

A New Resource for Social Entrepreneurs: Technology

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Social entrepreneurs have employed social capital, funding and a vision as intrinsic resources for building social enterprise. Technology is another crucial resource which has the capability to transform an idea into an operational endeavor. Technology supports in creating a new social venture, when one could not achieve scale in the past or not create one in the past without technology . Using aspects of Technology Diffusion theory, we show through several cases how technology can be another critical resource that can be utilized by Social ventures to create and broaden their enterprises and apply existing technology to leverage their businesses.

INTRODUCTION

Social Entrepreneurship

“There is nothing as powerful as a new idea in the hands of a first-class entrepreneur” Ashoka website. Social Entrepreneurship combines the finest of private enterprise with constructive social impact. It has seen an unprecedented growth in the last decade or so. Mixmarket alone has 92.1million borrowers with over \$52.5billion dollars in loans. (Mixmarket.org Oct 3rd 2012). The potential for this industry increases with the current economic situation. With such high numbers employed and impacted by this set of enterprises; it is becoming imperative that the best practices be applied.

Countries such as UK, USA are all encouraging individuals to set up such enterprises. It is estimated that there are over 80,000 such firms in the UK alone, with a turnover of 24 billion pounds and employing 800,000 people. (Social Enterprise UK) Estimates for the USA have over 1.4 million nonprofit organizations with revenues exceeding \$1.36 trillion.(Wing, Pollak, Blackwood,2007). Even if a fraction of these are social ventures, the numbers are huge. Prime Minister Cameron has urged 1 million public sector employees to start new firms in this sector. (N Timmins, 2011).

Social entrepreneurs relate conventional, profitable entrepreneurial doctrines to solve social issues. “Social enterprises can help create jobs, devise innovative development solutions, and inspire young people to act as citizens who are both economically productive and socially engaged – all with the ultimate aim of promoting human dignity and greater social equity” notes the Brookings Institute. (Abdou, Nelson, Fahmy & Greenwald , 2010).

Resources

Social entrepreneurship employs numerous resources, all of which are not similar to a normal business. These include Symbolic vision, Social capital and financial resources. Symbolic vision is an important resource to enable such an enterprise taking off. The vision of the founder, to visualize the future, or ‘What could be?’ and communicate it to the group is essential to its being. The importance of

social capital for this sector is crucial as it is only through such connections that the enterprise can thrive, grow and impact society. They are also doing it for that social community who would benefit from it and thus is a vital component of the enterprise. The need for financial resources is well-known in all enterprises.

Technology as a Resource

We would like to introduce an additional new resource to this mix: 'Technology'. Now, in the traditional sense one would deploy technology using financial resources. In the case of social enterprises, where finances can be a strain and not easily attainable, utilizing the right technology has the possibility of helping the social enterprise take off at a lower cost, at a quicker pace, and in some cases, the enterprise could not exist without the technology (mPesa). In several other cases, having a newer/ cheaper technology makes it financially possible for the enterprise to grow /survive (technologies such as Social media used for Kiva etc.). Technology makes individual inspirations real on a larger scale.

To make an impact at a faster pace we need to leverage technology as the key growth force. Information technology has impacted banking (mobile banking/ mobile phones) to a degree, but Social media and Cloud Computing can change communities. Entrepreneurs comprehend that the surest way to grow is to innovate and use technology with a social purpose.

As Tim O'Reilly aptly puts it "What new technology does is create new opportunities to do a job that customers want done.(Brainyquote.com) "# Information #Technology has the ability to have everyone access information which is required for education, training, health and social issues. With software becoming more innovative, the progress made in mobile technology presents unparalleled prospects to offer this to everyone.

We will examine many cases where technology has been deployed successfully and what we could learn from this. We also examine the Technology Diffusion Theory which helps us understand and create a framework for social entrepreneurship.

Technology Diffusion Theory

French sociologist Gabriel Tarde first explained why some innovations spread in a culture and others do not. (Laws of Imitation-1903). Tarde came up with the S-shaped curve and also introduced the concept of innovations being more easily accepted by individuals with a broad-based or "cosmopolitan" outlook. (pp 392)

In 1943, Ryan/Gross conducted an experiment with corn seeds to explain technology diffusion. Their explanation of this was- several factors such as "well-established interpersonal ties" and habitual exposure to mass communication (p 127/ Rogers 1995). They validated Tarde's model of an S shaped curve and added the 4 types of adopters and the five steps for successful innovation adoption. The main steps are:

- Awareness
- Interest
- Evaluation
- Trial and
- Adoption

Rogers (1976), explains diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social system." Rogers goes on to explain that innovation is "an idea, practice or object perceived as new by an individual or other unit of adoption. "

The focus is on *the perceived as new* by a group/individual. So the critical issue is "new" for the enterprise which could be achieved using the five stage AIETA process. - Innovators have been classified as: "(1) Innovators (venturesome), (2) Early Adopters (respectable), (3) Early Majority (Deliberate), (4) Late Majority (skeptical), and (5) Laggards (traditional)" (Rogers, 1995, pp. 183-185), based on their innovativeness.

In the evolution of technology, social contacts are important as they bring different perspectives and ideas to the entrepreneur.

Stacks, Salwen (2009) note that:

a critical mass occurs when the diffusion process becomes self-sustaining. After the critical-mass point, individuals in a system perceive that “everybody else” has adopted the interactive innovation. With each successive adopter of an interactive innovation, the new idea becomes more valuable not only for each future adopter, but also for each previous adopter (p. 427).

This theory will be applied to the Social entrepreneurship sector and we shall evolve a framework which would be useful for new and existing ventures. We now discuss the role of technology and the case studies briefly.

H1: Technology has been a significant growth driver for social enterprises in the last 5 years.

Role of Technology

Ten years ago if one needed feedback from customers, say to introduce a new product or how their services were being evaluated, it would involve a huge amount of manpower, time and cost, in addition, to the data being slightly outdated. With newer software products such as Buzz metrics this could be almost instantaneous at a fraction of the cost.

Apple’s new iPhone has “Siri” ,a technical assistant,- one could talk to in English, French, or German, and it provides answers for your queries. Even a month ago this wasn’t possible. This opens up large portions of illiterate humanity who can utilize the power of mobile networks and its benefits from banking to health care needs or education. Microsoft is in the process of refining GUI software which will again enable illiterates to access mobile technology. The focus of a large number of social enterprises is this section of society, and technology will enable them to come into mainstream banking/ information which are the lynchpins of modern society. Even rural agriculture benefits from information dissemination and accessing data from markets.

As pointed out on Benentech’s website, the world has the knowledge to solve our problems, but what is required are innovative solutions and match it with present technology at a low cost.

The following case studies give us a glimpse of what individuals and social enterprises have done using technology. This is just a sampling. Many organizations are now educating themselves about the merits of technology, learning what it can do for you and utilize it effectively. As one Technology CEO put it” Ask us what you need and we will find a technology that works for you”. (MPWS conference Oct. 4th 2011)

Sharing of experiences, learning process is so effortless with technology. One does not need to train thousands of trainers to impact a larger set of people all thanks to technology.

Our challenge is to create a network that the appropriate technology, at the right price, is made available to the sectors which need them. Today, this sector is being ignored by pure commercial ventures as being unprofitable. (Though examples such as Safari have shown us that due to high volumes and smart pricing, this can be an extremely profitable sector). The other vital challenge is to connect social entrepreneurs with Research and Development teams to redefine technologies for them or even invent new ones for their communities.

CASE STUDIES

H2: Technology has been an effective tool in sectors such as education, health , environment, banking, communication, energy and agricultural markets for social enterprises.

For a new start up – such as “Not for sale” the issues of incorporating technology are essential to achieving scale and effectiveness. Its survival may depend on use of technology for sheer numbers and reach. For existing social entrepreneurs, using technology to automate, informate and transform the business - Vital voices and several other examples show us how this was done. For mature social ventures, this could be a way to revitalize their user base and programming and perhaps even reinvent the firm. “Technology can act as an accelerant” comments Jared Cohen of Google.

Education

Khan Academy.org is a very cost effective way of education reaching millions of students around the world. This simple model uses a camera and Logitech head phone and a computer device and ONE single individual who sits in front of it and shows us how to solve various math/ economic problems and helps you study. They have over 2,300 videos now and have grown in employees since then. If one had to do it without technology, we would need millions of dollars and over thousand teachers in all parts of the world. (it began with an investment of less than 200 dollars).

Students can view those videos over and over till they feel comfortable- they may practice and take tests. It is individualized, measures progress, and self learning and / or with help from a teacher. Over 2 million students watch these videos. Many of these are watched by teachers’ worldwide, who have not been trained well enough to teach the subject. They have, at no cost to people, improved the quality of education for millions around the world.

Others in the same field are MIT OCW (free), so the best education is available to millions at no cost. Apps for education through Apple University are being created and now number in the thousands.

Digital study hall Urvashi Sahni has created a digital study hall. This is an after school project for the poorer slum girls (and it is subsidized by a full time school during the day for middle income families) The Digital Study Hall has 3 technological parts:

The Postmanet: because of poor connectivity they get DVD’s and other storage media to educate them, EdTV allows them to turn regular TVs into computers ,eliminating the issue of investing in computer display, The Learning eBay a website that unites students and teachers/staff across geographical locations as well as time zones.

Benentech’s goal is simple- to use technology effectively for society. They are technology geeks who have used their skills and knowledge in education and other fields. They have created Bookshare, which has over 80,000 users (in US and India primarily), for people who have print disabilities to be able to read traditional books. This is the “world’s largest accessible digital library of scanned material”. Another service offered is Route 66 Literacy, which enables teenagers and older souls to be trained to read and write using web- based technologies.

MILLEE: Education and Mobile Phone Games Mobile and Immersive Learning for Literacy in Emerging Economies (MILLEE), uses cell phone games to improve English literacy skills .With 600 million phones in India, this is the perfect technology to reach the masses. With the world moving to English based commerce, such skills could mean employability. This is being used in India, China and Kenya.

DotNetFunda.Com is a popular website for online tutorials and guide for latest Microsoft® technologies aimed for beginners and intermediate level professionals. DotNetFunda.com offers articles on diverse areas of SDLC. This typically includes software development, tutorials (including video tutorials), Career Advice, interview questions, code snippets and discussion forum. They attract over 2, 00,000 visitors every month from 188 countries.

Food/Agricultural Markets

World food program has partnered with many private sector companies to manufacture very high protein based food distributed easily, potatoes/bananas being grown with inbuilt vaccines, and Digital Food where a simple swipe card is given to undernourished people who use it at their local groceries and those groceries are replenished by world food programs.

COOPEUMO, a 350 member farmer’s cooperative - has created a database - DatAgro- to generate

information for its members through the use of SMS. This covers prices on products and inputs, weather as well as global markets. Mobile phones, with their ubiquitous reach (90% in Chile) have become very valuable technological tools.

In Indonesia, Hamzah has used a very basic method of using old bottles to refashion them as a drip irrigation system. The cost of making such devices is less than 10% of conventional systems. This has benefited farmer cooperatives immensely.

José Roberto da Fonseca e Silva of Brazil through Eco-Engenho Institute has encouraged small scale farming through “solar-powered micro-irrigation system” thus leading to profitable small farmers. They have worked in Northeast Brazil, a semi-arid rural region, where he uses renewable energy and technology to create micro-irrigation systems via solar energy (H2Sol). In Baixas, they used a hybrid hydroponics system and a sprinkler irrigation set (using energy from the sun) to cultivate high value crops. He has also introduced biodigesters to improve the quality of soil and thus produce better crop.

Environment

Benentech has created a software program called “Miradi” which is used to aid environment conservation projects. This is a project management tool to monitor progress. This has been implemented in projects in Jilin, China and Puget Sound USA.

In Nepal, Babu, an engineer by training has created solar powered tukis, replacing expensive petroleum based kerosene as a source for lighting. He has also revived a traditional rotational trench composting and uses organic trash to produce compost for farmers thus generating revenue from this process.

Health

With fraud in pharmaceuticals, it could mean a matter of life and death if you buy a spurious medication. Illiteracy in these matters compounds the problem further. Bright Simmons in Ghana has set up the first SMS-telecom database to combat this. Customers send the code, via text, on the medication to the company and get an instant reply on its authenticity. This is a quick, easy and free way to prevent contaminated medicines being sold and saving millions of lives. It has also pushed the pharmaceutical companies to become more careful about producing quality products.

Howard Weinstein of Brazil has set up a manufacturing center to produce hearing aids using solar power instead of expensive zinc batteries. The manufacturing and distribution is done by deaf consumers.

Andres Martinez Fernandez in Spain has designed video microscopes; stethoscopes which can be used virtually and many other diagnostic tools to promote efficiency of health services in some areas of Colombia, Peru, and Nicaragua.

In Indonesia, Agus Gunnarto has developed sewage treatment plants which are small and affordable. Governments today do not have investments to do large scale projects and he has created a self financed model to improve sanitation in this village. Agus has set up treatment plants which gives the community clean water and fertilizers for the community and now there are catfish swimming there which has become another source of income-through fishing, which has helped pay for the maintenance costs. By-products include manure, chicken feed etc. As this has been very successful they are being replicated in other parts too.

In Kenya, David has developed “technology-enabled sanitation "kiosks”” to reduce diseases and environmental degradation. In these areas it was expensive to even build a toilet. So David built these kiosks- which were designed in the community workshops- which generate revenue. They have advertisements, a telephone booth leased out and newspaper vendors which reduces the cost per user to use these sanitation kiosks. Urine is used for composting and human waste is converted into gas which is pumped back into the kiosk for electricity.

Government

The Indian government, for its 12th 5 year plan, has created a web portal to receive inputs from individuals all across the country to ensure more inclusive growth ideas. Even USA's super committee on deficit reduction is doing the same.

Energy

Imagine if 75% of the population does not have access to electricity. This is the case in Nicaragua. Over 2.5 million people are bereft of this fundamental resource for growth. Given the high cost of investment in this sector they have found it impossible to attract investors. Blue energy initiated a locally based project to create hybrid natural resources energy devices, powered by wind and solar. These are manufactured, maintained at the community level. This is a much lower cost energy and is also continuously available as they have combined wind and solar together with the assistance of The National Technological Institute of Nicaragua (INATEC). The cost is in the 10,000-15000 dollar range which has come from donors and Kiva etc. The individual families buy a kit (a battery electric bulbs etc.) with a deposit and have to pay 3-5 dollars for a 10-21 day period to access electricity. This would give them access to communications (radio/TV computers) to clean drinking water and so much more.

Banking

Mpesa uses the mobile phone to help farmers /rural workers in far flung villages with no access to banking to save time money and to conduct all their banking needs over the cell phone. They have amassed a large number of laborers who had no access to banking and now have access to a savings account through the cell phone. He can access his money, make payments, receive his wages and receive interest. They saved on average US \$ 6.67 per transaction (survey by Safari com) and 24% of them said they bought more food with their savings. Time was freed to work more and earn additional income. M-Pesa contributed to 9% of Safaricom's annual revenue (around 90 million dollars and have over 8 million users.). As can be clearly seen, this has become a major profit generator. There are more than 15 other mobile banking services such as Afghanistan's M-Paisa, Brazil: Bradesco and Caixa, Cambodia: WING Money, Cote d'Ivoire: MTN Mobile Money, Orange Money, India: WING Money, Cote d'Ivoire: Eko, and Zap, Pakistan.

Communication

Village Telco: used a very unique way of building a telecommunication system. It is a plug and play system for any new village. This group designed a new communication device and gave it away to a manufacturer for free, only if they would further distribute the design free to anybody. They have over 500 people working on various aspects of it, on a volunteer basis using freely available Wi-Fi networks. Around 1,000 units have been sold on 'Mesh Potato', which covers applications such as disaster relief, cyber café, telephone for the community. The Mesh Potato is a Mesh enabled WiFi device with an RJ11 port to connect an inexpensive regular phone and an RJ45 to connect any IP device. (Stanford Innovation series)

Rural Telecom Foundation (RTF), founded by Madan Mohan Rao, brings connectivity to the rural parts of India, which allows it to be part of the mainstream commercial/economic social and even cultural activities RTF uses a customized party line system via BSNL (Government corporation), to offer communication to a town as a group –up to 15 people. Using an efficient cheap design, in which a single line is spilt into many and is easily enlarged, is what makes this affordable and unique. As this is matched with the CDOT exchange, there is no need to add cost-prohibitive hardware. There is also no need for additional power.

MXit IM is a mobile instant messenger and social networking software application that allows you to chat anywhere on earth from your mobile or PC for free. This has been immensely popular and has over 13 million users. It is a fun IM, but has been used for many aspects such as remote drug counseling too. Their aim is to be a largest global community of mobile users. This is very powerful to bring about social change. (Gopalkrishnan 2010)

Open Source Activism

Vital voices a 15 year old venture has seen a huge improvement in productivity with reduced costs and are more effective today due to technology. Earlier they were the brokers between women in Haiti and say Ghana .Now the women talk to each other directly –via internet-sharing best practices. They operate in 127 countries. CEO Sheryl says that she couldn't have done it without technology. (MPWS conference)

Technology can even given courage to people who wouldn't have started an enterprise earlier. An Egyptian lady who had 76,000 people sign up on her facebook for political activism. She was arrested, but was released because of pressure from that same group. We all have seen the role Twitter and Facebook has played in the “Arab Spring” uprising or even in “Occupy wall street” in USA. Without social networking, such revolutions would have been impossible.

“Not for sale” calls itself Open source activists. They call it open source as they have used free “open source” mapping software to track slavery around the world. They have added 1.5 million activists. “Not for sale” claims they could not have done this without technology.

Benentech In this case they provide statistical analysis to human activists to facilitate them to pursue justice and reconciliation in Sierra Leone. Colombia has also used the Martus software to track killings and disappearances.

In India, Vibha Gupta trains rural women to use technology to create viable firms. They have invented over 100 technologies which are appropriate for rural life and 3/4ths are exclusively for women. She creates a team of female mechanical engineers, mechanics, health workers, volunteers and doctors who meet and learn from subject matter experts. They are then made to visit similar locations where this is an applicable technology and check for sustainability and replicability. Being a self – sustaining venture, participants and implementers have to be from the village itself and they are provided training. Examples are service centers to repair sewing machines, bikes, kitchen appliances, or even in pathology laboratories. She has trained them in herbal medicines, jams etc from locally produced organic foods and even solar energy devices.

TECHNOLOGY FOR THE UNDERPRIVILEGED

H3: Social enterprises can use the “perceived as new” technology in their enterprises in the area of Information Technology.

Companies such as Movirtu. and Microsoft are looking at this market (illiterate/ those earning less than \$2 a day) with their unique needs and issues to create software for mobile phone applications which can be effectively deployed here. Some of these have included MX share, which sets up virtual mobile phones for people who cannot afford a handset, using phones belonging to other consumers or kiosks. MX pay uses this to permit payments and MX info provides health care education. Others include MX share where you just buy a SIM card for use. Microsoft has created graphical user interface for use by illiterates to enable them to use the mobile gateway. Facebook allows people to build communities just like NING. And you could share best practices, discuss common issues and educate each other.

Rural Innovations Network Instead of recreating the wheel, Paul uses the power of exchange and takes rural technologies which have been very successful and introduces them to other neighborhoods. He even helps the innovator package it and attract investment to scale it up. When solutions exist as ideas, Paul helps the farmers find appropriate and cost effective technologies to execute them (such as the solar purifier which helps clean water using solar power). He registers patents and helps them earn from their inventions. As we have seen with many developing countries, creating low cost innovations (\$35 tablet or the net book or the \$2500 car,) there is a possibility of reverse innovation too.

Automate/Informate

In this classic IT role, specialized data entry workers enter data received from their branches through email/ scan/fax to create reports which are available the next day and thus improve efficiency. This is

being successfully deployed by Sahayata in Jaipur, India. They specialize in giving Micro loans to micro and small entrepreneurs. This has improved productivity of their loan officers by almost 100% in client case loads. Using this they have grown to over 175,000 clients in less than 3 years of operations (Gopalkrishnan 2010).

Mobile as a Means of Revenue

The Village phone in Bangladesh and others such as Shared phone, Psitek kazang in South Africa are methods of using this device as a revenue generating source by renting time on the phone. "Txt eagle" lets you use your translation/transcription skills to earn anywhere in the world. Here, the client breaks up work in minutes and people can work at any pace and get paid accordingly. The aggregator puts it all together.

CgNETswara provides journalistic material to underserved tribal areas in India. This information is sent via cell phones and reaches a larger number of subscribers. This tribal group did not ever have a newspaper of their own and this has led to greater cohesiveness and awareness of social problems among them.

Newer Technologies

Almost every day, newer technologies are being devised for a myriad of applications from medicine to information which could be utilized in social ventures. Technologies such as gene manipulation, pathology labs for detecting AIDS, which are extremely cheap and easy to use, projecting pictures on any surface and so on. The list is endless and growing every day. We discuss one such technology-cloud computing which is at a usable stage for social entrepreneurs today.

Cloud computing. Instead of buying their own computer systems, companies, individuals, and even governments can share time on a common computing infrastructure, which consists of interchangeable parts providing computation, data storage, and communications. If one piece malfunctions or needs updating, programs and data automatically move to others. Multilevel security prevents users from interfering with one another. This vast system is cheaper to operate than many individual computers scattered among different businesses and agencies, because both the hardware and the administrative staff can be utilized much more efficiently

Since many corporations are a bit wary of embracing this fervently due to security issues, the social enterprise sector is in a unique position to exploit the virtues of cloud computing, as the data being processed is not under threat from competitive pressures.

The products available are:

Infrastructure as a Service (IaaS) Consumers can procure power, capacity, and network services to create their unique system utilizing this as a base.

Platform as a Service (PaaS) Amazon, Microsoft, Google all work in this market wherein preconfigured computers are rented to the corporation for a pay as you go model, saving tens of thousands of dollars for small and medium companies. It could be as low as \$17 per month for 'virtual private servers'.

Software as a Service (SaaS); In this case, entire applications can be leased per use. Thus, each branch does not need to invest in hardware and software and a network, but can have a seamless experience via SaaS.

Other options include the private cloud- for highly sensitive data, a community cloud – for a similar set of companies, a public cloud – Facebook, Google, Amazon, Microsoft and the hybrid cloud which could be a combination of any of the above. Spot cloud has started a service which rents out computing power by the day and minute. This is even more cost effective than cloud computing.

Crowdsourcing is being used to pick up information, ideas and thoughts from a variety of groups and uses 'collective wisdom' to strategize.

Micro-work organizations such as Kiva, Extraordinaire, Dream Bank, Footprints program of world nomads, Sama source and several others are using technology (mobile/Internet) to unite

people to contribute, volunteer and also work. They break work into bite sized pieces and spread it around. The iPhone “Give Work” app has been used to tag photos by the refugee population in Kenya.

Online swarms. The amalgamation of mobile phone, location, and organizing technologies will make consumers in the driving seat as far as services go.

Social entrepreneurs could gauge the impact that their program has made so far and be able to fine tune it on a daily or even an hourly basis. “Quiet Riots” is an example used to handle consumer complaints Task Market: an application where small businesses can hire freelancers such as accounting, graphic designers etc. Work Lounge allows for Distributed collaboration, for illiterate people development of text free user interface has been a great boon for finding work using technology.

FUTURE

A Gartner report – in the Economist (October 2011)-predicts that there will be 10 billion mobile hand sets by 2020. If every human being can possess one, the impact for social entrepreneurship using such devices is limitless. We have seen examples of Food, Education, health, banking and even revolutions which can occur due to this device. Imagine the possibilities that can be accessible to all sections of the world with this technology. Every man, woman and child can be potentially reached on a customizable one-one basis. If the sector fails to use the technology and doesn’t devise ways to incorporate it in their business plans and day to day operations, it will be very difficult to survive, let alone make an impact and solve the multitude of social problems. This consumerization of IT, its ubiquitousness is slowly leading to democratization of the world population. In addition to the proliferation, the cost of technology has been reducing drastically. For example 1 GB cost \$200,000 in 1980 vs. \$0.01 now.

Beyond Technology

What is important in these cases is just not the use of technology but in almost all these situations, there has been a concerted effort to devolve power and responsibility in the hands of the community by training and empowering them to take it on and run it as their own to ensure sustainability. They have also found that in many cases such as Village Telco and Ushanidhi the community has forged forward and created relevant and cheaper add on products to the main technology, which in turn has become a source of income from other similar villages. Learning is that one does not have to recreate the wheel; many of these technologies are being franchised out to a larger audience, thus creating a new stream of revenue for the pioneers.

DISCUSSION

Framework for Technology Use

Over 20 cases of social ventures utilizing technology extensively have been discussed above and a framework has emerged from them. The framework essentially examines the stage of development and suggests appropriate technology to leverage the organization. It is very useful in the initial stages wherein an entrepreneur is trying to utilize other resources such as finance and social capital to further their venture. Table 2 shows us some examples of social ventures at different growth phases.

Start Up/Initial

Learn about all the options available in terms of technology, educate yourself about things such as internet, mobile technology etc. If it is not possible, utilize online volunteer services and put your idea of a social venture out there. You would be surprised at the number of people willing to give you information on appropriate technology. This is the “A”wareness stage. Consult Technology firms such as Facebook, Google, and Microsoft who are always looking for new applications for their products. Show “I”nterest then “E”valuate, “T”ry them out and “A”dopt it. Even if you are not an innovator in your

venture you could pick up technology – which may be old in the commercial markets- and apply it here. In order to “Recognize opportunities”, technology savviness is a given in this decade. Some examples in this phase are Saaf Paani, mPesa, Cybercapital, Kiva, MILLEE.

Growth

Utilize Zuboff’s: automate/informate model, if you have investments in hardware software, instead of upgrading- look at options such cloud computing, Open source software, Crowdsourcing etc. to reduce cost. Reexamine your strategy and examine holes which need to be fixed and check if technology can provide an answer. COOPEUMO, Fundraising using Twitter and Facebook are apt examples for this phase.

Maturity/Reinvent

Vital voices a 15 year old venture was using enormous resources to act as a broker of best practices between women in all parts of the world. Social media has eliminated this onerous task and freed them to do more core work. They could not have survived so spectacularly if they hadn’t reinvented themselves with technology. One can formulate a totally different business model based on the use of technology. Let’s take education- access; supplies were a very big roadblock. Now with India launching the \$35 tablet, supplies such as paper books/ pencils are replaced by just tablets. Worksheets get replaced by webisodes or online work. Look at “purdah education”. Millions of girls today cannot study as they cannot leave the house. Once such technologies are made available to them, they could not only study from the safe confines of their “Purdah”, but even potentially work. If you haven’t utilized technology become a “Late Adopter”, by going through the five step process.

CONCLUSION

In a year or so from now, my fervent desire would be that Technology is not spoken of in awe, or something we do not understand but be part of the basic literacy of starting a venture. Technology will and needs to be a vital part of the resources available to social ventures. It is highly profitable, impactful at a larger scale at a quicker pace. These cases have shown us that most of these have been decade old and everyday with new technologies being created in the core technology sector, we will have more options available to us. The entrepreneurs need to assess their needs and communicate widely with technology geeks and let their imaginations soar to create magnificent and sustainable institutions. Technology has to become an integral part of an overall strategy for social entrepreneurs. Future research can examine if technological resources are complementary or supplementary to a firm.

Implications for Policymakers and Practitioners

Policy makers need to become “A”ware and onto “E”valuation stage of the model. They need to assess the stage they are at and move up. More importantly, policy makers and practitioners need to understand the implications of technology for their enterprises. They do not have to become techno-geeks, but how it can be used to further their ventures. They have to level the playing field with Technology. In addition, existing ventures need to be evaluating their automation/ informing and transformative assessments to enable them to move ahead. The aim of this paper was to Create the “A”wareness for people in this sector about technology and get them “I”nterested through relevant and appropriate examples of situations in their industry. To also enable them to “E”valuate and then onto “T”rial and “A”doption. Theory tells us that the more knowledgeable /cosmopolitan the group is, there is a greater likelihood of them creating the ‘A’wareness and ‘I’nterest part of the model. Knowing this, we need to educate those entrepreneurs specifically in technology and applications for them will flow forthwith. Table 1 shows a list of examples for some representative technologies. Potentially each of these examples listed above could become franchisees of their technologies and ideas to other social entrepreneurs with similar needs. As the theory states, perhaps the board of the venture should have “Cosmopolitan” members who could provide a perspective on this, or even better have a technologist on the board.

REFERENCES

- Ehaab, A, Nelson, J., Fahmy, A., and Greenwal, D. (April 2010). “*The Status and Potential of Social Entrepreneurship in the Middle East.*” Brookings Institution. pp 5.
- Gopalkrishnan, S. (2010).” *TRANSFORMING SOCIAL ENTREPRENEURS: TECHNOLOGY AND INNOVATION*” 36th ASBE conference.
- Kasturi Rangan V, Leonard H, McDonald S. (2008). *The Future of Social Enterprise* Harvard Business School Working Paper.
- Paul, R., Clay, A. (Sept 26 2011). “*Scaling Social Impact by Giving Away Value*” Stanford Social Innovation Review
http://www.ssireview.org/opinion/entry/scaling_social_impact_by_giving_away_value
- Rogers E. M. (March 1976). *J New Product Adoption and Diffusion*, *Journal of Consumer Research Inc*, Vol. 2, No. 4 pp. 290-301: <http://www.jstor.org/stable/2488658> .
- Rogers, E. M. (1995). *Diffusion of innovations* (4th Ed.). New York: Free Press.
- Sahni U, Rahul Gupta, Glynda Hull, Paul Javid, Tanuja Setia, Kentaro Toyama, and Wang R. (2008). *Using Digital Video in Rural Indian Schools: A Study of Teacher Development and Student Achievement*. Annual Meeting of the American Educational Research Association.
- Stacks, D., Salwen, M. B. (2009). *An integrated approach to communication theory and research* 2nd edition Routledge NY.
- Tarde, Gabriel de; Parsons, Elsie Worthington Clews. (1903). *The laws of Imitation*. New York: H. Holt and Company.
- Timmins, N. (2011, October 4th). “*Soft form of Capitalism*” Financial times pp.13.
- Wing, Kennard T., Thomas H. Pollak, and Amy Blackwood. *The Nonprofit Almanac* (2008). Urban Institute Press.
- Zuboff, S. (1989). *In the age of the smart machine: The future of work and power*, The Academy of Management Executive.
- Benenotech website www.benentech.org/about/
- Proof mobile money can make money? M-PESA earns serious shillings for Safaricom
<http://technology.cgap.org/2010/06/07/proof-mobile-money-can-make-money-m-pesa-earns-serious-shillings-for-safaricom/>
- <http://www.fastcompany.com/multimedia/slideshows/content/profitpurpose.html?page9>
- http://images.businessweek.com/ss/09/04/0403_social_entrepreneurs/26.htm
- Social Enterprise UK: <http://www.socialenterprise.org.uk/pages/frequently-asked-questions.html>
- Cohen, J Oct 8th 2011 *Special report personal technology* Economist, pp 20.

Ashoka website: <http://www.ashoka.org/lemelson2>

Khan academy http://www.wired.com/magazine/2011/07/ff_khan/all/1; www.khanacademy.org/

MIT OCW <http://www.cs.washington.edu/education/courses/cse590f/06au/docs/dsh-tr1.pdf>

MPWS conference Oct. 4th 2011 www.fortuneconferences.com/mpws/program.html

ocw.mit.edu/

Mobile and Immersive Learning for Literacy in Emerging Economies (MILLEE) www.millee.org

World food Program www.wfp.org

TABLE 1

A few Successful social entrepreneurial applications of technology

Successful applications	Technology
Nepal- tukis for light	Solar power/Wind Power
Caribbean-Blue energy- electricity for coastal	
Brazil- energy for hearing aids	
Philadelphia- Big Belly solar trash compactors	
<u>Brazil- for micro irrigation</u>	Mobile Phones
Kenya- Banking, easypaisa, caixia	
Ghana- Detecting Fraudulent medicines	
Bangladesh - Market prices / inventory	
India- education apps	
COOPEUMO- database with access to latest crop prices	
NAFIS- agricultural practices	
India- CgnEtswara News -Tribe in India	
Infotrade Uganda, SMS sokoni,	
Infoprix Benin -Markets Buy/sell products	
Grameen phone - renting mobile	Social Media
<u>Kenya- Iphone ‘Give work’ app</u>	
Vibha Gupta –training groups	
Fund raising using twitter	
Forming communities via facebook	
Vital voices Women in similar situations share knowledge.	
Facebook Causes-	
TxTeagle- selling transcription services online	
World wide- Craft network	
<u>USA- Ground Report – Digital reporting</u>	
Literacy – Bookshare for disabled	Internet
Mxit IM – Remote drug counseling	
Kiva- Loans from across the world	
Denmark- Cybercapital raises loans (\$15 m	
India-Rang De- Loans	
Work lounge – distributed Collaboration.	
Task market- Freelancers	

USA- Better world Books
 USA- Academic earth
 Middle east- digital food UNFP
 India- Sahayata Microfinance
 America/Africa-digital Green P2P
 7500 videos on how to farming
Not For sale
 Durban- Urban Ministries
 (Raise awareness of homeless)
 Red Cross- donate blood

Automation/Software

Location Technologies

TABLE 2

Growth phase and technology enabled corporations

Phase	Example
Start Up/ initial	Kiva; Cybercapital Mpesa; Not for sale
Growth	Vital voices World vision's LMMS (Last Mile Mobile solutions) in Haiti saved significant time/money
Mature /Reinvent	Urban Ministries