-net-worth individuals, family offices, and non-banking financial corporations as well as Yes Bank are registered as lenders on the platform.

2018, IFC proposed an investment of US$ 15 million (€ 13.1 million) in Aptus Value Housing Finance India[61]. In the same month, Unicorn India Ventures and Recruit Co. Ltd, through its investment subsidiary RSP India Fund LLC, announced an investment of around US$ 2 million (€ 1.75 million) for Series A funding in neo-banking platform Open[62]. In September 2017, Mumbai-based fin-tech startup CreditVidya raised US$ 5 million (€ 4.4 million) in a round led by Matrix Partners India[63]. In May 2018, Hyderabad-based fin-tech CredRight raised US$ 1.3 million (€ 1.1 million) from Accion Venture Lab, YourNest, and a few angel investors[64].

CREDITMANTRI

CreditMantri is a multi-services platform that offers customers the option of applying for a personal loan, home loan, auto loan, gold loan, loan against property, business loan, education loan, two-wheeler loan, or short-term loan. The platform provides consumers with information about credit scores and ways to improve credit health. It also claims to assist customers in resolving past issues and finding products that best match their credit profile.

In 2016, CreditMantri partnered with global data and insights company Equifax to launch a new service that enables customers to access their credit score and history in real time. As of January 2018, the service provider claims to have serviced more than 3 million users with over 45 lending partners, including public, private, and foreign banks and NBFCs. In 2015, this Chennai-based enterprise raised US$ 2.5 million in a Series A round of funding from IDG Ventures India, Elevar Equity and Accion Venture Lab. In February 2017, the enterprise raised US$ 7.6 million as part of a Series B round of funding from Accion Frontier Inclusion Fund, with participation from existing investors Elevar Equity, IDG Ventures, and Accion Venture Lab.

Chapter 6: Sector Landscape – Healthcare

The underserved low-income population in India faces significant hardships due to inadequate access to and the high cost and poor quality of healthcare. According to data published by the Ministry of Health, there is one government doctor available for every 11,082 people across the country[65], while the recommended ratio is 1 for every 1,000. There is one government hospital for every 90,343 people and one hospital bed for every 2,046 people[66]. According to statistics published by the NITI Aayog, the infant mortality rate in India is 34 per 1,000 live births[67], while the maternal mortality rate is 130 per 100,000 live births[68]. Out-of-pocket expenses for healthcare are a concern, especially for tertiary care. Private healthcare accounts for 74% of the country's total healthcare expenditure[69]; however, it is out of reach for almost 80% of the population with a per capita income of less than US$ 3 (€ 2.6) per day.[70]

Distribution of enterprises across the value chain

Several for-profit social enterprises are trying to address these gaps by providing access to affordable, high-quality healthcare. According to India Brand Equity Foundation (IBEF)[71] estimates, the healthcare industry in India will grow to US$ 280 billion (€ 245 billion) by 2020[72]. This growth is linked to an ageing population, growing health awareness, and rising income levels in the country. However, this growth is unlikely to benefit everyone equally. In India, nearly 75% of healthcare infrastructure and medical professionals are concentrated in urban areas that constitute only 27% of the total population[73]. A number of social enterprises are tapping into the huge opportunity resulting from the underserved rural market, while working for the social cause. This study analyzed 60 healthcare enterprises providing a range of products and services in the areas of prevention, diagnostics, treatment, and monitoring.

Enterprises categorized under prevention mostly support and protect individuals from common lifestyle diseases through personalized and predictive healthcare measures. Over 80% of these enterprises leverage technology. For instance, Bengaluru-based health-tech enterprise mDhil creates and distributes health, wellness, and lifestyle information, such as that related to diabetes, women's health, and nutrition to users by means of text messages, web, and online videos. Another enterprise, Silver Oak Health, supports organizations to ensure the adequate health of their employees through its Employee Wellbeing and Assistance Program (EWAP). Some enterprises included in the diagnostics segment of the healthcare value chain aid in day-to-day self-diagnosis, while others provide technology or support to high-end diagnosis at healthcare laboratories. Examples include Biosense Technologies, which provides portable and affordable devices for basic healthcare screening such as those for diabetes, anemia and malnutrition. Likewise, Predible Health is powered by a deep-learning cloud platform which enables radiologists to view, visualize, quantify, and diagnose diseases from medical images. It is currently used for oncology care using computed tomography (CT), magnetic resonance imaging (MRI), and positron emission

Table 10 **Healthcare - Value chain with examples of enterprises**

Prevention	Diagnostics	Treatment	Monitoring	Other
Silveroak Health Saathi mDhil	Biosense Forus Health Niram.ai Predible Health	Aravind Eye Care eyeQ Hospital G.V.Meditech iKure Techsoft	Arth Asthma Pro DocTalk	Elder Aid

Source: Intellecap Database

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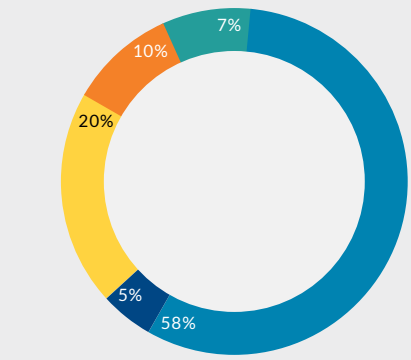
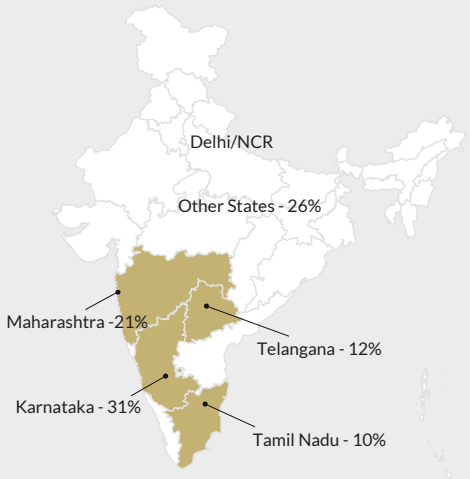
FIGURE 35 **Healthcare – Value chain components**



Source: Intellecap Analysis | BertelsmannStiftung

tomography (PET). Enterprises in the treatment segment of the value chain mostly include affordable hospitals and other healthcare units. Some of these enterprises are multispecialty hospitals, while a few others focus on a particular disease or health condition. For instance, Hyderabad-based Care Hospitals and Bhilai-based BSR hospitals provide multispecialty treatment at reasonable rates, while Aravind Eye Hospitals and EyeQ hospitals focus on affordable eye care and treatment. Monitoring

FIGURE 36 **Healthcare - Geography (headquarters)**



Source: Intellecap Analysis | BertelsmannStiftung

enterprises generally adopt tech-based models; for instance, Arth and DocTalk enable communication between the patient and doctor through a mobile application, so that the doctor can continuously monitor the health of the patient. There are a few enterprises that provide general wellness and lifestyle support to people; such enterprises go beyond the usual healthcare value chain and are categorized under "Others."

Affordable treatment has been the focus of most enterprises in the healthcare sector, followed by the adequate availability of diagnostics services. While there is representation of enterprises across the different components of the healthcare value chain, nearly 58% of enterprises are engaged in providing affordable treatment. These enterprises include low-cost hospitals and some speciality centers, such as maternity and child-care units, dialysis centers, and eye hospitals. For instance, NephroPlus is one of

NIRAMAI (Diagnosis)

Niramai is a low-cost, non-touch, zero radiation solution to detect breast cancer at an early stage as compared to traditional methods. The software is integrated into a portable screening device that can be used by any clinician. It can be used for cancer diagnosis in hospitals, for preventive health check-ups, and for large-scale screenings in rural and semi-urban areas.

The Niramai solution uses a high-resolution thermal sensing device, machine intelligence and analytics for analyzing thermal images with minimal human supervision. The solution helps achieve reliable, early, and accurate breast cancer screenings. It offers breast cancer detection at a fraction of the cost of mammography. While a digital mammography costs around US$ 54, a scan done by Niramai costs around US$ 15. Free screenings are also offered at rural healthcare camps.

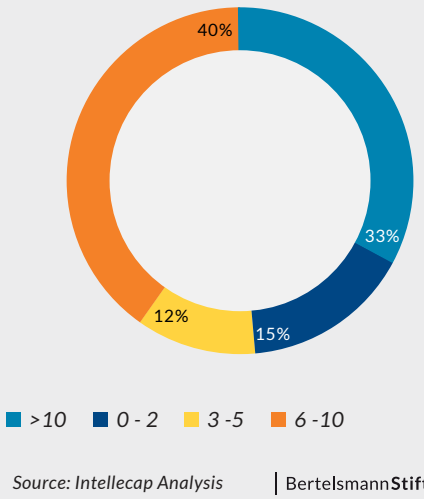
Niramai imports its thermal imaging devices from Sweden. At present it works with seven hospitals and diagnostic centers across Bengaluru, Pune, and Dehradun. In April 2017, pi Ventures, along with 500 Startups, Ankur Capital, Axilor Ventures, and Flipkart co-founder Binny Bansal, invested an undisclosed amount in the company.

India's largest dialysis center networks, and provides affordable dialysis services at INR 1,000 (€ 12.5) per session. Similarly, the EyeQ hospital provides affordable eye care through a chain of 44 super-speciality eye hospitals with centers in Delhi/NCR, Haryana, Uttar Pradesh, Uttarakhand, and Gujarat.

Geographic distribution of enterprises

31% of the healthcare enterprises in the sample are headquartered in Karnataka, followed by Maharashtra with 21%. Many of the enterprises in Karnataka (54%) and Maharashtra (38%) are 6 to 10 years old. There is a significant presence of enterprises in Telangana (12%) and Tamil Nadu (10%). While the enterprises are headquartered in metros, most of them are accessible pan-India as they leverage technology and provide services through mobile applications or other online/tele mediums.

FIGURE 37 **Healthcare – Vintage**

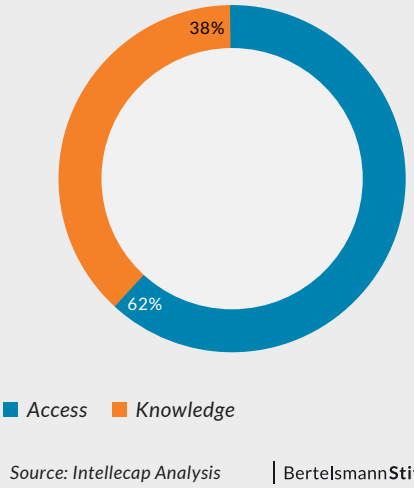


Source: Intellecap Analysis | BertelsmannStiftung

Interestingly, there is good representation of enterprises from eastern states such as Odisha, West Bengal, and Assam, accounting for 12% of the total.

A majority of the healthcare enterprises have existed for around 10 years and are in the growth stage. Over 28% of the enterprises in the healthcare sector have existed for more than 10 years, while almost 35% of the enterprises have been in existence for the last 6 to 10 years. The enterprises that have existed for over 10 years include Bodeli General Hospital and BSR Hospital, which foresaw the potential of affordable healthcare in Tier II and Tier III cities in the country and are working towards realizing it. Enterprises that have emerged in the past five years have innovative offerings, often leveraging technology to make healthcare more accessible and affordable. For instance, DocTalk has a mobile application that allows users to stay in touch with doctors easily through an artificial intelligence (AI)-based, on-demand virtual assistant. A significant 22% of enterprises also focus on specialized areas within healthcare such as eye care (Centre for Sight, EyeQ, and Aravind Eye Hospitals), maternal and child care (Embrace Innovations), and dialysis (Avyantra).

FIGURE 38 **Healthcare – Mode of engagement**



Source: Intellecap Analysis | BertelsmannStiftung

Engagement with customers

Healthcare enterprises predominantly provide increased access to affordable quality care, while some support customers with healthcare information. Over 62% of the enterprises provide affordable healthcare, including maternity and child care, eye care, and dialysis. Enterprises like Vaatsalya and LifeSpring Hospitals operate a chain of hospitals and clinics providing quality healthcare to patients in semi-urban and rural areas in India. Around 38% of the enterprises support customers with information about health conditions, and help patients manage their treatment. For instance, Health Saathi provides information about common lifestyle diseases through personalized messages, and suggests predictive and preventive measures. Asthma Pro helps asthma and chronic obstructive pulmonary disease (COPD) patients manage their treatment through IoT-based

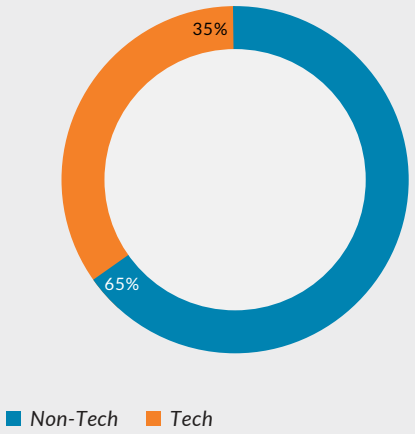
smart inhalers with sensors that track the time, frequency, and location of inhaler use. Such information also helps patients manage emergency situations.

Adoption of technology

Increasing mobile and internet penetration is catalyzing a shift in the healthcare sector towards "health-tech." A report by the Center for Internet & Society India found that investment in AI for healthcare is growing at a fast pace in India, with nearly 16 Indian healthcare enterprises having received funding between July and September 2017[74]. Enterprises in the sample for this study are leveraging the increasing penetration of smartphones and internet, and government initiatives such as Digital Health India. 35% of the healthcare enterprises in the sample adopt technology to provide services to customers, and many have emerged in the last five years. The sector is witnessing a shift towards increasing use of technology such as AI and Machine Learning (ML) through chatbots and virtual assistants to provide affordable and quality medical care. For instance, mUrgency is a mobile healthcare application that can be used by qualified medical staff during emergency situations. It acts as an aggregator of emergency support services, including doctors, nurses, paramedics, ambulances, and first-aid assistants, and provides emergency medical response and assistance to users. Likewise, Portea leverages remote diagnostics, point-of-care devices, and remote monitoring equipment to connect medical professionals including doctors with patients who are unable to travel to hospitals. For this, patient data is uploaded using smartphones to an electronic medical records (EMR) platform, which uses predictive analytics to understand health trends.

65% of the healthcare enterprises offer services through traditional, brick-and-mortar models. These mainly include hospitals eye-care centers, diagnostic centers, and other healthcare units that provide affordable healthcare, including alternate therapies such as naturopathy. 28% of these traditional healthcare enterprises have a presence across India; 38% are present in more than five states, while the remaining 33% are present only in their home state.

FIGURE 39 **Healthcare – Tech/Non-Tech**



Source: Intellecap Analysis | BertelsmannStiftung

WYSA (Telemedicine/Chatbot)

Wysa is an AI-powered bot that uses research techniques to interact empathetically with behavioral and mental health patients through anonymous conversations. It employs mobile-based social sensing to offer proactive and personalized care. More than 200,000 patients are using the services of this chatbot, which collects smartphone data from patients' daily lives along with inputs from community health experts and neuroscientists. Wysa's prediction engine uses machine learning to analyze behavioral patterns and changes that might have health implications. The platform connects users directly with support options to ensure early detection of mental illness.

NARAYANA HEALTH

Narayana Health (NH), founded in 2000 and headquartered in Bengaluru, has a network of specialty hospitals and diagnostic clinical centers in India and globally. The enterprise is present in Bengaluru, Mysore, and Shimoga in Karnataka and also in Kolkata, Jamshedpur, Guwahati, and Jaipur. NH offers services in 30 specialties, including cardiology and cardiac surgery, cancer care, orthopedics, nephrology and urology, neurology and neurosurgery, and gastroenterology. As of May 2018, the enterprise operated a network of 24 hospitals, as well as 7 heart centers and 19 primary care facilities in India, as well as 1 hospital in the Cayman Islands, with a total of approximately 6,200 operational beds. According to the enterprise, nearly 12% of all cardiac surgeries across the country are performed at its hospitals, and almost half of the patients are from economically weaker groups. NH hospitals achieve high quality at a low cost by leveraging economies of scale and optimally utilizing the hierarchy of medical talent in surgical procedures, enabling them to perform more surgeries. At NH's Bengaluru facility, a surgeon, on average, performs four surgeries a day, six days a week, taking the weekly average to 24. This is one of the highest in the world and brings down the cost significantly, which is then passed on as benefits to patients.

Alignment with SDGs

Healthcare enterprises address the SDGs related to achieving universal health coverage at affordable rates, and the reduction of maternal and child mortality. These include enterprises such as Ayzh, which supply affordable kits for mothers and infants in rural areas to reduce maternal and child mortality rates, and Embrace Innovations, which provides body warmers that keep infants' body temperature at a certain required level, particularly in the case of premature birth. Hyderabad-based Care Hospital provides cancer surgery, endoscopic and laparoscopic surgery, and orthopedics and trauma care. There is, however, a significant gap in solutions for prevention and monitoring in the healthcare value chain, indicating that there is a greater need for awareness building in this space. This task is often undertaken by non-governmental organizations (NGOs) with the support of corporate social responsibility (CSR) funds. For instance, Cancer Patients Aid Association (CPAA) is a non-profit organization dedicated to cancer management, and has had awareness building for prevention as an important component of its model for the last 48 years. In 2016, CPAA collaborated with Hong Kong-based RYTHM Foundation to support the cause further. RYTHM Foundation is the CSR arm of QNet[75].

Figure 40 **Healthcare – Alignment of SDGs with value chain components**

	HEALTHCARE			
SDG Targets	Prevention	Diagnostics	Treatment	Monitoring
3.1: Reduce the global maternal mortality ratio	+		++	+
3.2: End preventable deaths of newborns and children under 5 years of age		+++	++	+
3.3: End the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases	+	+		
3.4: Reduce premature mortality from non-communicable diseases	+	+		+
3.7: Ensure universal access to sexual and reproductive healthcare services	+	+		+
3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services, medicines, and vaccines for all	+	+		+
NEED GAPS	Although enterprises have started addressing the preventive healthcare issue, only the economically advantaged sections are able to leverage it	Diagnostic facilities are not available in rural and remote locations	Doctor-to-patient, hospitals-to-patient, and bed-to-patient ratios are abysmal Private healthcare is very expensive	Similar to prevention, most of the healthcare monitoring equipment is unaffordable for the economically disadvantaged sections

\+ *Little to no activity* ++ *Moderate activity* +++ *High level of activity*

Source: Intellecap Analysis

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Regulations and policy support to the sector

A favorable regulatory environment and government support in terms of budget allocation, creation of research and development (R&D) infrastructure, use of technology, and public-private partnerships are giving the required push for the social enterprises in the healthcare sector in India. The government plans to develop India into a global healthcare hub, for which it has supporting policies for foreign direct investment (FDI); it has also reduced customs duties and other taxes on life-saving equipment[76]. The government also focuses on eHealth initiatives such as the Mother and Child Tracking System (MCTS) and Facilitation Centre (MCTFC), and the establishment of new drug-testing laboratories.

The National Rural Health Mission (NRHM), which was started in 2005, allocated US$ 10 billion (€ 8.7 billion) for healthcare facilities. In the 2018–2019 budget, the government announced a new National Health Protection Scheme under

Table 11 **Key policies impacting the health sector in India**

Policy/Scheme Name	Ministry/ Department	Description
National Health Policy	Ministry of Health and Family Welfare	The policy aims at attainment of universal access to good quality healthcare services across the country, including preventive and promotive healthcare options. Some of the major targets of this policy are: - Reduce premature mortality from cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases by 25% by 2025 - Achieve global target set for 2020 with respect to HIV/ AIDS (also called the 90:90:90 target) - Eliminate certain diseases such as leprosy by 2018, and kala-azar by 2017 - Achieve and maintain a cure rate of >85% in new sputum-positive tuberculosis patients and reduce incidence of new cases - Reduce prevalence of blindness to 0.25/1,000 by 2025 and disease burden by one-third from current levels
National Rural Health Mission	Ministry of Health and Family Welfare	The mission seeks to provide equitable, affordable, and quality healthcare to the rural population, especially vulnerable groups. Under the mission, North Eastern States, including Jammu and Kashmir and Himachal Pradesh have been given special focus. The main aim of the mission is to establish a fully functional, community-owned, decentralized health delivery system with inter-sectoral convergence at all levels, to ensure simultaneous action on a wide range of health determinants, such as water, sanitation, education, nutrition, and social and gender equality.
Ayushman Bharat – National Health Protection Mission	Ministry of Health and Family Welfare	The scheme will cover INR 500,000 (€ 6,250) per family per year. The target beneficiaries of the proposed scheme will be more than 100 million families belonging to poor and vulnerable populations. This will cover almost all secondary-care and most tertiary-care procedures. There will be no cap on family size or age in the scheme to ensure nobody is left out.

Source: Ministry of Health and Family Welfare

which each family will be provided health coverage of up to INR 500,000 (€ 6,264) for secondary and tertiary-care hospitalization in government hospitals[77]. Globally, this is the largest government-funded healthcare program and can benefit over 100 million vulnerable and underprivileged families. The national health policy also specifies allocation of INR 12 billion (€ 150 million) to establish health and wellness centers across the country[78].

Challenges to scale

Sustainability of business and customer acquisition has been the major challenge that enterprises face in scaling up. There is a dearth of funds for research and development (R&D) to support the constant need for innovation in the sector. According to some enterprises, there are government grants, but they tend to be "old school" and not geared to address current funding needs. For instance, there is government funding for enterprises that cater to maternal healthcare, but not for those that promote women's hygiene. It is difficult for enterprises to utilize the benefits available under the health policy because of bureaucratic processes. These challenges impact the sustainability of health businesses. Enterprises engaged in menstrual health and hygiene shared that there are several challenges in scaling their businesses because of the sensitivity of the topic.

> *"There is lack of healthcare-focused incubation in India; most programs are focused on incubating tertiary-care enterprises and not on public health."*
>
> Sujay Santra,
> *Founder & CEO, iKure*

Moreover, not many doctors are entrepreneurial and people who do enter the clinical medicine space tend to be tech players who are not interested in accessing it to create a solution.

Emerging trends in the sector

Key trends and business models emerging in the healthcare sector in India include diagnostics, naturopathy, and wellness centers. These are facilitated through technologies such as AI and telemedicine, among others. Digital health records, hospital information systems, mobile healthcare, and innovative PPP models are emerging in the sector. For instance, All India Institute of Medical Sciences (AIIMS) partnered with mobile wallet company MobiKwik in January 2017 to ensure a cashless option for all its payment transactions. The diagnostic market is expected to grow at a CAGR of 20.4% to US$ 32 billion (€ 28 billion) in 2022 from US$ 5 billion (€ 4.4 billion) in 2012[79]. Telemedicine is another emerging trend that can bridge the rural-urban divide in terms of medical facilities, extending low-cost consultation and diagnosis facilities to the remotest of areas via high- speed internet and telecommunication[80]. Enterprises that have come into existence in the last two to three years are following the trend.

Chapter 7: Sector Landscape – Sanitation

Solid waste management and a lack of access to basic sanitation facilities are two key challenges in India. These challenges have multiple negative effects on people's level of health. For instance, the lack of effective solid waste management techniques and systems can lead to the spread of harmful diseases, causing epidemics of cholera, diarrhea, and hepatitis, among others. The safe disposal and treatment of sewage through sanitation facilities is also necessary, considering untreated waste can potentially enter the water stream, leading to contamination, infection, and a rise in antimicrobial resistance[81]. The country generates 54 million tons of solid waste every year, which either is dumped in landfill sites or overflows onto streets and open gutters, awaiting clearance by street sweeping crews of local governing authorities. Over 500 million people defecate in the open – a majority of which are women who lack access to toilets and other sanitation facilities[82]. The lack of basic sanitation facilities and the increasing generation of solid waste have numerous negative consequences for different aspects of an individual's life, including severe negative health and quality of life impacts, particularly in low-income communities.

Distribution of enterprises across the value chain

Social enterprises addressing these challenges adopt innovative methods to promote basic sanitary practices and create efficiencies in waste management activities. Numerous enterprises are working on effective waste collection, recycling, segregation, and transformation, while some are leveraging technology interventions using data science and ICT to create "waste analytics" reports for integrated waste management. Across the sector, there is a strong preference for models that incentivize behavior change or introduce contextual and easy-to-install/manage sanitation and solid waste management solutions.

The database of 50 enterprises collated for this study provides valuable insights into the kind of social enterprises operating in this sector and their engagement with customers across the value chain. There are multiple enterprises working in the "waste segregation, treatment, recycling, and disposal" segment of the value chain – comprising 36% of all the sanitation enterprises. Of these, some are engaged in solid waste management, such as Trash Con, a Bengaluru-based enterprise focused on solid waste segregation in the city of Bengaluru. Other enterprises offer a range of solutions that extract value from waste, such as PET bottle and e-waste recycling. A few enterprises such as Abellon Clean Energy also provide waste processing facilities that they can leverage to offer other services to customers such as biomass energy solutions. Interestingly, of the 14% that work in the sanitation facility space, a majority provide toilets to customers, and a smaller number comprising enterprises like Menstrupedia and Jayshree Industries focus solely on providing sanitation solutions for women.

Table 12 **Sanitation - Value chain components with examples**

Sanitation Facilities	Waste Collection	Waste Segregation, Treatment, Recycling, Disposal	Waste to Value
Banka BioLoo 3s India Samagra Ekam Eco Solutions	BinBag Kanak Resource Management Raddi Connect	Banyan Nation Bioways India Services & Solutions GreenNerds I Got Garbage Waste Ventures India	Aafhan Thunk in India Protoprint Waste2Watts

Source: Intellecap Database

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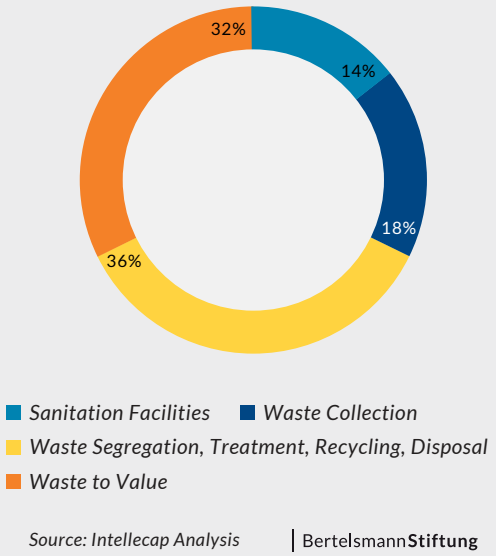
Geographic distribution of enterprises

Enterprises focused on managing waste are concentrated in major urban agglomerations with peripheral operations in rural and semi-rural geographies. 64% of the enterprises in the database are based in larger cities in the states of Maharashtra, Karnataka, and Delhi. Other states with some social enterprise activity include Uttar Pradesh, Haryana, and Kerala . The scale of operations for each of the enterprises within the sanitation sector differs with the value chain segment they operate in. 46% of the enterprises that work in the waste management segments – spanning collection, segregation, recycling, treatment, disposal, and transformation – are only operating within their home states. Some enterprises are local,

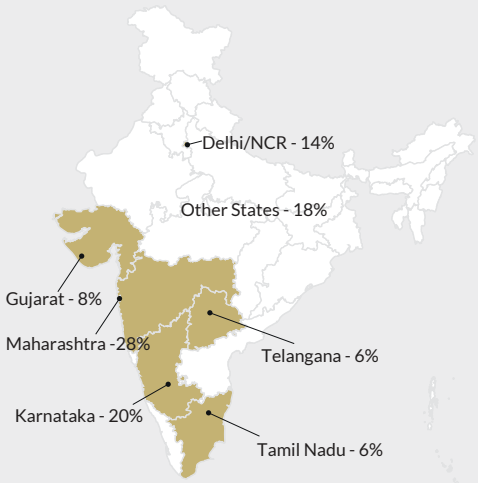
FIGURE 41 **Sanitation - Value chain components**



Source: Intellecap Analysis | BertelsmannStiftung

such as Paperman, which works only in Chennai, collecting and recycling waste by providing an on-demand recycling platform, spreading awareness through programs, and processing waste for recycling. There are also some enterprises such as Conserve India in Delhi that work to create valuable apparel from plastic waste. Conserve India, however, has transformed their waste-to-value model over the past few years to be more knowledge-based – now focusing on training individuals and groups on processes and methods to convert waste to value. In contrast, 86% of the enterprises engaged in providing sanitation facilities work in different regions across the country, some confined to the north or the south, others with operations pan-India. Enterprises such as 3S India, which provides portable

FIGURE 42 **Sanitation - Geography (headquarters)**



Source: Intellecap Analysis | BertelsmannStiftung

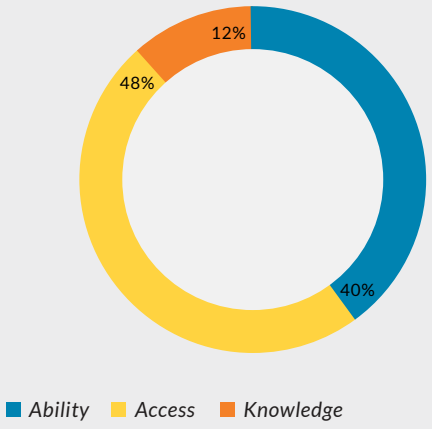
toilets, work across the country, while others such as Banka BioLoo promote effective human waste management in the southern states of India.

Engagement with customers

Working across geographies, enterprises offer a range of services and products to customers through different modes of engagement, most often focused on providing direct access to these products and services. 48% of the enterprises support customers in accessing affordable sanitation products such as sanitary napkins. Jayashree Industries, for example, is an enterprise that manufactures affordable sanitary napkins. Access enterprises also provide technological solutions such as “e-toilets” which are automated and remotely monitored to be energy and water-efficient. Eram Scientific, based in Thiruvananthapuram, Kerala, is one such enterprise. Initiatives of enterprises such as NEPRA, for instance, also offer customers waste disposal systems that are integrated into their collection and management units. Some enterprises focus on building awareness among communities about hygiene and sanitation practices, as well as about waste segregation, recycling, and management in the form of either composting or transformation into

household utility products. BinBag provides knowledge in the form of data and analytics and connects waste recyclers to consumers through an on-demand digital platform. 40% of the enterprises provide waste-to-value solutions too, wherein waste can be managed to effectively create remunerative products such as fertilizers, vermicompost, recycled yarn, or filaments for material-based 3D printers.

FIGURE 43 **Sanitation - Mode of engagement**



Source: Intellecap Analysis | BertelsmannStiftung

Adoption of technology

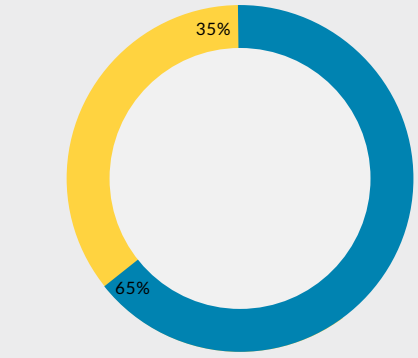
The "digitization of sanitation" and customers' growing willingness to adopt sanitation solutions are important developments in the sanitation sector in India. Many recently established enterprises (less than five years) leverage technology and explore innovative ways to manage waste. For instance, Protoprint recycles plastic waste into pellets that can be used for a variety of applications ranging from 3D printing material to recycled pellet-based roads. Technology also plays a role in helping enterprises create more insightful engagement with customers and analyze ways in which sanitation facilities are used and maintained, as well as the ways in which waste can be managed from different sources. Banyan Nation, a Hyderabad-based enterprise with large-scale plastic recycling operations, focuses on sourcing waste material from aggregators, sorting them according to grade, and processing them to create plastic pellets that can be sold in the market. The enterprise creates waste analytics reports to manage its operations effectively.

Waste collection and waste-to-value enterprises leverage technology to aggregate stakeholders and create formal structures in the otherwise informal segment. Technology-based enterprises like Citizengage in Bengaluru aggregate stakeholders through waste-trading platforms and online tools to bridge the gap between waste generators, collectors, and processors. Enterprises such as RaddiConnect, founded in 2015 in Mumbai, use digital platforms to connect the vast network of informal waste pickers with households and companies that require waste collection. They do so using either SMS texts or calls that are made based on requests logged on their platform. Enterprises that have been operational for less than five years adopt technology to promote

3S INDIA

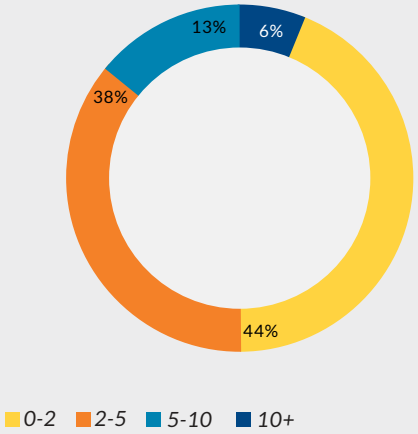
The enterprise provides toilets and toilet-cleaning services to underserved communities. These include laborers on construction sites and at large gatherings such as Kumbh Mela, on a rental basis. 3S is India's first professionally scaled portable sanitation and waste management company that also manufactures quality restrooms, provides cleaning services, and sets up bio-digester-based, low-cost household and community toilets for rural and urban India. They are focused on providing low-cost toilets in a variety of ways: at construction and infrastructure development sites, at events, and even to fulfill large-scale municipal requirements. Their innovative "toilet integration" model works to provide women with hygienic and accessible public restrooms by refurbishing old and disused buses and turning them into clean and accessible toilets for women. Since its inception in 1999, 3S India has received two private equity investments from Aavishkaar Venture Management Services and from ResponseAbility. Apart from this it has also raised close to INR 80 million in the form of debt from banks. In 2017, Rajeev Kher, the founder and CEO of 3S India, was named Impact Entrepreneur of the Year by the Global Steering Group for Impact Investment (GSG).

FIGURE 44 **Sanitation - Tech/Non-Tech**



Source: Intellecap Analysis | BertelsmannStiftung

FIGURE 45 **Sanitation - Distribution of tech enterprises by age**

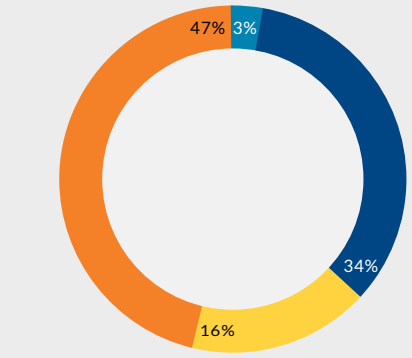


Source: Intellecap Analysis | BertelsmannStiftung

e-waste recycling, processing, and treatment of different kinds of waste to create value, or to create digital learning and awareness-building guides, for example on menstruation.

There are a number of enterprises offering waste segregation, treatment, recycling, and disposal that do not leverage technology. Instead they work directly with customers, waste collectors, and waste recyclers. DailyDump, for instance, distributes segregation and composting products to its customers to help them manage their waste. Gain

FIGURE 46 **Sanitation - Distribution of non-tech enterprises by age**



Source: Intellecap Analysis | BertelsmannStiftung

Waste, founded in 2013, focuses on tackling open dumping through collection, segregation, and distribution of sorted waste. Some enterprises offer recycling services or waste treatment services that create different applications for treated and processed waste. For instance, Saahas Zero Waste, set up in 2001 in Bengaluru, is an enterprise engaged in resource recovery from waste. The enterprise also engages in creating a reverse-logistics supply channel that integrates various waste streams.

Alignment with SDGs

Waste management and sanitation enterprises provide solutions geared towards achieving the sixth sustainable development goal and its targets. Recognizing the scale of the open-defecation problem in India, 14% of the enterprises are aimed solely at creating access to sanitation facilities in rural areas where there are none, and promoting their use through integrated systems that leverage technologies to generate energy through biomass. For instance, 36% of the enterprises that have applications in the segregation, recycling, treatment, and disposal phase of the value chain are innovating different methods such as treating waste through vermicomposting or composting in general. 62% of the enterprises are focused heavily around recycling e-waste, municipal waste, and industrial waste that can be either fed back into the product life cycle or upcycled to create different products and transform its use case.

Figure 47 **Sanitation – Alignment of SDGs with value chain components**

	SANITATION			
SDG Targets	Sanitation Facilities	Waste Collection	Waste Segregation, Treatment, Recycling, Disposal	Waste to Value
6.2: Achieve access to adequate and equitable sanitation and hygiene	3	1	2	1
12.5: Reduce waste generation by prevention, reduction, recycling, and reuse	2	2	3	2
NEED GAPS	Low awareness levels around issues of open defecation High costs of installation, maintenance, production of facility/product	Prevalence of disaggregated and dis-integrated informal waste collectors Lack of awareness around open dumping and littering	Extremely low levels of segregation at source High cost of waste treatment and facility set-up Barriers to uptake of solutions due to low costs and ease of unsustainable disposal	Inability to absorb high quantum of waste from various streams Socio-cultural awareness of potential for waste products Low willingness to adopt/pay

1 *Little to no activity* 2 *Moderate activity* 3 *High level of activity*

Source: Intellecap Analysis

BertelsmannStiftung

Regulations and policy support to the sector

While the government and other stakeholders are showing an increased interest and commitment to ensuring change in the sanitation landscape in India, customers need to be further incentivized to adopt solutions and create changes in their waste management and sanitary practices. For instance, even though the Union Ministry of Environment, Forests and Climate Change (MoEF&CC) announced the new Solid Waste Management Rules (SWMR) in 2016, the intended effect has not been achieved. The SWM[84] programs currently in implementation focus on tackling primary and secondary collection of waste. Yet the problem remains that out of the 27.4% of waste that is collected, treatment is sub-par due to selection of inappropriate technologies for management, even though better technology and infrastructure are available through social enterprises. Out of the allocated funds for solid waste management, studies indicate 30% is spent on collection, while a mere 0% to 5% is spent on disposal, with the rest being used to pay employee salaries and for street-sweeping activities[85]. Nonetheless, the policy regulations around sanitation in India are improving and have the potential to utilize social enterprises and their innovative models to create the change policy makers envision.

Initiatives and policies such as the government's Swacch Bharat Mission provide a strong impetus to the sanitation sector. The past few years have seen significant investor interest in models that facilitate access to basic sanitation facilities and promote reduction in waste generation. The business case for enterprises working in this sector is compelling, considering the sanitation market is set to double over the next three years from US$ 31 billion (€ 27 billion) to US$ 62 billion (€ 54 billion). Increased CSR investments from corporates across geographies and at different points in the sanitation value chain in India, from waste capture to treatment and disposal,

highlight a growing trend of viable business opportunities. While there has been increased investment, the number of investible opportunities that present sufficient returns is still limited – with impact investors and traditional funds focused more on waste management solutions, rather than on behavior change-oriented solutions such as those promoting the use of basic sanitation facilities to curb open defecation.

Challenges to scale

Enterprises in the sanitation sector face a number of challenges to scale, which mainly arise from a lack of ecosystem enablers and access to finance. Despite a significant potential customer base for sanitation solutions in India, enterprises are unable to scale due to limited market development and customer uptake. Enterprises also face difficulties in accessing credit for their operations – due to the prevalence of informal customer interface channels at the last mile. The limited number of ecosystem enablers such as incubators that possess expertise and technical knowledge in the sanitation space is also a barrier to scale in this sector. While investors and other stakeholders are beginning to increase their investment into and their focus on this space, the biggest challenge at the sector level remains the socio-cultural context, in which the prevailing mindset is geared towards open defecation over the use of private toilet and sanitation facilities.

Table 13 **Key policies impacting the sanitation sector in India**

Policy/Scheme Name	Ministry/ Department	Description
Swachh Bharat Mission	Ministry of Drinking Water & Sanitation	The focus of this initiative is to move towards "Swachh Bharat" ("Clean India") by providing flexibility to state governments (as sanitation is a state subject) to decide on their implementation policy, use of funds, and mechanisms, taking into account state-specific requirements. The Government of India's role is essentially to complement the efforts of the state governments through the focused program being given the status of a mission, recognizing the country's dire need for it.
Solid Waste Management Rules	Ministry of Environment, Forest and Climate Change	Solid Waste Management Rules 2016 (SWMR) were issued on April 8, 2016 to lay a solid framework for scientific waste management across urban settlements. The 2016 rules supersede the 2000 Municipal Solid Waste Rules and expand the ambit of application to every urban local body, including outgrowths in urban agglomerations, census towns, areas under railways and airports. The SWMR puts the onus of segregation on the waste generator and requires segregation into six categories: biodegradable, non-biodegradable, domestic-hazardous, sanitary, construction-demolition, and horticulture. All resident associations and commercial institutions, in partnership with a local body, are required to segregate waste and process biodegradable waste, through on-site composting or bio-methanation, and hand over recyclable waste to authorized waste pickers or recyclers. This heralds a paradigm shift in decentralized waste management in keeping with the slogan "handle your own filth." This obviates the need for a gargantuan centralized system of waste management requiring little community participation, which would inherently be unsustainable, un-scalable, uncivilized, and unfair.

Source: Ministry of Drinking Water & Sanitation, Ministry of Environment, Forest and Climate Change

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"For effective e-waste management, we need the 3 A's – Awareness building among waste generators on how to dispose of hazardous waste; Access to proper e-waste collection services; and Asset (processing facilities) to exctract value from the e-waste."

Achitra Borgohain,
CEO – Binbag

BINBAG

BinBag works as an agent for collecting waste, which includes paper, plastic, cardboard, and e-waste, from the doorstep of apartment societies, small enterprises, and individual households. It collects waste and distributes it to recycling centers. BinBag works on a decentralized hyper-local business model for waste collection and until recently supported consumers through management of wet waste at the source by enabling compost creation inside the premises of apartment societies and small businesses. From its inception in 2014 until early March 2017, the enterprise was engaged in collecting a variety of wastes from various sources and customers. In 2017, the model radically changed to focus solely on e-waste and scrap metal since payment, collection, and management of solid and other municipal wastes was an issue.

BinBag now focuses on B2B e-waste collection, recycling, and value extraction. The enterprise has democratized the procurement process, which has traditionally been high engagement and high cost, by creating an easy-to-use mobile application that a mid-skilled waste assessor can use to provide information about the waste and receive a quote. There are still pressures from the customer side on pricing, so BinBag has started to build skills on value extraction from e-waste.

ZERO WASTE MANAGEMENT /INDIA GREEN SERVICE

With its separate units which work together towards a common objective, the Vellore Model of Zero Waste Management (ZWM) can be described as a "centralized project with decentralized processes." Akin to a natural ecosystem, the model has nine different individual processes, which are interconnected and interdependent and which lead to "zero waste" in the end. The interconnection provides maximized efficiency and sustainability – both economic and environmental sustainability. The Vellore Model offers more than 100 different ways to manage both organic and inorganic waste to create value. The founder of the enterprise, Srinivasan, sometimes known as "Vellore Srinivasan," originated the concept of Solid and Liquid Resource Management (SLRM), which allows for all waste to be collected, naturally processed, and treated to create a variety of post-use products, such as compost or mulch for organic wastes, and raw material for recycling plants for inorganic waste.

The model is highly innovative and non-technology-based in that it provides training to waste collectors in the different ways waste can be managed effectively to create financial and ecological returns from it. Once trained, the collectors are provided with an electric motorcycle that can travel up to 40 km on a minimal charge. This cycle is retrofitted with two garbage bins, one for organic and one for inorganic waste. The garbage is collected on a set schedule from different points of waste generation across the region and brought to an SLRM center where the segregation, processing, and treatment take place. The waste that is collected and segregated is utilized for a variety of purposes, including as feed for cattle, which then provide the power for in-house biogas plants, or vermicomposting solutions that can be used as an alternative to fertilizers. Other kinds of organic waste are used to create composting tanks, which are managed in natural and eco-friendly ways.

Waste that cannot be fed to cattle such as citric fruits are turned into cleaning materials due to their acidity. Even waste such as leaves can be used to make mulch that is integrated into urban farming solutions, such as rooftop gardens and other home-based uses. Inorganic waste is segregated and sold to recycling and reuse shops. These are only a few of the solutions that SLRM provides for waste management in India.

Emerging trends in the sector

Social enterprises within the sanitation sector, and enablers and investors, are beginning to shift their focus towards solving large-scale challenges within this sector. With the increased push from the government to implement sanitation and waste management solutions across the country, and the slow but growing willingness to adopt solutions that can improve health and sanitation conditions, social enterprises in this sector can expect some significant shifts. The increasing availability of funds (from CSR, donors, government, and investors) will encourage a growing presence of for-profit and viable business models in the sanitation space. There is growing momentum in the sanitation sector in India, with greater public and private interest in it. The sector is witnessing more active policy-based and legislative pushes, as well as increased investment due to the infusion of viable and remunerative business models.

Chapter 8: Sector Landscape – Water

More than 600 million individuals in India face extreme water scarcity due to the growing demand and a constraint on supply[86]. While water scarcity and stress is an issue, the added cost of accessing clean water is a heavy burden on most households, especially in areas where clean water is hard to come by or groundwater tends to be polluted. Members of one in every four rural households in India have to walk for more than half an hour every day to collect drinking water. Water-borne diseases like diarrhea and cholera are responsible for loss of lives and productivity, with India losing about 73 million man-days of work due to water-borne diseases[87].

Distribution of enterprises across the value chain

Social enterprises are working to address challenges in this sector through water harvesting and storage, water supply and distribution, and wastewater management. More enterprises working in the water sector tend to focus on the provision of safe water and water purification than on issues such as water conservation and groundwater replenishment. Across the water value chain, there are multiple enterprises working in India to provide services and products that can treat wastewater, grey water, and polluted water, purifying water to make it potable and distributing it at low cost, or creating water storage and harvesting facilities that promote water conservation and conscious consumption.

The database analyzed information on 15 water enterprises that are dedicated to solving issues across the value chain. A majority of the enterprises focus on providing wastewater management solutions such as Jaldhara Technologies' grey-water treatment products. The company provides contextual, small-scale, and affordable water treatment solutions to residential areas, commercial complexes, and communities. Some wastewater management enterprises are also dedicated to treating specific types of effluents such as those from laundry services and large-scale washing units. Among the 13% of enterprises in the water harvesting and storage segment of the value chain, the most common solution is rainwater harvesting. Interestingly, enterprises engaged in water supply and distribution tend to have hybrid models that purify water as well as make it accessible to low-resource settings at affordable rates. Working in eastern Indian villages, Spring Health Water India, for instance, operates on a decentralized model that partners with local provision stores to locally treat and sell water at affordable rates.

Table 14 **Water – Value chain components with examples**

Water Harvesting & Storage	Water Supply & Distribution	Wastewater Management
D&D Ecotech Kedia Rainwater Harvesting	Piramal Sarvajal Water Life India Wello Walking Water	Bridgedots Techservices Greenvironment Innovation & Marketing

Source: Intellecap Database

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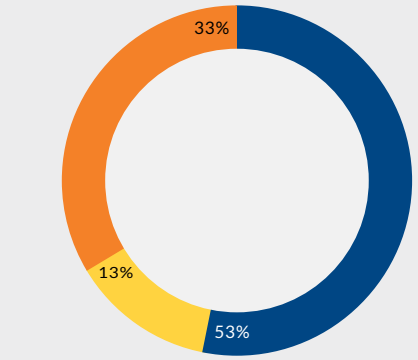
FIGURE 48 **Water - Value chain components**

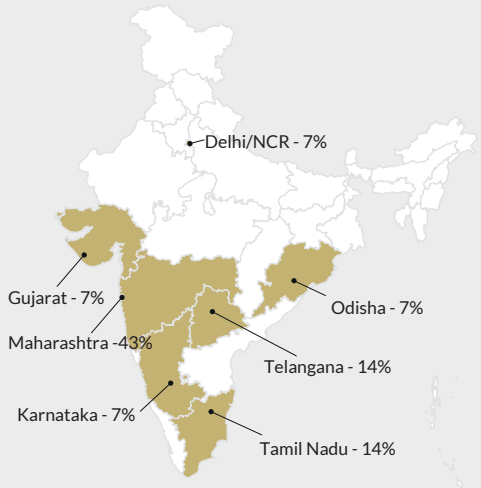


Source: Intellecap Analysis | BertelsmannStiftung

Geographic distribution of enterprises

Almost all the enterprises addressing issues in this sector have been in operation for over two years and have been able to scale across the country. Most enterprises supplying and distributing water tend to operate in the central and northern parts of India, while enterprises working on wastewater management tend to be clustered in the south. While most enterprises are headquartered in Maharashtra, Telanagana, and Gujarat, their operations tend to be pan-India. For instance, Vision Earthcare's headquarters are in Mumbai, Maharashtra, yet their operations take place across the country. Similarly, Sarvajal is operational in 16 states across the country, with headquarters in Ahmedabad, Gujarat.

FIGURE 49 **Water - Geography (headquarters)**

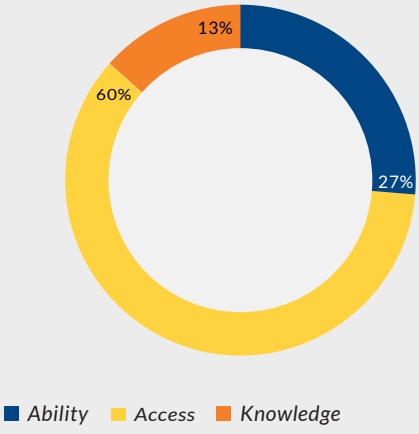


Source: Intellecap Analysis | BertelsmannStiftung

Engagement with customers

Enterprises in India that generate awareness and knowledge about benefits of using clean water and provide actual delivery of clean water are limited in number compared to those which provide access to water treatment systems and harvesting solutions. The database identifies 13% of the enterprises as knowledge enterprises, working to promote awareness around water conservation and harvesting, as well as providing knowledge around water usage based on data. Most of these enterprises leverage data analytics to generate and disseminate insights around quality of water, water levels, and consumption patterns. 60% of the enterprises are access enterprises. Enterprises such as Jaldhara Technologies provide access to recycling systems and water purification systems. Vision EarthCare is an access enterprise that provides effluent treatment solutions, Waterlife India focuses on access to clean water. Ability enterprises, however, work more towards creating systems that

FIGURE 50 **Water - Mode of Engagement**



Source: Intellecap Analysis | BertelsmannStiftung

facilitate large-scale adoption of water treatment and conservation systems in more commercial or community-level settings. They mobilize communities and empower them to adopt water treatment and conservation. For instance, AguaClara is an enterprise that provides design and training services to communities to help them set up independent, gravity-powered, municipal-scale water treatment plants.

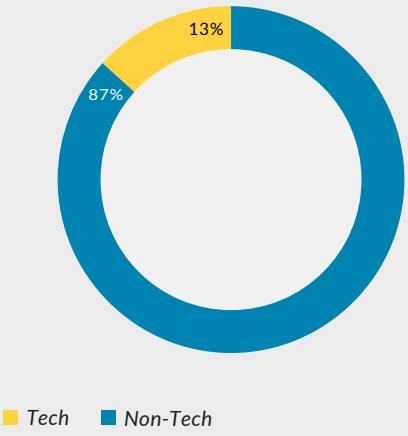
Adoption of technology

Overall, technology-based enterprises form a small percentage of the enterprises analyzed; they are most often situated in south India and work across the value chain. Only 13% of the enterprises in the database leverage technology, with some of the models focusing on monitoring water levels and quality, and promoting co-generation through waste-heat recovery during desalination or effluent treatment. Some enterprises also use data and ICT technologies to monitor the quality and level of water in the area. Greenvironment Innovation and Marketing, for example, a company based in Chennai, monitors real-time water and wastewater treatment systems to help reduce excessive water consumption and waste. Spread across Telangana, Tamil Nadu, Karnataka, and in some cases Maharashtra and Bihar, the identified water enterprises mainly cluster within the southern states of India. Wastewater treatment solutions, comprising 50% of the technology-based enterprise offerings, tend to be offered by enterprises that are local in their operations, working within their home states – either in specific localities or scaling across districts. Enterprises offering water supply and distribution solutions, comprising the other half of the technology-based enterprises, operate in different states to tackle the various problems of pollution, effluent and chemical contamination, and the lack of access to safe drinking water.

Alignment with SDGs

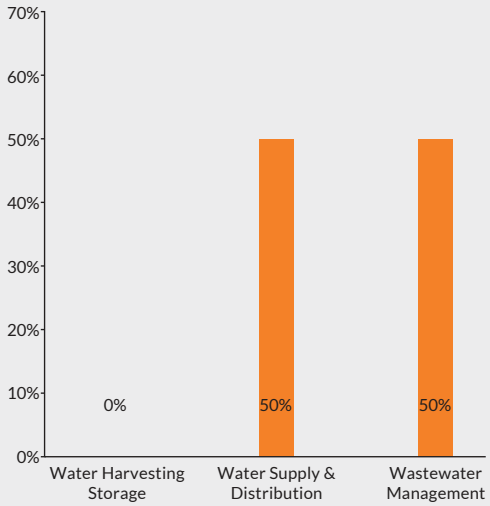
Within the water sector, enterprises across the value chain address multiple targets aligned to solving water-related challenges. Each of the water enterprises listed in the database tackles at least two of the six SDG targets that form the sixth goal. For instance, enterprises such as Ecoparadigm, which works on wastewater recycling, often aim to promote access to safe and usable water for all, and to improve the quality of water through purification, decontamination, processing, and treatment. Greenvironment Innovation & Marketing, based in Chennai, Tamil Nadu, promotes water use efficiency across consumer segments – from urban households to rural farms and communities.

FIGURE 51 **Water - Tech/Non-Tech**



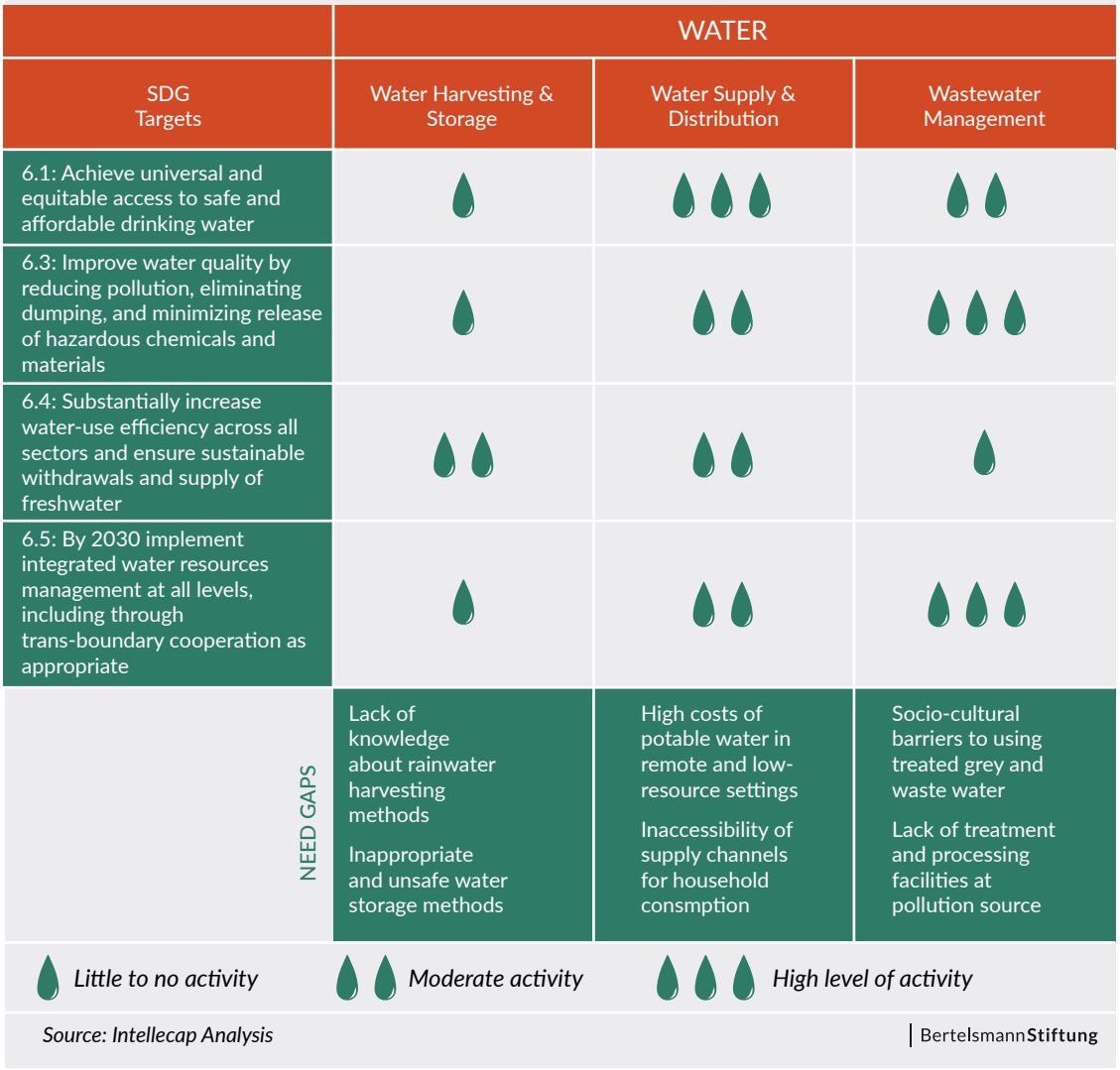
Source: Intellecap Analysis | BertelsmannStiftung

FIGURE 52 **Water - Tech enterprises across the value chain**



Source: Intellecap Analysis | BertelsmannStiftung

Figure 53 **Water – Alignment of SDGs with the value chain components**



Source: Intellecap Analysis

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Regulations and policy support to the sector

The central and state governments have been making necessary policy changes to strengthen the water sector in India. The seventh schedule in the constitution of India provides three lists of subjects that can be legislated by the union and state governments; two are mutually exclusive and one is a common list. Water is a state subject in the list, and hence we do not see much central government activity in the water treatment, supply, and distribution segments. State governments, however, are working in this space to promote rainwater harvesting, groundwater replenishment, and wastewater treatment. The government of Goa, for instance, has a dedicated rainwater harvesting policy, while the government of Odisha is promoting groundwater replenishment. There is also a larger legal framework known as the Water (Prevention and Control of Pollution) Act of 1974 that focuses on effluent and contaminant management, holding parties that pollute accountable. Policy in the water sector pushes more conservational activities, with very narrow focus on wastewater management and treatment.

Challenges to scale

Social enterprises in this space tend to face challenges to scale due to the high costs and capital requirement associated with implementing solutions across the value chain. Water and waste treatment solutions tend to be capital intensive in nature and hence create high barriers to entry. Enterprises often cannot access sufficient finance to create large-scale operations. The lack of large-scale operations and

Table 15 **Key policies impacting the water sector in India**

Policy/Scheme Name	Ministry/ Department	Description
National Water Mission	Ministry of Drinking Water and Sanitation	The main objective of NWM is "conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources development and management."
National Water Policy	Ministry of Drinking Water and Sanitation	The document emphasizes the need for periodic modifications in the water policy. This is in terms of planning and management of water resources by taking into consideration the changes in the economic, social, climatic, and demographic situation of the country and the urgent need to conserve the available water resources.

Source: Ministry of Drinking Water and Sanitation

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the related economies of scale further prevent a reduction in the cost of the product or service for the end customer.

Emerging trends in the sector

Enterprises working in this space must also work towards creating synergies and partnerships with a range of stakeholders, such as policy makers, financiers, enterprises, industries, and local communities, if they are to deliver services that are affordable and at scale. While stakeholders in the water sector understand the importance of water treatment, recycling, and purification, it is difficult to solve these problems without support from stakeholders in other sectors, such as agriculture and health, due to the interrelated nature of the challenges. Farmers and irrigation equipment and input manufacturers need to be involved in the solution-development process, considering the considerable stress agriculture places on water and the associated level of pollution and effluent contamination, which can cause negative health-related conditions across the country. A major shift that is visible in the space is the growing concern among stakeholders to work at the nexus of sectors and address challenges in a holistic way by providing financial, infrastructural, and advisory support to enterprises. For instance, the promotion of micro-irrigation and reduced groundwater utilization for agriculture could help conserve water and reduce scarcity. Less use of chemicals in industry could further reduce the amount of contaminants entering the water stream and negatively impacting consumers.

DRINKWELL

Drinkwell is a water technology company operating in India and Bangladesh that is combating the arsenic, fluoride, and iron water contamination crisis. The enterprise's proprietary technology removes contaminants from water using a gravity-fed process that reduces energy costs and water loss by more than 95% versus competing technologies. The technology has allowed companies to improve their profitability, countries to improve their environments, and families in developing nations around the world to have access to affordable and safe water. A technology-based enterprise, Drinkwell provides access to clean and safe drinking water to its beneficiaries through innovative and patented technologies that are efficient, sustainable, and cost-effective. Drinkwell has patented its technology HIX Resins (Hybrid Ion eXchange Resins), which is used to remove arsenic and fluoride contamination from water sources and treat the water so it is potable and safe. More than 1 million people have benefitted from the use of HIX Resin and now have access to clean and safe water at lower costs compared with other providers – and at less risk. Another interesting product/service that Drinkwell provides is the water ATM, which leverages RFID-enabled money management and metered dispensing to reduce costs and keep water from being lost.

Chapter 9: Analyzing The Social Enterprise Investment Scenario in India

Investment in the seven high-impact sectors

Over the past few years, India has attracted more than US$ 5 billion (€ 4.4 billion) in the form of impact investments[88], a major portion of which has been allocated to social enterprises operating in impact sectors. Close to 30% of the total impact investments in India so far have been in microfinance, totaling almost US$ 1.5 billion (€ 1.3 billion) between 2011 and 2017[89]. Other sectors such as agriculture and water and sanitation have also seen increasing investor interest. For instance, NEPRA, a waste management company based in Ahmedabad, Gujarat, received US$ 4 million (€ 3.5 million) in investment, and EM3 Agri Services, an agricultural equipment rental company, raised close to US$ 14 million (€ 12.2 million) between 2014 and 2017[90]. In the health sector, Biosense Technologies, an enterprise that manufactures diagnostic equipment in India, raised US$ 2.9 million (€ 2.5 million) between 2012 and 2018[91].

Major investors in the seven high-impact sectors

There are upwards of 50 impact investors in India that actively invest in various social enterprises across key impact sectors. A number of international asset managers have established India-focused funds. For instance, the Omidyar Network has a US$ 8 million (€ 7 million) fund dedicated to India. Similarly, Incofin, a Belgium-based impact investment firm, has funds with a major focus on the micro-finance segment in India; their new fund expands into other sectors in India. Over the past two decades, India has also seen numerous domestic asset managers raise and launch funds dedicated to creating positive impact in the country. Aavishkaar Venture Management Services' new Aavishkaar Bharat Fund, for instance, is one of India's largest impact investment funds with a target size of US$ 299 million (€ 262 million). The following table indicates the key "active" impact funds in India.

Table 16 **Types of investors and general range of investments in India**

Asset Manager	Funds	Fund Size (€ million)	Illustrative Portfolio
CIIE Initiatives	Indian Fund For Sustainable Energy	21	AK Surya Powermagic, Fourth Partner Energy, Silvan Innovation Labs, Visviva Renewable Energy
	Bharat Innovation Fund	72	Entropik Technologies
	Bharat Inclusion Seed Fund	21.8	No investments to date
Caspian Impact Investment Advisors	Bellwether Microfinance Fund	17.5	A Little World, Sahayata Microfinance, Trident Microfin
	India Financial Inclusion Fund	78.8	Arohan Financial Services, Equitas Holdings, Ujjivan Financial Services, Micro Housing Finance Corp.
	Caspian Impact Investments	40.3	Utkarsh Microfinance Ltd.
	Caspian SME Impact fund II	20	No data available
Omnivore Capital Management Advisors	Omnivore Capital Ag-tech Fund	43.8	Barrix Agro Sciences, Eruvaka Technologies, Skymet Weather Services, Stellapps Technologies
	Omnivore Partners India Fund 2	65.6	Agnext technologies, banger tech
Omidyar Network India Advisors	India Impact Economy Innovation Fund	7	Jain sons finlease, kaleidofin, swarna pragati housing micro finance, chalk farm ventures
Small Enterprise Assistance Funds	SEAF India Agribusiness Fund	65.6	Madhya Bharat Phosphate, Abhay Nutrition, Khyati foods
	SEAF India Agribusiness International Fund	65.6	Himadri foods, Synergy Kitchens & Hospitality
	SEAF India Agribusiness Fund II	131	No data available
Song Investment Advisors India	Song Fund	15	Be Well Hospitals, siddhi Vinayak Agri Processing
Aavishkar Venture Management Services	Aavishkaar India Micro Venture Capital Fund	12.3	INI farms, Butterfly Edufields, mHealth Ventures, Vaatsalya Healthcare Solutions
	Aavishkaar India II Co. Ltd. Venture Capital Fund	105	Ergos Business Solutions, Jaypore E-Commerce, Milk Mantra Dairy, Nalanda Learning Systems
	Aavishkaar Frontier Fund	57	Grasshoppers, Ma's Tropical Food Processing, Cloudwell
	Aavishkaar Bharat Fund	262	Utkarsh Microfinance, Kottaram Agro Foods, Altum Credo Home Finance
Menterra Venture Advisors	Menterra Social Impact Fund	5.3	Biosense Technologies, Ez Vidya, Farmfolks, Nubesol
Asha Impact Advisory Services	Asha Impact Fund	10	Thirumeni Finance, Nepra Resource Management

Source: VCCEdge, Intellecap Analysis

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Average investment size

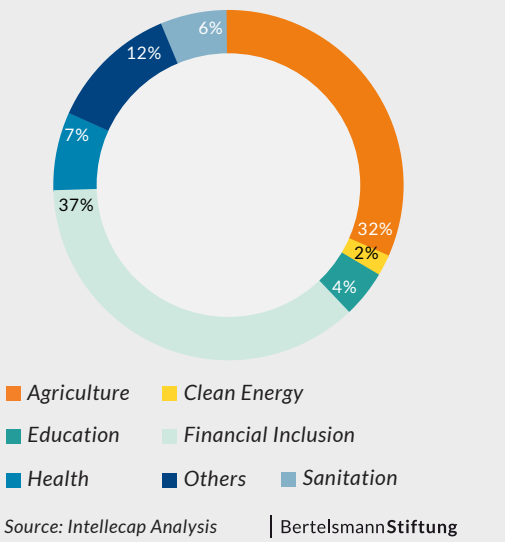
Social enterprises across the different stages of growth require varying sizes of investment; a study of the key investments by the most active impact investors from 2014 to 2018 reveals an average investment size of US$ 2.75 million (€ 2.4 million). From 2014 to 2018, there have been more than 100 investments by the 10 most active impact investors in India (across their funds). These include sizable investments in the form of Series A rounds into enterprises by impact investors such as Caspian Impact Investments, as well as smaller seed capital investments by early-stage funders and ecosystem supporters, such as Villgro and Upaya Social Ventures. For instance, in early 2018 Omnivore invested US$ 2.2 million (€ 1.9 million) into Doodhwala, a subscription-based milk and daily essentials startup – as a Series A follow-up to their pre-Series A funding. An affordable housing finance enterprise, Ummeed Housing Finance, raised US$ 5.6 million (€ 5 million) in 2017 from Lok Capital as part of its Series B fund raise. From our interactions with a range of impact investors in India, it became evident that few were focused on seed or very early-stage funding, while a larger group focused on providing early-stage Series A funding. Interestingly, many impact investors, such as Quona Capital and 021 Capital, also have dedicated funds for growth-stage Series B and C investments.

> *"Over the last five years, we've seen less than three to four new funds emerge with a focus exclusively on seed-stage investing. Most new funds focus on early- or growth-stage enterprises."*
>
> *Srikrishna Ramamoorthy, Unitus Ventures*

Investor preference across the seven high-impact sectors

The portfolio of investments across the spectrum of financial ecosystem enablers is vast, across major high-impact sectors . With over 50 impact investors working in India, along with numerous other angel investors, key DFIs, and a majority of the world's philanthropies, the kinds of investments that are made vary . A majority of all the impact investors in India tend to focus on financial inclusion and agriculture. Our assessment of the investments made over the past four years by the most active impact investors in India indicates that of the approximately US$ 200 million (€ 175 million) that has been channeled into the sector by investors, such as Asha Impact, Omnivore, Unitus, and Lok Capital, 37% was invested in the financial inclusion sector, followed by 32% in agriculture. Certain transactions, such as Asha Impact's US$ 54 million (€ 47.3 million) Series C investment into Thirumeni Finance, or Varthana, a school finance enterprise based in Bengaluru, were outliers because of their ticket sizes.

FIGURE 54 **Investments by sector**



Source: Intellecap Analysis | BertelsmannStiftung

> *"Impact investments need to be thought of differently. Even a 'good' enterprise that is not burning money will need to have longer investment horizons to be able to create returns."*
>
> *Vishal Mehta, Lok Capital*

Returns on impact investments

Impact investments tend to have longer investment horizons and lower returns in most impact sectors other than financial inclusion. Investors have often noted the importance of social enterprises in India, and view them with great

potential due to the massive gaps that they address at the bottom of the pyramid. However, the caveat that comes with impact investing is that, irrespective of the ticket size, the gestation period of the investment will be longer than the investment horizon for a traditional enterprise. Despite this notion of investing "patient" capital for a longer term with lower expectations (compared with traditional investors' expectations), impact investments that have seen positive and high returns can be found mainly in the financial inclusion sector. The recent policy development of allowing MFIs to apply for banking licenses has also enabled encouraging returns on investments made in the sector. Caspian's India Financial Inclusion Fund and Aavishkar, for instance, saw high returns on their exit from investments into Equitas through an initial public offering in 2016. Investments in other sectors, such as agriculture, health, clean energy, water and sanitation, while ripe in terms of opportunity, have taken longer to generate returns.

Ticket sizes for impact investments also vary, while the overall aim for various impact investors is to be able to generate both social and financial returns on their investments. Interactions with impact investors highlight their double bottom line approach, i.e. looking for enterprises that can create social impact while having the potential to scale and become economically sustainable. Other investors who provide equity to social enterprises work with similar hypotheses.

Table 17 **Types of investors and general range of investments in India**

Type of Investor	Illustrative List of Investors	Stage of Enterprises Invested	Range of Investment Amounts (US$)	Expected Returns
HNWIs	Rajan Anandan, Samir Shah, Pravin Gandhi, Jayesh Parekh, Rohini Nilekani, Ankita Vashistha	Early stage with revenue of US$ 70,000– 100,000 (€ 61,000–87,000)	20,000 – 1 million (€ 17,400–870,000)	Financial returns
Early-stage VC funds	Aspada, PI ventures, Seed Fund, Infuse Ventures, Ankur Capital, Aavishkaar, Acumen	Typically early stage with revenue greater than US$ 1 million (€ 870,000)	3–10 million (€ 2.61–8.71 million)	Financial returns, scalability, and exit
Late-stage VC Funds	Blume Venture Advisors, IDG Ventures, Sequoia Capital, Ventureast	Growth stage with revenue of US$ 1–5 million (€ 870,000 – 4.35 million)	15 million (€ 13.1 million) and above	Financial returns, scalability, and exit
NBFCs	Kinara Capital, Arohan Financial Services, Aditya Birla Finance	Businesses with three years of operations	20,000 – 3 million (€ 17,400 – 2.61 million)	Interest depending on risk profile
Development finance Institutions/ Foundations	The Rockefeller Foundation, Deshpande Foundation, USAID, DFID, Aga Khan Foundation, Azim Premji Foundation	Very early stage	50,000–500,000 (€ 43,500–435,000)	Equity-free non-dilutive capital

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Selection criteria for investment

The investment hypotheses of impact investors feature two common aspects: Most investors factor impact into their enterprise selection and that the enterprises ultimately support inclusion. This is done through two filters. The first filter is that the model of the enterprise has to be inclusive, and the second is that the model has to have the potential to scale and be profitable. For instance, Upaya Social Ventures' filter is to assess the product or service's ability to create employment opportunities for the poor. Incofin tends to look for impact as being a large part of the business before selecting an enterprise. Similarly, fund managers like Omnivore try to ensure that the enterprise they are investing in has direct benefits to its customers. In the case of Omnivore, these customers would be smallholder farmers in India. Accion is focused on investing in scalable and innovative models that cater to the underserved by opening up access and helping engage with them.

> *"Since the course of India's innovations and developments in key impact sectors has been charted, and investments are demonstrating impact and returns, USAID's ongoing strategy is focused on partnering with the private sector, including those who leverage returnable capital with a vision that India can lead the way globally."*
>
> *Nehal Sanghavi, USAID*

A key factor that impact investors consider while considering an enterprise is its readiness for investment in terms of the entrepreneur backing it, its governance, and the viability of its model. Investors and funders identify high-potential enterprises that match their investment hypothesis and begin to engage with them through a series of discussions, deliberations, and audits to understand their business. They also provide them with feedback to ensure they develop their capacities and become investment-ready before any investments are made. However, many investors share that investment readiness is not common across the board[94]. For the most part, impact investors tend to rely on direct channels for sourcing wherein enterprises contact investors or pitch to them at networking and industry events. Some investors, such as Menterra, Bharat Innovation Fund, Upaya Social Ventures, and the Nudge Foundation, have dedicated (but non-exclusive) partnerships with incubators and accelerator programs to ensure a "ready pipeline" of enterprises they can channel capital into. Others such as Acumen partner with private sector actors to facilitate investment readiness through fellowships and training programs. Some investors from the private sector and government also fund the creation of challenges and competitions, which enterprises can enroll in and be sourced from, such as the Toilet Board Coalition India Accelerator and NASSCOM's 10000 StartUps. As most social enterprises require early-stage funding that is most often high risk, investors today are acknowledging the need and channeling capital into early or seed-stage enterprises, as well as building the enterprises' capacity to grow, scale, and sustain in the long run while generating revenues and enabling transformative impact.

Additional support services provided by investors

Given that these are double bottom line[95] businesses across impact sectors, some investors also provide mentorship and capacity building to enterprises that require it. Impact investors also tend to involve themselves in the strategy development for enterprises they have invested in. For example, they may support enterprises in terms of building expansion plans and modifying their business models, or even in sourcing expertise and senior talent for the enterprise's growth. Some funds like the recently launched Ajooni Impact Fund have dedicated technical assistance facilities to support enterprises achieve scale and sustainability. Financiers are also increasingly working with ecosystem enablers such as incubators, accelerators, consultants, and industry bodies to deliver services and products in a bundled model to enterprises. An investor that partners with an accelerator, for instance, can improve on the businesses and operations of social enterprises by providing them with the right mentorship, guidance, and support in developing business plans, sourcing talent, creating revenue models, and making the model leaner with greater impact and potential to scale – essentially aligning enterprise development with prevailing investment theses. For example, AdvantEdge, which is an early-stage venture capital fund, also runs a

pre-seed program, a startup incubator, and provides funding of up to US$ 500,000 (€ 437,600). Currently, there are very few partnerships between investors and ecosystem enablers; some of these are the Villgro-Menterra partnership, the CIIE-Infuse Ventures partnership, and the Google Launch-Kalaari Capital partnership.

Investors' focus on impact measurement and disclosure

Over the past few years, there has been greater interest and focus on impact investors' measurement, disclosure, and reporting operations. Impact investments are becoming lucrative investment vehicles that invest in businesses which generate social and financial returns. Financial ecosystem enablers have, over time, begun reporting their impact in order to demonstrate the potential returns an impact investment can make. Originally a necessary requirement of impact investors by their partners, impact reporting is increasingly a desired component as the sector develops institutions and typology. Reporting the impact created through an investment serves as a means to differentiate impact investments from traditional private equity and venture capital, and attract non-traditional social sector investors to consider the double bottom line thesis. Most investors today produce an annual impact report that discloses their deals and investments over the course of the year – highlighting additions to their portfolio, lives impacted, growth, and, in some cases, returns and exits. These efforts are showing early results, as over the past few years multiple traditional funders such as corporates and HNWIs are moving into the impact space, or beginning to adopt impact as a part of their hypothesis.

Impact investors working in India are seeing greater returns on their investments, especially in the financial inclusion and agriculture sector. The financial inclusion sector has seen some of the biggest exits in the impact investment space in India. For example, Lok Capital's exit from Vistaar Finance, an Indian SME lender, Aavishkar's exit from Equitas, a small finance bank, and Asha Impact's exit from Varthana, a school financing enterprise, have all generated high returns ranging from 5x to 13x on investments. Investment horizons within the financial inclusion sector also tend to be shorter, with an average of four to five years as the general rule. Other sectors have taken longer to present returns and exit options for investors. In the agriculture sector, for instance, investment horizons tend to be longer. For example, Omnivore partially exited from Skymet Weather, a local weather forecasting and crop analytics company, in 2017, after first having invested in the enterprise in 2011. Similarly, Aavishkaar, which first invested in 2011, exited Milk Mantra, a dairy product enterprise in Odisha, in 2017 with 4x returns[96].

> *"Compared to the scenario five to seven years ago, there is a lot more interest in the impact investment space in India, largely driven by the supply side. We are seeing more mainstream investors adopt impact now – a phenomenon we thought would take more time to happen."*
>
> *Vishal Mehta, Lok Capital*

AAVISHKAAR

Aavishkaar is among the few funds in India dedicated to investing money in businesses and sectors traditional investors do not fancy much. In the 16 years that Aavishkaar has been in operation, it has become a global pioneer in impact investing. Aavishkaar has so far floated five funds (of which the latest corpus is $200 million / Euro 170 million) and a portfolio of 51 companies to which it has provided capital and mentorship. They have had 23 full exits including 1 successful IPO and 3 partial exits so far. Aavishkaar has seen stellar exits with returns of four times from its investment in Milk Mantra and returns of 15 times from its investment in Equitas. The fund, which had been doing deals of USD 1.5 – 2 mn (Euro 1.2 – 1.7 mn), is now targeting deals of up to USD 20 mn (Euro 17 mn) from its largest vehicle yet, Aavishkaar Bharat Fund.

Challenges that limit impact investing in India

There are also certain key challenges that investors face within the ecosystem, ranging from the limited ability to fund seed-stage enterprises to the difficulty in mitigating investment risks. Investors more often than not are not ready to channel capital into avenues that do not present foreseeable returns, such as clinical prototypes in

the healthcare sector or large-scale awareness building in the agriculture and sanitation sectors. Another key challenge is the limited opportunities to diversify the risks involved; investments in financial inclusion most often help offset investments in other sectors, given the security and assured returns in the financial sector. Also, investors tend to co-invest in sectors other than the financial inclusion sector, such as agriculture, education, healthcare, and sanitation. Return expectations on investments are another challenge. Impact funds often have to manage return expectations on investments in the agriculture, healthcare, and other impact sectors, similar to those in the financial inclusion sector. Realigning perspectives about returns, communicating that they may vary across sectors (particularly in comparison with financial inclusion) and balancing them against potential impact and social returns is a work in progress.

> *"The definition of impact is blurring and traditional investors are coming up because the market opportunity is so large in our space. We are beginning to see impact models that traditional PE & VC can fund. It is in creating awareness and demonstrating returns that more investors will come in readily."*
>
> *Riya Saxena,*
> *Asha Impact*

Government regulation and policy support to investors

While there are no government regulations specific to social enterprises and impact investing in India, there is improved stakeholder action and growing advocacy pushing the impact agenda. The formation of the Impact Investors Council (IIC), the industry body, is a crucial step forward in bringing financial ecosystem enablers together. The council was set up in 2014 and has since advocated the strengthening of impact investing in India by channeling private capital into the social impact space to address critical investment gaps. Collectively, it represents upwards of US$ 1 billion (€ 875 million) in assets under management across its members. It also engages in thought leadership and the promotion of collective action to solve challenges in impact sectors.

Key emerging trends in the investment scenario

The growing interest in and demonstrated returns on investments into social enterprises in India are increasingly attracting a wide range of actors to the country's social enterprise landscape. Key emerging trends, such as the growing size of impact funds, average ticket sizes, and availability/interest of domestic capital, are also generating optimism in the impact investing space in India. The overall investment scenario for India is growing, with dedicated indigenous funds increasing the size of their portfolios with every quarter along with the impact of their investments. Fund managers such as Incofin have recently announced India focused funds with target sizes of US$ 80 million (€ 70 million). Aavishkaar also announced one of India's largest domestic impact funds: the Aavishkaar Bharat Fund with a target size of US$ 299 million (€ 262 million). Even the average ticket sizes of investments are increasing, and investors are expanding from Series A funding to Series B and growth-stage Series C funding for social enterprises.

Demonstrated returns on impact investments have also led to an increase in deals that combine traditional PE & VC funds with impact investors, such as the US$ 50 million (€ 43.8 million) investment by US-based TPG Growth in Dodla Dairy, a leading dairy company in India. The investment comes from TPG Growth's US$ 2 billion (€ 1.75 million) Rise Fund, which focuses specifically on impact enterprises and businesses across the world. There is also a high level of activity from all key stakeholders including the government in pushing for more investment into social enterprises. Private sector players and philanthropists are increasingly focusing their investments on for-profit enterprises due to the potential scale and opportunity the market holds.

While the supply side is growing positively, some discourse on the investment scenario remains unchanged. One aspect that has remained unchanged is the "quality" of deals and the level of investor-readiness among enterprises in India. In order to mitigate this challenge and ensure investment readiness for enterprises in the pipeline, investors are also beginning to do more than just invest; they are also engaging in programs or partnering to ensure enterprises are ready for investment and have the potential to create impact, scale, sustain, and be profitable.

Chapter 10 : Understanding The Social Enterprise Support Ecosystem in India

Ecosystem enablers for social enterprises comprise incubators, accelerators, co-working and maker-spaces, and policymakers. Incubators and accelerators provide non-financial support to help enterprises along their journey from idea to investment stage. Some incubators also provide financial support in terms of seed funding. Co-working and maker-spaces not only offer enterprises amenities such as front desk, telephone lines, and internet access, but also access to other specialized services such as accounts and services related to legal issues and intellectual property rights (IPR). The government plays a critical role by enabling policies, schemes, and development initiatives. In addition, a number of forums and networks, online platforms, events, and awards support social enterprises by providing them with a platform, peer-to-peer learning, and networking opportunities.

Geographic distribution of ecosystem enablers in India

A majority of the ecosystem enablers in India are based in urban locations, mostly metros, to leverage better infrastructure, ease sourcing social enterprises, and provide access to other networks for funding and business development activities. However, with an increasing number of enterprises emerging from Tier II and Tier III cities and towns, enablers are expanding their services farther from the metros. For instance, Incuspaze[97], a co-working space provider, has centers in Lucknow, Jaipur, Cochin, and Indore, with a plan to expand to 30 Tier II cities across the country . Likewise, BioNEST, an incubator for life sciences startups, which was established with the support of the Biotechnology Industry Research Assistance Council (BIRAC), a unit of the Department of Biotechnology, is housed at the University of Hyderabad, to cater to the enterprises in and around the region[99].

Table 18 **Illustrative list of ecosystem enablers across different categories**

Incubators, accelerators	Co-working and maker-spaces	Policymakers	Others - Forums, networks, events, awards, online platforms
UnLtd India, Villgro, Dasra, Action for India, CIIE, RTBI, Khosla Labs, Pfizer Healthcare Incubator, NASSCOM 10,000 Startups, NASSCOM Center of Excellence – IoT, Dalmia Smart City Accelerator, Y-Combinator, Startup Oasis, India Angel Network, 50k Ventures	Bombay Connect, Mumbai Coworking, Afwis, Regus, IShareSpace, 91Springboard, WeWork, CollabHouse, Jaaga, Bengaluru Alpha Lab, B-Pac	Ministry of Agriculture and Farmers Welfare, NITI Aayog, Union Ministry of Environment, Forests and Climate Change, Ministry of Health and Family Welfare, Ministry of Education, Ministry of Finance, Ministry of Water Resources, River Development & Ganga Rejuvenation, Reserve Bank of India	National Entrepreneurship Network, TiE, TATA Jagriti Yatra, TATA Social Enterprise Challenge, Sankalp Forum

Source: Intellecap Analysis

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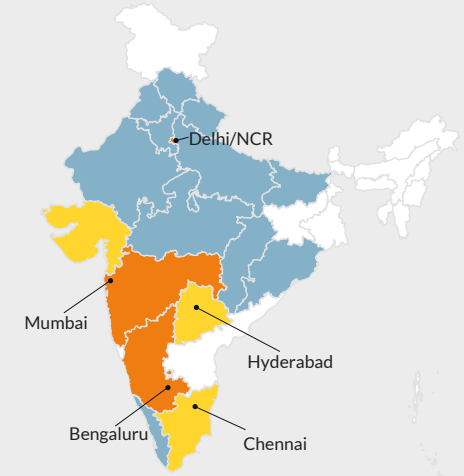
FIGURE 55 **Geographic presence of ecosystem enablers in India**



Source: Intellecap Analysis | BertelsmannStiftung

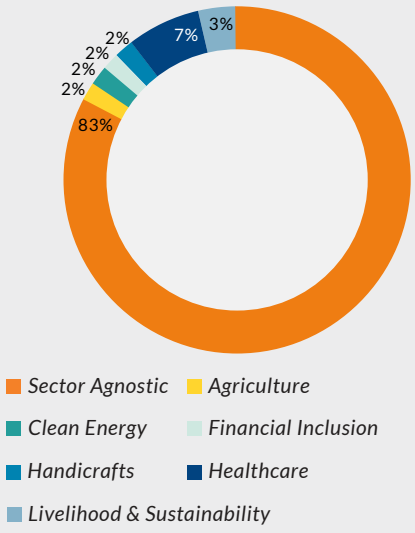
GOVERNMENT-SUPPORTED INCUBATORS IN INDIA

The Government of India has also established incubation support for enterprises through different departments and agencies. These include BIRAC, established by the Department of Biotechnology, and Electropreneur Park, set up by the Department of Electronics and Information Technology. The Ministry of Micro, Small and Medium Enterprises also has an incubation scheme, but the funds and support under this scheme are largely routed through leading academic institutions, such as the Indian Institute of Technology (IIT), National Institute of Technology (NIT), other engineering colleges approved by the All India Council of Technical Education (AICTE), central/state universities recognized by the University Grants Commission (UGC), and other well-known research and development institutes.

Incubators/Accelerators

According to the report Incubators/Accelerators Driving Growth of Indian Start-Up Ecosystem – 2017 by NASSCOM[100], there are over 190 active business incubators and accelerators in the country. Of these, 90 have been established at academic institutions, while the remaining 100 have been established at corporate, government, or private entities. Of the total incubators and accelerators in India, 40% are located in Mumbai, Bengaluru, and Delhi/NCR. However, more than two-thirds of the new incubators were launched in Tier II and Tier III cities in 2016[101]. This can be attributed to the fact that these cities provide an ideal startup environment, including low manpower cost, affordable real estate and other amenities, to new enterprises that face financial constraints. Also, incubation of seed and early-stage enterprises is often high touch, and not all entrepreneurs are able to travel far from their operations or leave their business unattended too frequently. This draws enablers to enterprises located closer to where they are based.

FIGURE 56 **Sector-preference of incubators in India**



Source: Intellecap Analysis | BertelsmannStiftung

Incubator/accelerator preference across the impact sectors

Nearly 83% of the incubators support enterprises across sectors, providing a range of support for different stages of growth. This study examined a database of 59 incubators, including those established by academic institutions, private

institutions, corporate entities, and the government. Given their antecedents, incubators follow multiple theses. For instance, Dasra is driven by the motto of poverty alleviation or strategic giving in priority sectors, including sanitation, health, education, and livelihoods, among others. Rural Technology and Business Incubator (RTBI)[102], established at IIT-Madras, supports its incubatees by providing them with infrastructure, administrative support, and funding. The Centre for Innovation, Incubation and Entrepreneurship (CIIE), established at IIM-Ahmedabad, supports social enterprises with various services including incubation, acceleration, mentorship, and funding. Indian Angel Network (IAN)[103] supports a range of technology-based sectors, including IT/ITES, mobile VAS, gaming and animation, internet/web, media and entertainment, along with education, healthcare, and retail technology. While some large companies have set up in-house incubation cells, they do not necessarily support social enterprises; instead they support enterprises aligned to their area of work and those that would help them establish forward and backward linkages for their business. Some incubators specify the stage and type of enterprises that they support. For instance, T-Hub supports early-stage enterprises. The incubation cell at the Centre for Social Entrepreneurship at the Tata Institute of Social Sciences (TISS) previously supported only students from current batches, but later began including TISS alumni. Currently, it offers its services to all social entrepreneurs in India. The stage of the enterprises has also changed from idea to proof of concept and growth.

Additional support services provided by incubators/ accelerators

While the main objective of incubators is to provide non-financial support and facilitate financing for social enterprises, many also provide seed funding to their incubatees. Recognizing the gap in

Table 19 **Indicative list of incubatees of the top incubators in India**

Villgro	UnLtd	Dasra	NSRCEL	CIIE	Venture Center
Agriculture: Grobomac, Flybird Innovations, Kamal Kisan, Skymet, Promethean Power, I-WA **Clean Energy:** Simpa, First Energy, Sustain Earth, Sustaintech **Education:** Promorph, Madguy Labs, SkillTrain, iTeach, Scholowiz, Skillveri **Healthcare:** 5C Network, Janitri Innovations, OmiX Labs, OneBreath, Biosense Technologies	**Agriculture:** Bioprime Solutions, Earth4ever **Education:** The Collage Collective, Rose Academy, Give for Sports **Healthcare:** Echoing Healthy Aging, Adolescent Friendly Health Services **Financial Inclusion:** Spandhan, Milaap **Skilling:** Maid in India, Mirakle Couriers, MasterG	**Education:** Door Step School, Educate Girls, Going to School, Arpan **Healthcare:** Nidan, Sambandh, Akshay Patra, Armman, Ekjut **Livelihoods:** Khamir, Centre for Civil Society, Dream a Dream, Going to School, Dimagi, Gram Vaani **Sanitation:** Samagra Sanitation, Eco Femme, Svadha	**Agriculture:** Black Baza Coffee **Clean Energy:** Persept Solar **Education:** Skillfinity, Edukul, Gamatics **Financial Inclusion:** Milaap **Healthcare:** Nextgen **Waste Management:** BinBag	**Agriculture:** Parvata Foods, Agricx **Clean Energy:** Onergy Solar, Ecolibrium Energy **Healthcare:** Medcall, Bodhi Health Education **Education:** Callystro, Alma Connect **Skilling:** Recruiterbox **Waste Management:** Banyan Nation	**Clean Energy:** Helios IOT **Education:** Sense It Out Intelligent Solutions **Healthcare:** MediAsha Technologies, InMed Prognostics, DZeal, Shapecrunch Technology, Solaris Biologicals, Abel Biosolutions **Waste Management:** Revy Environmental Solutions

Source: Websites of Villgro, UnLtd, Dasra, NSRCEL, CIIE, Venture Center

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funding that allows entrepreneurs to test and refine their ideas, many incubators have included financial support in their models. While the funding is not substantial, it is significant for entrepreneurs who typically invest their personal savings and borrow from family and friends at the idea stage. For instance, Bengaluru based Khosla Labs provides seed funding through its sister arm, Khosla Ventures. Mumbai-based UnLtd India aids enterprises by providing incubation support, co-working space, and seed funding, besides providing business planning and implementation support. Villgro, which is recognized as an incubator by the Department of Science and Technology (DST) and the Ministry of Micro, Small and Medium Enterprises, provides incubation, networking, and investment support to early-stage enterprises.

> *"A majority of the incubation programs that are being introduced at academic institutions are geared towards rapid or lean prototyping of ideas and products that students of the institutions might have. The external DST support is an added advantage since the funding for expensive equipment, software, and other enterprise support can be offset through it."*
>
> *Vineel R. Pindi*
> *CEO – Collab House*

Some incubators offer additional support to develop the ecosystem. T-Hub has introduced investment advisory services and, as a part of these services, acquires mandates from investors and helps them select startups in specific segments. Besides providing direct support to enterprises, TISS also incubates other incubators, particularly those that support micro-entrepreneurs in remote or difficult geographies, such as Jammu and Kashmir and Madhya Pradesh. It also provides pro bono support to other business schools and colleges seeking support in setting up incubation centers.

Methodology of incubator/accelerator support to enterprises

Incubators and accelerators adopt different models to provide support; most offer immersive and structured training schedules, while others offer on-going support for the duration of the program. Most incubators provide high-touch and frequent support to entrepreneurs, offering a blend of classroom-style sessions and on-going assistance throughout the incubation period. T-Hub, which has supported nearly 150 enterprises, offers a structured incubation program called Lab 32. This is a six-month program facilitated via playbooks to early-stage enterprises in India. The incubator also offers other incubation programs for around 18 to 24 months. Some incubators offer specific support for shorter durations through sessions conducted at the incubator site. iCreate conducts its grooming and incubation program in batches of 25 enterprises for a duration of 13 weeks.

Several incubators offer graduated programs where entrepreneurs can progress from one stage to the next, as they refine their model. BIRAC, for example, has a flagship program BioNEST[104], which supports biotechnology-based enterprises. It offers three programs for ideation to early-stage enterprises – BIG[105], SITARE[106], and E-YUVA – and two programs for later-stage enterprises – SBIRI and BIPP[107]. BIRAC also has a social innovation program consisting of two components: SPARSH[110] and SIPP[111]. At UnLtd India the core incubation support model is designed to provide two levels of support. Level 1 support is for entrepreneurs who have an idea or pilot-stage project; the incubator provides a grant of up to INR 80,000 (€ 1,000) and nearly 160 hours of hands-on support throughout the year. Level 2 support is for those who have passed the proof-of-concept stage and have the potential to create large-scale, sustained impact. UnLtd India provides such enterprises a grant of up to INR 200,000 (€ 2,500) and 220 hours of hands-on support throughout the year. The third level of support, called the Growth Challenge, is for enterprises with a proven and sustainable model.

> *"In the future, I hope every social enterprise will have a corporate counterpart."*
>
> *P. R. Ganapathy*
> *President – Villgro*

Methodology of sourcing of enterprises by incubators/accelerators

Incubators and accelerators source and identify enterprises by inviting applications, and through competitions, seminars, and other networking events. For instance, IAN selects its incubatees through a competition, while iCreate sources its incubatees through seminars, outreach programs, and other networking events. Startup Village also runs a national educational campaign, Dev1000p, to create 1,000 professional app developers. Most incubators and accelerators select enterprises after assessing the business idea, its feasibility and sustainability, and the social impact that it will create[112].

Co-working and maker-spaces are emerging as a viable business opportunity while also providing critical support to small and upcoming startups. Currently, nearly 200 business centers provide shared office space to the startup community, including social enterprises[113]. Co-working spaces are mostly located in metros, although many are being established in Tier II and Tier III cities, where they support emerging enterprises, charging rents ranging from INR 300 (€ 3.75) per day to INR 5,000 (€ 62.5) per month[114]. Globally, co-working spaces have become an alternative allowing companies – big and small – to work in a more vibrant space and cut costs by at least 15%[115].

Table 20 **Impact created by incubators in India**

UnLtd India	Villgro	Dasra	Centre for Innovation Incubation and Entrepreneurship (CIIE)
UnLtd India has helped create over 12,000 jobs and has assisted over 1 million beneficiaries through its various initiatives	In the 14 years since its inception, Villgro, which is primarily active in four sectors (agriculture, clean energy, education, and healthcare) has backed more than 109 social enterprises. Their initiatives have created more than 4,000 employment opportunities and impacted 15 million lives	Dasra has supported over 800 organizations, which in turn have impacted more than 20 million people, while mobilizing US$ 60 million into the social sector	CIIE has helped over 50 ventures by means of its initiatives like iAccelerator, Piramal Prize, MentorEdge, and Infuse Ventures

Source: The Better India, April 2016, Dasra Website, CIIE website

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Sources of revenue for incubators/accelerators

Registration and course fees and grants are the main source of revenues for the incubators. Besides the nominal fees they charge entrepreneurs, most of the educational institute-based incubators receive funding from the government and through corporate partnerships. BIRAC receives most of its funding from the Department of Biotechnology, besides royalty fees charged to the enterprises (4–5%) when they enter the market. Other incubators charge course fees based on the incubation period. A few, such as Villgro and Tlabs, take equity stakes in the enterprises they support[112].

Co-working spaces

Current status of the co-working revolution in India

Additional support services provided by co-working spaces

In India, co-working spaces not only provide access to shared services, but also serve to facilitate collaboration, partnerships, and exchange of knowledge among the enterprises working there. Besides providing a dedicated or “hot” desk, co-working spaces offer an array of bundled services, such as telephone lines, internet, housekeeping, catering, reception, and other infrastructure amenities which are otherwise difficult for an early-stage enterprise to access in a small office space. Shared space providers, such as IShareSpace and Innov8, also facilitate value added services such as legal, accounting, and website development services. They are cost-effective for

newly established enterprises as they do not demand upfront security deposits or fixed-period leases like traditional office spaces do.

Key emerging trends in the co-working landscape in India

With a combined customer base of big companies and small enterprises, co-working spaces are set to expand their footprint in the country, with the possibility of consolidation in the market. While a few of these business centers target big corporate entities for their regional sites, most other co-working space providers, including Awfis Space Solutions, 91Springboard and InstaOffice, and global companies such as WeWork are positioning themselves as enterprise-focused facilities, while also being open to corporate entities. For instance, WeWork, which typically houses graphic designers, startups, and non-profits, also hosts a 10-member team from Jaguar Land Rover (JLR) at Bandra Kurla Complex (BKC) in Mumbai. Similarly, Awfis' center at BKC houses a 100-member team from Sharekhan, a subsidiary of BNP Paribas, the French multinational bank[116]. In 2016, co-working space operators in India leased over 1.2 million square feet of office space. WeWork, Awfis, and The Hive Point all report having almost 90% occupancy at their facilities, encouraging them to rapidly expand to new cities[117]. There is also a high probability of consolidation in the co-working segment, with bigger players taking over smaller firms to scale their operations in Tier II and Tier III cities[118]. According to a report by the Confederation of Indian Industries, WeWork and JLL India, the co-working industry in the country will attract around US$ 400 million (€ 350 million) in investments in 2018 [119].

Table 21 **Leading networks in India**

Sankalp Forum	National Entrepreneur-ship Network (NEN)	Impact Investors Council (IIC)	Aspen Network of Development Entrepreneurs (ANDE)	The Indus Entrepreneurs (TiE)	Jagriti Yatra
Sankalp is an initiative of Intellecap that was created to establish a thriving ecosystem for business-led inclusive development and hosts one of the largest gatherings of social enterprise stakeholders in India.	NEN integrates the curricular and non-curricular aspects of entrepreneurship education in a structured manner, and supports student entrepreneurs, new enterprises and SMEs with the objective to create jobs in the country. The network operates in association with governments, corporates, mentors, investors, and educational institutes.	IIC is a member based industry body that strengthens impact investing in India and builds a story for the same at a comprehensive level.	ANDE, a network of over 110 stakeholders in India, encourages entrepreneurship in different ways in developing countries across the globe.	TiE is a network of 13,000 mem-bers, including over 2,500 charter members in 61 chapters, of which 15 are in India. It fosters entrepreneurship through, incubat-ing, networking, and funding.	Jagriti Yatra is an annual train journey that takes hundreds of young Indians, especially those from small towns and villages, on a 15-day, 8,000-kilometer national odyssey to meet social and business entrepre-neurs around the country.

Source: Websites of Sankalp Forum, NEN, IIC, ANDE, TiE, Jagriti Yatra

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Networks, events, awards

Current status of networks/events/awards for social enterprises in India (role, key stakeholders, geographic preference, sources of funding).

Networks, events, and awards play a catalytic role in identifying new enterprises, connecting them with incubators and investors, and facilitating the discourse and debate about key trends in the social enterprise landscape. They engage with the different stakeholder groups in the social enterprise ecosystem and provide them a platform to discuss emerging trends, opportunities, and challenges across different sectors and geographies. Aspen Network of Development Entrepreneurs (ANDE), The Indus Entrepreneurs (TiE), Deshpande Innovation Network, Sankalp Forum, Impact Investors Council (IIC), National Entrepreneurship Network (NEN), and MicroGraam are some of the important networks in India. They all have different agendas and support enterprises in a variety of ways.

Most networks conduct annual conventions in business hubs such as Mumbai, Delhi/NCR, and Bengaluru. Besides providing a networking platform for stakeholders, these conventions also host award functions to acknowledge emerging enterprises. These events and awards are supported by donors, private investors, and corporate entities, who sponsor awards and tracks that align with their programs and agenda. Early-stage enterprises participate in these events and awards to showcase and validate their models and to compete for awards that not only bring recognition, but also monetary benefits. Most of the enterprises use cash awards as seed money to pilot and refine their models.

Networks and events have contributed significantly towards building the ecosystem and garnering interest and support from stakeholder groups outside the traditional social sector. They have not only offered center stage to innovative enterprises, but also engendered sector-wide discourse and commitment towards critical sector-building initiatives. Sankalp has built one of the largest impact enterprise-focused platforms globally, and has supported over 900 social enterprises with connections to over 400 investors, mentors, and business support providers. Over 40 social enterprises recognized by Sankalp have raised more than US$ 120 million (€ 105 million) in funding.

ASPEN NETWORK OF DEVELOPMENT ENTREPRENEURS (ANDE)

ANDE has recently begun to focus on assessing the impact, state, and level of activity within accelerators and incubators in India. The program they run in partnership with Emory University is the Global Accelerator Learning Initiative (GALI). Its primary aim is to collect and analyze data from accelerators and incubators describing the entrepreneurs that they attract and support – to create baselines, analyses, and effective programs. ANDE is also focused on understanding the importance of two key points for social enterprises in India: finance and talent. They have begun to do this through a series of "learning labs" that they host in India, bringing together their members, domain experts, and others who deliberate, discuss, and explore collaborations during these sessions. One of the key focuses in terms of ANDE's operations and networking agenda for members is to try and understand how debt can be used to support enterprises and the kinds of forms this debt can take.

Policymakers

Incubation support provided by government departments in India

The Government of India recognizes the need and importance of private sector participation in addressing development goals, and has been an important stakeholder in ecosystem development. It has initiated policies to support entrepreneurship through incubators. Several ministries and government departments have established incubation centers to promote entrepreneurship in their sectors or areas of work. For instance, the Department of Biotechnology established BIRAC to support biotechnology and bioinformatics-based enterprises. Likewise, the Department of Electronics and information Technology (DEITY) under the Ministry of Electronics and Information Technology has approved establishment of an Electropreneur Park for development of the Electronics System Development and Maintenance (ESDM) industry.

Table 22 **Key policies impacting social enterprises in India**

Policy/Scheme Name	Ministry/ Department	Description
Startup India	Ministry of Commerce and Industry	The scheme aims to benefit several Indian startups through support services including IPR support, self-certification, and tax exemptions. The website also provides useful information such as a list of incubators, list of facilitators for patents and trademarks, list of SEBI registered funds, and list of central and state government clearances that an enterprise needs to have. As of August 2018, there have been 197,967 registrations for the learning and development module, and 129 startups have been funded as part of this scheme.[120]
Scheme of Support for Entrepreneurial and Managerial Development of SMEs: Through Incubators	Ministry of Micro, Small and Medium Enterprises	The main objective of the scheme is to promote emerging technological and knowledge-based innovative enterprises that need business development and consulting support from professionals beyond the traditional activities of MSMEs.[121]
Technology Incubation and Development of Entrepreneurs (TIDE)	Ministry of Electronics and Information Technology	TIDE assists institutions of higher learning to strengthen their technology incubation centers and enable young entrepreneurs to develop technologies and set up technology companies. TIDE incubation centers network with angel investors and venture capitalists, who provide mentoring and financial support to the startups and enable enterprises to graduate to the next level.[122]

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Corporate support to technology-based incubators through corporate social responsibility policy

The government has also enabled corporate entities to provide support to social causes as part of corporate social responsibility (CSR). As per CSR rules, companies may contribute funds to technology incubators located within academic institutions that are approved by the central government as part of their CSR activities. In response, a number of corporates have channeled their funds into these activities. For instance, Mahindra & Mahindra Financial Solutions funded SustainEarth (INR 2 million/€ 25,000) and FlyBird (INR 5 million/€ 62,500), and Mphasis funded SkillTrain, both through Villgro. Bajaj Electrics funded Onergy Solar, and Take Solutions supported Bodhi Health Education Services (INR 7.5 million/€ 93,750), both through CIIE. CSR funds are also being used to support specific initiatives by incubators. For instance, Microsoft, Capital First, PayU, ICICI Bank, and Amazon supported empoWer, a tech accelerator initiated by Zone Startups for women entrepreneurs in India. Likewise, Pfizer and the Foundation for Innovation and Technology Transfer (FITT), the incubator at IIT Delhi, co-created a healthcare-focused accelerator to reward innovators. Pfizer provided a grant of up to INR 5 million (€ 62,500) to each winner[123].

Challenges that limit ecosystem enablers' activity in India

Efforts by ecosystem enablers notwithstanding, there are a number of challenges in supporting social enterprises to scale impact and achieve sustainability. Interactions with ecosystem enablers highlight that enterprises that are in close proximity to metros such as Mumbai, Delhi, and Bengaluru benefit more than those located further away. Incubators have been trying to address this challenge by hosting regional road shows and awards as well as building a franchise network that works in smaller towns. While these initiatives are effective, they require significant investment, which incubators with grant and donor-driven models cannot viably sustain.

Ecosystem enablers also cite challenges in availability of adequate funds for seed-stage support to enterprises and the dearth of experts and talented mentors. There is also a "pipeline mismatch" as enterprises transition from incubators to raise funds from investors. Stakeholders indicate that incubators must bridge that gap by providing greater support and networking opportunities for social enterprises with other enablers. Finally, they share that while there are improved government policies and schemes, the lack of proper implementation hinders their effectiveness.

"There is very little innovation funding for non-profit startups in India, and the ecosystem of support for early-stage enterprise, while active, is not robust in its service offering."

Sudha Srinivasan,
CEO – N Core

"Social enterprises have a long history in India. Unfortunately, as I see it, most entrepreneurs are working on rather local solutions that are not developed with scalability in mind. More targeted tools and education are required for entrepreneurs to think beyond the immediate proximity and build solutions that can impact millions. The ecosystem is playing an important role in providing more push and reference for social innovators to reach more people and create scalable and sustainable impact."

Juliane Frömmter,
T-Hub

"Mentoring is a nuanced skill, and training is needed for mentors too. Mentors must ask relevant questions, guide the entrepreneurs' thinking, but not take the driver's seat, which often happens."

Raviraj Durwas, Program Manager
Incubation Centre at Centre for Social Entrepreneurship,
Tata Institute of Social Sciences

Chapter 11: Way Forward

This research surfaced several trends and patterns that have emerged as the social enterprise ecosystem comprising enterprises, investors, and enablers has evolved over the last five years. It also identified challenges and developments that could potentially address them. Insights from the evolution of the ecosystem thus far indicate a strong momentum towards for-profit social entrepreneurship in which private enterprise leverages patient capital to address development challenges and impact the lives of those living at the base of the pyramid. Given the right support, we envisage the following scenarios unfolding over the next five years:

The social enterprise ecosystem will continue to draw interested stakeholders aligned by their mission to address the underserved community's access and affordability challenges for basic services. More importantly, these new stakeholders will include an increasing proportion of domestic actors. In part motivated by government policies and by the various opportunities that impact sectors present, the number of new stakeholders from traditionally mainstream groups that are now actively exploring the space, such as corporates and academia, will increase significantly. As new stakeholders enter the space, there is a need to review and develop a stronger rationale and typology, as well as institutional structures such as contextual standards for impact measurement and reporting. The growing interest from practitioners and academia in informing and converging is an encouraging sign, and it is hoped that together these stakeholders will develop institutional structures and measurement frameworks that are accepted and endorsed across the sector.

Social enterprises will continue to grapple with major challenges in terms of last-mile reach in the absence of civil infrastructure in underserved geographies in the country. They will also face challenges in pricing their products and services so they are viable and affordable, even as they strive for overall sustainability and scale. However, this research highlights many developments that could help enterprises address these challenges to some extent. As a result, enterprises in some sectors and value chains will be able to not only scale sustainably, but also build social capital in terms of customer awareness, leading the way for others. These include:

- Social enterprises are increasingly building collaborations and partnerships for last-mile reach. These range from working with established microfinance institutions and NGOs present at the grassroots level to establishing last-mile connects by training local people as village-level entrepreneurs and agents. These efforts also achieve impacts such as creating non-farm jobs that contribute to reducing rural-urban migration and increasing farmer incomes and gender inclusion. Given their potential to deliver in terms of both returns and impact, we believe this trend will strengthen over time to build a robust last-mile network in India.
- Technology uptake is already helping social enterprises reach customers more efficiently and effectively by leveraging the ubiquity of mobile phones and access to mobile internet. The strong mobile uptake and continuously falling price of internet access will provide impetus to this trend, and social enterprises will respond with tech-driven innovations, not only in the form of online platforms and app-based retail models, but also through the application of artificial intelligence (AI) and machine learning (ML) for improved and, quite possibly, new products and services.
- Business model innovations will continue to be the cornerstone of solutions for the access/ability conundrum. Some recently established social enterprises are already exploring new ways to look at traditional roles and transactions across sectors, such as financial inclusion, waste management, and healthcare. These sectors are likely to lead the way in democratizing and reimagining the way expert solutions are currently delivered towards more inclusive solutions.

Impact investors have finally seen some exits in the last five years, yet much of this activity has been confined to the financial inclusion sector. This trend is likely to continue, with a few other sectors such as healthcare presenting exit opportunities for investors. Impact investors will, however, continue to face challenges in terms of lack of a strong pipeline of investable enterprises and high return expectations. Early-stage social enterprises will need handholding to build sustainable businesses, but there will be great availability and cohesion in the support provided by enablers in the sector. Trends

that point towards these outcomes include:

• The impact investment segment has seen a greater flow of funds, particularly from domestic sources, such as corporates and family foundations, due to championship of the cause by pioneering impact investors, validation of the impact thesis, and stronger government push to participate in the inclusion story.

• In recent years, impact investors have raised bigger funds and deployed them in bigger deals. As the sector matures, there is a clearer demarcation of funds focused on supporting enterprises at different stages of growth. Further, strong and more mature sectors, such as financial inclusion and healthcare, offer opportunities for diversification to offset risks related to investing in nascent sectors, such as sanitation and education.

• Finally, there is a greater (but not yet sufficiently strong) alignment of impact investors with accelerators for the pipeline of investments. Many investors are also setting up additional support and ecosystem-building initiatives to handhold promising and innovative enterprises.

Ecosystem enablers face the dual challenges of funding constraints, including too many gaps to fill with limited resources, and limited expertise and talent available to groom and train the burgeoning number of social enterprises. This segment will see considerable support to address these challenges from the government and from other domestic and global development actors who recognize the need to bolster social entrepreneurs' passion with experience and expertise. This support is most likely to flow towards enablers that offer more specific support, such as business and technical advisory, and build networks with corporate entities and investors towards very specific outcomes. The following trends point towards a growing enablers segment in India in response to demand from social enterprises and the opportunities for enablers to build viable businesses in the space:

• Over the last five years, there has been greater segmentation of support providers for different types of support from the idea to the growth stages, as well as across sectors and geographies. While the number of support providers infusing talent into the system will continue to grow and is encouraging, social enterprises will need to assess and select appropriate support, which is an issue given the limited management bandwidth of entrepreneurs and founding teams.

• Ecosystem enablers are making deeper inroads into non-metro markets by adopting a number of models such as franchise, hub-and-spoke, and organic expansion. This will help democratize support for more social enterprises; however, more needs to be done to support social entrepreneurship in India's smaller towns and cities.

Challenges

These developments have already been set in motion; however, there are some challenges to their achieving the desired outcomes in the timeframe and at the scale they are needed. Notably, the limited awareness among different stakeholders about social enterprises and their effective role in filling important development gaps can negatively impact stakeholders' participation in the sector, reducing the ability of the ecosystem to support robust growth. The participation of stakeholders, new and old, can also be impacted by lack of adequate incentives to play a role in the ecosystem. These incentives can be financial (ROI) as well as non-financial (inclusion in legal mandate and government support, tax incentives, and recognition). Limited availability of patient capital is one of the leading challenges that social enterprises face, and this can be exacerbated if investors are unable to remain patient and persevere until they achieve a viable exit. Finally, the sector currently makes up for lack of adequate talent through passion and drive to achieve social missions. The pace of skilling and building of a talent pipeline can limit the scale of social enterprise impact and can delay outcomes achievement.

Recommendations

As India's largest trading partner in Europe, Germany plays an integral role in supporting trade, business, and development in the country. The total value of Indo-German trade in 2016 was estimated to be € 17.62 billion across key sectors, such as textiles, agriculture, auto components, pharmaceuticals, technology, and metal. More than US$ 10 billion (€ 8.7 billion) was invested by German companies in India and more than US$ 7 billion (€ 6.1 billion) was invested by Indian companies into Germany between 2000 and 2017[124].

India and Germany share a thriving business relationship, with more than 200 Indian companies operating in Germany across key impact sectors, along with IT, the automotive industry, and pharmaceuticals. Software companies especially have made great inroads into Germany, wherein

providers such as Infosys, WIPRO, and TCS have established large operations in the country over the years. Large private sector entities are not the only organizations to enjoy the beneficial economic relationship between the two countries.

For India, Germany has been one of the most important development cooperation partners since 1958, with the total financial and technical cooperation amounting to more than € 15.9 billion across sectors such as clean energy and sustainable development. In 2015, India and Germany signed a Development Cooperation MoU for a concessional loan of € 1 billion over five years as part of the Indo-German Solar Energy Partnership. GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH) has supported the development of the MSME, innovation startups, and social enterprise ecosystems in India through a range of initiatives. Key initiatives include:

- Innovation promotion in Micro, Small and Medium Enterprises (MSMEs): Implemented through GIZ, this program aims to strengthen the innovation ecosystem by systematically fostering cooperation between industry, academia, and government, and improve the innovation capacity and sustainability of MSMEs. The project facilitates a host of services which include:
  - Supporting institutions that promote economic development, such as business chambers and associations, in developing a range of innovation-enabling services for MSMEs.
  - Providing advice on methods and instruments to identify opportunities for improving business operations and supply chains of large companies.
  - Developing training materials on innovation management and establishing new mechanisms to support startups.
  - Advising the Ministry of Micro, Small, and Medium Enterprises on developing new support instruments to foster innovation and modernization in the MSME sector.
- Responsible Enterprise Finance (REF): Implemented through GIZ and SIDBI, this intervention aims to increase the supply of debt and risk capital for sustainability-oriented investments made by MSMEs.
- Collaboration in farming technology: In 2017, Germany expressed interest in greater collaboration with India in the farm technology and agricultural sector, particularly in areas such as food safety, seed development, and agricultural risk management. As a follow-up, the German Agribusiness Alliance, YES Bank, and FICCI published Farm Mechanisation in India – The Custom Hiring Perspective to highlight the challenges and potential for custom hiring as a model in the Indian agricultural sector.
- Make in India Mittelstand project: This project was launched in September 2015 to support multiple government schemes set up by the prime minister, such as Digital India, Make in India, and Skill India. The project encouraged the German Mittelstand (small and medium-sized companies) to do business in India, and so far more than 80 Mittelstand enterprises have entered the Indian market.

The Smart City program launched by the Government of India also garnered significant interest from large German companies. For instance, German multinational giants in India such as Bosch are looking to collaborate with startups that work in the areas of mobility solutions, smart manufacturing, smart cities, med-tech, agri-tech, and energy. Germany, which is well known across the globe for its high-quality products, engineering technologies, and training systems, can be a key partner in initiatives like Digital India, Startup India, and Make in India, which rely heavily on technology and innovation.

A sizeable number of fin-tech companies from Germany have also shown great interest in the booming financial inclusion space in India. The Indian Consulate in Frankfurt organized an event in February 2018 on fin-tech titled “India’s Fin-Tech Moment: Opportunities for Germany’s Startups & Investors.” German startup companies with interesting fin-tech products pitched their ideas to the audience, which was comprised primarily of Indian and German financial institutions.

India provides immense collaboration opportunities for Germany in various areas, including social enterprises. High-skilled manpower, robust banking systems, greater proportion of millennials, and unmatched internet connectivity and smart phone penetration are key drivers catalyzing innovation, and Germany is well placed to support innovation development in India. A few other areas which can be explored include:

- Incubation support: As highlighted in the section on ecosystem enablers, there are incubators and accelerators which cater to social businesses as well. However, due to the nature of the sector, few models of social business incubation are sustainable or scalable. This constrains their potential to surface and support innovations and solutions for challenges

at the base of the pyramid. With the Government of India emphasizing corporate social responsibility (CSR) contributions and allowing corporates to support incubators, an incubator which can seek funding from Indian and German corporates based in India should be very attractive. Such a model can also catalyze different types of support from new and mainstream networks.

• Research Support: There is a need for research and knowledge products that can be supported by networks, such as chambers of commerce and trade bodies, to identify focus sectors and areas of common interest. Funders and businesses alike are very interested in information and insights about specific value chains and clusters so they can identify areas for interventions and opportunities. A research organization which understands the needs of various corporates and conducts research can improve the investments scenario in the sector.

• Technical Advisory: Technical advisory programs can be supported by German businesses in areas such as processes and technologies, and in business model components, such as rapid prototyping and technology adoption. These technical programs, primarily funded by DFIs, foundations, and corporates, can provide short to medium-term support to enterprises.

• Innovation Lab: German foundations and/or corporates can support innovations with a social impact by providing test beds or labs for product development. These labs can include a number of participants, such as practitioners, civic society organizations, coders, and designers, as they develop large-scale solutions for challenges like rural mobility and water resilience. This type of initiative can also be established to identify, develop, and accelerate innovative solutions to finance social enterprises.

• Mechanisms to catalyze capital: There is immense potential to develop innovative financing mechanisms, such as Development Impact Bonds, outcome-based financing mechanisms, grant funds, and guarantees, in the social enterprise sector in India. While they require an initial contribution of capital, these mechanisms have demonstrated the impact that can be created on the ground, along with the potential for further catalyzing capital in the sector.

List of abbreviations

AIDS	Acquired Immune Deficiency Syndrome
AIIMS	All India Institute of Medical Sciences
ANDE	Aspen Network of Development Entrepreneurs
APMC	Agricultural Produce Market Committee
ASER	Annual Status of Education Report
AI	Artificial Intelligence
BBPS	Bharat Bill Payment System
BIG	Biotechnology Ignition Grant Scheme
BIPP	Biotechnology Industry Partnership Program
BIRAC	Biotechnology Industry Research Assistance Council
BKC	Bandra Kurla Complex
CAGR	Compound Annual Growth Rate
CIBIL	Credit Information Bureau (India) Limited
CIIE	Centre for Innovation Incubation and Entrepreneurship
COPD	Chronic Obstructive Pulmonary Disease
CPAA	Cancer Patients Aid Association
CSR	Corporate Social Responsibility
DFID	Department for International Development
DMP	Drought Management Plan
DST	Department of Science & Technology
EMR	Electronic Medical Records
ESDM	Electronics System Development and Maintenance
EWAP	Employee Wellbeing and Assistance Program
FDI	Foreign Direct Investment
FITT	Foundation for Innovation and Technology Transfer
GEWP	Global Easy Water Products
GSDP	Green Skill Development Program
GST	Goods and Services Tax
HIV	Human Immunodeficiency Virus
HNWI	High-Net-Worth Individual
IAN	Indian Angel Network
IBEF	India Brand Equity Foundation

ICT	Information and Communication Technologies
IFC	International Finance Corporation
IIC	Impact Investors Council
IIM	Indian Institute of Management
IIT	Indian Institute of Technology
INR	Indian Rupee
IPR	Intellectual Property Rights
ITES	Information Technology Enabled Services
JLL	Jones Lang LaSalle
JLR	Jaguar Land Rover
LIC	Life Insurance Corporation
LLC	Limited Liability Company
MCTFC	Mother and Child Tracking System and Facilitation Centre
MCTS	Mother and Child Tracking System
MFI	Micro Finance Institution
ML	Machine Learning
MNAIS	Modified National Agricultural Insurance Scheme
MRI	Magnetic Resonance Imaging
MSDF	Michael & Susan Dell Foundation
MSMEs	Micro, Small and Medium Enterprises
NAM	National Agriculture Market
NASSCOM	National Association of Software and Services Companies
NCR	National Capital Region
NEN	National Entrepreneurship Network
NEP	National Education Policy
NEST	Naandi Education Support and Training
NGO	Non-Governmental Organizations
NITI	National Institution for Transforming India
NMSA	National Mission of Sustainable Agriculture
NRHM	National Rural Health Mission
NWM	National Water Mission
OCR	Optical Character Reader
PCLS	Playground Computer Learning Stations
PET	Positron Emission Tomography
PGS	Participatory Guarantee System

PKVY	Paramparagat Krishi Vikas Yojana
PMJDY	Pradhan Mantri Jan Dhan Yojna
PMJJBY	Pradhan Mantri Jeevan Jyoti Bima Yojna
PMKVY	Pradhan Mantri Kaushal Vikas Yojana
PMMY	Pradhan Mantri Mudra Yojana
PMSBY	Pradhan Mantri Suraksha Bima Yojna
POS	Point of Sale
PPP	Public-Private Partnership
RBI	Reserve Bank of India
REC	Renewable Energy Certificates
RISE	Revitalising Infrastructure and Systems in Education
RPO	Renewable Purchase Obligation
RTBI	Rural Technology and Business Incubator
SBIRI	Small Business Innovation Research Initiative
SDG	Sustainable Development Goals
SEBI	Securities and Exchange Board of India
SHM	Soil Health Management
SIPP	Social Innovation Immersion Program
SITARE	Students Innovations for Advancement of Research Explorations
SMEs	Small and Medium Enterprises
SMS	Short Message Service
SPARSH	Social innovation program for Products: Affordable & Relevant to Societal Health
SWM	Solid Waste Management
SWMR	Solid Waste Management Rules
TIDE	Technology Incubation and Development of Entrepreneurs
TISS	Tata Institute of Social Sciences
TNT	Trans Neuron Technologies
UNICEF	United Nations Children's Fund
UPI	Unified Payment Interface
US	United States
USAID	United States Agency for International Development
VAS	Value-Added Service
VBHC	Value Homes Private Limited
VLE	Village Level Entrepreneur

List of tables and figures

Tables

Figures

Endnotes and References

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Annexes

Annex 1: List Of Interviewees – Social Enterprises

Stakeholder	Point of Contact	Category
3s India	Rajeev Kher	Healthcare
Aadhan	Nikhil Dugal	Waste
AgVentures	Sunil Kumar	Agriculture
Amruta Dairy Farms	Santosh D. Singh	Agriculture
Ananya Finance	S. S. Bhatt	Financial Inclusion
Aqua Agri Processing	Abhiram Seth	Agriculture
Arohan	Manoj Nambiar	Financial Inclusion
Artoo	Sameer Segal	Financial Inclusion
Avani	Rajnish Jain	Clean Energy
BinBag	Achitra Borgohain	Waste
Butterfly Edufields	K. Sharat Chandra	Education
Clean India Ventures	Alok Gupta	Waste
Conserve India	Anita Ahuja	Waste
CreditMate	Jonathan Bill	Financial Inclusion
Elder Aid	Santosh Abraham	Healthcare
Envirofit	Harish Anchan	Clean Energy
Go4Fresh	Anjaney Bhutada	Agriculture
Gram Oorja	Sameer Nair	Clean Energy
iKure	Sujay Santra	Healthcare
Karadi Path	C. P. Viswanath	Education
Menstrupedia	Tuhin Paul	Healthcare
Mera Gao Power	Nikhil Jaisinghani	Clean Energy
Picoenergy	Bhushan Trivedi	Clean Energy
RaddiConnect	Rahul Nainani	Waste
Reboot	Rahul	Waste
Saral Design	Suhani Mohan	Healthcare
Simpa	Paul Needham	Clean Energy
Stones2Milestones	Kavish (Sarawgi) Gadia	Education

Stakeholder	Point of Contact	Category
Tactopus	Chandni	Education
Utter	Seema and Amit	Education
Vistaar Finance	Prashant Kani	Financial Inclusion

Annex 2: List Of Interviewees – Other Stakeholders

Stakeholder	Point of Contact	Category
Accion	Vikas Raj, Paarul Dudeja	Investor
Acumen	Krishna Dahya	Investor
Asha Impact	Riya Saxena	Investor
Aspen Network of Development Entrepreneurs (ANDE)	Devyani Singh	Network
Bamboo Finance	Arun Asok	Investor
Biotechnology Industry Research Assistance Council (BIRAC)	Sonia Gandhi	Government Agency
Caspian Impact Investments	Emmanuel V Murray	Investor
Collab House	Vineel R. Pindi	Incubator
Inblick Innovation Advisory	Lina Sonne	Incubator
Incofin Investment Management	Aditya Bhandari	Investor
Lok Capital	Vishal Mehta	Investor
Mahindra ReRise	Bhagvath Chandra	Incubator
N/Core	Sudha Srinivasan	Incubator
Omnivore Partners	Mark Kahn	Investor
T-Hub	Juliane Frömmter	Incubator
Tata Institute of Social Sciences (TISS)	Raviraj Durwas	Incubator
Unitus Ventures	Srikrishna Ramamoorthy	Investor
Upaya Social Ventures	Amit Alex	Investor
United States Agency for International Development (USAID)	Nehal Sanghavi	Investor
Villgro	P. R. Ganapathy	Incubator

Publishing information
The Indian Social Enterprise Landscape - Innovation for an Inclusive Future

Bertelsmann Stiftung
Carl-Bertelsmann-Straße 256
33311 Gütersloh

Publishing institutions:
Bertelsmann Stiftung (BSt)

Authors:
Usha Ganesh, Vineeth Menon, Anuja Kaushal, Karan Kumar
Intellecap Advisory Services Pvt. Ltd.

Responsible: Murali Nair (BSt)
Editing/Proofreading: Tim Schroder
Editorial Coordination: Fabienne Frauendorfer, Marcel Schwarz

Design: Brandeur Global Pvt. Ltd. (brandeur.in)

Cover Image: © Getty Images/iStockphoto/Cecilie_Arcurs

Printing: Indicolor Prints

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