The Emerging Role Of University TTOs In Facilitating Social Enterprises: Identifying New Sources Of Creativity And Mobilizing Knowledge And Resources To Address Societal And Community Problems

By John A. Fraser and Randy S. Fisher

What is a Social Venture/Social Enterprise?

The purpose of this paper is to highlight the term Social Ventures / Social Enterprises and show how various proven techniques and activities of a Technology Transfer Office (TTO) can support and grow these activities from their university research source.[1]

Definitions

One[2] definition of a social venture/enterprise or social business is a business whose primary purpose is to serve specific societal and community objectives. Social enterprises seek to maximize profits while maximizing benefits to society and the environment, and the profits are principally used to fund social programs.

According to Wikipedia,[3] social innovations are new social practices that aim to meet social needs in a better way than the existing solutions, resulting from—for example—working conditions, education, community development, or health. These ideas are created with the goal of extending and strengthening civil society. Social innovation includes the social processes of innovation, such as open-source methods and techniques and also the innovations which have a social purpose—like activism, virtual volunteering, microcredit, or distance learning.

Social Impact[4] is the net effect of an activity (or group of activities) on a community and the well-being of individuals and families.

Social enterprises arise because they address a societal or community need. In the university environment, academic researchers in the Departments of Arts, Humanities, and Social Sciences research and analyze problems in various communities and recommend evidence-based solutions. (The term 'SHAPE' has been created to refer to Social Sciences, Humanities, Arts, People, and the Economy). SHAPE and STEM are NOT mutually exclusive communities. There are times when a STEM technology is utilized in a Social Enterprise and others when a STEM technology increases the social impact of a SHAPE project.

In many cases, the community affected is clear and mobilized around solving the problem.

In other words, social enterprises tend to have what is known and highly valued as 'product/market-fit' more so than many STEM inventions.

For simplicity, the term 'Social Enterprises' refers to Social Ventures and Social Enterprises.

Unique Growth and Impact Opportunity for TTOs

We, the authors, believe that university TTOs should identify Social Enterprises as an important activity that deserves institutional support. It is a rationale similar to the creation of TTOs for patented STEM activities.

We also believe that assistance from TTO staff should be provided to help identify appropriate business skills and implementation models. Social Enterprises are sometimes rooted in a single community; however, they can be replicated and scaled to help other communities domestically and internationally. To ensure maximum and enduring impact and return on investment (ROI), Social Enterprises should be organized to be financially sustainable and economically viable.

These are some of the areas where TTO staff can assist productively.

By assisting projects that arise in the SHAPE community, a community different than the STEM community, additional financial support for the TTO could be found.

Community Problems and Pain Points

Many times, but not always, the stakeholders of a Social Enterprise have a deep understanding of com-

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1. We wish to acknowledge the efforts of Dr. Sarah Mac-Naughton, formerly of Oxentia, who very graciously reviewed an early draft and provided many pertinent suggestions.

2. *https://www.investopedia.com/terms/s/social-enterprise.asp.*

3. *https://en.wikipedia.org/wiki/Social_innovation.*

4. *https://csis.upenn.edu/news/what-is-social-impact-anyways/.*

munity issues from the researcher's consultancy. Simply put, the stakeholders know the problem, who it affects and what needs to be done; *i.e.*, one key component of creating impact, the discovery and validation of the problem (aka Customer Discovery), has already been partially initiated.

This contrasts with researchers of STEM activities who typically invent solutions to solve a problem without speaking in detail with users/stakeholders. STEM-focused startups, founders, and TTO staff expend a lot of effort and money in Customer Discovery searching for the winning, initial Product/Market Fit.

For Social Enterprises, the challenge is somewhat less about finding the Product/Market Fit and more about organizing and mobilizing people to address the problem at scale and creating a financially sustainable mechanism.

Social Enterprise founders often lack the business skills to ensure success, as well as the ability to develop, measure, and communicate the appropriate metrics to attract funding and investment from parties beyond the public sector.

As an aside, like all new activities, language and jargon are very important. The TTO STEM associated words 'commercialization' or 'technology transfer' are not appropriate phrases to use. The words *translating research* or *achieving impact* or *capacity-building* are better received by the SHAPE community.

Skill Set Gaps and Areas for Attention

Building a business or building a social enterprise is not for the faint-of-heart. It requires a tremendous amount of skill, passion, and endurance. Rejection at various points of development is commonplace, and there is a delicate balance among developing products and services for market users, generating revenue, and staying cash-flow positive during lean times, while the organization gets its footing.

Of interest to this paper are Social Enterprise founders drawn from the ranks of university researchers and managers who need to:

(1) Be comfortable with the transition to an entrepreneurial mindset and behaviors (*i.e.*, greater ease with uncertainty and ambiguity);

(2) Understand how their venture differs from STEM commercialization (for example, the challenge of engaging participants in market-based opportunities (when most join projects for mission-based reasons); and

(3) Learn how and when to pursue funding and revenue to support capacity building, sustainability, and community impact.

Like STEM founders, Social Enterprise founders often have a lack of business skills and entrepreneurial

knowledge as well as lack of a solid understanding of the business model and revenue sources for a particular project. Moreover, many times there is a lack of clarity on the appropriate metrics to measure and report success—aligning the right communication and messaging to different stakeholders (*i.e.*, founders, employees, ecosystem members, investors, grant funders, etc.) to get their continued buy-in and support. For example, to secure investment, founders must quantify the nature and breadth of the opportunity in financial terms. Social Enterprises are also required to demonstrate social impact (on the people, organizations, and communities served). Many times, investors don't value these as much as the financial issues, making this a real challenge.

Other gaps include negotiation skills.

Excellent reference books to fill additional knowledge gaps are: *Making Technology Happen*[5] by Denzyl Doyle, an excellent guide for venture founders, and *Crossing The Chasm*[6] by Geoffrey Moore, which is often referred to as the bible for startup founders for its Law of Predictable Market Adoption.

Frequently, Social Enterprises also license-in and incorporate other organizations' technology and intellectual property into their project(s) and negotiate win-win deals with partners and users. They have to test products and services as per customer requirements and ensure an enhanced customer experience. They also require financial skills to monitor cash flow and budgeting to ensure organizational survival.

Building Organizational Capacity and Entrepreneurial Skills

A critical element to ensuring success in both Social Enterprises or STEM businesses is Customer Discovery and Market Validation. Customer Discovery is a proven, scientific method for building successful startups and new ventures. It involves formulating and testing hypotheses/assumptions about customers, segments, desired product features, revenue strategies, pricing, and more by directly interviewing prospective customers. This market viewpoint information either validates or invalidates the hypothesis, enabling the entrepreneur to take advantage of insights to make adjustments or significant pivots to the venture's business model—and arrive at Product/Market Fit—a significant, expected pre-condition for future, rapid market success.

The Customer Discovery Methodology enables the

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5. *Making Technology Happen*, Denzyl Doyle, Doyletech Corporation, 2001.

6. *Crossing the Chasm: Marketing and Selling Technology Products to Mainstream Customers*, Geoffrey Moore, Harper-Collins, 1991.

founder to evaluate a set of questions or hypotheses about a customer (representing a group of customers, *i.e.*, a Customer Segment). The insights from this understanding help to complete a Business Model Canvas (discussed below) and can also help the Social Enterprise founder determine how to develop, launch, and scale products and services, as well as develop a go-to-market strategy that targets ideal customers. Active listening, critical thinking, and analysis during Customer Discovery activities helps the founder to know when to keep on the same track, test, or pivot to a new or revised Business Model/Customer Segment/Revenue model.

Many STEM startups are founded by scientists and software engineers, who tend to focus most of their efforts and time on developing and refining their technology and products.

Steve Blank, the creator of the Customer Discovery Method, urges such founders to "get out of the lab/building" to learn from market users and customers about how to understand and meet their needs, rather than creating a nifty product that nobody is interested in or willing to buy. There are some exceptions of course, notably Apple's Steve Jobs.

This paper's authors strongly believe that Social Enterprises founders also need more support, mentoring, and training up front, and need to talk to their potential customers and stakeholders to learn how and where they can generate revenue and replicate success in other geographies and locales. This will ensure financial viability and organizational sustainability.

The Role of the University TTO

As the role of the TTO staff in researcher-based Social Enterprises is emerging, the typical situation seems to be as follows:

A researcher has worked in a community and realized there is a societal or a community problem. S/he develops a solution but does not know how to implement it or evaluate its effectiveness. Moreover, s/he does not know how to duplicate its success in different communities and scale it. The researcher can turn to the TTO staff for assistance. The TTO can add real value at this point. Some experience from the UK describes the different role of the TTO manager for social ventures as having more of a co-creation aspect, with the TTO staff much more involved, perhaps like involvement in a STEM spinout.

The TTO can also add value by helping:

- To identify and protect the intellectual property (IP) assets. Copyrights, know-how, trademarks, etc., are prevalent while patents are not usually needed for Social Enterprises;
- To formalize a development plan for a product or a service;

- To introduce the founders to entrepreneurs, investors, and others in the local innovation ecosystem to share experiences and obtain equity funding;
- To assist with the grant-writing process to help secure the first substantial financing, usually a government grant, perhaps a Small Business Innovation Research (SBIR) grant in the U.S., for example, *sbir.gov*.
- To assist spinouts with partnership planning activities (*i.e.*, for product development, manufacturing, distribution, etc.), and also with identifying the potential first clients. In some cases, these will be NGOs or government departments—typical when a Social Enterprise begins as a consultancy.

Another important area where the TTO can assist is by educating social entrepreneurs about using the Business Model Canvas.[7] The Business Model Canvas is a strategic management template used by startups to provide a visual chart of elements describing a firm's or product's value proposition,[8] infrastructure, customers, and finances assisting businesses to align their activities by illustrating potential trade-offs with data. This is a valuable, real-life exercise to work through how to formalize the product or service, distribute it, provide evidence and support to end users, and generate revenues.

The Road to Sustainability

A key challenge facing Social Enterprises is how to take a beneficial capacity-building solution and scale it, while ensuring financial sustainability and impact beyond its core set of community stakeholders and initial customers.

The TTO staff can work with the Social Enterprise founders to use the above techniques to ensure that there is a Road to Sustainability and what it looks like year by year.

The Customer Discovery Method and The Business Model Canvas provide a proven and successful path for this.

By talking directly to customers (and listening!) Social Enterprises can learn more about the Ideal Customer, develop timely and accurate personas of customers, users, and buyers; and use these knowledge, data, and insights to reach, communicate, and persuade Ideal Customers via print, web, mobile, or a combination of delivery channels.

As this is done, attention needs to be paid to defin-

7. *https://en.wikipedia.org/wiki/Business_Model_Canvas*, or By Business Model Alchemist and pharma industry—*http://www.businessmodelalchemist.com/tools*, CC BY-SA 1.0, *https://commons.wikimedia.org/w/index.php?curid=11892574*.

8. *https://en.wikipedia.org/wiki/Value_proposition*.

ing the features of the initial solutions or products offered by the Social Enterprise to address the community problem. Estimates need to be prepared to identify costs, to identify users and buyers in the community, how to best reach them, to identify partners to reach the targeted audience, as well as identify financial resources such as grants (non-dilutive funding) and potential revenues. This is known as the Revenue Model for the Social Enterprise, which can be used to determine if the Social Enterprise is financially sustainable or whether it might need modest external investments when key milestones are achieved (*i.e.*, when a new community market is identified or a new offering with additional features is needed but requires external financial resources).

Transitioning to Product-Led Growth

While not specific to the role of the University TTO, it is important to identify the evolution of the Social Enterprise from a (primarily) training/capacity-building function to an organization with clear products, each with its own customer segments, product benefits, features, and lifecycle. At this point, the Social Enterprise would begin to mirror its STEM counterpart. For each product, founders will have to focus on User Experience/Customer Experience to align product features and workflow to different stakeholders and develop a go-to-market strategy that reflects the accumulated data, wisdom, and insights.

Examples of Successful Social Enterprises

The following are examples of successful Social Enterprises. Each author identified in parentheses was connected to the project.

LivingWorks: Suicide Intervention (JAF)
livingworks.net
Background/Context

Calgary, Alberta, Canada, 1983. Four researchers from diverse backgrounds including social work, psychiatry, and counseling had a radical idea: What if they could empower everyone to help save lives from suicide? After several years of grant writing to finance workshops in 1990, Richard Ramsay, Bryan Tanney, Roger Tierney, and Bill Lang approached John Fraser, then head of the TTO at the University of Calgary. The team asked if John could help them identify how to spend more time training people, and less time writing grant applications.

Two of the four were university employees. They had already created an effective program of training workshops to recognize, intervene, and prevent suicide-prone individuals from killing themselves.

Actions

With Fraser's advice, a not-for-profit company was incorporated. The related university IP was licensed to the company. The royalty was a small flat fee paid per workshop over the initial four years. This enabled the founders to build up cash reserves, spend less time writing grants, and greatly expand the reach of their training programs.

One unexpected issue was that their professional colleagues perceived their company as 'making money from suicide.' Once the founders communicated that excess cash was not being paid to the founders but reinvested to extend the reach of the trainings, their colleagues became more accepting of the approach.

Results

Forty-plus years later the company is still in business.

AUTISM Navigator (JAF)
autismnavigator.com
Background/Context

Tallahassee, Florida, U.S.A., 2005. Florida State University Professor Amy Wetherby had the idea of how to identify children who expressed autistic behavior earlier than their formal school entry date. This enabled early intervention and amelioration of the long-term effects before they became irreversibly embedded in the child. By working with parents from families with a history of autistic behavior, Wetherby videotaped the children and built up a library of autistic visual cues over a 30-year period. Children expressing these visual cues were predictive of development of some aspect of the autism spectrum disorder (ASD).

Actions

Developed by the Florida State University Autism Institute (a nonprofit university research center), The Autism Navigator™ company was licensed and spun out of FSU. The company has a web-based instructional system designed to increase the capacity of healthcare and childcare service providers, educators, and families to serve young children with, or at risk for, autism. It has two web-based components: (1) an interactive instructional tool with a modular package of training webinars; and (2) an online screening tool with automated scoring and reporting capabilities.

As an example, one of the webinars is to assist parents to prepare for an outing to the grocery store. Emphasis is given to discussing the outing with the autistic child to help prevent an outburst.

Results

The company sustains itself through fees charged to users such as doctors and social workers but waives fees for parents. FSU licensed to the company the use of all the autism-related IP (for a modest fee) created by Professor Wetherby's group.

Fifteen-plus years later the company is still operational.

The Center for Prevention and Early Intervention Policy (CPEIP) (JAF)

cpeip.fsu.edu

Background/Context

Tallahassee, Florida, U.S.A., 2008. The Center at Florida State University (Helping Single Mothers Facing their First Birth) is a self-financed, affiliated research center. Its focus is using research-based evidence to create programs to support unwed mothers with their first birth.

One early product was a Home Visiting Curriculum aimed at social workers and pregnant women to help the women gain self-confidence for the birth and knowledge to raise the baby successfully during the first four years.

Actions

The TTO's role consisted of helping to identify and solidify ownership and authorship of individual pieces of copyright-protected IP. These IP assets were used to create a pricing scheme to charge separately for the training workshops and for the accompanying workbooks and handouts.

Results

The net sales for the workbooks and handouts were treated as royalties and distributed amongst the authors and the Center. This acknowledged the creative work beyond normal research activities and provided an incentive for further creativity and business development. The IP was created within CPEIP and used by them, but not licensed to any third party.

Fourteen years later, this activity is ongoing.

Ushani Design (RSF)

facebook.com/Ushanidesign

Background/Context

Columbo, Sri Lanka, 2017. Ushani Hewage of Columbo, Sri Lanka started out with her student project in the University of Moratuwa's[9] engineering school with assistance from the fashion and textile design school. The 27-year-old founder, a woman entrepreneur, began her entrepreneurial journey with passion, creativity, and an innovative technology for developing unique colored designs and patterns. Creating curved designs in a fabric on a handloom is very labor-intensive. Ushani's design solution reduced the labor by an order of magnitude, thus increasing throughput and thus income. Her goals were to help rural women weavers to achieve more sustainable income—and make money for herself too.

Actions

The TTO helped her find a profitable business model that made economic sense while preserving her original desire to uplift women entrepreneurs. An initial pilot project revealed interest from the weavers but no sales. Before investing further resources, she needed to truly understand what her customers needed and desired—and were willing to pay for.

Working with U.S.—based Customer Discovery Expert, Randy Shawn Fisher, (with the support of WIPO's Enabling Innovation Environment (EIE) Program Mentor, John Fraser) the process involved a series of coaching sessions—for her to learn about Customer Discovery interviewing[10] to find where her product fit in the market and who would actually buy her products. Ushani learned about the importance of speaking directly to potential customers, gathering data, analyzing findings, and generating insights about the right customer segments, their personas, and the value proposition, and how best to reach them and build her business.

Results

Within two months, she pivoted to a new business model—a branded fashion house—licensing her technology from the University of Moratuwa's TTO. She developed a solid understanding of her customer base and how and where she could make sales. Demand for her designs and finished products significantly increased, and she is well on the way to scaling her business.

Ushani received funding from Sri Lanka's National Science Foundation. Her entrepreneurial success was featured in a WIPO EIE case study and referred to in an AUTM newsletter.[11] WIPO used the case study internally to promote its EIE program to its stakeholders. Outcomes included:

- Empowerment and inclusion—youth and women entrepreneurs
- Development of transferable, modern 21st century skills into the traditional industry of weaving (and into emerging economies, such as Sri Lanka)[12]
- Job creation and workforce development
- Increase impact, diversify funding sources
- Sustainable and profitable business models
- Proven and evidence-based, adaptable, and flexible for different stakeholders
- Serving commercial and humanitarian/philanthropic goals

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9. *https://uom.lk/.*

10. *https://www.customerdiscoverypros.com/product-market-fit.html.*

11. *https://autm.net/about-tech-transfer/newsletter-(1)/newsletter-archives/a-global-perspective-archives/#12220.*

12. *https://www.customerdiscoverypros.com/case-study-entrepreneurial-success-in-sri-lanka.html.*

- Faster IP/technology commercialization, licensing, and value-added partnerships

Ushani continues to develop her company in 2022 on a part-time basis while employed as an Assistant Manager for Hayleys PLC, one of Sri Lanka's largest and most diversified companies spanning 16 sectors including apparel, fashion, and textiles.

Measuring Impact: Lessons from the United Kingdom

In the view of the authors, the UK has taken a more comprehensive view of academic technology transfer than in the U.S. Terms such as Knowledge Transfer (KT) or Knowledge Exchange are used to encompass the many ways in which important information is passed from creator to user. The graphic below of Academic Knowledge Exchange and KT[13] outlines the multiple channels used to move knowledge from creators to users who create impact. See Figure 1.
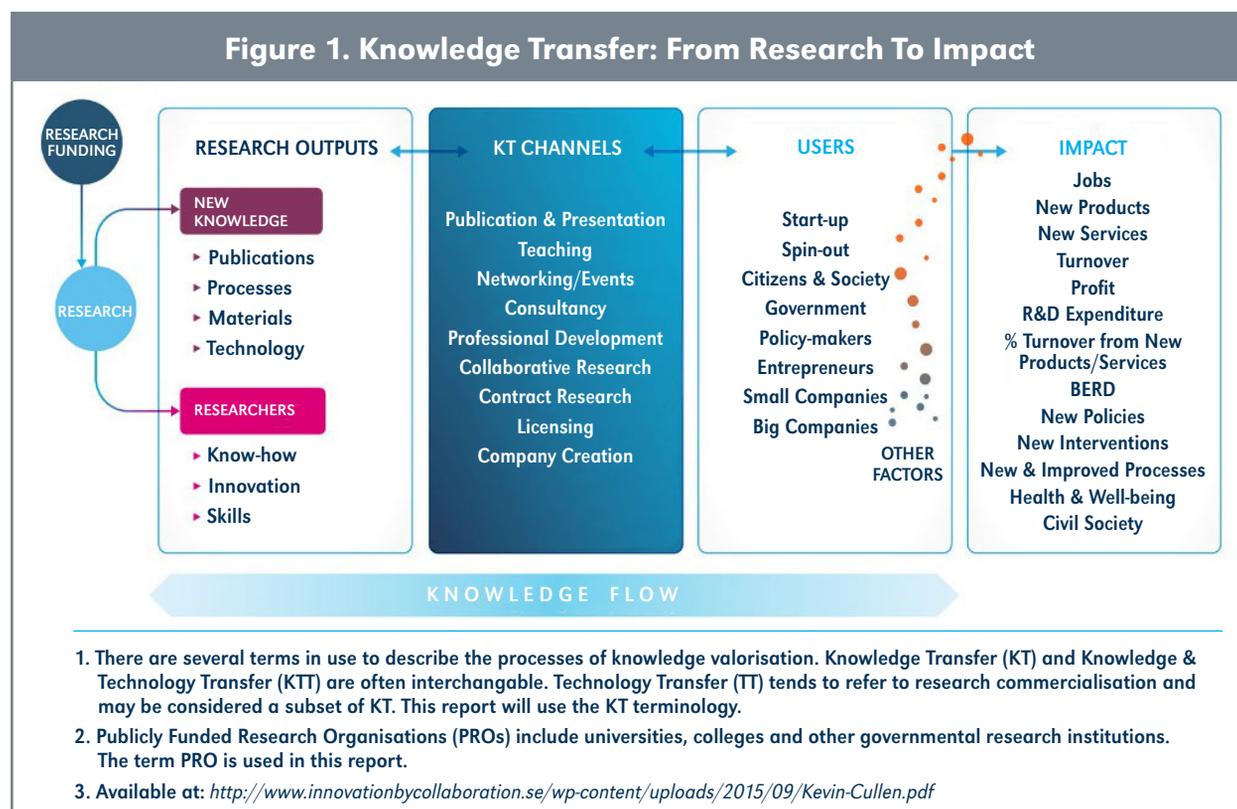
Since 2007, the impact of research has been widely discussed in the UK and led to concerted action. Questions were asked about how to measure and assess impact. What was the ROI of government investment in research? In response to Parliament's insistence, the

UK research community put a process in place. Applications for university research funding were to include an Impact Statement. To allow for comparisons, the nine categories in the graphic below were created. Grant applicants had to outline the impact of their research using words related to one or more of the categories. Well-written examples were gathered, so that grant applicants had examples for consideration. Each Impact Statement was evaluated by peer committees familiar with each category and that assessment accounted for 25 percent of the merit score for any application for public funding. The rest of the merit score was assessed by discipline peer committees. In 2022, this process continues to be used. See Figure 2.

It is important to note that the above categories/definitions cover all types of research in the UK: Humanities, Social Sciences, Arts, Economics, STEM, and non-STEM areas. This process is being reviewed to create a (similar?) method for the impact of commercialization activities.

Reporting Success:

Since this paper is about the involvement of TTOs in Social Enterprises, it is important to ask: What does eventual success of the TTO involvement look like?

Figure 1. Knowledge Transfer: From Research To Impact

1. There are several terms in use to describe the processes of knowledge valorisation. Knowledge Transfer (KT) and Knowledge & Technology Transfer (KTT) are often interchangable. Technology Transfer (TT) tends to refer to research commercialisation and may be considered a subset of KT. This report will use the KT terminology.

2. Publicly Funded Research Organisations (PROs) include universities, colleges and other governmental research institutions. The term PRO is used in this report.

3. Available at: http://www.innovationbycollaboration.se/wp-content/uploads/2015/09/Kevin-Cullen.pdf

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13. "Knowledge Transfer Metrics," Towards a European–wide Set of Harmonised Indicators. Alison Campbell, Chair. bit.ly/3L7jaz6.

Figure 2. Types Of Research Impact UK Definition
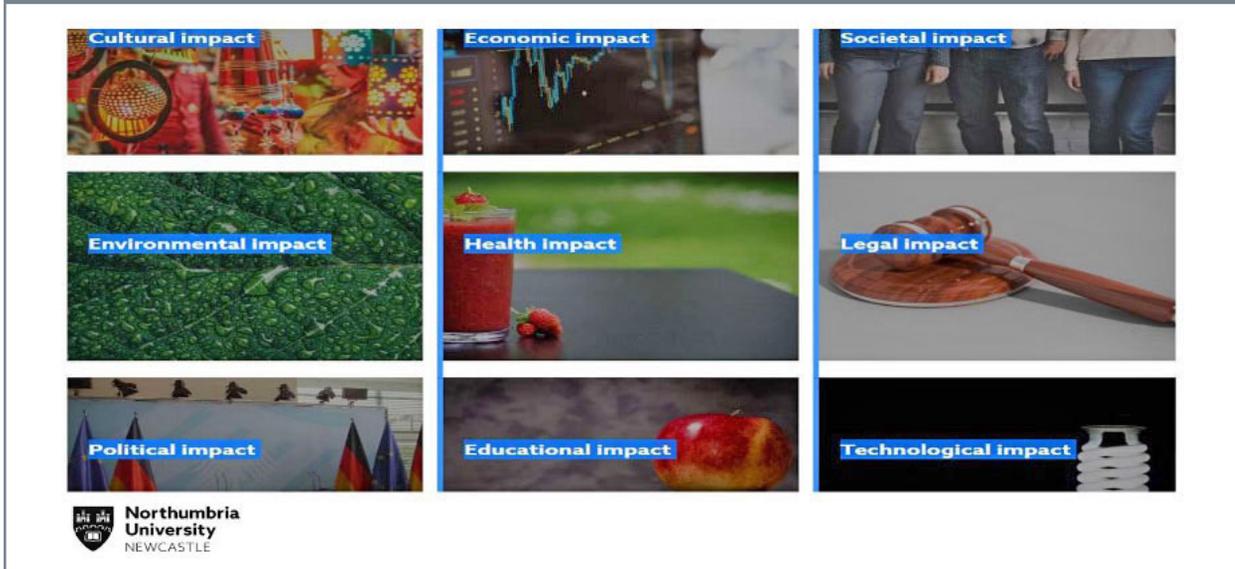
1. **Measurement:** Many TTOs measure success using a combination of Transaction Metrics, Success Stories, Use Cases, Case Studies, and Estimations of Impact—thus both qualitative and quantitative types of measures.

a. **Transaction Metrics:** During a November 2021 webinar facilitated by Matt Perkins, CEO of Oxentia, (the Oxford University's TTO), he stated that in the past couple of years, Oxentia facilitated at least 24 STEM spinouts per year. The corresponding Social Enterprises were three to four per year. It is the authors' belief that this difference is partially due to the fact that UK TTO staff are providing assistance to Social Enterprises as a recent activity (*i.e.*, we are in the early days). Conversely, TTO staff have been assisting STEM spinout activities for more than 30-plus years.

b. **Stories:** Success Stories, Use Cases, Case Studies.

c. **Impact:** As described previously, the UK has a set of Impact Areas where all research funding applicants are required to state the possible impact of funded research. While Social Enterprises might use the same matrix of societal areas to measure individual impact, it might also be useful to use the 17 United Nations Sustainable Development Goals (SDGs).[14] The Sustainable Development Goals are a blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including poverty,

inequality, climate change, environmental degradation, peace, and justice. These SDGs are more community-based, less transactional, and more appropriate for Social Enterprises.

2. **Communication and Reporting:** While success can be defined and measured in numerous ways (as above), it is critically important to identify how to communicate and report success and the specific benefits to key audiences/stakeholders.

A useful communication methodology is AMMO[15] (identifying Audience, Message, Methods, Objectives-follow-up action).

Thus, the content of the Message will depend upon the Audience you are trying to reach and influence. For example:

• **To Academic Researchers**—TTO engagement with a Social Enterprise can 'accelerate the impact of your research' by connecting you with new partners, new important challenges, and new financial resources.

• **To Senior University Leadership**—TTO engagement with Social Enterprises arising from academic research and community engagement can 'enhance the reputation of the institution' by demonstrating how on-campus research is addressing real societal problems, and be a motivator for increasing student enrollment and faculty recruitment.

• **To Government**—TTO engagement with So-

14. https://www.un.org/sustainabledevelopment/sustainable-development-goals/.

15. https://www.truedigitalcom.com/blog/a-look-inside-the-ammo-process-at-true.

cial Enterprises arising from academic research and community engagement can 'demonstrate responsiveness' to state and Federal government challenges to each institution to 'do what you already do but do more to help with the economy, build the innovation culture, create jobs, and improve our lives.'

- **To the Local or Regional Community**—TTO engagement with Social Enterprises can 'achieve results' in terms of solving real problems and alleviating suffering. One of the authors (JF) described to the Tallahassee Chamber of Commerce one of the secondary benefits to the community of a Social Enterprise spun out of the university and grown from a sole consultancy to a full-grown Social Enterprise: It offered new employment opportunities for students who graduated and left for the big city but now want to come back home to raise a family.

- **To Companies and Investors**—It is known in the U.S. for over 30 years that both these groups benefit from engagement with academic STEM activities by increasing the rate of internal innovation, increasing sales and other revenues, and by a financial ROI. Their engagement with Social Enterprises is perhaps in its early days, but similar benefits can be envisaged. For example, consider an engineering design/construction firm. It incorporates new technology to solve a problem and then uses that new learning to increase the use of the new technology by new customers. A firm helping a Social Enterprise can help create a product/service and a scalable solution that can be implemented in other communities. Similarly, while investors cannot expect the same size ROI from investing in drug development that leads to a successful drug, they can calculate a potential ROI. (However, Social Enterprises do not run the very high risk of failure found in new drug development).

Investors can calculate a regular financial ROI for a Social Enterprise, but can also use known methods to calculate a Social Return on Investment (SROI). SROI is a method for measuring values that are not traditionally reflected in financial statements, including social, economic, and environmental factors. They can identify how effectively a company uses its capital and other resources to create value for the community. The UN SDGs can be part of this latter calculation.

Having described how TTO activity *benefits* the target audience, it is effective to:

Present Stories of successful Social Enterprises—give examples with names and faces which show that this activity actually does work! The AUTM Better World Project is a source of these stories.[16]

Having presented Stories, Use Cases, and Case Studies, it is then absolutely critical to:

Present the Metrics—Consider the many ways that knowledge and technology is transferred (KT & TT) off campus[17] as depicted in Figure 1. These are formalized, papered arrangements—KT channels.

Social Enterprises will be a small fraction of the TTO company creation activity, (it will likely grow over time) but it may link to the institution via other KT channels (*e.g.*, consultancy, etc.). Thus, in creating metrics for Social Enterprises keep a broad mind in what to measure and what to report. Confining the metrics to transaction metrics only is too confining and misses describing larger opportunities of impact.

Going Forward/Recommendations

1. In the U.S., since the passage of the Bayh-Dole Act, over 180 universities and health centers support researcher outreach and commercialization through a formally organized TTO and report their activity to the Annual AUTM Licensing Activity Survey. It is time to consider building on the growing involvement of researchers in Social Enterprises by offering to expand and semi-customize current TTO support programs to help Social Enterprise entrepreneurs with market partners, product development, proof of concept, market implementation, and scaling. Doing so would expand university support for a new area of campus creativity—the SHAPE community of researchers—(*i.e.*, the Departments of Social Sciences, Humanities, Arts, etc.). This might lead to increased financing of the TTO.

2. AUTM members can help recognize Social Enterprises as a valid activity on individual campuses and at association meetings to discuss best practices and successful capacity-building and offer customized professional development courses.

3. This next item is less an observation based on experience than a supposition. U.S. STEM-based academic technology transfer is based on university inventions. Women make up 31 percent of full-time faculty in U.S. higher education.[18] The number of patents with at least one woman as a named inventor increased from 20.7 percent in 2016 to just 21.9 percent by

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16. bit.ly/3qoCyiP.

17. "Knowledge Transfer Metrics." Towards a European–wide Set of Harmonised Indicators. Alison Campbell, Chair. bit.ly/3L7jaz6.

18. *https://www.uspto.gov/about-us/news-updates/uspto-releases-updated-study-participation-women-us-innovation-economy-0*.

the end of 2019.[19] The simple conclusion (widely understood already) is that there is a lack of gender diversity in academic invention patenting and commercialization. Looking at Social Enterprises that arise from a problem in a community, it seems reasonable to assume (without any proof) that solutions will arise from males and females and thus achieve a better balance of equality, diversity, and inclusion. See *Mother of Invention—How Good Ideas Get Ignored in an Economy Built For Men* by Katrine Marçal for an interesting view on this.[20]

4. The certification standards of CLP and RTTP are adaptable enough to encourage TTO applicants who fully or partially specialize in helping Social Enterprises. Additionally, certification requirements could be adapted to include content about Social Enterprises.

5. An AUTM Special Interest Group already exists with an e-group discussion area.[21]

6. AUTM is a leader in gathering, communicating, and reporting key metrics about the impact of technology transfer.[22] Additional specific metrics may arise as AUTM recognizes newer areas of creativity such as Social Enterprises, software, and database licensing, etc.

Conclusions

The purpose of this paper is to highlight the term Social Ventures/Social Enterprises and to show how various proven techniques and activities of an academic-based TTO can successfully support and grow these activities from their university research source.

It is hoped that upon reading this paper that members of academic TTOs will increase their support for nascent Social Enterprise opportunities on their campus. ■

Available at Social Science Research Network (SSRN): *https://ssrn.com/abstract=4179656*

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19. *Ibid*.

20. Katrine Marçal, *Mother of Invention—How Good Ideas Get Ignored in an Economy Built for Men*, Abrams Press, 2021.

21. *https://community.autm.net/discussion/investing-in-social-innovation*.

22. *https://autm.net/*. See 'Surveys and Metrics.'