

Innovative High-tech Solutions for Preventive Health Care

By Noor Din, Mary Lou Ferranto, Celeste P. Oprean

This paper is being presented at the “Community Innovation and Social Enterprise” Conference organized by the Shannon School of Business at Cape Breton University from July 8-10, 2015 in Sydney, Nova Scotia, Canada.

Abstract:

This paper argues that concept of social economy and its potential impact is not yet understood by communities, governments and policy makers. High value and high impact disruptive innovations through social enterprises are needed to raise sector’s profile, its acceptance and much needed policy changes.

The paper presents a number of innovative high-tech concepts and products by Human Endeavour EPIC social enterprise incubator that focuses on preventive health solutions for individuals especially patients and aging population with chronic diseases to stimulate community economic development, create jobs for the vulnerable and provide cost effective solutions to the health care system. Paper also demonstrates unique partnerships of community, social entrepreneurs, researchers and multi-national educational institutions to collaborate for advancing cost effective innovations that are possible through social entrepreneurship.

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Abbreviations

EPIC	Enterprise Promotion and Innovation Centre
GTTI	Georgina Trade Training Inc.
HOPE	Healthy Outcomes of Preventive Engagements
KSU	Kent State University
OTF	Ontario Trillium Foundation.
York U	York University

Section 1

Introduction

There is an increasing interest in social enterprising model as many non-profits are seeking alternative ways of funding their programs and services. Although it is encouraging to see more non-profits resorting to social enterprising to become self-sustaining, their too specific and isolated models may not yield significant and long-term social impact as their contained efforts are not likely to be noticed by the larger players and may not catalyze change in larger economy.

The social enterprises that form the core and backbone of social economy ought to emerge as new way of doing business, addressing social issues and creating economic opportunities. But to make a significant mark, high value and high impact innovations are requisite to raise their profile, acceptance and eventually trigger the needed policy changes.

This paper shares case study of ‘work in progress’ products of EPIC - Enterprising Promotion & Innovation Centre - which promise to lead to high impact and high value, and result in a collaborative working environment of various players brought together by Human Endeavour, a non-profit organization in Ontario, Canada (www.humanendeavour.org).

The organization and its leadership have been recognized for multiple innovations that address the needs of local populations and can be replicated and scaled up to help tackle the emerging challenges of service provision and inclusion.

Human Endeavour won the Ontario Ministry of Health and Long-Term Care & Ontario Hospitals Association’s Provincial Innovation Award 2010 in Evidence Based Practice category for its flagship initiative HOPE - Healthy Outcomes of Preventive Engagements.

The founder and CEO of Human Endeavour was awarded the 3M Health Leadership Award 2012 for demonstrated impact of his innovative initiatives on the community in health and economic development. In 2013, HOPE made to World's Top Five Age Friendly Initiatives in Turkey.

These initiatives also started as small endeavours but due to their inbuilt broader vision, scope, and potential for replication and scaling up, they won appreciation and recognition. In our view, same is the case of the 'high value and high impact' products that are being shared in this paper.

This paper has six sections. First being this introduction, the **second** section talks about expanding the scope and acceptance of social enterprising. The **third** section argues how social economy can make a mark in the broader North American economy by innovative high value, high impact products. The **fourth** section shares examples of such products developed by Human Endeavour. The **fifth** section showcases model of innovative collaborations devised to develop, test and launch these products to meet our socio-economic and preventive health goals. The **last section** presents recommendations which need debate and deliberation by the larger players like governments, businesses and academia.

Section 2:

Expanding the Scope of Social Enterprising

The paper asserts that the advocates and implementers of social economy must collaborate to offer solutions that help address some of the challenges North America is facing, such as graceful aging, settlement of newcomers, and poverty reduction.

Social economy, in our view is ‘an economy that cares’. The concept and practice of social economy is not isolated from the main stream economy; it in fact exists and thrives within it.

Academics put social economy between the public and the private sector, and is also called the ‘third sector’. According to Social Enterprise Council of Canada, the characteristics of social enterprises in Canada vary by region and province as they differentiate social enterprises from businesses, not-for-profits, co-operatives and government agencies.¹

Human Endeavour has taken a broad approach in defining social enterprises by including for-profit entities also who albeit may not fit in the official definition (of being non-profits only) but their focus, ambit of beneficiaries and collaborative spirit manifest community wellbeing, and the benefits of the positive externality they create reach the non-members also. Their collaborations also include for and not-for profit entities like academics, entrepreneurs and governments.

Infused with the above understanding, spirit and focus, Human Endeavour established EPIC in 2010 to try, test and implement social economy model. It aimed provision of services & products in the market for financial and social return by assisting marginalized community members with enabled access to gainful career and income generation opportunities. EPIC initiated innovative social enterprises based on sound business model with lower start-up costs focusing on blended return i.e. income generation and social services. Following the success of pilot, Human

¹ <http://www.socialenterprisecanada.ca/en/learn/nav/whatisasocialenterprise.html>

Endeavour replicated EPIC franchising model in 2013 in Georgina, a remote rural area of York Region, Ontario in partnership with Georgina Trades Training Inc. (GTTI).

After EPIC Georgina's successful take off, and combining the experience and expertise attained thus far, Human Endeavour is developing EPIC model in another rural and suburban town, with distinct local organizations.

In the customized replication of EPIC, Human Endeavour blends variety of approaches that focus on combining traditional and emerging hybrid structures to generate income while providing social services, promoting self-reliance and enabling non-profits to reduce dependence on funded projects.

Human Endeavour is now venturing into high impact high value products, so that the cost of inputs decrease but the return and recognition increases.

Asserting that the social economy organizations must work collaboratively, so that the impact of their combined efforts is not distributed and fragmented, HE invites and encourages non-profits to do the same, and help build a stronger case for mainstreaming 'social economy'.

Section 3:

Impacting the Broader Economy

For social economy to be recognized as a significant sector in North America, it has to make its own space. Social economy's impact can be multifold and multifaceted if non-traditional collaborative and formalized efforts are tested and adopted by the non-profits.

In a typical business venture, there are higher start-up costs and stakes at first, higher risks during the initial phase, and potential significant losses in case of an unsuccessful venture. Contrary to this, the social enterprises have lower start-up and operating costs, shared stakes to try innovative ideas and partnerships, and higher chances of success. This is exactly how EPIC operated by using existing infrastructure, pooling of resources and using the expertise of various partners.

The collaboration between social entrepreneurs, for-profits, researchers, communities and the funders significantly reduce the risks of failure and potential financial shocks are either avoidable or easy to absorb. Thus, one of the main arguments of this paper is that the innovative collaborations in the realm of social economy are both worth considering and supporting.

There are many factors that enhance the value of social economy, but in our opinion the most important one is to design and implement promising and cost-effective solutions to significant challenges faced by society and governments, that otherwise won't be possible and/or affordable.

The purpose of this paper is to demonstrate that by utilizing, investing and developing products through social economy we can produce products and services of high value in high impact areas.

In the following sections, the paper shares examples of EPIC products which enable innovative service provision at affordable prices. The value proposition is in the combination of innovation, affordability and responsiveness to emerging societal challenges e.g. graceful aging through social enterprises focused on technological advancements.

Section 4:

Case Study: High Value High Impact Products and Services

Human Endeavour believes in making its own space in the industry through demonstrated impact and positive results of its programs, products and services. Human Endeavour is known, and has been rewarded, for its innovative thinking and leadership in community development. To mark the first decade of Human Endeavour's services, we are sharing this test case of high value, high impact design.

The case study relates to our award winning seniors' wellness program HOPE (Healthy Outcomes of Preventive Engagements), and offers valuable facilitative and assistive system for frail seniors who want to age at home with grace, independence and dignity.

Canada's population is aging. The 2011 census reported that almost 15% of Canadians were 65 years or older, and this population is expected to double by 2036, while the number of those over 80 is expected to quadruple by 2051. Increasing population of seniors (65 years or older) poses a serious challenge due to multiple chronic diseases to the ailing health care system across Canada.

Despite representing only 15% of the Canadian population, seniors are disproportionately high consumers of the health care system. Seniors account for 40% of acute hospital stays, and visit their family physician twice as often as non-senior adults.seniors are still responsible for 50% of provincial and territorial health care spending².

In United States, National Healthcare Expenditure (NHE) is projected to hit \$3.207 trillion in 2015 year³. Approximately 71% of the total health care spending in the United States is associated

² <http://healthydebate.ca/2013/08/topic/community-long-term-care/who-will-care-for-canadas-seniors>

³ Forbes / Business Jan 4, 2015@6:54pm

with care for the Americans with more than one chronic condition⁴. The rising costs of health care pose a formidable challenge for policymakers. Health care already accounts for 16% of the gross domestic product (GDP) and is projected to increase to 25% by 2025⁵.

Taking care of aging population and people with chronic diseases in a cost effective manner, where compassionate care of patients and sustaining of health care systems are the priorities, fits well with social economy's basic principles.

Hence this area presents a great economic opportunity for social enterprises to test and pilot solutions that assist in graceful aging, managing chronic diseases and reducing the cost of health care.

There are a number of innovative social business possibilities that can be utilized to develop solutions to keep seniors and people with chronic diseases healthy and at home, to avoid hospital admissions / readmissions and reduce burden on the health care system.

One such business solution is Remote Patient Monitoring (RPM) of activities and vital signs to assist in their independent living. TeleHealth is a broad term that refers to the provision of health care services, education and information from a distance. It allows remote doctor-patient consultation (TeleMedicine), remote monitoring of activities of daily living (TeleCare), remote monitoring of vital signs (TeleHealth, mobilehealth, mHealth), uploading of important health data to a data centre in real time with automatic trigger alarms. Through TeleHealth, medical practitioners are able to evaluate the health situation, prescribe treatment and detect fluctuations in the patient's medical condition at home and intervene in an efficient and cost-effective manner.

⁴ Gerteis J, Izrael D, Deitz D, LeRoy L, Ricciardi R, Miller T, Basu J. Multiple Chronic Conditions Chartbook. [PDF - 10.62 MB] AHRQ Publications No, Q14-0038. Rockville, MD: Agency for Healthcare Research and Quality; 2014. Accessed November 18, 2014.

⁵ Catlan A, Cowan C, Hartman M, Heffler S; National Health Expenditure Accounts Team. National health spending in 2006: a year of change for prescription drugs. *Health Aff (Millwood)* 2008;27:14-29

One report by Price Waterhouse Cooper estimated that in Europe, mHealth technologies could help trim up to 35 percent off the cost of treating chronic medical conditions, a large driver of health care spending. In the U.S., that would equal about \$700 billion in savings. And these cost cuts will become even more critical as Obamacare ushers up to 30 million uninsured people into the health care system by 2023⁶.

Chronic conditions and readmissions are two of the most significant drivers of excessive health care costs. RPM has proven to be an antidote for both. A health system in Texas conducted a yearlong RPM pilot project in elderly patients with chronic illnesses. Participants in the program were provided a tablet, weight scale, blood pressure cuff and a pulse oximeter. Prior to the study, the average cost of care for each patient who completed the pilot program was \$12,937; after participation, the cost for treating those patients fell to \$1,231⁷.

The TeleHealth sector is state of the art advance technology solution that has been considered the territory of high technology for-profit firms whose purpose is to provide service and maximize profit for shareholders. In order to contest and change these trends, Human Endeavour with its EPIC Technology and EPIC Health social enterprises decided to strive for it.

TeleHealth technologies can be a valuable tool in addressing uncontrollable rising health care costs that threat system sustainability. Connecting patients to health support and management tools outside a medical facility using remote devices can revolutionize the health care industry.

The initial demonstration of the product was given at South Lake Regional Hospital in Newmarket, ON, Canada at its Annual Geriatric day on April 18, 2015. Human Endeavour in collaboration with Kent State University, College of Nursing and the "People for Haiti" will

⁶ <http://www.inc.com/magazine/201402/david-freedman/obamacare-health-technology-startups.html>

⁷ <http://healthcare-executive-insight.advanceweb.com/Columns/mHealth/Remote-Patient-Monitoring-Helps-Extend-the-Reach-of-Care-2.aspx>

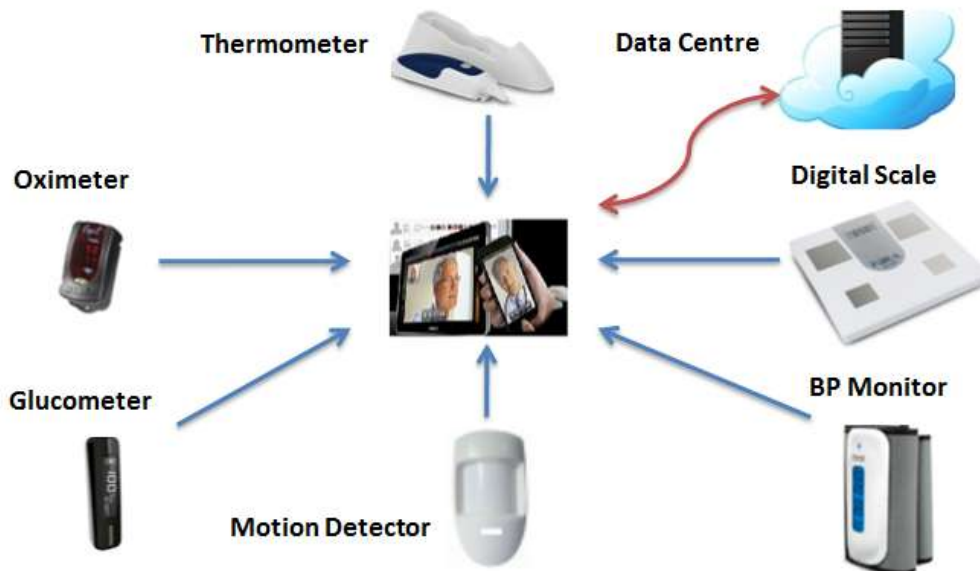
implement TeleMedicine and TeleHealth in Haiti in early 2016 for remote patient monitoring and care for patients seen in their medical mission clinics four times per year. This will provide the opportunity for close monitoring of patients with chronic illnesses in Haiti, thereby minimizing complications or unanticipated adverse reactions.

This example shows venturing of a social enterprise into a potential multi-billion dollar industry that is currently considered a lucrative future business opportunity for for-profits like Apple, Google, NEC,....and their shareholders. When social enterprises compete with for-profits in the open market and succeed on the basis of meritorious products that are also cost effective, social economy is sure to gain due recognition.

EPIC TeleHealth frontend concept diagram:

Bridging Patients' Healthcare & Lifestyle with Advance Telehealth Technology

Vital Signs and Activities of Daily Living (ADLs) monitoring at home!



Section 5:

The Partners

Human Endeavour's enterprises premise on sound business model, rely on diverse collaborations and innovative technologies to demonstrate the social economy potential, impact and benefits. Universities have always played a strong role in regional economic development. The role of Massachusetts Institute of Technology in the growth of industries in the greater Boston area and Stanford University in the Silicon Valley area is quite well known. One can observe a similar experience with other universities in the US and other parts of the world. Universities are playing a key role in Human Endeavour's economic development philosophy by promoting community economic innovations, finding solutions to major societal challenges and preparing future social entrepreneurs for building "a caring economy" that is fair to all.

Human Endeavour has collaborated with different academic institutions since 2010. It presented many evidence based research papers on community programs in health, wellness and economic development with York University and Association for Non-profits and Social Economy Research (ANSER-ARES). Since 2013, Human Endeavour has also started collaborating with Kent State University in OH, USA for research on community health and social enterprising.

Building on the tradition of innovative collaboration, the model under discussion also brought together partners from different sectors who have shared altruistic approach and commitment to common purpose, i.e. to work together for the broader good and to be part of unique social and economic endeavours.

In this model, Human Endeavour (a non-profit) and InfiniAims (for-profit), Kent State University along with socially committed entrepreneurs and community members are collaborating with EPIC Technology and EPIC Health social enterprises to design products for the vast emerging

TeleHealth industry with the purpose of developing cost-effective products to generate income for the vulnerable and reduce the burden on the health care systems.

HE and KSU, College of Nursing collaboration on preventive health care and related innovative products will shape an exemplary university-industry-community partnership that has the potential of expanding to other departments and eventually triggering advance regional economic development focused on addressing significant health care challenges.

HE and KSU collaboration on RPM products will carve the pivotal future role of advanced practice nurses and other similar professionals for using RPM products. Collaboration is also striving to promote and launch RPM products to test, research and demonstrate the effectiveness that will result in reducing the health care cost in the US and elsewhere. One product launch is planned for January, 2016 in Haiti to provide remote health care services to local residents from KSU, OH.

Our model has four building blocks, i.e., collaborate diversely, create products innovatively, benefit inclusively, and provide a replicable and scalable model. The piloting is low-cost, low-risk, but promises high-value innovative products with benefits at scale.

Section 6:

Recommendations and the Way Forward

The paper concludes with recommendations to the social economy sector on how to establish itself as a viable sector by striving to find solutions of major challenges through innovation, technology and collaborations. In the wake of the learning of the foregoing case study and Human Endeavour's other work on social economy, innovation and social enterprises, we propose:

1. Social enterprises should focus on high value and high impact innovations to raise social economy profile, make a significant impact and address critical societal challenges.
2. Broad based collaborations with shared incentives between non-profits, social entrepreneurs, businesses and academia by pooling of resources and complementary expertise with manifest social responsibility should be promoted to expand the scope of impact.
3. Role of universities in rural areas like Kent State University, Salem should be strengthened through advance collaborative research, innovation and development; thus stimulating regional economic development by promoting social entrepreneurship.

Our conclusion is that the social economy sector must think outside the box and use innovation and collaboration to create its own value instead of relying on government or other support. Social enterprises need to focus on selecting areas that have relevance for the broader market and economy and assist in addressing the larger societal issues through high value, high tech and high impact interventions and products.

Annex - Brief biographies of the authors

Noor Din migrated to Canada in 1990 and obtained Master's Degree in Computer Engineering from University of Toronto. After having worked for two decades in technology industry in Pakistan and Canada, he founded Human Endeavour (www.humanendeavour.org) in 2004 to bring much needed innovations in health, economic and social sectors through outside-the-box thinking and community lead programs to make a meaningful change for the marginalized. His initiatives have received many awards for their innovation and evidence based practices. He is the recipient of 2012 3M Health Leadership Award.

Noor is currently the CEO of Human Endeavour. He is also an affiliated individual member with CERIS Metropolis Centre at York University and has presented many research papers on social economy, innovations and community based health & wellness models.

Email: noor.din@humanendeavour.org

Celeste P. Oprean EdD: Dr. Celeste Oprean is currently serving as the Assistant Dean of Kent State University on the Salem campus. She has served in this role for 3 years. Prior to that, Celeste was the Dean of Business and Service Careers at Blue Ridge Community College where she served in that position for 11 years. During that 11 years, Dr. Oprean was also the lead instructor of the Web Technology program and taught a number of computer related courses. Celeste holds a doctorate for Western Carolina University in Higher Education Management and a Masters in Educational Supervision with a concentration in Educational Technology.

Email: coprean@kent.edu

Mary Lou Ferranto- RN, PhD, CNP: Dr. Ferranto is the BSN Program Coordinator and Professor of Nursing for the Salem Campus at Kent State University, OH, USA. Dr. Ferranto has been with the University for 22 years. Her area of research is the Development of Cultural Humility in Nursing Students. As such, in order to expose students to diverse cultures and global health care needs, she has organized trips to the Pine Ridge Reservation in South Dakota; the World Health Organization, the UN, and the International Refugee Center in Geneva, Switzerland; Orphanages, HIV clinics and hospitals in Tanzania for BSN students and has conducted several medical missions to Haiti with the baccalaureate students from Kent State University. She has presented at numerous national, international and community based conferences, and was the recipient of an Innovation grant during the Spring of 2010.

Email: mferrant@kent.edu

Acknowledgements: Human Endeavour greatly appreciates the financial support of various funders (Ontario Trillium Foundation, The Regional Municipality of York, United Way of York Region and Ontario Ministry of Training Colleges and Universities) over the years for the establishment of EPIC incubator to create economic opportunities and lead innovations.

Human Endeavour is also thankful to various partner organizations (Punjabi Community Health Services, City of Vaughan – Vaughan Business Enterprise Centre, York Region Media Group – Vaughan Citizen, Indian Rainbow Community Services of Peel, Vaughan Community Health Centre, York University, University of Toronto – Social Economy Centre, Georgina Trades Training Inc.) and advisory group who have supported the concepts and promotion of social economy through EPIC.