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The role of ICT in scaling social enterprises in India

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Abstract: With growing interest of analysts and researchers in social entrepreneurship, the hope for its rapid development is also increasing. Various research studies have discussed in detail how there exists a dire need for social enterprises to fill in the gap that traditional political and commercial solutions fail to do sufficiently. Thus the developing ecosystem of social enterprise is an answer to the grave problems of poverty, sanitation, education, health, unemployment etc. The approach of social enterprises where commercial strategies are applied to achieve social objectives, has gained so much attention its not something very new, but definitely effective in bringing change (Rymsza, 2005; Thompson et al., 2000). Social enterprises have the potential to provide unique, frugal and low cost potential solutions to various social problems through a pragmatic market approach. Their way of working targets two concerns: birth of simpler and practical solutions to a severe problem such as invention of low cost incubators to be used in rural areas and financial sustainability of social enterprises ensuring their presence in the market. It will be fair to say that in the recent years of development, the field of social development has used ICTs (Information and Communication Technologies (ICTs) vary aptly from radios to mobile phones- to smart phone to create impact in the lives of human beings. ICT based devices and their application enable us to find novel commercial ideas, sustainable business models, and low cost strategies of scaling up. The flexibility and innovativeness of ICT make it a strong tool for social enterprises to experiment with and hence this powerful integration has resulted in some spectacular organisations providing solutions to some of the most critical issues such as poverty and education. The objective of this research paper is to analyse how the ICTs can support social enterprises to improve their performance, the impact creation and scaling of social enterprises through: • Analysis of different social enterprises with business models based on ICT have affected the performance and impact of the organisation • Analysis of efficient ICT tools that provide the boost in the design, management and performance of social enterprises

Keywords: ICT, Social enterprises, entrepreneurship

INTRODUCTION

Over the last few years, social entrepreneurship has gained a lot of importance from governments, researchers, and practitioners. (Javed ,Yasir and Majid 2019) suggest that the growing interest can be owed to the very core of these social enterprises as how they address social problem with their unique low cost ideas while improving the overall quality of life. There have been many arguments in favour of the concept of social entrepreneurship, ranging from catering basic human needs (Seelos and Mair, 2005), a powerful tool in alleviating poverty (Nicholls, 2008), their unique approach to address ecological problems (Jay, 2013), novel ideas to empower women (Datta and Gailey, 2012) to creating new job opportunities (Hlady-Rispal, and Servantie, 2018). Social entrepreneurship in India is in its nascent stage and is receiving the support and thrust gradually (Satar, 2016).

The trait that makes social enterprises unique in their approach is their intent to prioritize social returns over financial returns 1998) which eventually brings a change in the societal issues (Haugh and Talwar, 2016). The mission and vision of social enterprises depend on the country and the problems of the economy, they aim to focus on the basic needs of water and sanitation in developing economies, whereas in developed countries, they aim at higher individual needs such as environmental issues. To be able to work on their goals and achieve their objectives, social enterprises develop strategies that are effective, low cost, and fast and aim to create a strong social impact. One of the most powerful tools that enable social enterprise to achieve their mission is information and communication technologies (ICTs) and their applications. ICTs help social enterprises to enhance their performance and the quality of their impact. Bordonaba-Juste et al. (2012) states that the integration of ICT and social entrepreneurship will help to improve the competitiveness of the SEs.

Over the past few years, a lot has been researched on the possible impact of ICT and its role in growth of economies, in promoting sustainable development especially in small and medium enterprises in developing countries (Osterwalder, 2004; Ongori, 2010). There has been a noticeable positive impact on business productivity and competitiveness with the integration of ICT in business (Ghobakhloo, Sabouri, Hong &

Zulkifli, 2011). In India, also ICT has proven to be a veritable tool for achieving growth in SMEs (Kumar, 2017).

Ghobakhloo et al. (2011) defined ICT as information systems, computer hardware and software, the internet and communication technologies. It is a general term for a variety of technology that help to manage information in a digital manner. ICT has been defined in many contexts by numerous practitioners and researchers; however the primary definition includes the devices and infrastructure that facilitate the transfer of information digitally (Zuppo, 2012).

In the context of social entrepreneurship, Yunus emphasizes that "ICT can enable poor countries to abandon previous economic developments and integrate in the world economy at a much faster pace than one can imagine (Yunus, 2007)." ICT can therefore become a crucial part of the business strategy, where goals such as poverty, education or unemployment can all be focused using particular applications based on ICT. There can be two ways using ICT to scale impact of social enterprises and ICT: depth scaling and breadth scaling as suggested by Desa and Koch (2010). They believed that ICT has the power to enhance the value proposition of social enterprises. Warnecke (2017) stated that ICT makes valuable information, educational programs, and business opportunities more accessible.

ICT can be very beneficial to social enterprises in numerous ways: enabling better access to resources, finances, skill development, performance measurement, network building, access to market, new channels for beneficiaries. Following this Martin & Osberg (2015) stated that technology can be one of the effective ways to bring change. This can be implemented in three ways: 1). Finding and replacing the key technology with a lower cost alternative 2). Creating/Finding a supporting technology; 3) Finding new application for an existing enabling technology.

However, there is limited research on the significance of ICT and its application in social enterprises in India. This paper aims to provide deeper insights of how integration of ICT and social enterprises in India can lead social enterprise to perform better and create a greater impact.

Social value creation and Impact in India

Social entrepreneurship can be defined as the process of creatively addressing social problems and thereby creating and sustaining social value (Mort et al., 2003). Martin & Osberg (2007) described three components of social entrepreneurship: "(1) identifying a stable but inherently unjust equilibrium that causes the exclusion, marginalisation, or suffering of a segment of humanity that lacks the financial means or political clout to achieve any transformative benefit on its own; (2) identifying an opportunity in this unjust equilibrium, developing a social value proposition, and bringing to bear inspiration, creativity, direct action, courage, and fortitude, thereby challenging the stable state's hegemony, and (3) forging a new, stable equilibrium that releases trapped potential or alleviates the suffering of the targeted group, and through imitation and the creation of a stable ecosystem around the new equilibrium ensuring a better future for the targeted group and even society at large".

Austin et al.(2006) defined social entrepreneurship as "entrepreneurial activity with an embedded social purpose". Santos (2009) argued in the context of uniqueness of social entrepreneurship. He stated that 'the distinguishing factor of social entrepreneurship from commercial entrepreneurship is a predominant focus on value creation as opposed to a predominant focus on value appropriation". In argument, Battilana and Dorado (2010) said that social entrepreneurship is an elaborate process that combines two institutional logics of mission and profits while simultaneously aiming to creating economic and social value. Azmat, Ferdous and Couchman (2015) add further to the depth of the context by stating 'social entrepreneurs create value in resource-constrained subsistence markets, resulting in inclusive growth'

India is now in the growth stage in the segment of social entrepreneurship, where various social enterprises with their adapted business structures are building their own SE systems based on the distinct local situations and are aligning endeavours to encourage SE behaviour, promote social entrepreneurs to derive social value

The social enterprises aim to find feasible solutions to the social problems and aim to create a social impact and social value which depending can be short or long term. These 'social changes' can include a variety of aspects such as increase awareness, empower the beneficiaries, create and provide socio-economic benefits, improvement in living standards, perception change in the target population, attitudes, behaviour and finally, changes in norms (Archana Singh, 2016). However, there is no clear definition for the term 'social value creation' practitioners and academicians believe, social value is created by solving a social problem, and bringing the desired change at different levels be it individual, community, national or international. The type of social value or social change an entrepreneur intends to make depends on his mission, business model, resources and capacity to build and scale. Mulgan (2010) believed that social value is difficult to define as value is "not an objective, fixed, and stable fact, but subjective, malleable, and variable." He further states that to define social impact, the consideration is: "not only about social value, but also about social values". Impact can be defined as "positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended (Organization for Economic Co-operation and

Development (2004)). Taking a narrow perspective Vanclay (2003) defined social impact as "changes to one or more of the following aspects in human lives: 1) people's way of life, 2) their culture, 3) their community, 4) their political systems, 5) their environment, 6) their health and wellbeing, 7) their personal and property rights, and 8) their fears and aspirations.

The core of social entrepreneurship is based on its mission to achieve social wealth along with economic wealth by targeting the social problems. In order to achieve their mission and create value, social enterprises strategise to develop efficient mechanism that are low cost, better quality, more responsive and are capable of creating greater impact. Information and communication technology (ICT) is a powerful tool that facilitates the functioning and execution of programs at the operational level. Incorporating these technologies and its applications has proven to enhance the organisational performance and market competitiveness.

The fact that measuring social and economic value creation is still a challenge especially for profit social enterprises was stated by Urban and George (2018). This was mentioned in the support of Thornton et al (2015) statement where it was said that for profit social enterprises have "considerable difficulty" in exemplifying social value to stakeholders. Since for profit social enterprises work through revenue generation, cost reduction and scaling up, the financial targets become easy to map, but measuring the social impact is yet a challenge (Dees, 1998; Urban & George, 2015).

ICT and its implication in SE

ICT can be defined as the technology that organisations and people use to process their information and communication (Zhang, Aikman & Sun, 2008). Warnecke (2017) defined ICT as the "physical physical infrastructure and applications like mobile phones, landlines, computers, and the internet", and can provide access to important intangible resources such as knowledge and access to networks. In the context of social entrepreneurship, Gopalkrishnan (2013) stated that technology is a 'crucial resource' for social enterprises as it has the power to 'transform an idea into an operational endeavour'. Apart from the traditional technology supporting tools such as computers, phones, there are various modern high technology services that SEs can make use of. These include: cloud computing, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS) , Crowdsourcing, micro-work organisations (Gopalkrishnan, 2013).

Technology is a boon for social enterprises as they help an organisation in several ways: to lower costs, enhance the efficiency, facilitate being sustainable and scalability. Frączkiewicz-Wronka and Wronka-Pośpiech (2014) have suggested numerous ways and examples of how social enterprises can utilise ICTs to overcome their challenges and achieve their goals. One of the major challenges that social enterprises face is access to resources, and financial aid. Technology has helped in this context in various avenues: development of platforms that allow social enterprises to link with experts for mentoring, research, and communication and crowdfunding platforms that help to collect donations and funding (Frączkiewicz-Wronka & Wronka-Pośpiech, 2014). Another challenge that social enterprises face is measurement of social and economic value creation (Urban and George (2018)). On the similar lines, Thornton et al (2015), stated that depicting social value to stakeholders is difficult. It was comparatively easier for social enterprises to measure the financial targets, whereas measuring the social impact was complex (Dees, 1998; Urban & George, 2015). In Indian context, each sector has its own set of challenges, in the agriculture domain, social enterprises face having limited access to finance and scattered nature of farm ownership as major challenges; whereas in education sector, lack of awareness among customers lead in higher time and resource investment for customer acquisition and thus pose a big challenge. One common challenge that majorly all enterprises in the country face is to understand and evaluate the impact on the target population and to perform and grow accordingly (The Indian social enterprise landscape, 2019).

Technology has taken up a crucial role in the business models of enterprises, especially in the young enterprises in the agriculture, healthcare and financial inclusion sectors in India. Academicians in India state that ICT and technology backed social enterprises have the power to revolutionize their business models by boosting their revenues, advancing their operations. The Indian Social Enterprise Landscape report (2019) states that showcased a prevalence of technology adoption among younger enterprises, i.e. those that have been operational for between zero and two years, with 74% of them being tech-based, compared to less than 15% of all the enterprises with more than 10 years of operations.

Every sector in India intends to employ technology in their operations differently only to commonly enhance their performance and maximise impact. Social enterprises in the agriculture sector adopt technology based solutions for customer acquisition and to deliver products/services in the remote markets. The most common problems targeted by leveraging technology by SEs in agriculture domain include providing information related to market and product prices to farmers. These organisations take advantage by looping in the stakeholders in the post harvest and income stage.

Education enterprises mainly target at making education affordable and use ICT to increase access and quality of the services. Technology is so crucial in education enterprises that there is altogether a separate sub domain

of 'ed-tech': a cluster of enterprises that provide technology based solutions (Indian social enter[rise landscape Report 2019). Communication and training are also important aspects in this sector that technology supports.
When we talk about the health care sector, which is developing to be a health-tech, enterprises are leveraging technologies that involve artificial intelligence, low cost life saving devices, learning and designing through machines. This propelling shift is also a result of increased usage of smart phones and internet availability across rural areas.
Sanitation in India was a huge and unorganised sector, which is now growing into a aggregated system with development of formal structures. Social enterprises are making use of digital platforms so that a network of waste collectors can be developed and it can also be used for communication with stakeholders.
Social enterprises in the financing sector use technology and finding digital solutions to build a string and efficient system that capacitates them to support access to resources, customer interactions, develop infrastructure and accomplish their mission.
However, adoption of ICT has its own set of challenges such as cost, limited awareness on free or low cost software, limited funding, poor access to data are some of the major hurdles that impede decision making (Rahman and Smith 2014).
The role technology plays in growth and development of social enterprises cannot be understated. It enables the enterprises to make the impact convenient, affordable scalable, efficient and provides new ways to connect with communities. A checklist related to how ICT supports social enterprises was developed that will be used to map how ICT's support SEs:

Table 1: Support Checklist by ICT

Affordability	ICT Solutions empower social enterprises to cut down on costs, and make resources more affordable for these enterprises to grow and develop especially in the initial stages.
Scalability	ICT infrastructure enables SEs to expand their reach, multiply their impact and scale up faster.
Efficiency	Technology employment in the right stage helps to optimize processes, enhance accuracy and hence improve efficiency.
Resource Management	ICT allows better management of resources, helps to cut down on unnecessary costs, and thus improve overall functioning.
Sustainability	ICT allows firm to manage data by capturing, analyzing and utilizing the critical information that support their actions and ensure their sustainability.
Community	The core of social entrepreneurship is creating a social impact with a big reach and ICT allows SEs to connect with people in a direct way.

METHODOLOGY

Qualitative research method was used to study the topic in depth. The data was collected based on certain theme and analysis was done using interpretive methodology (Collis, J. et al., 2009). Data collection was done through semi structured interview and case study method, that will ultimately help us understand the significant question of this research as to how the implementation of ICT in organisation affect the impact creation and performance. Semi structured interviews provide the needed flexibility for this research as the social entrepreneurs interviewed are from different industries with different social missions and different entrepreneurial ventures employing ICT varyingly. Appendix A contains the details of the interview schedule. All interviews were digitally recorded and handwritten notes were taken.
The research has been limited to Delhi-NCR (India) market. The research will provide deep insights as to how significance is the role of ICT in social enterprises and ICT create social and economic value in social enterprises.
The cases have been selected and studied depending on their suitability for explaining and analyzing the relationships existing between social enterprises performance and role of ICT. The basic criteria considered during selection of participants are: 1. Small to medium enterprise size, 2. Minimum 3 years of operational working or profit-making 3. Employing Information and Communication Technologies (ICT) in one or more forms in their operations, 4. Based in regional proximity (Delhi-NCR based). The selection of parameters was done on the parameters related to characteristics of social ventures and aligned with the best practices in the industry. Considering the scope of research paper, we have selected 3 social enterprises from the dynamic domains: - clean energy, education and agriculture. The interviews have been conducted in written form via email with question sets and follow-ups while the conversation developed.
As widely accepted, the business environment in India is characterized by the dominance of small and medium enterprises (SMEs) and their contribution to the country's total output is very crucial. After a general analysis, following enterprises were selected for the case study:

1. Solar Lab (clean energy)
2. Convegenius (Education)
3. CROfarm (Agriculture)

THE SOLAR LAB

The Solar Labs founded by Siddharth Gangal in 2017, is a technology based social enterprise that focuses on the clean energy sector. TSL has developed a technology that will help solar installers to figure out how much solar power they can install, get sales quotations, and create optimized PV system designs. This software is a cloud based for solar designing and sales growth and the main features include: developing techno-commercial projects quickly, designing 3D models and shadow analysis accurately and getting a financial estimate and generation estimate using the Design studio.

MISSION: To provide solar developers with improvements in their workflow and best solar system design practices.

VISION: To accelerate the pace of solar rooftop adoption through innovative technology & services

- The problem: India's energy production is dominated by coal and biomass. The oil and gas production in India is relatively low, and therefore there is a strong dependency on imports, especially for oil. India is also the third largest consumer of solar energy globally. However, the potential for a clean energy market in India remains unexplored. We have solar technologies available in the country but there exists a gap in the knowledge and usage pattern. People are unaware on how to structure their energy and how to plan the usage efficiently. The consumer awareness, payments, and reliability of the solar energy system are the major issues when it comes to clean energy adaptation. The problem TSL focused at was innovating something that brings technology closer to the population.

Offering: The main product offering of TSL (The Solar Labs) is a software-as-a-service (SaaS) based platform that aims to help out the people interested in solar panel installation. This software is designed to do a detailed analysis of the prospect customer rooftop using satellite imagery or drones; it can develop 3D models for viewing. Once the 3D model is ready, the software develops a construction-ready blueprint and the raw materials required for setting up the solar panel.

Technology: In their SaaS platform, a detailed analysis for the installation of solar panel is done. Solar rooftop photovoltaic installation is a rigorous process that involves planning, engineering and designing. The automation of this process with the help of AI, helps to cut down the costs, reduce errors and installation time and make the business process smoother. It generally takes three to five days for a firm to design a 100 kW system, this software can do the same in just a couple of hours. This cut down time enables to save on the installation cost and also expand business. For instance, typically solar companies were able to serve four to five clients a day through their manual process, whereas with the new software AI empowers them to prospect about 30 clients in the same time, which definitely is a boost to the business.

Challenge: One commonly faced issue is the resistance from customers to switch and move towards a newer change which impacts their lifestyle, energy usage pattern and primarily developing awareness. Another major hindrance observed in switching to clean energy is the large sum of upfront payment. Solar panels are expensive and cost some lakhs which require one upfront payment which makes the procurement and installation cumbersome for a lot of prospective customers. This gives rise to the need of flexible financing options that allow alternate payment methods. Siddharth believes, one common but robust mechanism could be the EMI payment method as it helps to distribute the cost and do it in parts rather than one large sum. To add on, regulatory measures of managing payments of solar panels on time suggest electricity cut, which further complicates the interest of an individual towards clean energy. On the other hand, there are companies providing loans to individual for solar panel installation. This measure intends to enhance the affordability directing people to make a sustainable shift in their energy choices. Additionally organisational challenges involve issues of managing funds for a nascent sector and poor availability of skilled human resources.

When demand is there, people are in need of more energy so the question is how we get it. Therefore, there is a lot of scope in going further than what we have done, there is much-undiscovered potential to grow as a major green energy developer.

Solution and Impact:

Siddharth tells his interest in renewable energy grew around 2013 while studying engineering. However, he saw a wide gap between theory and practical situation. The solar industry was very new and the technology and data it used were nascent. The Solar Labs was born out of the need that solar systems require customised technology and solar industry needed advancement.

"Solar needs to be pitched properly, and we are basically solving the problem of consumer awareness."

TSL software is a subscription based allowing any company's sales or design engineers to calculate how much solar can be installed on any particular place and helps to suggest the design parameters. Customers are interested in having detailed information specially when making major changes in their lifestyles, hence the software allows to provide data such how much energy generation will the panel capacitate in next 20 years or what will their return on investment or payback period. Providing answers to such questions makes the prospective client in a confident position and hence prepares them to make the change.

This new sector also raises concerns regarding quality and technological reliability. People have doubts regarding its performance in the coming 20 years and the only way that can be resolved is by providing useful data and improving the quality of the technology used.
The government is playing a crucial role by providing financial aid to the solar sector through its subsidies to promote clean energy and the needed shift. A platform, awareness and support is all that is required for the change to initiate and solar energy to become a common trend in household and commercial places. "Technology is there, the real innovation lies in bringing that technology to the masses", says Siddharth.

Table 2: ICT checklist for The Solar Labs

Affordability	✓
Scalability	✓
Efficiency	✓
Resource Management	-
Sustainability	✓
Community	✓

2. ConveGenius

ConveGenius was founded in 2013 a social enterprise in the education domain that focuses on personalized education. This edtech social enterprise provides quality but affordable education that aims to target the masses especially in the developing markets. ConveGenius is targeting to create a sustainable education impact in the K-12 space in India through its mobile based education apps. The products are mainly based on mobile learning which are supported by technologies of content aggregation, gamification, adaptive analysis that allow students to receive affordable flexible technology helping them with the formal education structure.
Mission: ConveGenius is a Social Enterprise steadfast in its mission to bridge the extant learning gaps affordably in India by leveraging technology, and implementing nudged learning through its programs.
Vision: Our long term vision is to impact the lives of 100 million students, and a target of 50 million in the next 5 years.
The Problem: The education sector in India is definitely developing with technology being the catalyst. However, with multiple edtech organisations in the market, an important factor that affects the growth of this domain was left negligent. The approach and the change being brought by the existing edtech players was insignificant from the perspective of the masses and the financial background of the target population. The two factors that needed attention and action in this edtech space are: flexibility and affordability.
The Offering: "We aimed at starting from the bottom, targeting affordability and accessibility' –Pandey.
India has a mixed population, where the majority still lies in the developing families section. This needs was recognized and this digital revolution was targeted at such students. Hence an edtech platform was launched that was flexible and could reach the interiors of the country while keepings its quality standards and matching the financial standards. Two major solutions were developed considering our foundational principles:
1. ConveGenius Platform: A hardware-agnostic flexible learning platform which is available in 9 common regional languages. This adaptive platform is completely equipped with base-line and end-line assessments. To track the progress of students and to help the teachers to plan personalized homework, we have developed LIVE impact dashboards. This platform works on a blended model, where the progress of students is analysed to cover the gaps in learning process. The best part is availability of this platform in both offline and online modes, which makes it accessible and flexible for the remote areas.
2. AI-based Chat Lite Version: Whatspp is one common application that in present situation every parent has installed and works even in limited internet connectivity. This platform is specially for home learning, the Whatsapp based Chatbot is designed to give a personalized assessment and content guidance for learning. A Whatsapp helpline number is made available for clearing students queries and solving their doubts. The content designed and curated is such that it is in alignment with the regular classes so that students can easily catch up when they get back to school. It is a dual medium as the Whatsapp also allows teachers to assess and calibrate their teaching process.
Another ConveGenius product CG slate supports the self learning experience as the content is designed as per the NCERT syllabus. The content designing is done in the form of a game which has various stages. ConveGenius uses gamification supported with real time data, gamification is widely to motivate learning and spike curiosity within children. The platform provides the option to measure and enhance the learning levels among students. The CG slate is promoted as making it a pre loaded application in various branded mobiles or tablets and can also be installed as an app later. The idea is to create an experience which can bring the power to teach and learn on mobile devices with minimal intervention from adults," says Bhattacharya.
TEHNOLOGY: The classroom sessions are in sync with the personalized teacher facilitated learning platform, which is made accessible on any device be it a mobile or tablet or TV. The platform offers logically designed assessment to analyze and measure the caliber and track the learning of students. The platform is equipped as it

allows teachers to use real time data and content recommendation to maintain the right level of teaching. Our platform is AI based but it can be easily accessed through Whatsapp even with lower levels of internet.

The Challenge: During its inception, sourcing reliable hardware partners was a challenge. The management came across this with hit and trials, and found reliable OEMs to host their product. Another issue was mapping the content with NCERT. This needed development of a process that could aggregate and curate the relevant content from various sources and partners.

Implementation and execution stage had its own obstacles. The target demographic did not have computers, but atleast one family member had whatsapp installed in their phones and an internet connection. Conducting exams and managing results for 100 k students was also complex task. The company is aiming at a long term vision of impacting 100 million students, and they are prepared for all the challenges that the journey throws at them.

Solution and Impact:

ConveGenius was brought into existence by Jairaj Bhattacharya and Shashank Pandey. Both of them were working on project when they came across a major concern of Indian education system. "There was a huge digital divide when it came to education in India," says Bhattacharya.

The duo after graduation from IIT Hyderabad, worked for Nanyang Technological University Singapore and NASA, USA. However, The thought of contributing in the education field pushed them to quit their comfortable jobs and start ConveGenius-the edtech social enterprise. The aim at developing mobile solutions with the focus to enhance the education quality and make it accessible and affordable to the masses.

Since its inception, ConveGenius was on a steady growth pattern until the lockdown where it received a major boost. One reason that can be attributed to its growth is it aims to make learning fun. Also ConveGenius curates its content from sources already available, which allows to focus on other areas like flexibility, design and structure unlike other firms in the field that create their content. Our platform aims to curate the best content and make it easily accessible," says Pandey

ConveGenius has been growing steadily since its inception, which reached its peak during the lockdown. Pandey, mentioned "The company became profitable in FY 2019-20 with gross annual revenue of `18.4 crore." They have also raised Rs 20 crore from their investors for further growth and development of the business. The social enterprise has made an impact on the lives of more than 1 million students till the present.

To attain the goal of targeting mass and making the education accessible, ConveGenius has come into collaboration with state governments of more than 7 states to reach out the majority. The firm also has association with NGOs, private schools and corporate companies for provision of personalised and adaptive learning that is easily accessible. To empower their mission ConveGenius has launched a pan India campaign 'EdtechforNayaBharat'. In this campaign, the firm will target 100 million low privileged students and provide them with quality education and the necessary resources. This campaign will be supported by their hardware and agnostic platform which is easily scalable and cost per student is lowest allowing them to address the mass. This will be a boost to the education system in the digital India. The company plans to provide financial assistance to students with scholarships and education loans. It also intends to provide career assistance by integrating vocational opportunities on its platform. is focusing its endeavours towards nurturing the base who will be taking on the world tomorrow.

"Our company focuses on pedagogical innovations that will help to bridge the learning and skill gap for the masses, rather than just focussing on the upper class section.

Table 3: ICT Checklist for ConveGEnius

Affordability	✓
Scalability	✓
Efficiency	✓
Resource Management	✓
Sustainability	✓
Community	✓

3. CROFARM

Crofarm, founded by the duo Varun Khanna and Prashant Jain, in 2016 is a business to business agri-tech company, which intends to develop a technology powered supply chain which supports farmers and provide businesses with the freshest farm produce efficiently. The main aim of the firm is to provide better value to farmers, cut down on the wastage, increase the sales and get good deals for the business.

MISSION: We are on a mission"... to do something meaningful and bring a fundamental change in lives of our farmers and consumers at large"

VISION: Our aim is to make a supply chain that supports farmers and provides businesses with freshest produce in the most efficient manner.

Technology: The Company works on AI based demand forecast system for studying the historical data to make procurement. Crofarm makes use of CRM tools based on Whatsapp to manage its customers. Other applications used are Google Analytics, CSS and Google Universal Analytics. The company has also developed a system to keep track of inventory as per its shelf life, with an alert alarm in emergency cases.

The Problem: The problem area that Crofarm targets is the agricultural supply chain. In India, the agricultural supply chain is inefficient and corrupt at various levels. Weeding out supply chain inefficiencies in persihable farm produce is the dire need in the present. As per a recent survey, the preventable post harvest lost amounts to approximately 20 million tonnes of grains which is massive. The measure of losses for perishable farm products which includes fruits and vegetables is very high which is multiplied by the various intermediaries who impair farmers with unfair prices and demands. The company also aims to target establishing efficient trade relations between farmers retailers and consumers.

The Offering: Considering the crippled agricultural supply chain and its structure, the duo Varun Khanna and Prashant Jain started Crofarm, an agritech firm.. The farm to business firm has associations with more than 5000 online and offline grocery retail stores like BigBasket, Reliance Retail chain, Grofers, Big Bazaar etc, and the local stores and mandis. It sources fruits and vegetables from farmers across cities of Haryana, Delhi-NCR,Gujarat, Himachal Pradesh, Rajasthan, Bengaluru, Maharashtra and UP.
Crofarm started from hundreds of farmers and has reached some thousands just in a span of few months. The firm has been successful in fostering a strong relationship with farmers across the country who specialise in their regional produces.
Crofram CEO, Varun Khanna says, "Farmers are the heart of the agriculture system in India, and it is essential to have direct contact with them. Crofarm offers a partnership to farmers which will guarantee many benefits of which some include: better lifestyle, fair prices for their hard work and providing best produce to consumers in their neighbourhood.

CHALLENGES: The most critical challenge that any startup faces is not having enough funds to cross the initial stages. However, Crofarm was supported by venture capitalists and angel funding. An organisational challenge that became an obstacle for Varun and his team was pursuing multiple models across various places at the same time. In a startup, it is easy to lose focus and that is what happened to the team. . The company was into sourcing fresh farm produce perishable in nature, hence storing it and maintaining the quality of the same was a task, as the shelf life of the products varies. The firm overcame this by developing expertise and systems to handle the perishable produce.

Solution and Impact
Crofarm was started in 2016 by serial entrepreneurs Prashant Jain and Varun Khanna, who have extensive experience in technology ventures. The company started with business tie-ups with offline and online stores and it made a mark in the market in very short period of time. They are dealing with potatoes, green vegetables, onions and tomatoes, also offer exotic vegetables such as broccoli, iceberg lettuce and red and yellow bell peppers.
Crofarm has established itself pan India with offices in Delhi, Mumbai and Bangalore, with expansion in Hyderabad, Orissa and Jaipur. Crofarm is aiming at expanding its customer base in the organised retail segment in India. Since decades, the agriculture sector has been disorderly and unaccounting, this inefficiency acts against the farmers and their rights. The tech driven solution that Crofarm provides will meet the dual needs of farmers and retailers.
Crofarm's expansion will allow it to implement its mission of developing a supply chain that supports its farmers and its clients with best and freshest produce. The founder duo believes that they are giving farmers the power to make direct negotiations in the market by removing the middlemen and also set them free from the politics of Agricultural Produce committee. The company is targeting mainly at efficiency of functions of the unorganised agriculture sector, which can prove to be very opportunistic through technology and expansion.
Crofarm forecasts to have 1,00,000 farmers and 10,000 retailers on its platform in near future to strengthen its dominant position in the agri-tech sector.
Crofarm works on expertise and systems developed by Khanna and Jain using their vast experience and learnings. The company cuts on its wastage by managing the fresh produce and their revenue model is designed around that. Fresh produce is procured from farmers and delivered to retailers after marking their profit margins. The only competition Crofarm faces is with the mandi which is huge and unorganised, but the company focuses on getting better. Crofarm promotes its core proposition in its tag line: "Delivering freshness direct from farms

to your neighbourhood store", while simultaneously solving the major problems of Indian farmers and providing them higher price for their produce.

Table 4: ICT Checklist for Crofarm

Affordability	✓
Scalability	✓
Efficiency	✓
Resource Management	✓
Sustainability	✓
Community	✓

CONCLUSION

As discussed in the above cases, the research suggests that a wide variety of ICT tools are being utilised by social enterprises in their offerings and to create the desired impact, such as SaaS, Gamification, AI, and social media, data storage, and e-learning platforms. The value adding activities that aimed at creation of social value were identified as management, identification, recognition and regulation. The tendency of ICT nature to collaborate and expand the usage of resources helps to overcome multiple challenges in the journey of creating impact and social capital. ICT can help social enterprises in effective impact creation through two ways: ICTs can increase the efficacy of the value proposition of the social enterprise initiative in various ways: accuracy in obtaining data, designing and customising products/services, opportunity utilisation, helping to mobilise action. Secondly, ICT can help in increasing the reach of the organisation by targeting more beneficiaries, accessing variety of resources, enhancing organisational performance, improving it's scaling and impact ability.

It is evident from the cases discussed above how ICT helps in keeping the data updated, cut down processing time, scale the offering, and enhance the impact. ICT also has the potential to support the growth of an organisation in several ways: access to resources, creating networks, enhancing organisational efficiency, boosting organisational visibility, developing new channels to target audience.

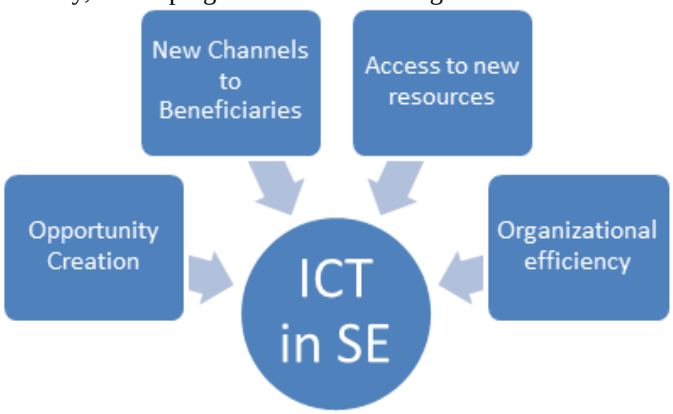

Fig.1: Support of ICT in SE growth

ICT cannot be the solution to every problem, but it is definitely the medium that can unlock new possibilities that lead to action and impact. One size does not fit all, but the ICT tools allow flexibility as per the organisational need, objectives and local context. Barba-Sánchez et al. (2018) highlights one major challenge with the usage faced by social enterprises- the extinction and evolution of technology and its tools. Further research in this domain should focus on technology deployment- integration of ICT in social and environmental initiative meaningfully.

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Appendix I:

Name of company	The Solar Lab	ConveGenius	Crofarm
Interviewee	Mr. Sagar Chauhan	Mr. Rahul Garg	Mr. Pankaj Thakur
Industry	Clean Energy	Education	Agriculture
Founding year	2017	2013	2016
Founder	Mr. Siddharth Gangal	Mr. Shashank Pandey	Mr. Varun Khanna
Number of employees	20+	50+	50+
Number of Customers/Beneficiaries	110+ customers impacted	540000+ children impacted	10000+ farmers impacted and 100000+ customers served
Mode of interview	Telephonic	Telephonic	Telephonic

Interview Questions

Note: Every question has been adapted to and customized according to the respective organization before conducting the interview.

1. How do you identify social need?
2. What is your social mission?
3. How do you achieve your social mission?
4. Please describe the types of ICT (if any) used in your social enterprise for social value proposition and social value creation.
5. How do you measure the social impact your enterprise has?
6. Please describe the types of ICT (if any) used in your social enterprise to identify and exploit opportunities and the role the use of ICT plays in this area.