

Frugal Innovation

Learning from Social Entrepreneurs in India

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and Stephen Duckworth

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About the Serco Institute

The Institute is Serco's research facility. Our aim is to foster the development of sustainable public service markets through an outward-facing programme of research and communication. Using an evidence-based approach, we study competition and contracting in public services and share the findings through our publications. These are intended to enhance understanding, in governments and the wider community, of the role that competition and contracting can play in improving public services and of the conditions and practices that deliver the best outcomes.

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Preface – Indian Social Enterprise goes Global

Given the magnitude of blindness and the challenges faced in a developing country, the Government of India has not been able to meet the health needs of all. Realising this predicament, Dr. Govindappa Venkataswamy established an alternative health care model that supplemented the efforts of the Government. It operated from a new perspective, that of a sustainable social enterprise. When he retired in 1976, he established the GOVEL Trust and invested his time and innovative thinking into improving and expanding the reach of eye care service delivery.

Under this Trust was founded the Aravind Eye Hospital. Today, Aravind is much more than just an eye hospital. Committed to the goal of eliminating needless blindness through comprehensive eye care services, it is also an international training centre for ophthalmic professionals and trainees. It is a research institute that develops improvements in eye care and then trains health-related and managerial personnel to implement them. Aravind also manufactures and makes available world-class ophthalmic products at affordable costs.

Aravind keeps its surgical equipment in operation 24 hours a day, reducing cost-per-surgery. Pre-op and post-op care are handled by nurses, allowing doctors to focus only on performing surgery, thereby increasing doctor productivity. These new perspectives have enabled the social enterprise to provide free operations for the poor, while still earning a surplus for reinvestment. Aravind performs high-volume and high-quality eye surgery inexpensively to address the needs of 12 million blind people in India.

From April 2009 to March 2010, Aravind treated over 2.5 million out-patients and performed over 300,000 operations, of which almost 50% were provided free. The hospital has been exporting discounted intraocular lenses to over 120 countries. Aravind is a financially-viable healthcare system in India.

For insights important to Western economies gleaned from the new perspectives developed by Indian Social Enterprises, read on.....





Image courtesy - Empathy Learning Systems

Introduction

Over the last 60 years, innovation and improvements in India's public services have frequently emerged in the absence of state intervention or involvement. Social enterprises have stepped in to address the challenges where the government has failed. As a consequence, radical new perspectives have developed that might not have emerged if governments had imposed top-down initiatives adopted from the West. The Aravind eye care system referred to in the preface provides just one good example. There are many more.

"Frugal Innovation" is the idiom applied to this sweeping revolution in public service design and delivery. The term is used in India and other developing economies to describe innovation that minimises costs by creating frugal solutions to deliver improved or previously non-existent public services. Frugal innovation has given more people access to a wider range of services.

Western governments today seek to manage large public deficits whilst striving to serve the rising expectations of citizens. There is a buzz emanating from emerging economies that has caught the imagination of Western leaders in their bid to deliver

growth in sluggish fiscal environments. In a keynote speech in 2011, British Prime Minister, David Cameron, called for the same "drive to succeed" that is seen in Delhi, Shanghai or Lagos¹. Though, as businessman Harjeet Johal, who has run large retail companies in the UK and India, points out, the incentives to succeed in the different geographies are divergent:

"David Cameron wants some Delhi 'drive'. In his conference speech, he called for Britain to find its inner energy and to start a national fight back, with all the fire of those in the developing world. But having lived and run companies in India, I know that this fight is going to be a knock-out with us on the canvas, as we British lack the reason to be driven"².

Although the social and economic challenges of India are of a different order to the fiscal crises currently faced largely by Western developed countries, this paper provides insights into how solutions developed from the bottom-up in some of the most challenging public service environments can better meet the needs of citizens. It investigates a range of new perspectives applied to services by over 40 social enterprises in India. It challenges the notion that uniformity in delivering public services driven by a top-down centralist ideology translates into good value for money.

Though many specific models of practice may not be suitable to be adopted by Western public service providers, these examples from India are illustrative of the underlying principles and practices that have led to innovation and drive in the first place.

This report demonstrates how social enterprises have leveraged the freedoms that exist at local community levels to develop new solutions, unconstrained as they are by centralist legacy systems and services. This has stimulated innovation in a way that has ensured equality of access and delivered cost-effective solutions. The social entrepreneur's journey to transform ideas into insights to commercialise innovations and create sustainable businesses is however arduous and pushes at the boundaries of dedication and plain hard work.

Social enterprises in the UK have already achieved a great deal, but to unleash the domestic entrepreneurial drive that can deliver otherwise unobtainable outcomes, the government needs to do more to strip away any remaining obstacles and liberate the potential that lies within.

Traditional Models Create Stagnation and Kill Innovation

The traditional model of public service delivery in developed economies is under siege. The provision of high-quality and universal services in a uniform way is fast becoming unaffordable as governments are coming under greater pressure to cut costs and reduce

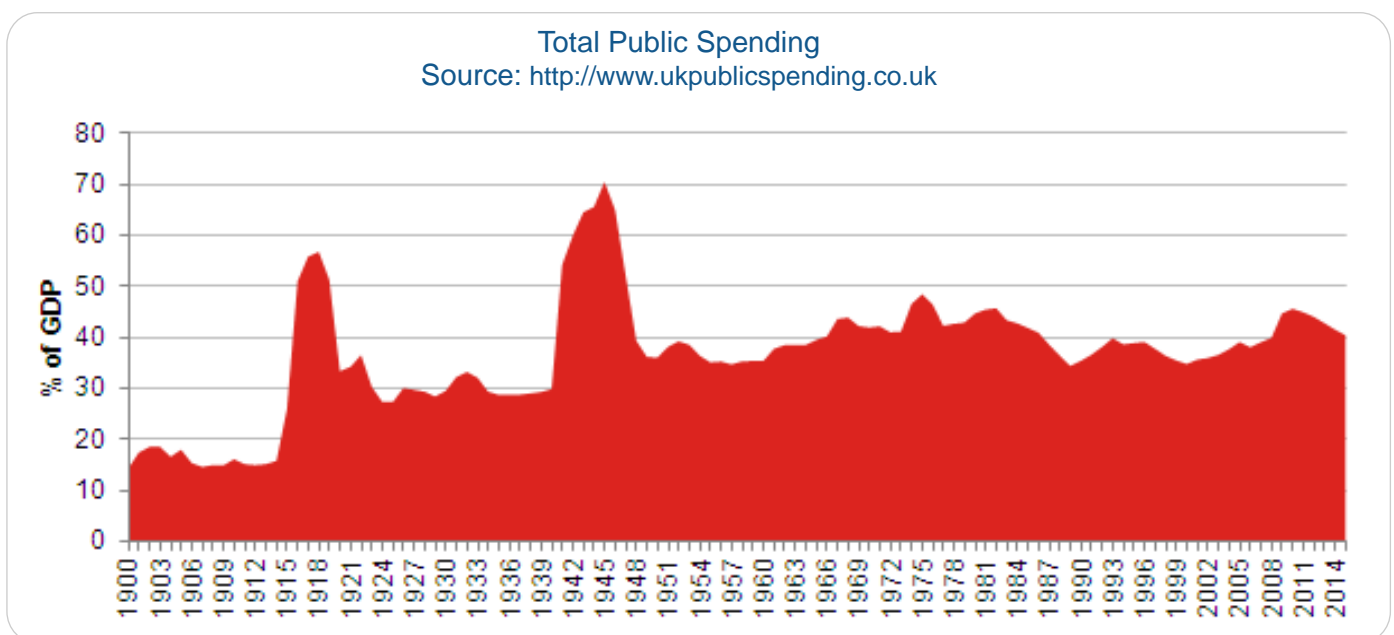
deficits. At the same time, citizens expect more from governments, whether it is health care for older people or education for their children.

Taxpayers' money has increasingly been used to develop and design structures and services from a standardised template, resulting in little or no incentive to reform the system from within. Building hospitals, schools and other state-run facilities provide the bricks and mortar that enable these services to be rolled out, and to ensure equitable access, these public services are made available at a very low cost or even at no direct cost to the service user. As a consequence, in the UK almost 50% of the GDP is spent on the delivery of public services at a time when most commentators agree that more needs to be done with less (see figure 1).

The story in India is very different. Citizens rarely receive public services free of charge and many times have to survive in an environment where only a few services are publicly available on an equitable basis. This stark contrast with the developed world has provided the impetus for local people to embrace these challenges in a way that not only improves public services but also helps to build social capital. Absent legacy systems provide opportunities that further encourage innovation and allow new models to emerge.

Within Western economies, bureaucracy has impeded creativity in public service design over the last 20 years.

Figure 1: Public spending in UK constitutes more than 40% of GDP



Increases in centralised spending have not delivered commensurate improvements in the services experienced by citizens. Increasing the percentage of GDP used to deliver public services has become counter-productive resulting in stagnation rather than innovation.

New Age Entrepreneurs

In India, a new breed of provider has entered the market to deliver innovative and affordable public services. They have been inspired by the vision of ensuring maximum reach and equitable provision whilst maintaining the standards and outcomes delivered by comparative best-in-class public service providers. In their endeavours, they are rethinking every dimension of service provision, from the organisational structure to the target customer.

Local entrepreneurs are revamping processes and systems to build a skilled and customer-focused frontline service. Not all of these endeavours have succeeded in making it big, but a number of them have made a relatively large impact. Critical success factors have included their appetite for innovation and hard work, within a culture that embraces risk with relish.

Frugal Engineering

Frugal innovation is not unique to public service delivery. In the private sector, it is more commonly referred to as "Frugal Engineering". Frugal engineering is the science of breaking up complex processes and products into basic components and then rebuilding the product in the most economical manner. Frugal engineering results in simpler design, thereby reducing production costs and generating cheaper products. A frugally engineered product will contain all the essential features required by the customer, but exclude any unnecessary extras.

Tata Nano, the cheapest car in the world at under £1500, is one example of frugal engineering in India. Although some design issues and long waiting times resulted in poor initial sales figures, the numbers have improved more recently.

Another example is the basic mobile phone developed by Nokia in India that can be used only for telephone calls and text messaging, but includes features like long battery life and built-in flash light that are very useful for customers who struggle with frequent blackouts and power outages. The product costs less than £15. The per-product profit margins are low, but the volume of the market is so huge that the total profit justifies this value engineering.

Consumers in the West generally have different expectations, and products need to meet a different set of standards and preferences thereby limiting the direct import of these products and technologies from emerging economies into the Western markets. However, the emerging trend is to repackage such goods for Western buyers through reverse innovation. For example, Tata Motors, who recently acquired Jaguar, has plans to launch an improved version of the Nano in Europe. The concept car, displayed at the 2011 Geneva Motor Show, is called the Tata Pixel and meets European standards and preferences.

Private Can Go Public

Just as frugally engineered products may need repackaging for the West, public services generated through frugal innovation by social entrepreneurs in India may not be directly replicable in Western economies. Though direct replication is one important channel through which innovation spreads in the public sector, policy makers and public sector managers will find the underlying principles that stimulate innovation relevant to meeting current financial and operational challenges.

Western governments could raise fundamental questions about how to capitalise on the approaches deployed in India. What stimulates innovation? How can innovation be brought to life? And what lessons can be learnt to liberate the potential that lies within community based organisations to develop local solutions and thereby fuel the engine of economic recovery through job creation?

The Study

In this study, over 40 enterprises have been examined to identify the common characteristics that have helped them succeed in environments that appear beset with almost insurmountable hurdles. Seven common features that underpin innovation have emerged. They are relevant to not-for-profit organisations, to governments, social entrepreneurs and larger private sector organisations seeking to integrate a locally based network of providers.

One insight gained from the research suggests that, although citizens want good quality services, they do not always demand a gilt edged solution. In addition, payment for services is not out of the question where the benefits are clear. Finally, citizens do not care who delivers the service, the government, for-profit or not-for-profit organisations, so long as it meets their requirements in terms of outcomes and quality.



Image courtesy - Empathy Learning Systems

The Indian Context

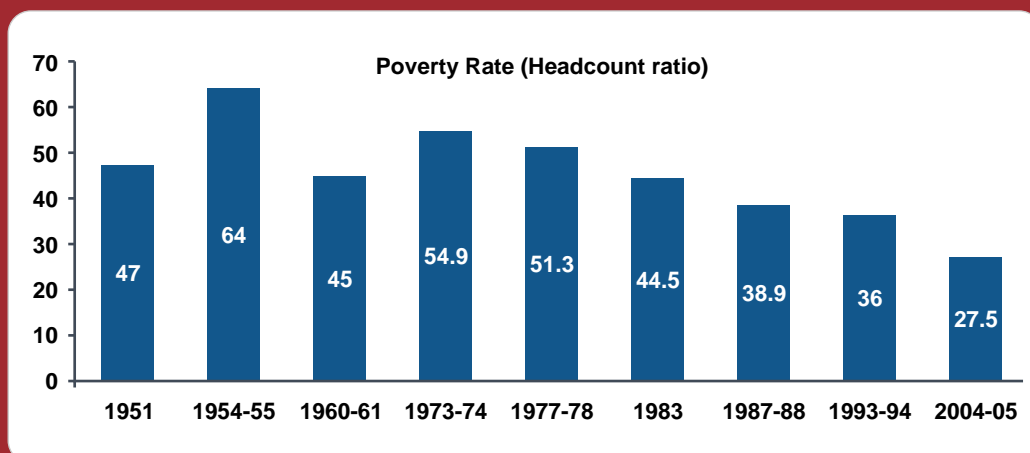
Successes since Independence

India has made considerable progress since Independence on a number of social and economic parameters. For instance, life expectancy has more than doubled from 31 years in 1947 to close to 65 in 2011. This means that the difference in life expectancy between India and the US has narrowed from less than half in 1947 to nearly 16% more recently. The death

rate declined from 45 per 1000 to just around 8 per 1000 over the same period³.

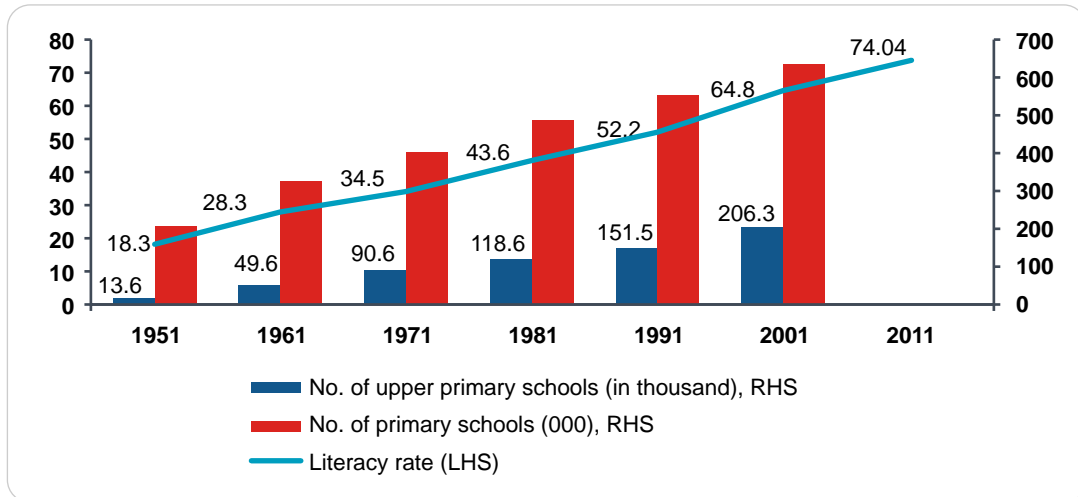
Poverty rates (the proportion of population living below the poverty line) have declined rapidly, especially in the last two decades, to less than half of the levels seen in 1954-55 (see figure 2). Literacy rates jumped nearly 4 fold between 1951 and 2007 (see figure 3).

Figure 2: Poverty rate has declined sharply, especially after 1980



Source: Planning Commission, Government of India⁴

Figure 3: Access to schooling has improved markedly since independence



Source: Census of India, various years; and Department of Higher Education⁵

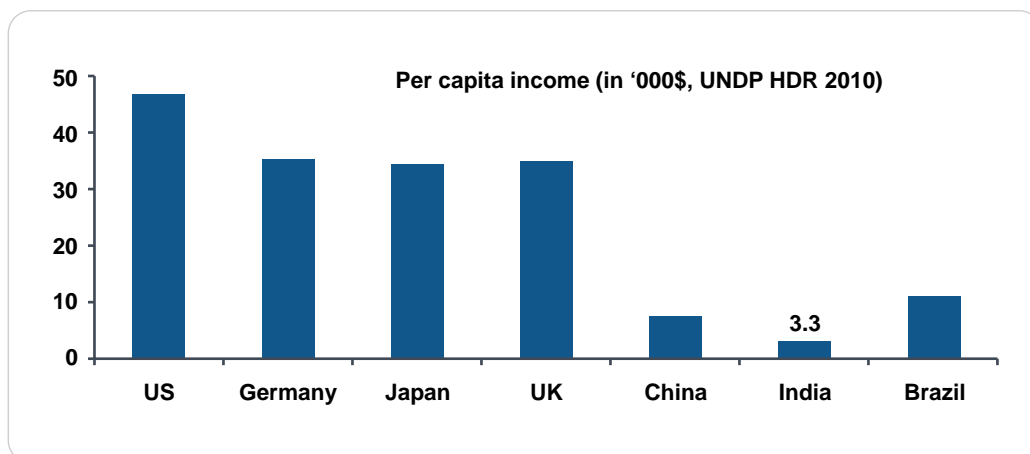
Services delivered by the Government of India have played an important role in improving the quality of life. The National Sample Survey Office (NSSO) survey, covering more than 100,000 households in 2007-08, revealed that more than 98% of the households in India have access to a primary school within a 2 km radius and nearly 67% of primary school students are enrolled in government schools.

More recently, a number of ambitious schemes have been launched by the government of India that focus on more inclusive growth. The Right to Education Act 2009 makes free education a fundamental right for all children between 6 and 14 years of age. The Rashtriya

Swasthya Bima Yojana (RSBY), a government-sponsored health insurance scheme, covers nearly 300 million citizens living below the poverty line in India for hospital costs of up to £400 for a family of five. This is India's first tentative foray into universal health coverage.

However, substantially more remains to be done. Per-capita income in India is less than 1/14th of the US (see figure 4) and, according to a World Bank study, the number of poor people living off an income below £1 a day was around 456 million or 42% of the population.

Figure 4: India's per capita income is substantially lower than that of China and Brazil⁶



Source: United Nations Human Development Report 2010⁷

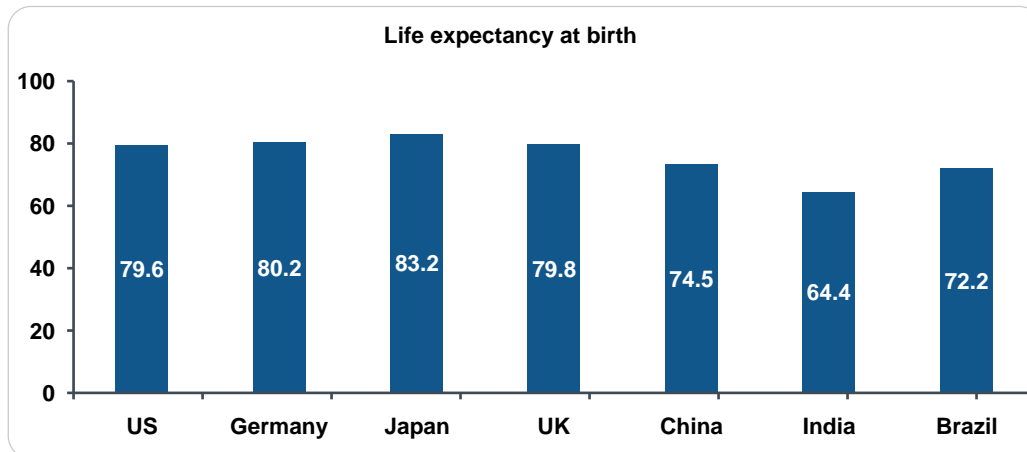
Further, most poor people lack access to basic public services, such as primary health care, potable drinking water and proper sanitation facilities. These factors

contribute in part to the fact that life expectancy in India is still below that in other emerging economies (see figure 5).

Most surveys show that citizens would choose private hospitals and schools over government-run institutions based on their perceptions of the quality of service. Petty corruption, such as service users or their families needing to pay janitors to keep the hospital clean, also acts as a deterrent to using public services⁸.

A new measure of poverty called the "multidimensional poverty index" that uses ten variables (such as access to cooking fuel, electricity, education, nutrition and sanitation) has revealed that the intensity of poverty in certain parts of India is equal to, or worse than, sub-Saharan Africa⁹.

Figure 5: Life expectancy has increased but not as well as international comparators



Source: same as Figure 4 above

Only around half the births in India are attended to by a skilled health professional (see table 1) and certain services, such as emergency ambulance response, are either non-existent or woefully inadequate even in urban areas. As a result, India compares unfavourably

with most of its peers on nearly all social indicators.

Given that public services play a big role in alleviating these problems, it reflects the nature and scale of the deficit of public services in India.

Table 1: India performs worse than comparators and is some way behind the developed world

Country	Infant Mortality Ratio (per 1000 in 2009)	Maternal Mortality Ratio (per 100,000) in 2008	Births attended by skilled health staff (2008)	Physicians per 1,000 people (latest available)
Bangladesh	41	340	24%	0.3
India	50	230	53%	0.6
Japan	2	6	--	2.1
China	17	38	99%	1.4
Brazil	17	58	97% (2006)	1.7
US	7	24	--	2.7
UK	5	12	--	2.7

Source: World Bank¹⁰

The Kerala Model

These statistics starkly illustrate the continuing hardship experienced by a large percentage of India's enormous population. However, they also disguise wider internal variations. With near universal literacy rates and life expectancy that compares well with developed countries¹¹, the state of Kerala has often been cited as an exemplar of social development despite a lower than average income¹².

Improvements in the health system at this local level have been important factors in the change. The findings of National Family Health Surveys (in 2005-06 and earlier) suggest that nearly all births in Kerala are undertaken within a hospital or clinic and are assisted by health professionals.

Certain programmes in Kerala have won acclaim across the world. For instance, the Neighbourhood Network in Palliative Care (NNPC) Project, funded by small charitable donations and government assistance for community-based palliative care, has attracted the attention of other countries that want to replicate the relatively inexpensive but effective model. Volunteers help healthcare professionals working with the state's 230 local palliative care units in identifying and supporting those who need this service¹³.

The state of Kerala is not alone in delivering some of these outstanding achievements. Himachal Pradesh, for example, underwent a "Schooling Revolution" in the three decades between 1961 and 1991, when female literacy in the 15-19 year age group rose from 11% to 86%. School attendance among 6-14 year olds averaged 97% in the year 1998-99¹⁴.

Breaking Away from Tradition

Traditional top-down state designed public service delivery has been effective to some degree in narrowing the gap between the outcomes enjoyed by the people of India and those living in more developed economies. However, the noteworthy successes are the exception rather than the rule particularly in the rural economies of India.

In these geographies and many areas of public service delivery in urban India, alternative innovative approaches will be required to maintain the progress that has been made since Independence. The next chapter explores the challenges faced by social entrepreneurs seeking to deliver the public services that are so desperately needed in India.



The Social Entrepreneur's Journey

Social entrepreneurs in India come from a wide variety of backgrounds and are inspired to invest in opportunities that deliver social benefit. They are driven by the ambition to achieve their vision of improving public services within a specific market. These social entrepreneurs have begun to fill some of the gaps in the public service economy of India.

Success in social entrepreneurship follows from the transformation of a good idea into an insight that can be commercialised into a sustainable business. Many entrepreneurs will not necessarily know how they are going to achieve their ambition when they begin their journey. The strength of their inspiration, appetite for hard work, resilience and end result orientation, all contribute towards their successful journey.

It is notable that even some exceptional professionals have given up lucrative careers and faced financial hardship in their efforts to shape new social businesses. The research undertaken has revealed that there are generally three phases in the journey of a social entrepreneur. These are set out below in Figure 6 and illustrated further by examples.

Phase 1 - Inspiration

Having experienced a better quality of life in the US,

Ravi Krishna, the co-founder of 1298 ambulance services, was disturbed when he lost a friend in a road traffic accident in India because medical attention could not reach his friend in time. Krishna's mother, in contrast, had a medical emergency in the US and the 911 service reached her in less than five minutes, averting a tragedy. This disparity of experiences was enough to stimulate an appetite to develop alternative solutions in India that would be of social benefit.

Shaffi Mather, another co-founder of 1298, had a similar experience. When his mother was choking in the middle of the night, he had no information about who to call so he drove her to the hospital himself. The outcome was positive, but it had a huge emotional impact resulting in the desire and drive to develop new solutions¹⁵.

Ravi and Shaffi joined three others (Manish Sancheti, Naresh Jain and Sweta Mangal) to start an effective ambulance service as a social enterprise in the financial capital of India, Mumbai. Today, the highly successful and effectively-run 1298 Ambulance service has spread to a number of states in India, including Kerala, Rajasthan, Bihar and Punjab.

The emergence of this enterprise illustrates that personal tragedies can prompt individuals to reject the status quo in favour of investing in innovative solutions

for the greater public good Humiliation and indignation have also motivated such reforms. Varaprasad Reddy, the founder of Shantha Biotech, responded to a humiliating experience suffered at an international health conference in Geneva. He felt that a minority of delegates from Western countries considered Indians to be beggars who only came to such conferences to seek free or subsidised vaccines. He was infuriated when his efforts to buy a technological solution to produce the vaccine in India drew the outrageous response, "a few thousand deaths shouldn't matter in a country of billions"¹⁶.

He persisted and subsequently organised a meeting with Indian biotechnologists settled in the US. His passion and commitment were rewarded when he was promised substantial help to train a team in India to develop the vaccine. In addition, he managed to raise £ 160,000 for the venture. This was in 1991. Six years later, on 18 August, 1997, Varaprasad released India's first recombinant DNA vaccine for Hepatitis B. The resilience required over such a long period of time has resulted in the development of a successful enterprise that has transformed the global market.

Varaprasad was an electronic engineer, and as such, he knew nothing about biotechnology at the beginning of his journey. However, because he was not constrained by traditional approaches, he designed a solution that resulted in the price of the vaccine falling from £30 to £2. The outcome was that the number of vaccinations in India went up from only 80,000 per year in 1991 to over 100 million in 2008.

Another entrepreneur, Dr. Devi Shetty, was motivated by the empathy of Mother Teresa whilst employed as her personal cardiac surgeon. He established an innovative business model creating Narayana Hrudyalaya that has now become one of the world's largest paediatric cardiac hospitals.

Dr. Govindappa Venkataswamy, who created the highly sophisticated Aravind Eye Care System, drew his inspiration from the call for compassion by the Indian philosopher, Sri Aurobindo. In Dr. Venkataswamy's words:

*"Intelligence and capability are not enough. There must also be the joy of doing something beautiful. Being of service to God and humanity means going well beyond the sophistication of the best technology, to the humble demonstration of courtesy and compassion to each patient."*¹⁷

This initial emotional commitment seems important to some in stimulating their ambition to innovate and

develop improved public services. However, it is equally important to be able to transform the original idea into a sustainable social enterprise. This often demands a significant investment from the entrepreneur, both in terms of time and money.

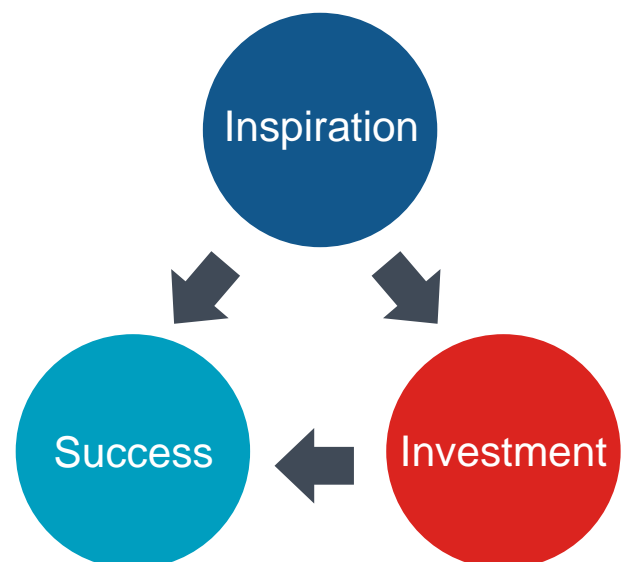
Phase 2 - Investment

The initial years of social entrepreneurship are almost invariably extremely demanding, requiring not only a significant investment in terms of time but also sacrificing other lifestyle opportunities that might otherwise have been enjoyed. At a personal level, it may involve giving up a promising alternative career and relocating to a remote village.

For example, Dr. Govindappa Venkatswamy asked his sister, Dr. G. Natchiar, and her husband, Dr. P. Nam, to give up promising opportunities in America as ophthalmologists after completing their fellowship at Harvard to assist him in his goal of supporting individuals experiencing unnecessary blindness¹⁸. The decision to relocate to India was not easy and came with the sense that they were making a huge sacrifice. The rewards of seeing the outcome in the form of the Aravind Eye Care System only came years later, after much self-doubt, frustration and struggle.

Gyanesh Pandey of the Husk Power Systems (HPS) quit a lucrative career in the semiconductor industry in the United States to find a non-conventional solution to the rural electrification problem in India. He commenced his activities in West Champaran, a remote district of Bihar, one of the poorest states of India. It lies along India's border with Nepal, and is the place where Mahatma Gandhi started his non-violent campaign against the British Empire.

Figure 6: Phases in the life of a social entrepreneur



Until 2007, sixty years after India gained Independence, several villages in this region remained without electricity. Even now, the availability of electricity in the state of Bihar more generally is, at best, sporadic. When considering these more remote villages around the Gandak river basin, the State Electricity Board (SEB) continues to maintain that it is not feasible to service these areas due to geographical difficulties.

The first challenge for Husk Power Systems was to identify a technology that would help them provide low-cost electricity to villagers. The solution came in the form of rice husk gasification plants. However, their next challenge was to keep the mechanics simple to enable illiterate villagers to staff the plants.

By August 2007, considerable progress had been made. Gyanesh Pandey and a group of friends had come up with a solution for a problem that the state had considered outside its competence to solve. This was a social enterprise that could provide off-grid electricity by using rice husk, a resource that was abundant in that area.

The successful provision of electricity to villages deemed unfit for grid-based delivery was a feat in itself. Even more commendable has been the transformation of this vision of self-sustainable and environmentally friendly energy into a scalable model that has successfully been extended to other remote geographies. The villagers buy power from micro power plants that burn the rice husk. This costs them the same or less than their previous monthly spend on kerosene oil, which they had used for oil-lamps.

The journey from Los Angeles to West Champaran and from the highly sophisticated semiconductors industry to using the humble rice husk for electricity generation was not an easy one. The first arduous step was setting up a single power plant in August 2007 that provided the proof of concept. The next was to raise capital for expansion. Help came in the form of Manoj Sinha, who teamed with fellow student Charles Reiner at the University of Virginia's Darden School of Business to write the HPS business case and win the Dell Social Innovation Challenge in 2008. The prize money, and the credibility it awarded, helped expansion. That same year, the team also received the Shell Foundation Grant and were named the Social Entrepreneurs of the Year by FastCompany. This injected added impetus along their journey to success.

One significant problem during transformation is trying to secure funding for the initial years of the start-up. Few people believe in, let alone finance, social

enterprises until they have become well-established. The private resources of the entrepreneur are limited and can become exhausted early during transition. Potential financiers primarily focus on the balance between risk and reward, and although personal respect for the entrepreneur is important, it does not automatically translate into financial investment.

The founding team at Aravind Eye Care had to mortgage their homes to raise £35,500 as seed capital and mortgage jewellery to buy equipment because others refused to support them financially. Aravind began in 1976 as an 11-bed clinic from the residence of Dr. Venkataswamy's brother. Thulasiraj D. Ravilla, who has an MBA from Indian Institute of Management (IIM), Calcutta, and left a lucrative job to join as the hospital's administrator in 1981, recalled:

"Money was an issue in those days, which we addressed through sacrifice—we took a very low salary,"¹⁹

Varaprasad Reddy encountered a number of rejections to secure external funding when his limited personal finances started to run out. Within two years of starting the research on the DNA technology to produce a vaccine, he had sold his father's land to raise capital. Banks refused to lend and venture capitalists demanded virtually complete control of the enterprise in return for equity investment.

Eventually, a representative of Oman's foreign minister scouting for investment opportunities in India found Varaprasad's dream compelling. Not only did he invest in the project, but he also arranged a loan from the Bank of Oman, enabling this innovative approach to come to market.²⁰

Social prejudices can also create hurdles. Husk Power Systems often ran into conflict with the established feudal culture in the remote villages of Bihar. In one village, a customer refused to pay for the service, believing his caste gave him the right to free service. Not only that, he physically assaulted the electrician fitting a fuse outside his house.

HPS took the decision to shut its plant in that village, but not a single person in the village dared to complain about the indiscretions of the local landowner. Even a police complaint accomplished nothing. The strength of feeling driven by social prejudice meant that this customer was ready to spend £667 to fight a legal battle, but refused to pay £1 a month for electricity.

In remote Indian villages, the caste system often transfers its inequities into the office environment and

can become reflected in an organisation's culture. The founders of HPS have tried to challenge this through some simple requests, such as asking all employees, including managers, to refer to each other with respect, by suffixing a "ji" after their name. Creating a sense of equality in a remote village in Bihar has not been easy.

It is a hard decision to leave a predetermined career to embark upon commercialising untested solutions to overcome problems resulting from failures in public service delivery. Inevitably, having taken the plunge, nearly all social entrepreneurs find that they need to demonstrate tremendous resilience to implement innovations and develop methods to solve what can sometimes seem to be insurmountable problems if they wish to succeed.

Phase 3 - Success

Social entrepreneurs set about trying to achieve something that has never been done before. Dr. Devi Shetty was a cardiologist who trained in the UK but wanted to scale up cardiac surgery in ways not imagined before to reach poor people in India. The founders of the Husk Power System maintained a strong focus on its goal of providing electricity to villages, but did not know how they were going to get there. Success came in stages. Success is however dependent upon securing appropriate funding at the right stages. It also requires the social entrepreneur to value-engineer their product or service in such a way that it is likely to be sustainable in the longer term.

After going through various degrees of physical,

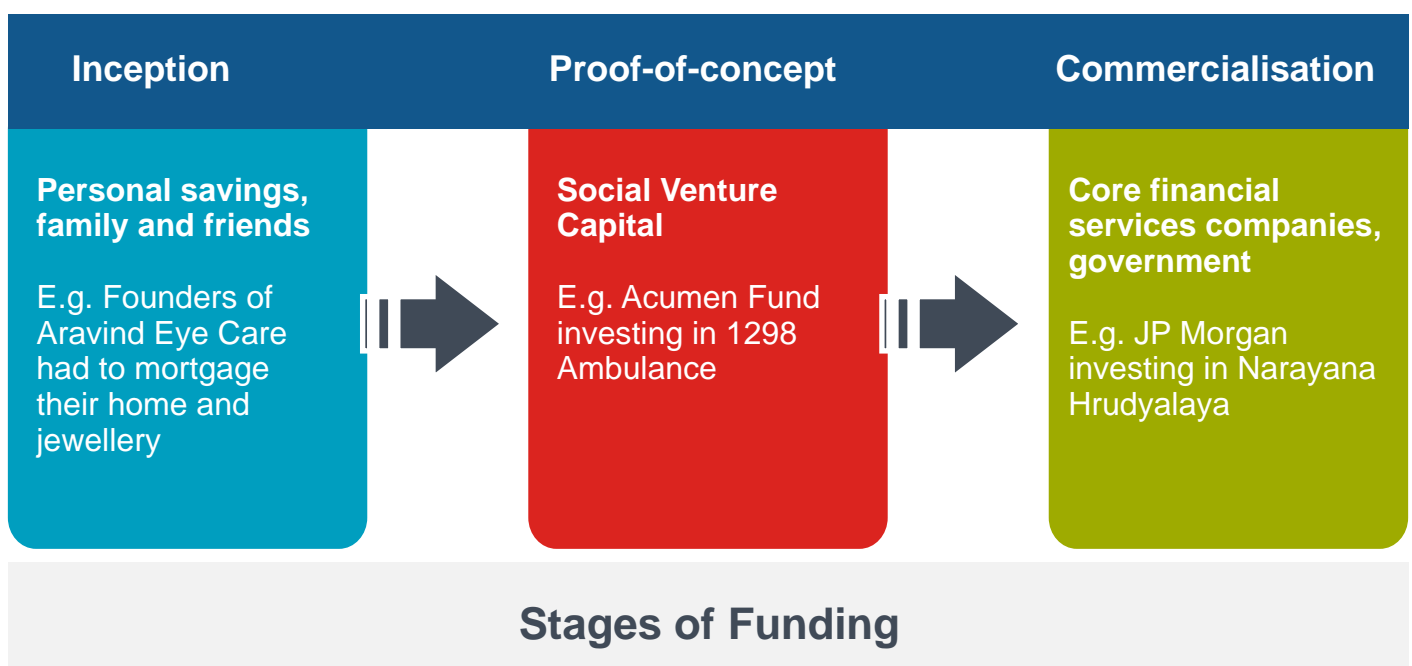
emotional and financial hardship during the start-up phase, social entrepreneurs can experience different degrees of success following investment and implementation that may manifest in a number of different ways.

Financial Success: Financial success will only follow the implementation of a robust innovation that survives the many and varied challenges. Effective commercialisation is ultimately dependent upon delivering a sustainable business model. The eventual success of the HPS plants generated enough revenue to attract franchisees and venture capitalist interest. Their profitability holds special significance in the Indian context, given that most State Electricity Boards remain loss-making.

The initial success enjoyed by HPS meant that expansion following investment and franchising delivered rapid growth. By 2010, 50 plants had been established. Subsequently, HPS has set a target to establish more than 2000 plants by 2014.

Financial success is only part of the story as far as some social entrepreneurs seem to be concerned. Success can also be enjoyed through the direct experience of being involved in the transformation of an idea into a successful sustainable business that delivers public services efficiently and effectively in a way that ensures equal access to the majority of customers. Success, in this respect, results from the achievement of non-financial goals that can often be accompanied by third-party recognition.

Figure 7: Stages in funding a social enterprise



Awards and Recognition: Social entrepreneurs also seem to be interested in self-actualisation as long as there is a reasonable financial return on investment to allow for expansion and ensure greater equity of provision. Recognition by society can be a significant motivator for some entrepreneurs.

Dr. Devi Shetty has been conferred with several awards in India, as well as abroad, for his contributions to the healthcare sector. Recently, he has been appointed as a member of the National Innovation Council (NIC) that aims to institutionalise innovation in the public sector in India.

For Irfan Alam, the founder of the Sammaan Foundation, an invitation to the Presidential Summit by the US President Obama was a moment of great pride. Apart from pride, recognition also can bring support in other forms, such as funding from the government allowing for further expansion of public service provision.

Many institutions established by India's social entrepreneurs have become global standards of excellence. For example, Aravind Eye Care System has become a symbol of leadership in the eye care industry, attracting foreign students from across the globe for internships at the hospital.

For-Benefit or For-Profit

One important question remains. Do social entrepreneurs make a profit so that they can deliver service, or do they deliver service so that they can make a profit?

Heerad Sabeti is a serial social entrepreneur and a co-founder and trustee of the Fourth Sector Network. He has examined this issue in an article in the Harvard Business Review in November 2011 and argued that we are moving into a new era.

It suggested that the current blurring of traditional boundaries between for-profit businesses who are tackling social and environmental issues, social enterprises that are developing sustainable business models, and governments who are forging market-based approaches to service delivery will result in a different model of enterprise emerging, driven by entrepreneurs who are motivated by social aims.²¹

"When these entrepreneurs begin to create an entity to carry out their ideas, they often face a crippling and seemingly arbitrary question: whether to be for-profit or a non-profit. To some readers, the distinction may seem straightforward, but a growing number of

entrepreneurs chafe under those classifications. How, for example, would you label the commercial car sharing service I GO in Chicago, which is structured as a non-profit? What about China's Qifang, an online platform dedicated to giving low income students a way to pay for their education, which is structured as a for-profit?"

Is it absolutely necessary for organisations to be constrained by current legal structures that require them to establish themselves as for-profit or as non-profit enterprises because both could be called "for-benefit"? Entrepreneurs are increasingly using this term to describe organisations that are capable of generating a surplus but give priority to an explicit social mission.

Liberating the "For-benefit" enterprises

If governments are serious about liberating the potential of social enterprises, they should give serious consideration to removing the burdensome trade-offs that result from the current status quo with a view to creating new legal structures that will allow "for-benefit" enterprises to flourish. Might the formalisation of a "for-benefit" legal structure see the emergence of a Fourth Sector interacting with but separate from governments, non-profits and for-profit businesses?

Success breeds Success

Success among social entrepreneurs operating within more favorable environments could lead to further inspiration. First, the social entrepreneur could be inspired to continue to invest in ongoing innovation, not only to maintain a sustainable business but also to retain a competitive advantage. Second, successful social entrepreneurs could deploy their repertoire of skills in other areas where there is a need to improve public services. Third, other potential social entrepreneurs in India and around the world may be inspired to take that first step along the road to finding ways to implement innovations that can lead to improvements in public service delivery. Fourth, governments should be inspired to understand how solutions developed from the bottom-up are far more likely to embrace innovation than those imposed from the top-down.



Image courtesy - Husk Power Systems

Challenges to Social Innovation

The daily challenges faced by the population of India have gradually reduced for many over the last 60 years. This has in part followed from the introduction of public services delivered almost exclusively by the state. This monopoly position has resulted in the adoption of an approach to service delivery that assumes one size fits all. As such, a significant proportion of Indians have had limited or no access to the broader array of public services available in India let alone those available to citizens in the West.

Social entrepreneurs in India have recognised that simply doing more of the same will never ensure equity of provision to the vast numbers of their incredibly diverse population. As has been described earlier, they have set up new enterprises in an attempt to work towards filling some of the gaps in public service delivery. To implement their innovations has required a significant investment in terms of energy, time and personal funding. Success for many has been hard to come by, but understanding the challenges to social innovation will help a new generation of entrepreneurs to foresee what lies ahead.

This section explores some of these challenges in more detail. A range of paradoxes is considered that entrepreneurs might encounter during the start-up phase of implementing their innovation. The research undertaken in this study suggests that it is necessary

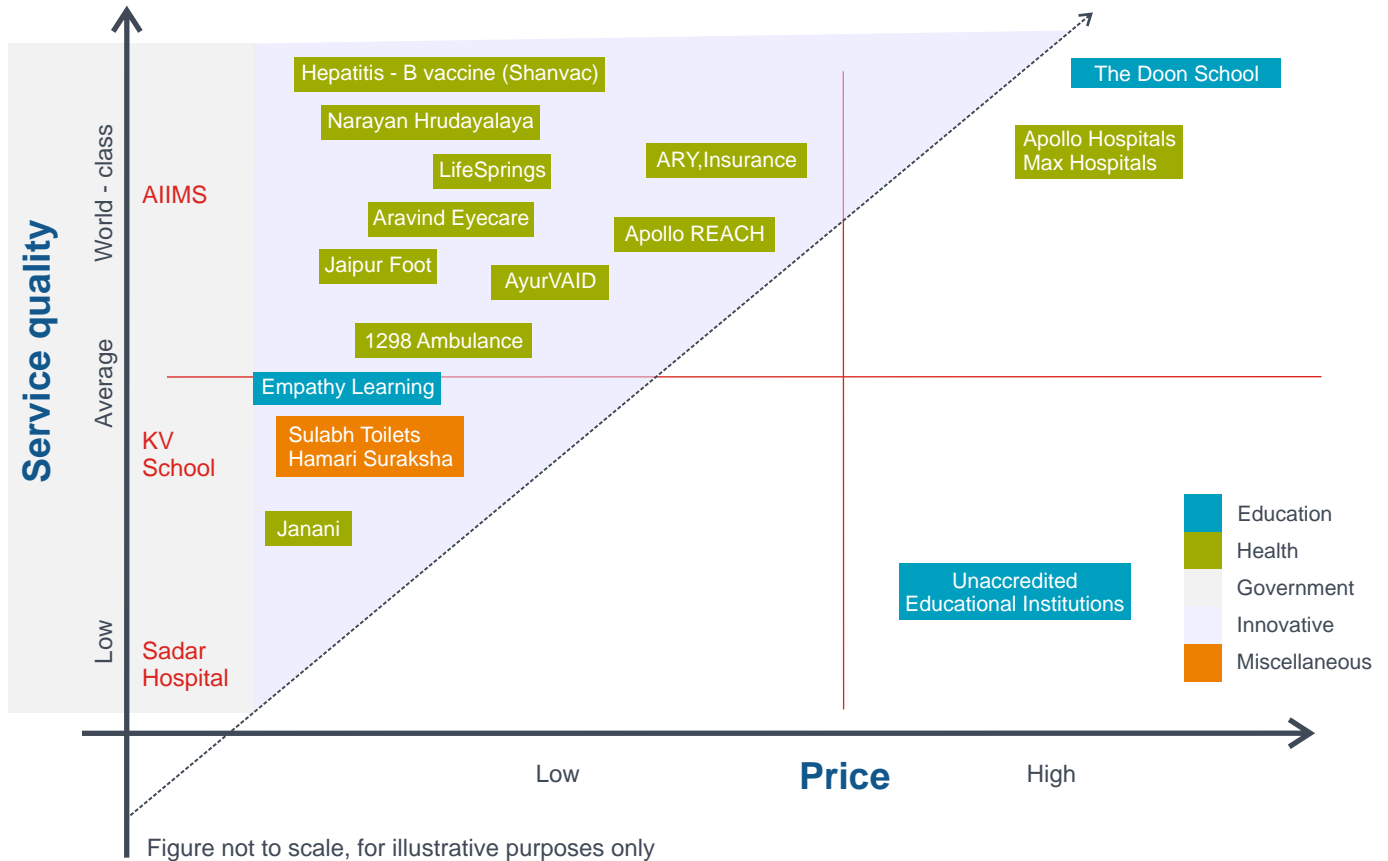
to strike the right balance between apparently conflicting objectives. These include:

- That services have to be affordable whilst complying with relevant quality standards
- They must appeal to a large customer base but deftly manage the diversity within the population
- They must generate adequate returns without reverting to an uncompetitive pricing strategy

The challenges of running a social enterprise are very similar to those of running a standard profit-making business. Innovation will always be at the heart of the founder's thinking during the enterprise's formative stages, but further innovation will be required to maintain and expand it into a sustainable social enterprise in an increasingly competitive market.

Figure 8 shows that many of the enterprises referred to earlier have managed to meet these challenges. Innovative models typically lie at the left of the price-quality matrix. Narayana Hrudayalaya that provides affordable cardiac surgery is a good example. It performed 3,174 cardiac bypass operations in 2008, more than double the 1,367 at the Cleveland Clinic that is seen as a leader in its field in the US. Narayana reports a 1.4% mortality rate within 30 days of bypass surgery compared to a rate of 1.9% in the US²². The cost of open heart surgery at Narayana, however, is only £1250 compared to £12,500-£85,000 in US hospitals and around £3000 in private hospitals in India. Narayana is now offering the UK NHS cut-price

Figure 8: Innovating to provide high quality service at affordable prices²⁴



operations for British citizens at 1/12th of the cost that they are available in Britain.²³

Affordability

Tata's Nano, priced under £1500, epitomises frugal engineering and innovation. It is a highly affordable but quality product targeting the middle-class population of India. Frugal engineering and innovation already offer a large number of diverse products and services. Some include Shanvac-B, India's first Hepatitis B vaccine, and the Jaipur foot, a rubber based prosthetic leg. These developments can have international implications as illustrated by the fact that the global price of Hepatitis-B vaccines crashed after Shantha Biotech developed the product far more cheaply following substantial innovation (see figure 9).

In terms of service delivery, Narayana Hrudyalaya and Aravind Eye Care System have attracted significant external interest. The two organisations are focused on providing affordable health care. In the Aravind Eye Care System, poor patients receive cataract surgery for approximately £25. If they cannot afford to pay, they receive the surgery for free. Only about 30% of patients are able to pay the full price.

If Aravind were a charity with no focus on generating a

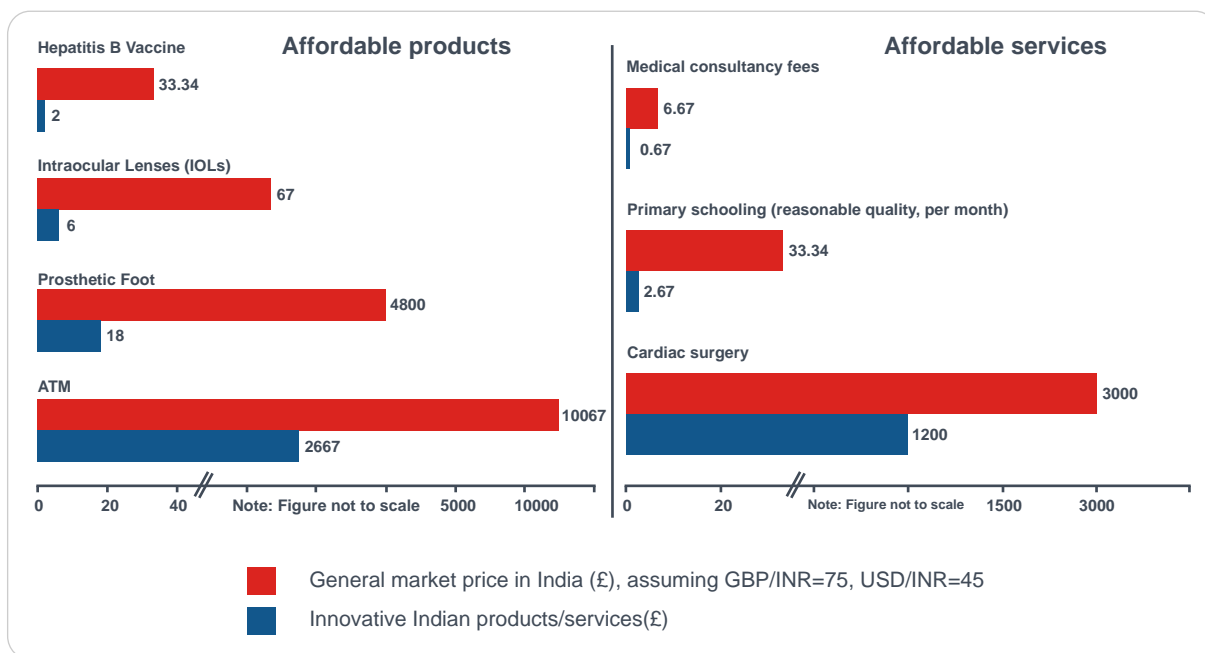
return on investment, this model would not be at all unusual. However, it operates on a commercial basis, so a small additional charge to the remaining 70% of patients retains a balanced income to fund capital and revenue requirements whilst at the same time delivering a return. It is claimed that their “super-efficient approach has delivered an average annual return on investment of more than 75 percent and allowed them to pursue debt-free expansion”²⁵.

Many technological innovations that have emerged from the developed world are considered expensive in India and therefore only available to rich people. For instance, cataract surgery can cost £2,000 in a US hospital but as little as £200 in an Indian private hospital. The innovative service developed by Aravind enables them to target people who can only afford £25 (approximately 10% of the amount for which the service is available in the Indian private healthcare system²⁶.)

Quality

Affordability does not necessarily translate into low quality. Many Indian consumers do not expect five star treatment but they do expect decent basic standards. In order to deliver essential but acceptable quality, an attempt has been made to replicate the business

Figure 9: The innovative models offer much greater affordability compared to their peers



models of Southwest Airlines, Ryanair, EasyJet and others. Financial savings in the ‘no-frills’ airline sector have been made through unreserved seating, no meals, and flying to cheaper and less congested secondary airports. Many customers are ready to give up the extras for a lower price.

For £25 or less, instead of £200 charged in the Indian private healthcare service, Aravind performs cataract surgery. A cataract operation would typically take 30 minutes in a Western hospital, while it lasts only 10 minutes in the Aravind system. Added to such low cost is better quality when relative rates of infection are compared. In 2004, the infection rate was 4 per 10,000 cases at Aravind, while the average rate in the UK was 6 per 10,000²⁷.

The difference in quality between paying and non-paying patients is that the former get private air conditioned rooms while the latter get more frugal but nonetheless clean accommodation. Patients who can pay are also permitted to stay longer post-operatively and are supplied with relatively better meals than non-paying patients.

Ubiquity

A private company will not usually develop products and services for customers that are generally considered non-profitable. Under these circumstances, individuals have traditionally needed to rely on the government. However, budgetary and geographical constraints in India have limited what can be achieved. As a result, almost every public service in India is limited in availability and certainly not accessible to all

citizens. Often when services are provided by the state, they are not delivered to the quality expected by the customer.

Access to government schools has improved over time, but the quality of education, enrolment rates and dropout rates continue to disappoint. Government hospitals are few and badly maintained in urban areas. Few rural communities ever have the opportunity of being served by a qualified medical practitioner.

Innovative models are emerging to address these gaps. The availability of local services attracts individuals from the emerging Indian middle-class, and this allows a tiered pricing strategy that makes the service available to those who can only pay a little, as well as to those who cannot pay anything at all. The enterprises are nonetheless profit-making with sustainable business models. They have been developed by entrepreneurs who believe that a commercial approach is far more appropriate and sustainable to meet the needs of local communities than relying on charitable handouts or waiting for the state to provide.

The desire for social entrepreneurs to ensure ubiquity of provision relates back to the concept of individuals setting up "For-Benefit" organisations as opposed to for-profit or non-profit enterprises. The Aravind Eye Care System is a good example of this.

Sustainability

Sustainability will ultimately result from an adequate return on the capital invested, even if social

entrepreneurs are not motivated to maximise profits. This requires that the enterprises have to build scale quickly from what are generally very small start-ups. Innovative pricing and cost-saving strategies have to be adopted right from the start, and continually reviewed and improved upon year-on-year.

In trying to meet broader business objectives that are relevant to any small business, social entrepreneurs can face a number of constraints. They may lack the necessary commercial skills, have small marketing budgets and limited supply chains. Given the limited funding and the inability to charge high prices, social

entrepreneurs face the additional challenge of difficulty in hiring the necessary talent.

Low wages translate into higher attrition and significantly higher training costs. The enterprises also have to invest time and effort in customer education to enable them to embrace the new service offering. Finally, there are no precedents and no ready-made networks of suppliers and distributors. A new supply chain may need to evolve and entrepreneurs may need to develop new products and processes to meet their requirements. All of these factors can take time.

Seven Approaches to Innovation

The previous sections have explained the many and varied challenges faced by social entrepreneurs. One overriding conclusion is that top-down solutions stifle innovation whilst ideas developed from the bottom-up provide insights that can be important to citizens and government. Many social enterprises in India and in the UK have demonstrated the importance of local solutions for local problems. This chapter sets out seven important approaches to innovation and further illustrates them with more examples of successful social enterprises in India.

“In the past, business model innovation was common in health care.... However, business model innovation has stalled in the last three decades.”²⁸

Throughout the Western world, business model innovation in the public service sector has not kept pace with technological change, which may be part of the reason why improvements in the social benefits of many public services have not matched increases in the cost of their provision.

A recent McKinsey study concluded that, in spite of spending nearly twice as much on healthcare as some of its peers, the United States had the highest preventable death rate among wealthy nations. Higher drug costs, administrative costs and profits explain in part why the US spent 'almost a third more than would be expected based simply on the nation's per capita income'.²⁹

In a number of different areas of public service delivery, new approaches have been tried with mixed results. Policymakers across the developed world have studied alternative delivery models. These include schooling in Sweden or the United States and quasi-markets in social care in the United Kingdom, but they have found it difficult to conceive and implement models that are radically different from those already in existence.

It is for this reason that India's social entrepreneurs provide such a rich pool of ideas and insights that have been the subject of this research. After studying more than 40 innovative schemes, seven common approaches have been identified that have helped these entrepreneurs achieve their objectives.

Figure 10: Seven approaches to innovation





Image courtesy - 1298/Ziqitza Healthcare Ltd.

1. Economies of Scale

Basic public services, such as schooling and health care, are yet to be successfully delivered to the vast majority of the Indian people. In the pursuit of affordable solutions, social entrepreneurs have challenged the assumptions underlying existing public sector business models and turned to models developed in the retail sector.

Dr. Govindappa Venkataswamy, the founder of Aravind Eye Care System, was inspired by McDonalds and visited the 'Hamburger University' in Oak Brook, Illinois, to discover how they train franchise owners and thereby manage to serve billions worldwide. The founder of Narayana Hrudayalaya, Dr. Devi Shetty, drew his inspiration from Wal-Mart. His big idea was to introduce economies of scale into surgical procedures to reduce the unit costs of health care and medicines. In the past, grafting retail practices onto healthcare in this way would have been regarded as at least disrespectful if not completely incompatible. But the social entrepreneurs, Dr. Govindappa Venkataswamy and Dr. Devi Shetty, have delighted in thinking the unthinkable.

No-frills airlines have increased the accessibility of international air travel to ensure that the service is available to those who previously may not have been able to afford it. Similarly, the no-frills eye care service delivered by Aravind has been scaled up to increase the accessibility of healthcare to a much broader array of the Indian population.

Social entrepreneurs have also been prepared to address the supply of suitably qualified labour. In general, India's hospitals have had to pay the market rate to attract qualified doctors and surgeons. However, the entrepreneurs have found innovative ways to get greater value from their investment to keep the cost low. One solution was to re-engineer systems and procedures to enable surgeons to do more, better.

An opportunity to achieve this lay in encouraging surgeons to focus on one or two surgical procedures so that they became highly specialised, proficient and effective in these procedures. In this way, more could be delivered for less.

Nurses and other staff have been trained to use certain surgical equipment to save the surgeon's time. Vital equipment is organised in such a way that operations can be performed in quick succession, adopting the Lean methodology of Toyota.

At Aravind, there are typically two patients in the operating theatre at the same time. One would be undergoing surgery, while the other was being prepared. The microscopes used during the operation can swivel between the separate operating tables to further save time. In this way, surgeons are able to perform nearly 100 operations in a 12-hour working day, around 10 times the norm in the rest of India³⁰. In the financial year 2009-10, they performed 302,180 operations, of which more than half were free of charge³¹.

Higher volumes enable social entrepreneurs to extract greater value from expensive medical equipment, reducing the unit costs for each procedure. They have also focused on cost reduction by securing better deals with their suppliers. Narayana conducts around 500 blood tests a day, while other hospitals may conduct only two or three. This enabled them to obtain the equipment free of charge from their supplier, as the consumption of reagents was high enough to make the transaction profitable for the supplier.³²

A single-minded focus on driving down costs through scale combined with systems re-engineering enabled LifeSprings Hospitals to become profitable within two years of inception. LifeSprings provides affordable maternity care at the equivalent of £19 a delivery. They have made this possible by standardising clinical protocols and other procedures to enable greater clarity of task and higher productivity.

Each hospital has become standardised across more than 180 processes³³. As a result, the model is easily replicable and less problematic to scale up through franchise models. They have "put the McDonald's in Medicine". Streamlined processes and cost reduction measures, such as the bulk purchase of a limited range of equipment and medicines, helped LifeSprings to lower supply costs. The on-going focus on training has allowed the maternity unit to utilise less expensive auxiliary midwifery nurses rather than graduate midwives.

Clinical cost savings are clear, but these organisations also rely on low administration costs and a relentless focus on maximising the contribution of value-adding services. This rigorous approach requires social entrepreneurs to revisit their business models time and again to discover new ways of improving their systems and reducing costs. Most of them welcome others observing and learning from their experiences and replicating their models. However, there are limits to what can be communicated in this way, as Dr. Govindappa Natchiar, Vice Chairman of Aravind Eye Hospital, has observed:

*“The difficulty lies in transferring the inner spirit and attitude. We can show them the cost measures, the systems, the administration details, the marketing, the standardization everything but the inner spirit. People pick up the processes, the methods, the structures, but not the 'inner spirit' or the Aravind Way of Life. The tangible hardware is picked up but not the intangible software. And in an organisation of low supervision yet high impact, it's this software that is critical”.*³⁴

2. Smarter Use of People

According to Dr. Devi Shetty, the key difference between the hospitals that Narayana runs and those in the developed economies of the West revolves around staff costs. While hospitals in the West spend 60% of their revenue on salaries (including surgeons' fees), Narayana has to restrict this to around 20%. This does not mean that doctors at Narayana are poorly paid. However, they do work longer hours and are required to be more productive. In addition, unlike in other Indian hospitals, they are paid a fixed salary instead of a percentage of the revenue that they generate.

While there is a substantial difference between publicly funded salaries in India and those in the developed world, managing staff costs is becoming a challenge for social entrepreneurs. High rates of economic growth and expanding employment opportunities has introduced a scarcity of skilled personnel. There is an increasing shortage not only of good doctors, teachers and engineers, but also of high quality support staff, such as nurses and technicians.

LifeSprings, Narayana and Aravind Eye Care, all grapple with this problem because their social entrepreneurs cannot meet the long-term career aspirations of all staff. As a result, they have designed their business models to rely on high staff turnover. They recruit younger, less experienced staff, who move on after a short period of time, but they have designed efficient systems complemented by appropriate training

to compensate for this turnover.

Salaries at these institutions are frequently lower than comparable benchmarks. The non-monetary incentives that include working for a start-up enterprise or contributing to an organisation with a social mission help to attract a committed pool of talent. However, these non-monetary incentives are not sufficient. Skilled employees are often unwilling to make a long-term commitment to work in the not-so-lavish settings of a social enterprise even when offered market rates.

The Husk Power System is another enterprise where staffing is important. It only operates in rural and remote locations, so it is not easy for them to recruit trained operatives with comprehensive engineering capabilities. Local personnel are the only source of labour because engineers and operators from towns are usually not interested in relocating to villages. This challenge has resulted in the development of partnerships with large organisations, such as the Shell Foundation and HSBC Bank, to set up the Husk Power University and the Rural Power University.

These institutions train local people to become skilled employees, including managers and technicians. They also invest in the development of new entrepreneurs who have the ambition to eventually own and operate their own mini-power plants on a franchise basis. The training is structured so that an unskilled worker, who might earn around £27 per month, would acquire the necessary engineering skills in one year to increase their earning capacity to £160 per month. Social enterprises not only contribute to the social capital of local communities, but also to the economic capital by generating employment and increasing earning potential.

Training for an operator takes two months, but for a mechanic, it lasts up to six months. HPS plans to use simulated experiential learning to help students learn much faster. In 2010, the Husk Power University trained nearly 100 students and the Rural Power University, set up with the help of HSBC and run independently of HPS, trained 50 engine mechanics and 250 power plant entrepreneurs in 2011.

Rigorous in-house training helps to increase the pool of potential employees. Some hospitals in India offer extensive nurse training. Students are provided with a stipend, and as part of their training, they are actively involved in delivering the majority of nursing requirements. Further, in some places, students are committed to work at the hospital for a year or two after the completion of their training. They are attracted to these training opportunities because of the excellent

placements that are available after the completion of training.

A missionary hospital in a small rural town in the state of Kerala placed nearly 80% of its nursing students in countries outside India, including the United States and the Gulf region. In this way, an effective nursing programme ensures that the hospital has a steady supply of nursing staff at low cost in a remote location, whilst at the same time providing their students with a stepping stone to a future career embracing international travel and far better remuneration.

Narayana goes a step further by guaranteeing bank loans taken out by trainee nurses to cover their fees and living expenses in return for a commitment to work at the hospital during their course and for two years thereafter.

A key strength of the programmes run by these institutions is that they are customised to meet specific skill shortages. Narayana, for instance, runs 19 postgraduate programmes for doctors and other medical staff, including the country's only formal training for paediatric cardiac surgery. Where low salaries contribute to high attrition rates, process-oriented training is being deployed to ensure quick take-up of skills and thereby continuity of service delivery.

Empathy Learning Systems, which plans to develop a chain of low-cost private schools for a monthly tuition fee of approximately £2.50, is banking on special training programmes for teachers to enable it to compete with local 'affordable private schools'³⁵.

Interestingly, the training practices and learning opportunities at some of these institutions are so effective they are sold more widely. Medical students and doctors from around the globe visit Aravind Eye Care for internships or other learning experience³⁶. Its educational arm, Lions Aravind Institute of Community

Ophthalmology (LAICO), was founded in 1993 and provides clinical and non-clinical courses. Empathy's teaching tools and training are also offered at a monthly charge of less than 20 pence to teachers from competing schools, reducing its dependency on school fees.

Another way of reducing labour costs is to de-skill some critical tasks and hire non-experts to perform them. Most social entrepreneurs in India have done this to some extent. According to its co-founder, Manoj Sinha, HPS has adopted the philosophy of 'simplifying the system so much that even a high school educated villager could be trained and run our power plants'.³⁷ Typically, this is achieved by deconstructing a complex task into a set of simpler sub-tasks so that each can be undertaken by someone less highly trained.

Aravind Eye Care uses paramedical staff to perform most pre- and post-operative work with patients, such as washing eyes, giving injections and suturing. Nursing staff undertake refraction testing and counselling. Narayana trains high school educated women to perform echocardiograms. The objective is to free up the valuable time of the more expensive experts so that they can focus their energies on high-end activities that only they can perform.

Strategically, in-house skills development is critical to the ethos of a social enterprise because it helps to achieve the two key objectives of affordability (low personnel costs means low service costs) and scalability (having a captive supply of talent implies greater availability for new units). HPS, which intends scaling up from 50 units in August 2010 to 2014 units in December 2014, has no choice but to embark upon training local villagers to run its plants. Rather than seeing this as an obstacle, HPS is using it as an opportunity not only to meet its requirements of affordability and scalability but also to offer an improved standard of living to people in the villages.



Image courtesy - Empathy Learning Systems

3. Technological Innovation

Husk Power Systems is one of a number of social enterprises that have entirely depended on technological innovation for their success. During their initial research, they tried a wide range of energy sources, including solar, wind and water power. Inevitably, the capital requirements for these technologies developed in the West were prohibitive and would have resulted in unsustainable enterprises lacking both scope and scale. After further research and a radical investment in innovative thinking, they concluded that the humble yet ubiquitous rice husk was a potential candidate for power generation.

Technological innovation and new perspectives are essential in many areas to design and deliver affordable and sustainable public services without significant investment in cutting-edge technology. Necessity is the mother of invention, as is the case in rural communities lacking in electricity. Innovation can mean simply using mature technologies in a different way. Gasifiers were used extensively during the 1940s to power vehicles, but until HPS developed them into biomass generators, no one had thought of using rice husk as fuel.

Some may question whether the supply of electricity and other utilities falls into the domain of the public or private sector. It is arguable that HPS is operating in the 'For Benefit' domain. Citizens are more concerned about whether they are supplied with electricity as opposed to who is producing it. It is just over 20 years since UK state run electricity services were transferred to the private sector. Indian citizens living in remote rural environments may still have been sitting in the dark had it not been for the innovation developed by a social enterprise in a way that it is hard to imagine either a large public or private sector provider doing.

Apart from electricity, there are other public services that cannot reach poor people in India because the underlying technologies are too expensive. These include public utilities, such as water and banking, which in rural India bear many of the characteristics of a public service. For these services to reach the masses, frugal innovation is required. New solutions need to emerge from a radical rethink of how the service is designed rather than from tinkering with existing products and business models to take costs out because they would still remain too expensive.

The introduction of automatic teller machines (ATMs) in the more isolated regions of India is a good example. Except for a few branches and a limited number of

ATMs, major banks have made little progress in reaching the non-urban poor. The central bank has tried to incentivise public and private sector banks to reach out to rural areas by making their expansion in urban centres contingent on a presence in rural areas, but it has not been easy. Full-scale branches present huge economic problems given the limited requirement for banking services in most villages and relatively poor customers have reported that they feel discriminated against when dealing with banking staff.

ATMs offer a possible solution. They do not discriminate, and they can reduce costs significantly. However, expansion has been restricted by a lack of electricity and limited familiarity amongst the local population of using clean, untarnished banknotes that are rarely found in rural India.

In an attempt to overcome these problems, a social enterprise, Vortex Engineering, has designed and built an ATM that consumes one twentieth of the power of normal machines, generates less heat so there is no need for continuous air conditioning and is able to dispense the used notes that are more familiar to rural Indians³⁸. Not only does the machine reduce operating costs, but the capital outlay is also approximately one third of the cost for the standard high street ATMs³⁹. The machine is built to survive low and erratic electricity supply and has attracted significant interest from other developing countries.

"People think that cutting the cost of a product means taking what's already there, snipping here, snipping there and maybe that works sometimes. But if you want a drastically different price point, you need to do it differently. Our lack of ATM experience kept me away from established wisdom. For a long time, in fact, I even stayed away from seeing how an ATM functions. We tried to do it as if we were the first people to build an ATM. That was why it worked."⁴⁰



Many innovations that have an impact on domestic markets may also have international applications. Shanvac, the Hepatitis-B vaccine, is one such example. The product has had a global impact in addition to benefitting millions in India. Shantha Biotech marketed this vaccine for £2, a very favourable price compared to international competitors whose identical product cost £30 in India and elsewhere⁴¹. As might be expected, the global price of Hepatitis-B vaccines crashed after Shanvac was introduced by this social enterprise. In India the number of immunisations increased from 0.8 million units per year in 1991 to 100 million in 2008. Shanvac became the first WHO pre-qualified Hepatitis-B vaccine for India and was also approved for sale in the US.

Varaprasad Reddy, the founder of Shantha Biotech who originally set out to realise his dream of eliminating Hepatitis B from India with an affordable vaccine, stated:

“People from the biotech industry knew for sure why something couldn't be done. I'm not from the industry; therefore I didn't know why it couldn't be done. For me, if other vaccines can be available at Rs. 15 (20 pence), why can't a Hepatitis B vaccine be available at Rs. 50 (67 pence) —three times more? Therefore, I just went ahead and did it.”⁴²

4. Scaling up

All small businesses face the challenge of scaling-up once they have developed a marketable product or service and invested in designing a successful business model. However, the challenges of obtaining venture capital and ensuring measured growth can be even greater for social enterprises seeking to deliver public services. India's social entrepreneurs have discovered that franchising presents an alternative approach and one of the quickest and cheapest ways of scaling up. This model has long been used in the private sector, but its innovative application to public services in India has enabled entrepreneurs to expand quickly without significant investment.

Dr. Lal Path Labs (LPL) has become the largest diagnostic service provider in India and has used a franchised network to expand its reach. In 2005, LPL collected samples for diagnostic investigation directly from the homes of around 150 people each day for testing at each of their 14 laboratories⁴³. As the franchise model expanded, in 2010, 30,000 tests were conducted per day with nearly 2500 hospitals and laboratories sending their samples to LPL. Turnover grew four times from around £5.34 million to £22.67

million and operating profits quintupled⁴⁴. In 2010, LPL offered more than 1650 different types of tests at 60 laboratories and has a national presence in all important cities and towns of India. Its workforce of more than 1400 employees serves over 6 million customers every year.

Their success has been based on a 'hub-and-spoke' franchise model. The main laboratories in Delhi form the 'hub' by providing over 1500 different tests, while various satellite laboratories, public sector facilities and collection centres feed the central hub. At the regional



level, each of the satellite laboratories also acts as a hub for over 300 types of tests, supported by a network of collection centres that feed the satellites.

Dr. Lal Path Labs won the 'Franchisor of the Year' award in the healthcare category at the Franchise Plus 2010 Awards. Franchisees invest around £400-650 thousand for a collection centre and £16.6 million for a diagnostic centre. In addition to providing the required space and instruments, LPL also provides the software for a fully automated testing and reporting process, inputs into laboratory design and operations, as well as supplying marketing and sales support.

LPL has been in business since 1949. It has a strong brand capable of attracting investment from franchisees. For a new social enterprise, rolling out a similar expansive model is rarely very easy at the beginning. However, in most cases, it is not needed because other financing opportunities, as well as the opportunity of introducing smaller franchise models, can be identified.

Sarvajal (Piramal Water Private Limited) is a good example of how franchising can be used on a smaller scale. The company operates in Gujarat and Rajasthan. Its mission is to provide clean drinking water to those who cannot afford, or do not want, it bottled. It is not a charity and uses a professional team to establish appropriate pricing. Today, the water is sold at less than a penny for 25 litres compared to comparable charges in India of around 40 pence. The innovation developed by Sarvajal depends on reverse osmosis and ultra-violet technology that is dependent on reliable electricity supplies.

The company opted for a franchise model to expand its reach and has been able to enlist 117 franchisees since its inception in 2008. It now provides clean drinking water to nearly 65,000 citizens of Gujarat. On average, each franchisee provides drinking water to around 500 people per day. A new franchisee makes an initial payment of £667 to Sarvajal and arranges the land and electricity whilst sourcing the water. The machines cost about £8000 and are provided by Sarvajal. For the first three months, all the revenue goes to the franchisee, and thereafter, 40% is shared with Sarvajal. In return, the parent company supports business development, as well as servicing and providing spare parts for the plant.

Within this model, franchisees selling water to 175 households every day can earn a profit of around £267 per month, which is 40% of the capital investment. At this rate, the entire capital investment can be recovered in less than 3 months.

These micro-franchises, as they are known in India, generally cost no more than £660,000 although in some cases, even a few thousands may suffice⁴⁵. Husk Power Systems has successfully deployed a number of power plants in rural areas and believes that it now needs to pursue the franchising route to expand more rapidly⁴⁶. Micro-franchising is also used fairly extensively by the Government of India. The Ministry of Communications and Information Technology, for example, is rolling out 100,000 e-Kiosks (known as Common Service Centres or CSCs) in rural areas under the national e-governance plan. CSCs are owned and operated by small entrepreneurs in villages, who are invited to invest money and take control of the centres.⁴⁷

Apart from tackling core social issues, franchising has supplementary local benefits that derive from the development of entrepreneurship and the creation of training and employment. It is creating a pool of individuals well versed in local needs and more aware

of the ways and means of meeting these needs.

5. Finding a Niche

The founder of Aravind Eye Care, Dr. Govindappa Venkataswamy was determined that health care be made available to poor people to help avoid unnecessary blindness. If a social enterprise is closely aligned with local needs, it is more likely that it will be able to unearth and exploit a niche market.⁴⁸ Aravind Eye Care has not only identified a niche in India, but it has also developed the capacity to internationalise the solution.

Identifying a target market has been critical to the scalability and success of many social enterprises investigated in this research. The availability of limited funding demands that entrepreneurs optimise its use and impact. The money can be made to go further by having a clear understanding of the customers and the services that will be offered to them. This is especially important for services that are capital intensive, such as services provided in hospitals.

Focusing on a niche market can significantly reduce the cost of establishing a new hospital. LifeSprings made a strategic decision not to invest in the capital infrastructure of its hospitals or the land where they provide services. Instead the enterprise leases them. In many cases, these have previously been the premises of failing hospitals. Typically, they are not sited in prime locations, but this works for LifeSprings because it provides their target customers, who predominantly come from the bottom two-thirds of society, with a service established within familiar territory.

A focused approach to supplying low cost electricity to remote and off-grid Indian villages meant that HPS adopted frugal engineering in all its systems. HPS stripped its gas generating machinery and engines that produce electricity of all non-essential components to reduce manufacturing and maintenance costs. For example, the automated water-assisted process to remove rice husk char was replaced by a manual one that can be operated with a hand crank and uses 80% less water.⁴⁹ Simplifying the machinery not only reduced manufacturing costs but also enabled less qualified staff to be trained in their maintenance. HPS uses economical bamboo poles to support overhead insulated cables instead of using the expensive cement poles or laying underground cables. The communities excluded from state electricity supply now benefit in other ways too by earning an income as they contribute to the generation of electricity and in so

doing improve the social capital of the local area.

Affordable private schools have targeted children from low income families. Inevitably, they are located in modest locations and often operate from residential buildings. Studies show that these largely invisible schools perform better than government schools and at a comparable quality to the more expensive private schools. Locality and performance results deliver significant incentives that encourage low income parents to send their children to these private low-cost schools compared to the free government schools.⁵⁰

6. Tiered Pricing

In the West, tiered pricing is common in the car rental and air transport markets. People pay more for a first class ticket or a high-quality rental package. In essence, the underlying service of getting from A to B is the same, but the quality of the service may be vastly different. Tiered pricing is increasingly adopted by the social entrepreneurs of India.

The way in which it is being applied, however, is somewhat different. Rather than focusing on a gold-plated service pitched to premium customers, tiered pricing in public services seeks to deliver the same core service at a cheaper price to low income customers. The objective is to cross-subsidise the same service to make it available to as many as possible.

Adopting a tiered pricing model in public service delivery poses a number of challenges. It is generally necessary for customers to self identify which pricing level they may be eligible for and therefore relies on a significant degree of trust. The administration costs attempting to minimise gaming and corruption can make it difficult to identify those who are not genuine low-income customers. One of the solutions lies in selecting mechanisms that encourage customers to self-select into the appropriate category or by adopting alternative proxy measures to ensure their entitlement to the discounted service.

Dial 1298 for Ambulance is a for-profit social enterprise that provides round-the-clock life-support ambulance services in the city of Mumbai and seven districts of Kerala irrespective of the user's ability to pay. Mumbai is a metropolis of around 16 million people and has been lacking a reliable ambulance or emergency medical response service. Patients often have had to rely on auto rickshaws to go to hospital, and poor people were particularly vulnerable. With its mission of universal access, the pilot delivery programme revealed that they would need an innovative payment



mechanism if they were to remain in business.

The founders adopted a cross-subsidy model that determined income status based on the health facility to which the ambulance was directed. Dial 1298 has a sliding scale of charges based on the charges made by the health facility used by the patient. Public hospitals are cheaper than private hospitals. Patients admitted to the general ward of a government hospital are more than likely to be from the poorest population. As such, Dial 1298 generally subsidises 50% or more of the cost of transportation.

Between 2005 and 2008, the service responded to 70,563 calls, of which nearly 18% were free or subsidised.⁵¹ Dial 1298 has developed a tiered pricing strategy that enables it to be sustainable based on the revenue generated but it has also attracted venture capital. The enterprise has expansion plans to extend the service to eight more cities across India and even into developed countries.

However, tiered funding solutions require a strong and disciplined focus on financial management. If the ratio of subsidised or non-paying customers increases beyond a critical level, the business becomes unsustainable. This has resulted in developing real-time accounting systems that are more sophisticated than those being employed by public service providers throughout the developed world.

Narayana hospital in Hyderabad, which provides free or subsidised cardiac surgery to poor patients, has adopted a smart accounting system that alerts management when costs on a certain day exceed a pre-determined budget threshold. Daily analysis enables them to make judgements about what services can be available. Surgeries that cannot be subsidised on a particular day because of insufficient income from

fee-paying patients may be postponed until the necessary reserves become available.⁵²

7. Alternative Sources of Revenue

Many social entrepreneurs develop alternative services or products to supplement the revenue derived from their core business. This is essential when the opportunity to generate revenue from the core business is restrained to such a degree that only marginal profits are available. It also provides resilience against external challenges that are not within the control of the social enterprise.

The Sammaan Foundation started business in 2007 by selling advertising space on 'rickshaws' with the broader goal of empowering the rickshaw pullers both economically and socially. They provided a cycle-rickshaw for free to the pullers and sold the 32 sq. ft. of advertising space on the vehicle for revenue. The limits of this model were discovered in late 2008 when India's economic growth slowed and companies cut back on advertising budgets. With an estimated 10 million rickshaws on the streets of Indian cities, the founder of Sammaan, Irfan Alam, realised that he would face a severe shortage of capital if he were to try to scale up his business.⁵³



Image courtesy - Sammaan Foundation

The business model needed to evolve and change; further innovation was required. This has been successfully achieved, and advertisements now provide only a third of the revenue. Approximately 40% of the revenue is now derived from the training and support services marketed to rickshaw manufacturers and another 30% in the form of commission from the processing and recovery of loans provided to rickshaw-pullers by national banks.

Sammaan has also engaged with franchisee partners to overcome the shortage of capital. Under the traditional business model, small business people buy a couple of rickshaws and rent those out on a daily business, but the earnings are small for both the owner and puller. Sammaan offers better returns to all by converting rickshaws into an advertising platform and transforming the pullers into sales personnel. Many rickshaws now sell bottled water, newspapers and pre-paid mobile cards to their passengers. All these supplementary services can result in extra income for the pullers. Sammaan controls around 300,000 rickshaws; however, only 40,000 of these are directly owned by the enterprise.

One of the most comprehensive approaches to alternative revenue generation has been demonstrated by Husk Power Systems. The enterprise currently earns 90% of its revenue from the sale of electricity. However, it has adopted a plan to bring the share of this revenue down to 50% by 2014.⁵⁴ HPS intends to diversify its business by selling energy-saving Compact Fluorescent Bulbs to its customers. Procured in bulk, this would generate significant margins.

HPS is not satisfied with just taking this one new perspective because it has ambitions to go multinational. It has partnered with Emergent Ventures India (EVI) to facilitate the sale of carbon credits, and it has found that the waste generated by its mini-power plants, char from the burnt rice husks, can be used to manufacture incense sticks. It expects to earn 13% of its revenue from selling incense sticks by 2014.

Exploiting new income streams helps cut costs for the core business. Aravind Eye Care was concerned about the high price of available intraocular lenses and subsequently undertook research to develop a manufacturing process that resulted in cutting the cost of lenses significantly. Today, its manufacturing facility, AuroLab, exports lenses and other supplies to more than 120 countries.⁵⁵ This has enabled Aravind to treat more patients each year in India, whilst at the same time allowing many other facilities across the globe to reduce the cost of eye-care.



Image courtesy - 1298/Ziqitza Healthcare Ltd.

Broader Issues: Sustainability and Scalability

The seven approaches adopted by highly effective social enterprises set out in the previous chapter all play an important role in the ongoing journey of the social entrepreneur as they move from inspiration through investment and towards success. Once initial success has been achieved, it is then necessary to invest in further innovation to ensure long-term sustainability that can either be realised or sometimes compromised by increasing scale.

Sustainability and scalability within a social enterprise depend on three critical components. First, it must have a clearly defined customer interested in its products or services. Second, it must have access to funding to maintain it through the incubation process before the business is able to expand its reach. Finally, the social enterprise must address the administrative challenges of scaling up.

This requires continuous innovation combined with investment. These various hurdles can present disproportionately larger challenges for social

entrepreneurs delivering public services as compared to businesses operating in other markets. The research has revealed a number of strategies that, if deployed appropriately, can help mitigate some of the risks associated with scaling up.

Educating the customer: There are significant gaps in public services in India that suggest social entrepreneurs would find it easy to secure customers. It might be assumed that everyone would want clean drinking water or an affordable ambulance service, but social entrepreneurs consulted in this study have explained that it is not that simple.

This is illustrated by the experience of Sarvajal. This enterprise provides clean drinking water to villagers at affordable prices. However, their first challenge lay in explaining why their customers should pay for something that had been available to them for free, albeit frequently contaminated. Potential customers found it amusing that people would actually pay for water that was provided free of charge by nature.

To overcome this, Sarvajal employees ran and continue to run educational campaigns. Village road

shows display the level of contamination by various pathogens in local water, and staff advise on the impact that these might have on the short-term and long-term health of the community. As people come to understand the benefits of clean drinking water, they begin to register as customers.

Dial 1298 for Ambulance faced a similar challenge. It was hard to convince slum dwellers that calling an ambulance was better than rushing the patient to the hospital in an auto-rickshaw. Their customers often failed to understand that an ambulance was not just a mode of transport but was equipped with medical apparatus and support staff to stabilise the patient if required (see figure 11).

A bigger challenge, however, lay in marketing their service to different customer segments. They had to be careful with their marketing strategy. If they became too successful in marketing the 'high quality' of their service, they risked losing their poorer customers who would perceive it as being too expensive. Alternatively, if they marketed a free or subsidised service too extensively, they could lose payments from higher income customers whose revenue was required to cross-subsidise relatively poor people.⁵⁶

Dial 1298 is in the process of developing a customised marketing plan for people living below the poverty line through a pilot programme in Kamraj Nagar, a relatively small slum in Mumbai. They have launched a community outreach programme to provide emergency health training to local community leaders and to market the service on a no-profit, no-loss basis. It is hoped that this will establish poorer customers as a target market. For higher earners, they continue to advertise through traditional means, such as billboards, with the 1298 number displayed prominently.

In the case of LifeSprings, patients were reluctant to believe that they could get access to such good quality care at such an affordable price. It appeared to be too good to be true, so they continued to visit unhygienic government wards even if they had to pay a bribe to get decent service.⁵⁷ Building trust has been the key goal of LifeSprings in its operational and marketing strategies. Community outreach workers visit individual families to educate them on health issues, as well as organise monthly health camps.

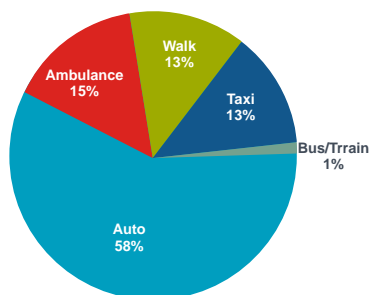
Word-of-mouth marketing through referrals and revisits is one of LifeSprings key strengths. This is promoted through loyalty programmes and a friendly approach towards service users, who are referred to as customers and not patients. Hospital facilities are designed to be simple, clean and unthreatening. LifeSprings also rigorously tracks customer relationship metrics and user satisfaction to measure progress and better understand its customers.⁵⁸

As these examples show, social entrepreneurs have to market their services in innovative ways to demonstrate the value of their services to a variety of customers. The key word is "demonstrate". It is not enough to inform the customer about the value of these services, but it is often necessary to show them how it can make a difference to their lives.

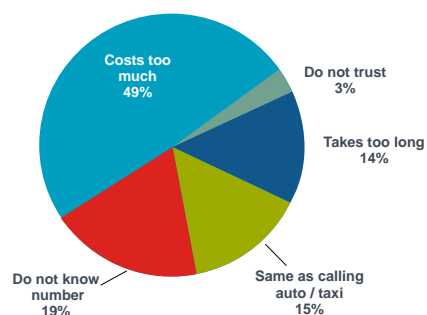
Overcoming challenges in raising funds: Most social innovators are first-time entrepreneurs with limited access to funds. The perceived risks associated with their innovative business models restrict the opportunity of obtaining funds from banks and other traditional sources of finance. Dr. Govindappa Venkataswamy was repeatedly frustrated in his early attempts to raise funds to establish the Aravind Eye Care System. Eventually, he decided to use his own assets, mortgaging his house and managing the

Figure 11: High costs and lack of awareness are the primary reasons why poor people do not call for ambulance services

How do members of your family get to the hospital?



What are the reasons your family would not call an ambulance?



“Dial 1298 for Ambulance: Marketing EMS in Mumbai,” Gita Johar and Joanna Harries, Columbia Case Works, June 2010 Results based on a survey conducted in 2009 in Mumbai, Maharashtra.

enterprise in such a way that it would generate sufficient capital for his expansion plans.

To attract funds, social entrepreneurs have to first show that their business model can succeed. Funding agencies not only want to see the impact of the programme in terms of its social purpose, but they also want to have confidence that there will be a return on their investment.

Social venture capital has proved to be very helpful in supporting the growth of such enterprises. The operators of these funds look to invest in companies that deliver social benefits and also generate decent financial returns. They meet one of the critical funding gaps that results from the distance needed to be travelled in transforming a new perspective into a business that has proof of concept.

Many social investments have one thing in common: the venture capitalists backing them have supported and encouraged the entrepreneurs to go for sustainable growth and scale, not just to improve financial returns but also to widen social benefit. In India, seven social venture capital funds have made available approximately £120 million and invested about £80 million in 72 social enterprises over the last six years. In the words of Varun Sahni, Country Director of Acumen Fund, "There will be £1 billion coming into this space in the next five years."⁵⁹

The aim of social venture funds is to promote profitability but not necessarily profit maximisation. They try to maintain a balance between social impact and private returns. However, not every social entrepreneur wants to face the pressure of being directed by a venture capitalist to remodel their business, if that is what is required. In this situation, the success or failure of the business depends on the ability of the social entrepreneur to generate sufficient internal surplus revenue to remain sustainable. Venture capitalists, while investing in the enterprise, can also lend a helping hand by providing mentoring through a critical part of the growth journey experienced by the enterprise.

Innovating Continuously: Continuous innovation has been critical to scaling up the Aravind Eye Care System. As Robert Behn pointed out: "The fallacy of the pilot project is that to replicate the innovation that

the pilot produced, we also have to replicate the nuts. And, as we all know, human nuts don't grow on trees."⁶⁰

Trying to understand why a pilot succeeded is a difficult exercise because it is inevitably multi-faceted. Scaling up the pilot programme is an even more difficult task. Replicating and expanding the eye care system globally, for instance, not only requires the right structures and equipment to be in place, but it also needs creative thinking innovators to strive for and contribute to the continuous improvements in order to successfully adapt to new geographies.

While there are some specific measures that can help in scaling up, a number of issues are difficult to anticipate and will require continuous evolution of the business model. Dial 1298, for example, has now developed a positive relationship with the Rajasthan government to run the government's existing ambulance service. They will take over the existing ambulances and add their own to the fleet. The government will dictate the revenue model.⁶¹

This means that the business model will change. They now have to focus more on their ability to run an effective ambulance service, which is a very different commercial model from a business originally designed to cross-subsidise poor people. Their customer base has already doubled in the process, but they have had to realign the operating model to ensure that their quality and brand are not adversely affected.

Scalability and Sustainability are inextricably linked for most social entrepreneurs. The challenges associated with sustainability tend to multiply in terms of their impact while scaling up. For instance, if the success of the initiative is critically dependent on finding the right quality of people, the challenge grows manifold when there is a need to find a critical mass of people as the initiative begins to scale up.

Scaling up a social enterprise is completely different from running a successful pilot project. Many variables that can be controlled in a pilot project can run out of control when the enterprise is scaled up. There are no easy answers. Each business will have to grapple with the specific challenges that they are likely to face and learn how to overcome them.



Limits to Social Innovation

There may well be limits beyond which social innovators will find it difficult to progress. The scale at which services are required in a country with the size and diversity of India means that the government will remain the primary custodian of these services and will need to play a major role in providing public services to the poor. The Indian government will need to make some rapid decisions and develop new perspectives about how the services will be delivered.

The failed experiment in Western developed economies where large public sector monopolies have stifled innovation may not sit comfortably with the Indian population. If the government acts as commissioner and helps to define outcomes, there may be considerable merit in unleashing the entrepreneurial talent, drive and commitment of local people to deliver the services in the most cost-effective way.

The Challenge is Enormous

Public service deficits in India are huge. Sanitation is one example of a public service that is taken for

granted in developed countries. Sulabh International Social Service Organisation initiated pay-per-use toilets in India in 1970. It was set up with the dual objective of providing better sanitary facilities and freeing human beings from the drudgery of emptying toilets.

Not only was the business model new, but the technology too was designed to significantly reduce the cost of a new facility. By 2006, 1.4 million household units and 6500 pay-per-use toilets had been deployed.⁶² Since the introduction of this initiative, a report from the World Bank has suggested that the previous lack of toilets cost India £34 billion annually due to premature deaths, high morbidity, low productivity and lost tourism.⁶³

Similar deficits are apparent in healthcare, education and other areas. Maternal mortality and morbidity levels in India are among the highest in the world. Only 43% of Indian women are supported by a skilled attendant during birth, and more than 100,000 women die every year from pregnancy related causes.⁶⁴ A total of 12 million deaths a year are associated with chronic diseases.⁶⁵ Of the 37 million people across the globe who are blind, over 15 million are in India and 75% of

There is a huge gap between demand and supply of high-quality higher education and approximately 500,000 students travel overseas to acquire higher education, spending nearly \$10 billion (approximately £6.25 billion) every year.⁶⁷ The all-India average energy shortfall is nearly 9% and peak demand shortfall is close to 14%.⁶⁸ Water shortage is visible in every metropolitan city, and there is no mechanism to supply clean and potable water to the vast majority of Indian villages.

The private sector has filled some of the gaps left by inadequate state provision. Some private players are very large companies, even by global standards. Apollo Hospitals, founded in 1983, is the largest private healthcare provider in Asia and the third largest in the world, with over 8500 beds across 50 hospitals. However, the majority of such private initiatives provide high-end, premium services that are out of the reach for the vast majority of the population. While paying for health services directly would be unthinkable for the vast majority of Indians, health insurance is available but only to a very small proportion of the population. This is due to a variety of reasons, including lack of awareness, expensive premiums and inadequate provider distribution networks.

The services currently delivered by social entrepreneurs are only a drop in the ocean compared to the scale at which they are required. However, their main contribution is frugal innovation through which they are establishing truly innovative approaches that demonstrate to the world that these challenges can be met.

Many admit that they are currently limited in impact and, other than stimulating innovation, are not currently in a position to replace the broader services provided by the government. In the words of Rakesh Saran, the CEO of Nidan Swachha Dhara Private Limited (NSPL⁶⁹), a collective enterprise owned and controlled by rag pickers and sweepers: "We are not replacing municipal corporations. In Patna alone, they can hardly pick up 50% of the waste generated. We can extend a helping hand and, in turn, help our members."

The government is making a significant contribution considering the limited resources available and the apparently insurmountable obstacles that are to be overcome. A number of schemes launched by the government seek to address the same issues that the social entrepreneurs are trying to tackle. The resources committed to these schemes are much bigger than the

funds available to social entrepreneurs. However, government resources are also limited and inefficiencies resulting from a lack of innovation add to the problem. Providing incentives to social entrepreneurs, which some government schemes do, can help achieve the goals faster than if the government tried to address all the issues on its own.

Something is Better than Nothing

Nevertheless, even a leaky bucket can carry life-giving water. Husk Power Systems are providing electricity in villages not served by the national grid. This is a substantial achievement, but the electricity is only available for a period of six hours from 6 p.m. to 12 a.m. A six-hour electricity supply is not ideal, but it is better than no power at all. Groundbreaking innovations, by their very nature, begin in embryonic form before gradually establishing themselves to become the benchmark that other providers aspire to match.

As new entrants speculate in public service markets, there is increased competition that has the potential to impact the margins of the original innovators.⁷⁰

In the words of Raj Kumar, the cofounder and president of Devex, a social enterprise serving international development, humanitarian aid and global health communities:

*"Once the business grows and the model is proven, the transaction costs of market entry come down and competition is likely to arrive. Many of those competitors will be better funded. A case in point is the microfinance industry. In the most difficult markets, it is often social enterprises leading the way; as markets get more developed, commercial banks begin to dominate."*⁷¹

However, while the challenges to social entrepreneurs are likely to multiply as more organisations enter the market, such enterprises will continue to make a vital contribution towards achieving broader goals that are of benefit to society. They are also likely to build new markets where none now exist, from which gains may later flow. As Dr. Jordan Kassalow of VisionSpring stated "...social entrepreneurship is about making markets work so that programmes like VisionSpring catalyse large movements to engage larger players, like multinational companies and governments to become part of the solution."⁷²



Image courtesy - Husk Power Systems

Partnership with the State

Social enterprises are not reliant on government funding, but the interface with government agencies is usually essential to success. The role of the state as a commissioner, enabler, regulator, partner and patron can make a significant contribution to success and sustainability.

Government must provide an enabling environment to ensure that social enterprises flourish. Kerosene sellers, understandably, might not be very happy with the idea that HPS is providing affordable electricity to villagers as a cheaper substitute. They may lobby against the initiative. Further, given the lack of a stable law and order enforcement in remote villages, the theft of cabling and other infrastructure is not unknown. State protection for such organisations is sometimes critical.

An important question is whether the state can provide tax benefits and other incentives to these enterprises if a level playing field is to be maintained for other small businesses and market entrants. In some cases, the viability of social initiatives is dependent on the availability of subsidies. For HPS, it may be in the form of carbon credits and other subsidies available for renewable energy.

Fortunately, in recent years, the Indian government has been proactive on this front. As noted by Harvard Professor Tarun Khanna, one positive fallout of the pro-development voting pattern in India has been the

"...Indian government's newfound ability to allow entrepreneurs a free hand in trying to solve some of society's most desperate problems."⁷³

The state also has a significant role to play as a regulator. While the government needs to protect consumers from unscrupulous business practices, it must avoid over-regulating to ensure that it does not stifle innovation. Regulation is a difficult balancing act. It is not easy to define what is overregulation and under-regulation. In India, The Right to Education Act has set standards for schools that might not be tenable for several Affordable Private Schools (APS). How changes in the regulatory architecture will influence social entrepreneurship is a matter of ongoing debate with many questions still unresolved.

Finally, the state could act as a patron for these social initiatives. The state could leverage the innovation potential of these enterprises to do things differently and more efficiently. There is the potential for governments to buy into and adopt these models. The challenges are huge; the burden of legacy structures and the constraints of operating in a public environment mean that it could be difficult to follow new approaches to deliver public services.

Nonetheless, there are ways in which government could support a social enterprise, especially when the service area is new. Government agencies in India have taken a number of steps in the right direction, but more could be done that would help the private delivery of public services through social enterprises

and other commercial vehicles.

1. Create demand: Government can generate demand for social entrepreneurs. One example is the creation of the government-sponsored health insurance policy, Rashtriya Swasthya Bima Yojana, which provides hospital cover of up to £400 per annum for a family of five. By extending coverage to nearly 300 million citizens below the poverty line, the market for social enterprises delivering health services has been opened to millions of potential new customers.

2. Outsource: Where governments are not saddled with legacy structures, they could outsource service delivery to social enterprises and the private sector by paying for outcomes.

A good example is the recent outsourcing of the sanitation of Gurgaon's roads. The model only pays the private service provider as long as it ensures that the roads are absolutely clean at all times. To monitor their performance, the Municipal Corporation has hired private monitors who make 4 visits every day and post photographs of non-compliance on a website. Citizens too are free to report any such issues with evidence. Any reporting of non-sanitary conditions earns penalty points for the provider. If the issue is not resolved within a stipulated time, the service provider is further penalised.

At the end of the month, if no violations are reported, the service provider gets 100% of the funding that they set out in their bid. If there are reported violations, then the penalty amount is subtracted from the total. However, if for any two consecutive months the provider earns less than 80% of the quoted amount as per the agreed contract, then the contract could be terminated and the security deposit forfeited.

This risk transfer ensures that the private sector provider is incentivised to deliver high quality service. The outcome-based model is being increasingly adopted and adapted in the UK. These contracts contrast with traditional input-driven models, where payments are based on the length of the streets and the number of people needed to keep them clean.

The benefits are already apparent. Rajesh Khullar, who initiated the approach as the Municipal Commissioner, has reported that payments are lower than the previous wage costs to the Municipal Corporation of employing the requisite staff to keep the streets clean. Also, the system is transparent and accessible to citizens, which not only redresses a long-held grievance of local people but may also ultimately improve the impact. Transparency is critical to such

success.

3. Subsidise: HPS is a successful enterprise, and its model is well tested. The Government of India, through the Ministry of New and Renewable Energy, has offered to subsidise HPS plants so that the model can be replicated quickly. The subsidy works out to £10,400 per 32kW plant distributing power to at least 3 km. It costs HPS £1.87 million to build 100 plants that run at a base capacity of 32kW each and have distribution cables of 5 km length. The initial cost includes three month's maintenance and the training of personnel to maintain the plant and operate it appropriately. This means that the state subsidy provides approximately half the project cost per plant.⁷⁴

There are numerous examples in the past of how effective partnership between government and social initiatives has proved mutually beneficial. Mid-day meals, for example, have been successful in increasing primary school enrolment in India. However, the provision of mid-day meals by government was marred by corruption and quality issues in many places. Akshaya Patra, a not-for-profit social enterprise, entered this market. They use centralised kitchens, efficient meal boxes and dedicated vans to ensure that nutritionally balanced and warm meals reach the students at the right time.

The catering staff work in hygienic environments, and the atmosphere in the kitchen is comparable to that of a good quality restaurant. Machines using conveyor belts have been deployed for cooking large numbers of rotis (bread made from stone-ground flour). Owing to the high impact of the organisation, governments at all levels (central, state, and local) along with various state agencies, like the Food Corporation of India, have supported the initiative. Subsidies from government form the biggest revenue component for Akshaya Patra. As a result, the organisation has scaled up considerably with 18 kitchens catering to 1.2 million children over eight states.⁷⁵

The state remains by far the largest provider of public services. Social enterprises are filling up some, but by no means all, of the gaps in service provision. They have stimulated innovation to improve equity of provision and drive down costs. This innovation has also been critical in overcoming the many and varied barriers that exist in service provision. Increasingly, the Indian government along with governments overseas are seeing the benefits of implementing solutions based on frugal innovation



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Lessons from India

Frugal innovation by social enterprises in India has resulted in new perspectives that have produced new solutions in public service delivery that would never have emerged from an exclusively state-run monopoly. The economic hardship experienced by a significant proportion of Indian citizens has created the opportunity for these businesses to flourish, albeit generally on a small scale. Some notable examples have grown significantly and expanded globally. Increasing recognition by government is resulting in partnership approaches to accelerate the availability of these high-quality and cost-effective solutions to more people in India. Some of the underlying principles that stimulate and support this creativity are set out below.

Fostering Entrepreneurship

Passionate leadership tempered with commercial acumen is a key factor for success in social enterprises. Each of the enterprises studied in India was founded by a remarkable individual with a vision to deliver services that were better and cheaper than those already available. Confronted by significant

obstacles, they have developed innovations that have extended basic services to many more citizens.

These attributes—leadership and business acumen—often need to emerge in environments that generate considerable resistance. Lowering barriers to entry may allow opportunities for potential entrepreneurs to come forward, but the need to address challenges will always remain. Many of the successes have been forged from adversity and driven by necessity without easy access to capital or business support. This has created fierce competition for resources, which naturally selects the most resilient propositions and entrepreneurs.

While entrepreneurs demonstrate heroic fortitude in tearing up the rulebook to generate new ideas, public sector workers perceive rule breaking as a career limiting activity and, therefore, best to be avoided. The current fiscal crisis in many developed economies is however forcing governments to rethink how they deliver public services.

Notwithstanding the need to change, legacy structures within the public sector are wrapped up in policies, procedures and practices that could take years to transform. Citizens are interested in the quality and

cost of services because they pay for them through taxation. They are not particularly concerned about who delivers the services as long as they are effective and efficient.

The Open Public Services White Paper published by the UK government in 2011 sets out some core principles, one of which is to ensure that citizens have access to a plurality of providers. Such an approach will present opportunities for social enterprises to flourish and new business models to develop. David Cameron's ambition to see more of the Delhi drive in the UK will only be realised by fully embracing new perspectives in public service provision.

Finding a Niche

In developed countries, there is little focus on market segmentation in public service provision or on value-adding services to meet particular needs. The democratic nature of public service delivery means that there is pressure to universalise service provision by making providers assume greater responsibility for additional service users and expanding the range of services without a good understanding of affordability.

The social enterprises studied in this report have focused on a specific need to specialise in a narrow range of services to remain sustainable and scalable. Narayana specialises in cardiac surgery. Aravind provides eye care to resolve unnecessary blindness. LifeSprings focuses on maternity services. These parallel the approach in private sector markets where the unique selling point of truly entrepreneurial ideas helps to find opportunities where customers' needs are not fully met.

Large state monopolies claim to have succeeded in delivering universal services, but citizens complain about the postcode lottery. The desire for rapid universality makes it virtually impossible to develop innovative services for niche markets. Top-down government has historically operated in a way that largely forbids providers from creating new solutions to achieve the outcomes expected by citizens.

Governments need to move rapidly away from commissioning inputs and outputs towards a 'black-box' approach that delivers cost-effective and high-quality outcomes. Social enterprises, along with private sector organisations, and increasingly mutuals have demonstrated the agility that is required to operate within these black boxes. Maintaining the status quo will severely constrain the exploration of important alternative approaches.

Avoid Excessive Regulation

One of the reasons why radically different models are emerging in India is the absence of existing public services and the inability of government to fund expansion to cope with unmet demand. As a result, the public service economy is largely unregulated, and there are few stakeholders capable of mounting a campaign in defence of the status quo.

The transformation taking place in India in the organisation of hospital services is a classic example. The service model is being radically rethought, with specialised tasks being broken down, simplified and reassigned to lower-skilled workers who are trained to perform specific roles at a high level of excellence. One hospital provider, Fortis, deployed a programme to train women from the local community as dialysis technicians. In developed countries, one would need academic certification for this job.

Examples of frugal innovation in India abound. In the industrialised world, there is no process of 'creative destruction' in the public sector, and service delivery models have persisted for decades after they had ceased to function well. The public sector is one of the most heavily regulated and scrutinised parts of the economy, and a powerful group of stakeholders (policymakers, professionals and their associations, workers and their unions and beneficiaries and the organisations that represent them) have both the interest and the influence to argue against radically different business models that might require them to change.

It is possible to imagine a public service whose only responsibilities are to set policy and commission providers to deliver services, except in exceptional circumstances where there is a strong argument in favour of direct public service delivery, such as the armed forces. The government needs to ensure that the population has a choice of providers. This should be combined with transparent and easily accessible information about performance and quality to ensure that further improvements in quality can be driven by customers. Competitive procurement will drive down price, and organisations that become early adopters of frugal innovation will thrive whilst others will struggle to survive.

Delivering More for Less

The Indian cases of Narayana Hrudyalaya and Aravind Eye Care have demonstrated that economies of scale in healthcare not only reduce costs but also help

improve outcomes. Doctors get better at their job as they see more patients. As Dr. Devi Shetty, who is a product of the NHS in the UK, explains:

"We work for six days a week. We keep our infrastructure utilised for 16 hours a day. And when other traditional heart hospitals in the west and Europe perform about 2-3 major heart surgeries a day, we do about 30 to 35 major heart surgeries. Last year, we implanted the largest number of heart valves in the world, so we get all these heart valves and expensive implants at a lesser price compared to the other hospitals."

In his view, a surgeon performing 3-4 major heart surgeries a day would have better skills and is, therefore, more likely to ensure a better outcome than a surgeon doing only one operation a day. He further states,

"We maintain the same standards as an American or European hospital but because we do large number of procedures our cost goes down; because our cost is less, more people come to us."⁶

Frugal innovation in India has introduced new perspectives and practices that allow more to be done for less without compromising quality. The impact of these social enterprises should not be underestimated because Narayana Hrudyalaya has now become an export business as it attracts overseas customers paid for by the UK's NHS.

Conclusion

Social innovators and entrepreneurs are addressing the service gaps left by the government and other public service providers in India. Their objective is to provide these services at an affordable cost to all, while aiming to keep the quality comparable to the

best-in-class. Some initiatives need to provide lower quality solutions, but these are appropriate to certain regions and people that cannot be reached by any other means.

Service users recognise that something is better than nothing. However, given the many examples of products and services that were originally of lower quality but subsequently have progressed to compete with well-established suppliers, it may be too early to write any of them off. They may deploy further frugal innovation and raise quality to emerge at the top.

In their quest to address the challenges of providing public services, most social entrepreneurs have adopted the seven approaches to innovation identified in this study. While any single approach may not appear very innovative in isolation or deliver the required results, together they become a powerful approach to solve some of the most intractable problems.

Given the large deficit in public services in an emerging economy like India, it appears unlikely that social enterprises alone can be the ultimate solution to eliminating all of the deficits. Government has a role to play in its capacity as an enabler, regulator and sponsor. Experience shows that government has been willing to lend a helping hand, though it may come at a later stage when the social enterprise is already well on its way to surviving on its own.

The final outcome will most likely depend on how well both entrepreneurs and governments are able to leverage their respective contributions, in order to solve the many and varied issues at the necessary scale, whilst endeavouring to ensure equality of provision for all.

List of cases explored for the study

1298	Aravind Eye Care	Empathy Learning Systems
Hamari Suraksha	Rashtriya Swasthya Bima Yojna	Lifeline Express
Apollo Reach	Narayana Hrudyalaya	Rishi Valley
Lifesprings Hospitals	AyurVaid Hospitals	Super 30
VisionSpring	Dr. Lal Path Labs	Janani
Smile on Wheels	Indian School Finance Company (ISFC)	Arogya Raksha Yojna
Wipro Applying Thought in schools	Takshila Schools	Educomp
NIIT Imperia	Mahindra Satyam Telemedicine and Mobile Health Services	Education That Works – Learning System (ETWLS)
Jaipur Foot	Sulabh International	ITC e-Choupal
SKS Microfinance	Arogya Ghar, Kiosk based clinics	Akash Ganga Rain Water Harvesting
Husk Power Systems	Sammaan Foundation	Nyayabhoomi
Magarpatta Township	Harva Rural BPO	Vaatsalya Healthcare
DESI	Columbia Asia	Shanvac-B
Mann Deshi Mahila Sahkari Bank Ltd.	Radiant Info Systems Ltd. (Prison BPO)	Source Pilani
Sahaj Common Service Centers (CSCs)	Vortex Engineering	Sarvajal (Piramal Water Private Limited)
Drishtee	EKO Financial Services	Akshaya Patra
Yashaswini Health Insurance Scheme	International Development Enterprises – India (IDEI) irrigation systems	Water Health International (WHI)
Thomson Reuters Market Light (RML)	Remote Medical Diagnostics (ReMeDi) – Neurosynaptic Communications	Nidan Swachha Dhara Private Limited (NSPL) ⁷⁷
Micro Insurance Academy (MIA)		



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Brief Descriptions of Primary Cases

1298/108 Ambulance (Ziqitza Healthcare Limited)

Ambulance services were not very common in India, and the existing ones were marred by delays and poor quality of service. Ziqitza Healthcare Limited launched its ambulance services in Mumbai, India, to meet this gap.

It expanded rapidly from 10 ambulances in 2007 to 280 ambulances in 2010 with the help of \$1.5 million in equity funding received from Acumen Fund in 2007. The company estimates a fleet of 1,000 ambulances by 2012.⁷⁸

What is notable is that several state governments have approached Ziqitza for deploying ambulance services for them in their respective states. As a consequence, it has moved beyond the state of Maharashtra to Kerala, Bihar, Rajasthan, and Punjab as well. It has also been able to obtain a 3-digit telephone number (108) for patients to call its services.

Aravind Eye Care System (AECS)

The objective of AECS is to provide affordable eye care to all. Its mission is to get rid of all avoidable blindness in India. From 11 beds in 1976, it has

expanded to 3590. AECS examines more than 2.5 million patients and operates about 300,000 annually.

It is a self-sustaining not-for-profit body that does not operate on grants. Its average return on investment is 40%.⁷⁹ Its manufacturing division Aurolab, known mainly for cheaper Intraocular Lenses (IOLs), earns a profit of 30% on its investment.⁸⁰

EKO Financial Services Pvt. Ltd

Indian cities see huge migration of labour from poor states of India like Bihar, Uttar Pradesh, Orissa, and Madhya Pradesh. A basic need for this migrant labour is a bank account where they can deposit their daily savings and send a portion of these back to their hometown or village as and when needed. Strict know-your-customer (KYC) norms, however, didn't make them eligible for bank accounts. At the same time, commercial banks didn't find this group profitable enough for provision of their services.

EKO financial services developed a mobile phone based technology that allows migrant labourers to use their nearby convenience stores to open a bank account with proof of identification. Saving, withdrawing or sending funds can be carried out easily and quickly by dialling a number and entering account

details. The acknowledgment of each transaction appears on the customer's mobile phone by SMS text message. While a change in banking regulations certainly played a role in the deployment of this solution, this has made the lives of migrant labour easier and their savings safer.

Empathy Learning Systems (ELS Pvt. Ltd.)

Government primary schools are characterised by poor infrastructure (at times including no roof) and teacher absenteeism. As a consequence, Affordable Private Schools (APS) became prevalent in India. These are centres of primary education that charge about £3 per month.

ELS Pvt. Ltd. is the company behind India's first chain of APS named M.A. Ideal. ELS is also a pioneer in developing process-oriented teaching and development of course modules for primary children. These products and services were developed due to the high levels of staff turnover in APS and the need to quickly train new teachers.

Husk Power Systems (HPS)

Using rice husk as fuel, HPS supplies electricity in villages not served by the power grid. In 2010, there were at least 18,000 such villages.⁸¹

It has established more than 50 plants since 2007 when the first plant was set up and aims to scale this up to 2014 plants by 2014. HPS is based on a fully sustainable model where it earns a profit of \$0.07 for every kilo watt hour of electricity sold.⁸² According to another study, each plant earns a profit of about \$335 per month.⁸³ Its success and sustainability has prompted the government to subsidise the new plants being set up.

Indian School Finance Company (ISFC)

Affordable Private Schools (APS) play an important role in the Indian primary education scenario. However, these schools run by individual entrepreneurs, operate in austere environments and have limited funding for expansion or improvement of facilities.

ISFC is a non-bank financial company that provides loans to such APS for purposes like building playgrounds, building modern toilets, setting up computer labs or even establishing new premises. The company uses the senior-secondary school results as a way of filtering out borrowers.

LifeSprings

Maternity related deaths are very common in India. The services provided by government hospitals are either inadequate or unhygienic. LifeSprings hospitals try to solve this issue by providing affordable but quality maternity care.

By focusing on maternity alone, the hospitals keep the costs down to the bare minimum. Each hospital breaks even in a year. The flagship hospital captured 48% of market share in 2010.

LifeSprings has already set up 9 hospitals in the state of Andhra Pradesh, and it plans to set up 150 such hospitals by 2012 across different states.⁸⁴

Mera Doctor

Rural India has no access to quality medical advice because of missing government infrastructure and a lack of interest from private players. However, in urban India too medical advice can be expensive and may require a long commute dissuading patients from visiting a doctor.

Reliable advice over the phone as provided by NHS Direct in the UK can certainly be a good alternative. In India, this has, however, been taken up by a private provider called 'Mera Doctor' meaning 'my doctor'.⁸⁵

At a six monthly subscription of about £4, one can call up and consult qualified doctors. The doctors analyse the symptoms through detailed questions and answers and based on the severity suggest whether to take medication or to visit a general physician or specialist.

Narayana Hrudyalaya Private Limited (NHPL)

Founded by Mother Teresa's personal cardiac surgeon, NHPL provides affordable cardiac surgery. Inspired by Wal-Mart, NHPL challenged the myth that such standardisation and process orientation is not possible in healthcare.

It performed 3,174 cardiac bypass surgeries in 2008, more than double the 1,367 at the Cleveland Clinic, a US leader in its field. Narayana reports a 1.4% mortality rate within 30 days of bypass surgery, compared to a rate of 1.9% in the US.⁸⁶ The cost of open heart surgery at Narayana, however, is a mere \$2,000 compared to \$20,000-\$100,000 in US hospitals and around \$5,000 in private hospitals in India. Narayana is now offering the NHS cut-price operations for Britons, at 1/12th the price charged in Britain.⁸⁷

Having attracted funding from global conglomerates like AIG and JP Morgan, NHPL intends to diversify its services beyond cardiac care.

Nidan Swachha Dhara Pvt. Ltd (NSPL)

For the most part, sanitation and refuse collection are provided by public agencies in India, but standards of delivery often fall short. In this context, a body called NSPL was formed in Patna (Bihar) by marginalised sections of the society to meet this deficit.

Its clients include individual households, restaurants, and several other institutions that do not have any other alternative to their waste disposal. Nidan serves a dual social objective; it provides employment opportunities to the weaker sections, while keeping the environment clean. This 250 member organisation has a CEO and runs a functional corporate structure.

Sammaan Foundation

Sammaan creates employment opportunities for unorganised labour in India. It has been able to convert the humble cycle rickshaws into much more than a mode of transport. Its customised rickshaws double up as mobile advertising boards. The rickshaw pullers also act as salesmen of beverages and insurance schemes to passengers.

It started with two ad clients but now has more than a dozen. Its rickshaws now ply beyond Bihar, in the states of Delhi, Haryana, MP, Rajasthan, and Jharkhand.

Sarvajal (Piramal Water Pvt. Ltd.)

Drinking water is not easily available in all parts of India, and very few have the income to buy bottled water or to establish filtering units in their homes. In this context, Sarvajal has established reverse osmosis plants in villages that are run by franchisees. Since its inception in 2007, it has enlisted 117 franchisees that provide clean drinking water to nearly 65,000 citizens of Gujarat.

Villagers can buy 25 litres of water for about 6 pennies. The plants are monitored and maintained by Sarvajal.

Sulabh International Social Service Organisation (SISSO)

One of the older cases of private provision of public services, SISSO is in the business of solving India's sanitary deficit, which apparently costs India \$54 billion (World Bank) annually due to premature deaths, high

morbidity, low productivity and lost tourism revenues.

SISSO initiated pay-per-use toilets in India in 1970 with the dual objective of providing better sanitary facilities in India and preventing people from relieving themselves in open spaces. Not only was the business model new, the technology used was such that it lowered the cost of a new facility significantly. By 2006, 1.4 million household units and 6,500 pay-per-use toilets had been established.⁸⁸

It operates in almost all Indian States and registers 15 million users on a daily basis.⁸⁹ Sulabh has developed toilets in Ethiopia, Madagascar, and Afghanistan, as well. The entire network directly employs more than 60,000 personnel.

Thomson Reuters Market Light

The contribution of agriculture to GDP has decreased significantly to 25% over the years, but at least 50% of the Indian population continues to draw its income out of this sector. Timely information on weather forecasts and market prices is very important for this segment of the population, but it was rarely available until a few years ago.

Thomson Reuters developed a solution jointly with telecom providers that provides customised information to each subscribing farmer. A customer can buy a package where he gets weather information, as well as market prices for his portfolio of crops on his cell phone on a daily basis. The service is available in several different native languages due to the low literacy levels of the user demographic.

Vortex Engineering : Rural-ATM 'Gramateller'

Financial inclusion is very limited in India. Almost 50% of the population doesn't have access to banking services and only about 10% of the population has insurance cover of any kind.

Vortex engineering tries to reduce some of this deficit by providing affordable rural ATMs that help provide banking services to the rural population. Its flagship product Gramateller costs three times less the conventional ATM and consumes less power.

Launched in 2007-08, Vortex has more than 50 operational ATMs in semi-urban areas in cities, like Patna, Bhopal, and Gorakhpur. It has also received an order for 600 such ATMs from the largest Indian bank, SBI.

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