

Enhancing USR at Shu-Te University Through a Proposed Living Lab Partnership:
A Concept Paper and Hypothetical SROI Projection

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Abstract

This concept paper outlines an innovative approach to advancing University Social Responsibility (USR) through a Living Lab partnership. It leverages the interdisciplinary expertise of Shu-Te University's College of Applied Social Sciences and College of Informatics to develop and implement initiatives aligned with the United Nations Sustainable Development Goals (UNSDGs). Specifically, this paper discusses how the Living Lab can potentially enable collaboration, technological innovation, and applied social sciences research that: a) equips students and faculty with relevant skills, b) strengthens Shu-Te University's institutional reputation, and c) supports a non-profit organization serving 9 disadvantaged Taiwanese children with severe neurodevelopmental disorders receiving 24/7 residential care and 30 other children and youth with special needs and their families who are classified as belonging to Taiwan's low-income socioeconomic group. The proposed LH x STU Living Lab has the potential to further strengthen the Taiwan Love and Hope International Charity's impact on its various service recipients. More importantly, Shu-Te University stakeholders are projected to significantly benefit, as well. Conservative projected estimates using a hypothetical Social Return on Investment (SROI) analysis grounded on a review of relevant literature indicate that for every NT\$1 invested in the Living Lab, the SROI ranges from NT\$2.30 to NT\$4.60, while accounting for deadweight, attribution, and displacement. The projected SROI indicates moderate to high impact potential. The establishment of a Living Lab represents a critical pivot for STU to redefine its brand identity beyond being limited to a vocational university and instead as a force multiplier of social responsibility. In doing so, this paper argues, the rebranding will naturally attract and cultivate a loyal network of partners and supporters invested in sustaining and amplifying the university's enduring impact.

Keywords: Living Lab, University Social Responsibility (USR), Social Return on Investment (SROI), Shu-Te University (STU), Sustainable Development Goals (SDGs), Taiwan Love and Hope International Charity

I. Introduction

Universities implement various social responsibility initiatives and projects to fulfill their deeper sense of institutional mandate (Kohl et al., 2021; Mohammadi & Shariati, 2023; Vallaeys, 2014). University Social Responsibility (USR) is the umbrella term used for programs in higher education that coordinate an institution's influence and impact for the common good (Ali et al., 2021; Chen et al., 2024; Yang, 2023). While USR is widely advocated at the policy level, the ways it is operationalized across different educational systems remains an area for further investigation.

Some USR initiatives are short-term projects or even one-off programs that, although advantageous, arguably lack a long-term vision (El-Kassar et al., 2022). At times, USR is carried out just to show or even report to government education authorities that social responsibility projects are being implemented (Vallaeys, 2014). This raises concerns about the authenticity and sustainability of USR efforts.

The complexity of the university system, with its political and organizational dynamics, often obscures genuine social responsibility within its bureaucratic structures (El-Kassar et al., 2022). Despite the importance of academia-industry partnerships, USR initiatives driven and perhaps constrained by an underlying compliance attitude frequently fall short of fully utilizing university resources to address complex socioeconomic concerns within communities (Burbridge & Morrison, 2021). Moreover, the reality of bureaucratic organizational dynamics means that a lack of authority and power imbalances can impede faculty members with strong social commitment from seeing their projects initiated or their efforts properly recognized. Within this context, failure to effectively leverage a university's unique mandate and status can result in missed opportunities to drive meaningful social innovation and advance the institution's public mission. Without strategic alignment between faculty-led initiatives and the university, well-intentioned initiatives and programs risk being deprioritized or lost in the organizational bureaucracy.

USR is a demanding undertaking (Amorim et al., 2023). Nonetheless, it is and will always remain important and necessary. Many people throughout the world still live in poverty or have their lives disrupted by starvation, war, ecological disasters, or widespread inequality, despite the numerous developments achieved in the twenty-first century. The disheartening fact that many problems remain prevalent in various parts of the world is why the United Nations advocates for the Sustainable Development Goals (SDGs) (United Nations, 2015, 2021). Through the discovery and practice of social innovations, the SDGs lay out a framework that challenges everyone to contribute to finding solutions that improve people's lives (Bayuo et al., 2020). Higher education professionals, in particular, are expected to come down from their intellectual ivory towers and apply knowledge to devise solutions where they are most needed (Vallaeys, 2014).

University Social Responsibility (USR) in Taiwan officially began in 2017, when the Ministry of Education launched the first phase of its USR Program, involving 116 universities and funding 220 projects across different townships (Chen, 2020; Ministry of Education, 2019, 2020, 2023). As of 2025, USR has become deeply embedded across Taiwan's higher education landscape, with most universities actively implementing USR initiatives under the Higher

Education Sprout Project (Ministry of Education, 2020, 2023; National Taiwan University of Science and Technology, 2024). Despite this, it is worth noting that USR in Taiwan has not yet reached a decade, even though higher education in the country dates back to the Japanese colonial period.

On the other hand, the concept of Living Labs—real-life environments where users, researchers, and stakeholders co-create and test innovations—was officially introduced to Taiwan in 2008 (Leu et al., 2021). The Innovative DigiTech-Enabled Applications & Services Institute (IDEAS) under the Institute for Information Industry (III) launched “Living Lab Taiwan” in Taipei. The following year, Taiwan joined the European Network of Living Labs (ENoLL) and was granted membership in 2013 (European Network of Living Labs, n.d.). Since its pioneering launch, multiple Living Labs have emerged across Taiwan, highlighting innovative technological collaborations among universities, industry, and government.

This position paper proposes a novel approach to sustainable USR by establishing a Living Lab. Specifically, an exploratory partnership is proposed between the Taiwan Love and Hope International Charity and the College of Applied Social Sciences and the College of Informatics of Shu-Te University (STU). De Witte et al. (2021) argue that a Living Lab is a platform for harnessing interdisciplinary perspectives and collective strengths to address the needs of partner communities. This paper argues that the two colleges’ various departments represent academic disciplines that can contribute to a dynamic platform that leverages applied social science research to support community engagement and promote sustainable development through social and technological innovation. It is a pioneering proposal and a potentially impactful initiative at STU. It is also a benchmark project for other departments and colleges within the university, demonstrating how they can collaborate to address social issues at a time when higher education budgets are being cut, and institutional financial strains are increasing due to low student enrollment. The establishment of a Living Lab as a model of collaboration not only highlights industry-academia engagement but also affirms STU’s support for global advocacies such as the United Nations Sustainable Development Goals (UNSDGs). Genuine commitment to social responsibility redefines the role of academic institutions as a force multiplier for the greater good (Sasaki & Horng, 2023).

II. Overview of University Social Responsibility (USR)

University Social Responsibility (USR) is a framework that views higher education institutions as significant stakeholders in promoting social change through teaching, community engagement, and research (Bayuo et al., 2020; Bokhari, 2017; Burbridge & Morrison, 2021). Unlike typical Corporate Social Responsibility (CSR), USR emphasizes the university's unique corporate and organizational capacity as a higher education institution to nurture its members, most especially students and faculty, into socially conscious leaders who promote positive change (Vallaes, 2014; De Sousa et al., 2021). USR redefines academia's role in promoting the collective good by encouraging its members to tackle a range of challenges.

USR incorporates various initiatives, including community-based projects, extension or continuing education programs and activities, and interdisciplinary research (Mohammadi & Shariati, 2023; Yang, 2023). USR challenges academics and students to become agents of positive change. Higher education institutions that cultivate a culture of USR not only aim for academic excellence but also a deeper institutional commitment. This serves to bolster the

university's social value and influence in communities, as well as to reinforce its presence in global contexts (Tercanli & Jongbloed, 2022; Mohammadi & Shariati, 2023).

Taiwan's Ministry of Education implemented the first University Social Responsibility (USR) Program in 2017, which established a formal policy framework for USR. In the initial phase, 116 national and private universities supported 220 initiatives across local communities (Chen, 2020; Ministry of Education, 2019, 2020, 2023). Under the ongoing Higher Education Sprout Project, USR has since become a core component of institutional practice in Taiwan's higher education sector (National Taiwan University of Science and Technology, 2024). Despite this, USR's implementation is still relatively new in comparison to Taiwan's lengthy history of higher education, which began during the Japanese colonial era. This brief chronology underscores the importance of continuing to research its evolving goals, models, and impact on communities in Taiwan.

A. USR at Shu-Te University

Of particular interest in this paper is Shu-Te University, which is located in Yanchao, Kaohsiung. The university received its official enrollment accreditation back in 1997 and is characterized by its institutional motto: Academic, Intellectual, Happy, and Hopeful. Since USR emerged as a national priority within Taiwan's higher education system in 2017, Shu-Te University (STU) has consistently engaged in this initiative. It began implementing its first USR projects around the school year 2017–2018, in alignment with the Ministry of Education's USR Program and the launch of the Higher Education Sprout Project. The university has since implemented multiple community-based initiatives. As of 2024, Shu-Te University has organized its projects into four major categories: local cultural revitalization, social inclusion, youth entrepreneurship, and sustainable development. A total of 10 distinct programs have been implemented, with some of the most notable including the “Yingshan Co-Creation Base,” which connects students and faculty with local communities to foster creative industries, and interdisciplinary collaborations targeting sustainable community design and elderly care. These efforts reflect STU's ongoing commitment to socially engaged education that integrates academic resources with Kaohsiung's development goals (Shu-Te University, 2024; Ministry of Education, 2023).

B. The Living Lab Concept as Innovative USR

Interestingly, an innovative approach to USR is the establishment of Living Labs—community-based social laboratories that connect academic research with real-world problem-solving (Chen & Liu, 2021; Bergmann et al., 2021). A Living Lab draws on a multidisciplinary approach to project-based and problem-based learning, establishing a connection between research and the needs of partner communities (Pel et al., 2020; Bayuo et al., 2020). Living Labs facilitate collaboration between academic and community stakeholders. It enables universities to act as catalysts for innovation and sustainable development. Faculty, students, and their partner communities collaborate to develop contextually relevant solutions that promote sustainable partnerships, emphasizing collective outcomes and impact through the application of appropriate technologies (Bibri & Krogstie, 2020; De Witte, 2021).

Living Labs emerged in Europe in the late 1990s as participatory environments where various stakeholders, including end users, collaboratively developed innovative products,

services, and technologies in real-world contexts (Carayannis & Morawska-Jancelewicz, 2022; Siekkinen et al., 2019). According to De Witte et al. (2021), living labs are often integrated into specific geographic regions, communities, or organizational systems, with the intention of prioritizing user needs throughout the development of the services or programs they provide. Bergmann et al. (2021) argue that living labs have a high success rate in aligning academic research with real-world applications and social significance. They achieve this by supporting iterative design cycles that enable quick feedback and improvement.

Living Labs are found worldwide and adapt to local contexts (De Witte et al., 2021). This adaptability makes Living Labs particularly appealing to countries seeking ways to enhance their innovation capacities while ensuring that solutions are developed to meet local needs (Iqbal, 2021). The ENoLL network in Europe, the MIT Living Labs in the United States, the Future Cities Laboratory in Singapore, and the Amsterdam Living Lab are excellent examples (Carayannis & Morawska-Jancelewicz, 2022; De Witte et al., 2021).

The European Network of Living Labs (ENoLL), for instance, played a key role in pushing creative initiatives that combined technology and community involvement across Europe (Bibri & Krogstie, 2020). The Living Labs initiative, which was implemented in Barcelona as part of the Mobile World Capital designation approximately 12 years ago, transformed the city into an extensive living laboratory that incorporated the most advanced mobile technologies. All that followed was history, as it significantly impacted the development of local digital technology (Bergmann et al., 2021; Bibri & Krogstie, 2020). Barcelona's designation as a Mobile World Capital serves as an example of the potential of Living Labs to even convert an entire city into experimental spaces for technological and cultural innovation (Bibri & Krogstie, 2020). Belgium subsequently used Living Labs to encourage innovation in both digital and urban environments. Amsterdam notably designed unique and inventive urban solutions that contributed to the city's livability and stylish appeal, significantly driving tourism, which in turn benefited Amsterdam's economy (De Witte et al., 2021).

C. Case Examples of Successful Living Lab Projects in Taiwan

With its strong emphasis on technological innovation and community engagement, Taiwan has emerged as a prominent center for Living Labs in Asia (Kang, 2012; Liu et al., 2023). Since the launch of Living Labs Taiwan in 2008, which was administered by the Innovative DigiTech-Enabled Applications and Services Institute (IDEAS) under the Institute for Information Industry, the labs have focused on pivotal sectors such as healthcare, e-learning, tourism, and urban development (European Network of Living Labs, n.d.). Yang (2023) notes that Taiwan's Living Labs closely align with University Social Responsibility (USR) initiatives, promoting socially responsive innovation and educational reform rooted in local culture, community values, and the best use of action research knowledge.

A good example is the Taipei Smart City Project, in which the city administration worked with neighboring academic institutions and corporate partners to test technology that could serve the specific needs of residents in the area (Leu et al., 2021). Various initiatives, which included projects on smart healthcare, smart government, smart transportation, smart building, smart environment, smart education, smart security, and smart economy, demonstrate how technological innovations can directly benefit urban living and municipal government decision-making (Iqbal, 2021; SmartTaipei, n.d.). Empirical studies on the application of the

Living Lab concept in the Minsheng Community in Taipei provide evidence of its positive impact, spanning environmental education and conservation (Gong et al., 2012).

Another noteworthy innovation is the City Science Lab @ Taipei, established in 2017 through a collaboration between the Massachusetts Institute of Technology (MIT) and National Taipei University of Technology. This collaboration established Taipei as an innovative leader in the creation of smart cities worldwide (Borda & Bowen, 2019). Of interest are its current projects on AI, robotics, and cybersecurity.

In addition, there are Living Labs that focus on environmental protection and waste management. A notable Living Lab is the National Taiwan University's Sustainable Campus Initiative. The project promoted on-campus energy efficiency, adopted green technologies, and fostered an academic culture of environmental responsibility (Liu et al., 2023). Liu's (2022) Living Lab focuses on coastal waste clean-ups and environmental protection.

Furthermore, living labs for health and elderly care in other parts of Taiwan demonstrate how interdisciplinary collaboration—between scholars, health professionals, local administrations, and community members—can yield innovative health strategies and quantifiable improvements in public well-being (Kang, 2012; Kim et al., 2020).

D. USR and Living Labs in Higher Education

Tercanli and Jongbloed (2022) observe that integrating University Social Responsibility (USR) with Living Labs in higher education establishes an indispensable link between academic instruction and the addressing of environmental and social problems. Living Labs are vibrant spaces of collaboration where educators and students work closely with community members to generate knowledge and jointly develop creative, disruptive solutions (Bayuo et al., 2020; Burbidge & Morrison, 2021). By integrating USR concepts into practical, relevant initiatives aligned with the Sustainable Development Goals, students' educational experiences are enriched. As it upholds the principle of quality education, Living Labs cultivate a culture of ethical responsibility, critical thinking, and community involvement (Kohl et al., 2021; Mohammadi & Shariati, 2023). This approach makes higher education more relevant and responsive to societal needs by viewing communities as living classrooms and labs that facilitate ongoing learning and adaptation through iterative feedback (Owen et al., 2012; Vallaeys, 2014).

III. The Taiwan Love and Hope International Charity: Rationale and Strategic Value as a Living Lab Partner

As this paper proposes a collaborative Living Lab framework rooted in social responsibility and social and technological innovation, it is critical to examine the strategic value and positioning of the Taiwan Love and Hope International Charity as a core community partner. This section highlights the organization's distinctive mission, operational scope, and potential to serve as a high-impact setting for real-world academic engagement and inclusive innovation. Tiangco (2021a, 2021b) argues that the Taiwan Love and Hope International Charity is an

admirable social welfare support organization for disadvantaged children, adolescents, and families in Kaohsiung, Taiwan, as he is the co-founder and has served as the chairman of the Board of Directors of the organization for eight years from 2016 to 2024. It is unique given that the founder is a foreign national who has been a higher education professional in the field of applied social sciences at STU in Kaohsiung, Taiwan, for nearly two decades. He has been part of the organization since its establishment and has a unique vantage point in understanding how collaboration can yield benefits for all the organizations involved. He also has a unique perspective on the challenges faced by a foreign professional working at Shu-Te University, drawing from his more than 30 years of experience in social responsibility programs as part of his educational and cultural upbringing. Social responsibility initiatives and programs are strongly ingrained in Filipino culture and its education system as a dominantly Christian society (Tiangco, 2005).

Specifically, the Taiwan Love and Hope International Charity mainly provides social welfare services, such as 24/7 residential and caregiving services, mental health and psychosocial support, and psychoeducation training to institutionalized Taiwanese children with neurodevelopmental disorders who have survived abuse and neglect (Tiangco, 2023). The non-profit organization is legally registered at the national level. It provides social welfare opportunities and employment to approximately 50 individuals, including children, adolescents, families, full-time and part-time staff, and volunteers.

In 2016, the organization was established with very limited resources, as the founder lacked access to traditional funding sources or financial support. The founder's motivation for establishing the organization was, in part, his commitment to social responsibility as a higher education professional and his conviction that universities should recognize their leadership role in serving communities. Consequently, Tiangco overcame numerous challenges to remain consistent with his personal philosophy as an academic, despite the language and cultural barriers that he faced at STU. To ensure the charity organization's survival during the COVID-19 pandemic, sacrifices were at their highest. Tiangco's Taiwanese wife serves as the Chief Executive Officer (CEO) and is instrumental in the charity's daily operations. He views it as a symbolic partnership of sorts, in which a Filipino and a Taiwanese national work together through numerous challenges to promote social responsibility, even if it means financing the organization's establishment and innovatively sustaining it on their own.

The organization, which is currently in its almost 10th year of operation, now receives financial support from the Taiwan Social Bureau, as well as numerous local and international corporate and individual donors, to fulfill its mission and vision in serving the marginalized and underserved in Kaohsiung. It is a vetted partner of the international non-profit organizations, GlobalGiving, Goodera, and BrightFunds.

Rather than simply managing activities and initiatives, the organization is guided by a culture and underlying philosophy that strive to instill an enduring sense of hope through meaningful acts of love (Tiangco, 2021a). The Taiwan Love and Hope International Charity values authenticity and promotes servant leadership within the organization. The organization's mission, closely tied to social responsibility, positions it as a suitable partner for initiatives that seek to transform collaborative grassroots community engagement into educational outcomes, while supporting a range of technological and non-technological innovations relevant to the applied social sciences.

Due to the absence of a formal memorandum of agreement, only a few Shu-Te University students have so far had the opportunity to perform social responsibility work for the Taiwan

Love and Hope International Charity in limited capacities such as participating in fundraising events, writing articles for its journal, and participating in educational activities.

IV. Overview of the Proposed Partnership Model: The LH x STU Living Lab

A proposed partnership between the Taiwan Love and Hope International Charity and the College of Applied Social Sciences and College of Informatics at Shu-Te University presents a timely opportunity to establish the university's unique USR brand through a multidisciplinary Living Lab. Rooted in shared values of social advocacy and community engagement, this collaboration offers a dynamic platform for integrating academic knowledge with real-world impact. The Living Lab will allow faculty and students at Shu-Te University to work on meaningful projects that address challenging social issues impacting underserved communities in Kaohsiung by coordinating research, teaching, and community service initiatives. A mutually beneficial model of involvement and innovation is created, as the charity benefits from access to talent while Shu-Te University's USR brand image is strengthened by the Living Lab.

The Living Lab model provides a potential organizational framework for developing, testing, and improving educational and technological innovation platforms to enhance inclusive learning, case management, psychoeducational and psychosocial interventions, and vocational development. The integration of computer technology, informatics, and AI will surely enhance psychoeducational learning, data collection, program implementation, and evaluation. AI-enhanced analytics for case monitoring and intervention progress tracking will go a long way toward tailoring impactful strategies to promote individual and community growth.

By embedding technological innovation within community-rooted collaboration, the Living Lab positions the participating colleges as hubs of social transformation through the practice of meaningful applied research. It not only elevates the public profile of the College of Applied Social Sciences and College of Informatics but also advances a replicable model of socially responsive higher education. With sustained commitment, this initiative can redefine Shu-Te University's capacity to foster positive change in Kaohsiung.

A. Potential Roles of Departments in the College of Applied Social Sciences

It calls for the active involvement of the College of Applied Social Sciences' academic departments in establishing a multidisciplinary Living Lab. The distinct expertise, approaches, and skill set that each department brings can significantly contribute to understanding and addressing the needs of the economically disadvantaged community that the Taiwan Love and Hope International Charity serves. To reiterate, the target community comprises 9 children under the charity's 24/7 full-time care, as well as around 30 underserved children and their families who could benefit from better access to quality educational opportunities and resources. This section outlines the potential roles that each department plays in shaping the design, implementation, and impact of the Living Lab initiative.

1. Department of Applied Foreign Languages

The Department of Applied Foreign Languages is envisioned to take on a pivotal lead and administrative role in the Living Lab, serving as a conduit between the Taiwan Love and Hope

International Charity and the College of Applied Social Sciences and the College of Informatics of Shu-Te University. The primary rationale is that the founder of the Taiwan Love and Hope International Charity is also a DAFL faculty member.

Moreover, the DAFL's applied expertise uniquely positions it to work on and coordinate several administrative and project-focused areas of interest. DAFL faculty members have multidisciplinary backgrounds and experience in developing, coordinating, and conducting research on teaching and learning strategies.

Specifically, a key psychoeducational initiative is strengthening the community's literacy and communicative competencies, given the DAFL's expertise in Chinese and English language learning. Specifically, there is so much that the DAFL can contribute to strengthening the charity's ongoing English language learning initiatives, aligning with the national government's 2030 Bilingual Nation Plan. The vision is to provide training and support to both children and parents. Doing so can boost the parents' job and career prospects, with the hope of contributing to their improved financial success. The department is well-equipped to offer specialized courses related to applied languages and certificate training in areas such as TOEIC, Administrative and Secretarial skills, Microsoft Office Specialist (MOS), Project Management, and Events Management.

Another vision is to leverage the Living Lab to develop, monitor, and evaluate a family-based English language learning program. Parents and caregivers served by the charity can receive English language training and be equipped to teach and practice the language with the young learners in their care. Developing and supporting parents' and caregivers' English language skills is an innovative approach to reinforce target language (TL) use within the family.

The Living Lab can serve as a hub for this innovative program, and the DAFL can spearhead the development of content and resource materials by applying AI technology as well. DAFL students can be tasked with developing materials and assessments that can be placed on a Learning Management System (LMS). The integration of ChatGPT will empower the department's students to understand and practice applying AI technology, thereby facilitating their learning and mastery of the language.

Another key area of interest is how the DAFL can support the Taiwan Love and Hope International Charity's meetings, incentives, conferences, and exhibitions (MICE) activities, which require know-how in business communication. The charity actively organizes events and activities in partnership with various organizations, including the International Rotary Club, International Lions Club, and the Taiwan International Friendship Association, among others. It is also a partner of international organizations outside Taiwan, including GlobalGiving, BringFunds, and Goodera. Business correspondence and grant writing are essential activities of the charity organization. Experiencing work related to these activities will allow STU students to practice project management skills crucial to business and organizational communication as they carry out USR simultaneously.

The Living Lab can contribute to ongoing social science research on Inquiry-based Learning, Task-based Learning, and Project-based Learning in second or foreign language acquisition, as enhanced by AI technology. Research within the Living Lab could employ quasi-experimental and longitudinal designs, using quantitative, qualitative, and mixed-methods approaches. Of particular interest to the charity is computer-aided language learning (CALL) and gamification.

Regarding taking a lead administrative role, the DAFL can further solicit the participation of faculty members from other departments in the College of Applied Social Sciences. Research

teams can be established to investigate issues and problems that would benefit from faculty members' expertise from other departments.

2. Department of Child Care and Family Studies

The Department of Child Care and Family Studies is also envisioned to play a crucial role in supporting the Living Lab, aligning with the charity's focus on serving underprivileged Taiwanese children with special needs and their families. Faculty and students can create, implement, and evaluate customized family-centered mental health and psychosocial support programs that enhance or augment the charity's existing services. Other projects may include specialized interventions delivered one-on-one or in small groups as part of case studies on children with neurodevelopmental conditions. The charity provides 24/7 care for children characterized by Global Developmental Delay (GDD) or who are clinically diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), Intellectual Disability, Intermittent Explosive Disorder, and genetic/hereditary disorders. The charity is particularly interested in researching caregiving practices in relation to Attachment Theory, family physical or verbal abuse, post-traumatic growth, the use of play and movement/exercise as intervention strategies, and strategies to improve family member relationships. The charity is particularly interested in investigating the impact of psychoeducational and creative interventions for both children and families. Research can also examine the experiences of families and caregivers of children with special needs and related burnout.

3. Department of Social Work

Furthermore, this paper proposes that the Department of Social Work play a vital role in assessment practices, securing and managing external resources, and facilitating the identification and application processes for grants. The Living Lab can provide students with opportunities to train in community-based social work, specifically in needs and impact assessments. The practice and research of program assessment and evaluation are often neglected areas, as charity staff are preoccupied with prioritizing other tasks.

In addition, the department can lead efforts to apply digital technologies to manage case records and assessment data, thereby enhancing both service delivery and individualized care through data-driven insights into the dynamics of children and their families. The charity has its own social workers, and the proper integration of technological innovations is an area worth exploring, as they primarily rely on word processing applications like Microsoft Word, Microsoft PowerPoint, and Microsoft Excel, or their Google Suite counterparts.

Moreover, the department's expertise in social welfare operations positions it to explore diverse funding and resource allocation avenues, both locally and internationally. There is also much that faculty and students can learn from the organization's fundraising and income-generation experiences. Almost ten years ago, the Taiwan Love and Hope International Charity relied on the personal resources of its founder. Since then, it has grown into an organization with several full-time and part-time staff members and has experienced a significant increase in its net worth.

In collaboration with the Taiwan Love and Hope International Charity, the Department of Social Work can facilitate the strategic acquisition and application of financial and non-financial

resources essential for the sustainable operation of the Living Lab. These resources can be mobilized to maximize community impact through informed and efficient program management.

Potential research collaborations include longitudinal studies on the outcomes of social work interventions for children and families, integrating both qualitative and quantitative methods to enhance understanding. Additional research could explore the digitalization of case records, privacy concerns, donor management systems, and the psychology of charitable giving in Taiwan. Volunteer behavior and motivations can also be examined to enhance support for philanthropic engagement and foster community alignment with the United Nations Sustainable Development Goals (UNSDGs).

4. Department of Human Sexuality

Integrating the varied perspectives and methodologies of the applied social sciences inspires collaborations that strengthen the development of comprehensive solutions to the nuanced challenges faced by families of children with special needs. Interdisciplinary perspectives have the potential to improve the quality of interventions available to the community and to advance basic and applied social science research.

In particular, the Department of Human Sexuality can contribute to the proposed Living Lab initiative by further addressing the sexual and relational health of the parents and caregivers served by the charity. It is also important to mention that some of the institutionalized children under the 24/7 care of the charity are survivors of sexual abuse. Also, instances of physical abuse of the children are associated with marital and sexual issues among the parents. The Department of Human Sexuality best understands the interventions needed to improve sexual and relational dynamics. Addressing these issues is crucial to improving families' overall well-being.

B. Potential Roles of Departments in the College of Informatics

The College of Informatics, comprising the Department of Information Management, Department of Computer Science and Information Engineering, Department of Computer and Communication, and Department of Automobile Electronics, plays a pivotal role in providing the technological backbone for the proposed Living Lab. Their collective expertise enables the design, development, and implementation of human-centered and socially responsive technological solutions.

1. Department of Information Management

The Department of Information Management is envisioned to play a critical role in designing cost-efficient cloud-based documentation tools that can enable the Taiwan Love and Hope caregivers to track their caregiving practices. In particular, the team currently uses a paper-and-pencil system in monitoring caregiver-child interactions and case management. The existing system is crude, requiring more time and analytical skills to interpret the substantial qualitative data generated daily for each child.

Innovative information management can be designed to provide better metrics for monitoring children's cognitive, emotional, and psychosocial development. Effective information management will also enable more efficient collaboration among psychotherapists, psychiatrists, educators, and social workers through data visualization, rather than the current practice of relying on under-analyzed anecdotal observations and caregiver reports.

2. Department of Computer Science and Information Engineering

Of particular interest to the Taiwan Love and Hope International Charity is the use and development of Virtual Reality (VR) Applications, which may be a specific focus for the Department of Computer Science and Information Engineering. Specifically, the goal is to use VR for: 1) psychoeducational games, 2) therapeutic interventions, and 3) caregiver training simulations. For children, VR and other computer games can help develop executive function, memory, inhibition, and fine and gross motor skills. Another high-priority project is to leverage the charity organization's extensive experience with case management to develop caregiving simulations specifically for working with special needs children, which can be used to develop VR-enhanced case management applications.

3. Department of Computer and Communication

With its focus on interactive computer and communication devices, the Department of Computer and Communication can integrate wearable technology and develop sensor-integrated interactive devices. Gamified cognitive development through the use of assistive technology and interactive electronic devices is of interest because the children under the charity's care struggle with using regular computer keyboards, since it is too complicated or overwhelming for those with Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), Intellectual Disability (ID), and Cerebral Palsy (CP). The community served by the charity can also benefit from continuing education on Digital Literacy and from leveraging AI, including ChatGPT, for enhanced parenting/caregiving support and coaching.

4. Department of Automobile Electronics

The Department of Automobile Electronics can be tapped for its expertise in mobility and transportation technologies. Practical initiatives and research can be carried out specifically for the children in the charity's care with neurodevelopmental conditions that affect their gait and mobility. The organization has children who have very limited mobility or pose risks while in a moving vehicle because of a lack of inhibitory control due to ASD, ADHD, or ID.

C. The Role of the Taiwan Love and Hope International Charity in Developing the Living Lab Brand

Central to the establishment of the Living Lab is the Taiwan Love and Hope International Charity. The charity organization is expected to serve as a bridge between academia and the community, with the hope that it will lead to an invaluable partnership among stakeholders. The organization best understands the unique issues and challenges that children with special needs and their families face. It also has extensive frontline experience caring for institutionalized children with neurodevelopmental conditions who are under its 24/7 supervision, which goes beyond textbook or decontextualized research information. Additionally, the charity has overcome various hurdles since becoming a registered organization in 2016. Through its almost 10 years of operations, it has gained invaluable insights into leadership, business practices, organizational development, networking, and public relations as it survived the 2019 COVID

pandemic and Taiwan's current economic environment and the cultural predicaments that relate to the country's falling birthrate.

The Taiwan Love and Hope International Charity provides a wide range of services, including residential placement, counseling and mental health support, and educational initiatives. For a relatively small organization, it does not only provide full-time residential living arrangements to the children under its care. It has been providing even much more.

The aim for the Living Lab is that, by integrating social science research, all of these services and practices can be studied and improved, making the potential insights gained relevant to an even broader range of communities in Taiwan. This partnership not only capitalizes on the charity's established accomplishments but also aims to promote a Living Lab brand that cultivates talent in the College of Applied Social Sciences and the College of Informatics at Shu-Te University.

The Taiwan Love and Hope International Charity will need to define the roles of the various stakeholders, develop an operational roadmap, highlight priority projects, and monitor and evaluate the Living Lab's implementation to communicate its impact to stakeholders.

D. Operationalizing the LH x STU Living Lab: A Methodological Process Framework

Operationalizing the Living Lab will involve several phases, characterized by tasks and the teams and stakeholders involved. These are: 1) Core Leadership Team Formation Phase, 2) Vision, Values, & Needs Alignment Phase, 3) Living Lab Program Co-Design Phase, 4) Living Lab Implementation Phase, 5) Data Collection & Monitoring Phase, 6) Iterative Evaluation & Redesign Phase, 7) Analysis, Interpretation, & Writing Phase, and 8) Research Publication & Sharing Phase.

The LH x STU Living Lab begins with the formation of a dedicated core leadership team ideally composed of two to three faculty members from the Department of Applied Foreign Languages, one to three faculty members that represent the College of Applied Social Sciences and College of Informatics, and one to two staff members of the Taiwan Love and Hope International Charity. Together, they will form the core leadership team responsible for operationalizing the LH x STU Living Lab.

Once a core leadership team is established, the Vision, Values, & Needs Alignment Phase will subsequently take place. It is a series of workshop meetings aimed at equipping the core leadership team with an understanding of the values and needs of the different stakeholders and the vision for the Living Lab. The goal is to align the different values and needs towards a common vision for the success of the Living Lab and achieving positive outcomes for all the stakeholders. The founder, through the support of participating DAFL faculty members, will need to run the vision and values alignment workshops.

Next, the Living Lab Program Co-Design Phase involves planning and discussions related to activities and projects that can be carried out through the Living Lab. The goal will be to outline prospective impactful projects that can be investigated. The phase will involve consultations with the various LH stakeholders to best understand how to address their various needs and concerns.

Afterwhich, the Living Lab Implementation Phase will be part of an iterative cycle involving project implementation, data collection and project monitoring, and program and project evaluation and redesign. While doing so, datasets will be collected and put in a Living Lab repository for analysis and interpretation accessible to team members and other members of the Shu-Te University ecosystem. The aim is to make the datasets accessible for analysis,

interpretation, and eventually part of publishable researches that credits the Living Lab and its core team members.

Lastly, LH x STU Living Lab team members will also publish their own works and organize research dissemination, public relations, and publicity events that benefit both Shu-Te University and the Taiwan Love and Hope International Charity.

Figure 1

LH x STU Living Lab Methodological Process Framework

The iterative cycle of evaluation will also involve an auditing of the Living Lab’s impact which can be carried out by STU faculty members who are not directly involved in the operations of the LH x STU Living Lab. Datasets can be made available for analyses. An external evaluation team can provide an objective assessment of the overall impact of the living lab alongside the internal program evaluations that will be carried out by the core leadership team.

V. LH x STU Living Lab Impact Projections: A Hypothetical Social Return on Investment (SROI) Analysis



Assessing the potential impact of the proposed living lab is important. As Shu-Te University competes for student enrollment and relevance amid Taiwan's intensifying demographic challenges, collective efforts should be organized to showcase the university's academic performance and social impact. In this context, integrating the Social Return on Investment (SROI) framework into the assessment of the Living Lab collaboration between Shu-Te University and Taiwan Love and Hope International Charity provides a strategic, outcome-oriented approach to evaluating both tangible and intangible benefits.

A. Identifying the Stakeholders That Will Benefit From the Proposed Living Lab Initiative

SROI is a systematic methodology that monetizes the social, environmental, and economic value generated by programs or initiatives (Millar & Hall, 2013). Unlike traditional cost-benefit analyses, SROI incorporates stakeholder perspectives and assigns financial proxies to outcomes that are often overlooked, such as improved well-being, research output, or enhanced institutional reputation (Arvidson et al., 2013). By embedding this model into the Living Lab framework, stakeholders can better understand the multiplier effects of interdisciplinary collaboration and social innovation.

For Shu-Te University, adopting SROI has dual significance. First, it enables empirical evaluation of the Living Lab's potential contributions to: a) service learning, USR, and support for the UNSDGs at STU, and b) research and publications. Second, it offers a compelling narrative to elevate the university's brand image, showcasing its commitment to socially responsive education. This is particularly important given Shu-Te University's ongoing efforts to increase international visibility and attract international students amid declining local enrollment and competitive pressure from well-funded national universities.

For the College of Applied Social Sciences and the College of Informatics, adopting the SROI framework provides an assessment tool for capturing the non-financial value generated by social and technological innovation projects, especially those rooted in service learning, community engagement, and research productivity. Using the SROI framework, faculty and students' engagement and outcomes can be assessed with stakeholder-informed metrics. Quantifying impact reinforces the importance of clearly communicating the improvements the Living Lab will achieve.

For the Taiwan Love and Hope International Charity, the SROI model provides a means to articulate the long-term value of its mission, vision, and services. This is particularly powerful when presenting fundraising calls to action to donors or case management reports to the Taiwan Social Welfare Bureau. The SROI framework provides a methodology to quantify the return on each dollar invested in the organization. Moreover, the use of SROI reinforces transparency and accountability, allowing the charity to engage its potential academic partners at Shu-Te University in a shared understanding of impact.

For the nine children currently receiving care through the charity's residential services, the SROI framework ensures that their lived experiences and developmental progress are at the center of outcome measurement. Rather than being reduced to care recipients, these children are viewed as agents whose well-being, emotional security, communication skills, and positive transformation are key indicators of social value creation. SROI also includes qualitative outcomes, such as attachment stability, reductions in self-harm behaviors, and improvements in adaptive functioning, which are often overlooked in financial assessments. This human-centered

evaluation approach validates the dignity and developmental potential of each child and strengthens arguments for sustained, personalized investment in their care.

The broader group of over 30 children, youth, and families served through the psychoeducational, mental health, and psychosocial support services, the food program, and parenting support activities also stands to benefit from the program outcomes, which can be framed and analyzed using the SROI model. Many of the beneficiaries experience chronic socioeconomic disadvantage, limited access to subsidized mental health services, or are primary caregivers to children with disabilities who are doing their best to cope with stress and burnout. By measuring changes in family resilience, caregiver stress reduction, school attendance and performance, or health-related behaviors, SROI helps quantify the extent to which upstream investments prevent downstream social costs. For example, one dollar invested in mental health and psychosocial support services might reduce the need for costly crisis interventions later. The potential insights can enable the charity and its university partners to advocate for policy alignment, inclusive education, and a more effective allocation of social welfare resources.

Table 1 provides an overview of the stakeholder groups, their roles in the ecosystem, the social outcomes measured, and the potential SROI contributions. Note that the values are estimates, although factors such as Deadweight, Attribution, and Displacement have all been taken into consideration with 10-50% reductions applied in the projections.

Table 1. Summary Table of Stakeholders and SROI Contribution Estimates

Stakeholder Group	Role in Ecosystem	Social Outcomes Measured	SROI Contributions	Rationale
Shu-Te University	1) Enabler and supporter of the Living Lab.	Fulfillment of the Ministry of Education and the National Science Council mandates for grant applications.	NT\$60,000 (per year, potential value)	Estimated annual reputational impact in MOE and NSC research projects at NT\$10,000 per project × 6 projects per year = NT\$60,000 (see National Science and Technology Council [NSTC], 2023 for relevant regulations and policies related to grant applications).
Sub Units: College of Applied Social Sciences College of Informatics	2) Administrative coordination and reporting to the Ministry of Education and the National Science Council. 3) Brand partner.	Fulfillment of University Social Responsibility (USR) and Sustainable Development Goals (SDGs) mandates.	NT\$50,000 (per year, potential value)	This is an estimated conservative return, linked to higher USR rankings, MOE ranking visibility, and potential to attract additional USR and SDG project funding (see Ministry of Education [MOE], 2023 for a listing of USR and SDG outcomes).
		External industry funding and partnership opportunities.	NT\$150,000 (per year, potential value)	Grant applications by the Living Lab in collaboration with various partners and donors (e.g., NPOs, private businesses, government, and alumni). Applied 50% attribution, assuming the influence of the charity organization's current partnerships and networks (see Aly Sterling Philanthropy, 2024 for discussion on nonprofit strategic planning; Taiwan Love and Hope International Charity, 2024).
		Research productivity and academic visibility.	NT\$150,000 (per year, potential value)	6 target collaborative research projects presented in local and international conferences; publications in

				SSCI/Scopus/Peer-Reviewed journals; citation value. Confidence-adjusted value of NT\$25,000, taking into consideration: deadweight, attribution, and displacement per project x 6 projects/year = NT\$150,000; Cost savings on data-gathering manpower, time, and efficiency (National Science and Technology Council [NSTC], 2023 for relevant regulations and policies related to grant applications).
		Institutional branding and reputation enhancement.	NT\$250,000 (estimated annual reputational impact)	Advertising Value Equivalency resulting from cost savings on brand campaigns and increased marketing exposure. Increased STU visibility due to conference participation and publications. Increased publicity and public relations due to partnerships that save on traditional advertising and marketing costs, such as a conventional PR campaign (see Aly Sterling Philanthropy, 2024 for discussion on measuring CSR and branding efforts).
		International student recruitment.	NT\$150,000 (estimated annual value)	Recruitment through the Living Lab of 2 international students interested in pursuing projects of the lab. Estimated NT\$75,000/year tuition, accommodation, and living expenses (Ministry of Education, 2023; Shu-Te University [STU], 2025).
TOTAL			NT\$ 810,000	
STU Faculty	Academic partner in USR and SDG advocacy, focusing on training, project development, research, and technology and innovation development.	Development of relevant training materials, assistive technologies, digital applications, and tangible outcomes that enhance their teaching and professional expertise.	NT\$35,000 (device and materials development, etc.)	At least 5 prototypes (adaptive gadget, sensory tracking devices, etc.) or treatment manual each valued at NT\$7,000: prototyping, construction, beta/field testing, improvement, research and development (National Science and Technology Council, 2024).
		Faculty promotion to a higher academic rank, accompanied by a salary increase.	NT\$12,000	The target is to have at least 4 faculty members become eligible for promotion to a higher rank due to research productivity, publication, USR project, etc. High attribution adjustment applied, resulting to a very conservative of NT\$3,000 estimated benefit for each of the 4 faculty as a result of promotion (Ministry of Education [MOE], n.d.).
		Increased career, professional, and personal meaningfulness as an academic, resulting in increased motivation, productivity, organizational citizenship, and retention.	NT\$40,000	Conservative estimated value of NT\$10,000 for each of 4 faculty members every year as Professional Development and Wellness Allowance based on the international social value of meaningfulness of work, job satisfaction, and increased workplace engagement (see Cook, 2025 for a discussion on organizational wellness and career development programming).

		Extended consulting, speaking, and other work opportunities through networking as a result of participation in the Living Labs.	NT\$24,000	Estimated value of NT\$6,000 for each of the 4 faculty members every year for presentation and consulting fees, given their experience as Living Lab collaborators (see National Science and Technology Council, 2024 guidelines for expert fee and invited speaker rates).
		TOTAL	NT\$ 111,000	
STU Students	Partner and manpower in USR related to supporting and learning from STU faculty.	Students' improved work and social competencies training for future employability.	NT\$282,240	Assuming 12 STU students complete 120 hours of service-learning and Living Lab work experience. The work experience prepares the individual for entry-level work at the minimum wage of NT\$196/hour (see Ministry of Labor [MOL], 2025).
		Personal growth, fulfillment, social values, and the development of a sense of purpose.	NT\$36,000	Assuming 12 STU students derive self-determination growth through the Living Lab. Participation in student-centered wellness programs and related activities over a one year period can cost NT\$3,000 per participant (see WellSteps, 2025 and Taiwan Love and Hope International Charity, 2024 for a discussion on wellness and psychosocial support programs).
		Strategic exposure to multi-sector networks and career-relevant stakeholders.	NT\$24,000	Assuming 12 students derive networking and quality experiences from the multi-sector networks, it is like participating in networking events and/or professional organization membership with a budget of NT\$2,000 for each of the 12 students (see Taiwan International Friendship Association, 2025 for estimates on networking fees and opportunities for students).
		TOTAL	NT\$ 342,240	
Taiwan Love and Hope International Charity	Core community service provider and Living Lab site.	Improved case documentation and information management.	NT\$40,000	Conservative estimate of 5 hours/month saved by 2 senior staff (NT\$300/hr × 5 hrs × 12 mos × 2 = NT\$36,000) due to improved and more efficient individual case tracking (see Taiwan Love and Hope International Charity, 2025 for listing of salary scale and work responsibilities).
		Improved evaluation and monitoring of services.	NT\$30,000	Conservative estimate of 2.5 hours/month collectively saved by the director and core leadership team (NT\$1,000/hr collective rate × 2.5 hrs x 12 mos) resulting in better program evaluation and service monitoring (see Taiwan Love and Hope International Charity, 2025 for discussion on service and program evaluation).
		Improved data analytics for services and impact.	NT\$40,000	Improved information management and data analytics resulting to a target of 4 successful grant applications/year to support charity

				operations with an conservative estimated value of NT\$10,000 for each of the 4 projects (see Taiwan Love and Hope International Charity, 2025 for discussion on service and program evaluation).
		Media publicity and public relations for the Living Lab partnership.	NT\$27,240	6 feature articles per year at NT\$4,540 per article estimate highlighting Living Lab activities and outcomes. Conservative estimates for publicity and reporter engagement (see Taiwan Love and Hope International Charity, 2025 for discussion on public relations, publicity, reporter/media engagement experiences)
		Development of the Living Lab brand.	NT\$45,000	Cost saved from the market rate of a “Brand Identity Package” by a marketing agency (see Aly Sterling Philanthropy, 2024 for discussion on brand identity development and public relations).
		Increased donor engagement and sustained support for charity operations.	NT\$10,000	Conservative estimate of Donor Acquisition Cost and Donor Retention Cost (see Aly Sterling Philanthropy, 2024 for discussion on strategies for donor acquisition and retention).
TOTAL			NT\$ 192,240	
9 Children with Neurodevelopmental Conditions	Primary care recipients in 24/7 residential facilities.	Efficient developmental milestone monitoring and planning.	NT\$75,000	Assuming professional tracking (OT, PT, developmental therapist, and other health professionals) replaces late-detection issues. Early intervention may save NT\$8,333 per child per year on unnecessary medical services or avoidable healthcare costs.*
		Reduction of crisis behaviors and medical emergency incidents (impulse control-related accidents).	NT\$80,000	Crisis events reduced, with a conservative estimate of NT\$8,888/event for de-escalation, ambulance, medication, or emergency intervention.**
		Improved current health and well-being.	NT\$90,000	Each child experiences experimental and alternative play and movement-focused interventions to improve emotional regulation and reduce stress. Each of the 9 children receives NT\$10,000 in alternative therapy.**
	Long-Term Social Outcomes			
		Increased future independent living capacity	NT\$180,000	Based on conservative cost savings and attribution-adjusted estimates per child (NT\$20,000 x 9 children) for reduced dependency on 24/7 caregivers and

				institutional facility-supported living.
		Reduction in future mental health and medical care costs	NT\$45,000	Based on conservative cost savings and attribution-adjusted estimates per child (NT\$5,000 x 9 children) for future medical cost savings because of lower risk for comorbid conditions, based on chronic condition management cost projections.***
		Enhanced social inclusion and self-esteem that lead to potential employment	NT\$288,000	Based on conservative cost savings and attribution-adjusted estimates per child (NT\$32,000 x 9 children) for vocational skills development through Living Lab activities that promote positive cognitive, affective, and behavioral development (Ministry of Labor, 2025).
TOTAL			NT\$ 758,000	
30+ Underserved Children, Youth & Families*	Outreach support services recipients.	Improved individual and family resilience. Reduction in long-term social welfare dependence.	NT\$210,000	Based on NT\$7,000/year value per person for improved self-regulation, parenting, and coping through various Living Lab interventions. For 30 persons (e.g., 10 families with 3 members each), $30 \times \text{NT\$}7,000 = \text{NT\$}210,000$.*
		Reduced financial stress by reducing out-of-pocket expenses on meals, psychoeducation training, mental health training, and support.	NT\$300,000	If families save NT\$10,000/year in direct costs (e.g., sponsored food/meals, toys, clothes, giveaways), across 30+ individuals, that adds up to NT\$300,000.***
		Non-formal continuing education for caregivers for self-development.	NT\$180,000	If 12 parents receive education-related support and training valued at NT\$15,000/year (special course fees, learning materials, vocational training, etc.): $12 \times \text{NT\$}15,000 = \text{NT\$}180,000$.***
		Long-Term Social Outcomes		
		Increased future independent living capacity	NT\$200,000	Based on conservative cost savings and attribution-adjusted estimates per child (assuming NT\$10,000 x 20 children) for reduced dependency on 24/7 caregivers and institutional facility-supported living.***
		Reduction in future mental health and medical care costs.	NT\$50,000	Based on conservative cost savings and attribution-adjusted estimates per child (NT\$2,500 x 20 children) for future medical cost savings because of lower risk for comorbid conditions, based on chronic condition management cost projections.***

Enhanced social inclusion and self-esteem that lead to potential employment.	NT\$320,000	Based on conservative, proxy-based and attribution-adjusted estimates per child (NT\$16,000 × 20 children) for vocational skills development, informed by government-supported sheltered employment and vocational service programs for persons with disabilities. ^{***}
		Based on conservative cost savings and attribution-adjusted estimates per child (NT\$16,000 x 20 children) for vocational skills development. ^{**}
		Notes: *See Huang, 2015 and Kuo et al., 2026 and for a discussion on the implications of early interventions; **Ministry of Health and Welfare [MOHW], 2015 for convention on the rights of persons with disabilities; ***MOHW, 2024
TOTAL NT\$ 1,260,000		
OVERALL TOTAL NT\$ 3,473,480		

The overall projected SROI is NT\$ 3,473,480. The startup capital for the Living Lab is estimated at NT\$754,740. Table 2 summarizes the projected breakdown of the investment capital.

Table 2. Projected Breakdown of Investment Capital

Item	Description	Amount
Human Capital		
A. STU Faculty Researchers	In-kind support of the Living Labs through 1 Teacher 1 Project requirement or by directly donating their hourly participation/services. 5 faculty members x at least 72 hrs/yr (36 hrs per semester, approx. 2 hrs/week) x NT\$1,000/hr	NT\$360,000
B. STU Student Research/Project Assistants	Paid service-learning for 12 STU students x 120 hrs x NT\$196/hour.	NT\$282,240
C. Invited Specialists/Resource Persons	Guest Honorarium	NT\$10,000
Activity and Operations Expenses		
A. Meals & Refreshments	15 Group sessions x NT\$2,500 food budget/session	NT\$37,500
B. Research Participant Incentives/Certificates	Token of appreciation for the research participants	NT\$5,000

C. Travel Allowance	Travel reimbursement for students, faculty, and research participants	NT\$5,000
Living Lab Resources		
A. Prototyping and Technology Materials	Technology equipment such as smart devices, tablets, and sensory play materials	NT\$15,000
B. Software Subscriptions	Software subscriptions for AI tools, speech-to-text transcription, Grammarly, Quillbot, etc.	NT\$20,000
B. Insurance	Group accident and insurance coverage for different stakeholders	NT\$10,000
C. General Administrative	Printing costs, venue, miscellaneous, etc.	NT\$10,000
TOTAL		NT\$754,740

B. SROI Computation Formulas and Confidence-Adjusted Projections

To further understand the potential impact of the proposed Living Lab, several computation formulas were applied following the Social Return on Investment (SROI) Approach Guide of the Family and Community Services Insights Analysis and Research (2020) of the NSW Department of Communities and Justice of the Australian Government.

O = Estimated outcome value (NT\$)

DW = Deadweight (%)

ATT = Attribution (%)

DIS = Displacement (%)

ΣA = Sum of adjusted values from all stakeholders

I = Total investment (NT\$)

$$\text{Adjusted Value} = O \times (1 - DW) \times (1 - ATT) \times (1 - DIS)$$

$$\text{SROI Ratio} = \frac{\Sigma A}{I}$$

Table 3 presents the projected SROI values, which have been confidence-adjusted to address the possibility of over-reporting the potential social outcomes of the proposed Living Lab.

Table 3. Summary of Hypothetically-Projected Confidence-Adjusted SROI Ratios

Scenario	Adjustment Logic	Value of Benefits	Investment Input	SROI Ratio	Interpretation
Base Case	Exact Table 1 values	NT\$3,473,480	NT\$754,740	4.60:1	High Impact
With 50% Deadweight Only	Benefit reduced by 50% assuming that outcomes would happen regardless of Living Lab activities	NT\$1,736,740	NT\$754,740	2.30:1	Moderate Impact
With 50% Attribution Only	Benefit reduced by 50% given any impact that is attributable to other factors as well.	NT\$1,736,740	NT\$754,740	2.30:1	Moderate Impact
15% Deadweight + 15% Attribution + 15% Displacement	Reduced by 45% because of confounding variables.	NT\$1,910,414	NT\$754,740	2.53:1	Moderate Impact

Given a capital investment of NT\$754,740, the initial projections show that for every 1 NT\$ spent on the LH x STU Living Lab, the SROI ratios indicate the potential to generate NT\$4.60 in verifiable social and economic returns. The hypothetical projection shows that the proposed Living Lab has high impact potential. According to the NSW Department of Communities and Justice (2020), SROI values ranging between 4 to 6 are conservatively believable and it is necessary to avoid inflating the SROI to ensure the trustworthiness of projections.

The analysis indicates that social and economic impact is potentially most possible in terms of how the Living Lab can contribute to improving the present quality of life of the 9 children who are primary recipients of 24/7 residential care provided by the Taiwan Love and Hope International Charity and the 30+ underserved children, youth, and families in its extension program. The Living Lab's potential impact on the charity's organizational development consequently affects the quality of its delivery of vital social welfare services. These potential short-term gains significantly align with the guidelines of the MOHW (2015, 2024) in regards to optimizing healthcare planning for children and persons with disabilities.

The Living Lab potentially reduces future spending on long-term hospitalization, as well as heavy dependency on individualized special education and social welfare. The vision is to achieve long-term social outcomes such as: a) increased future independent living, b) reduction of mental health and medical care costs, and c) improved social inclusion and self-esteem that contributes to employability (see, MOHW, 2015). By leveraging the use of applied social sciences and technology research to directly benefit the lives of the children and families being supported by the Taiwan Love and Hope International Charity, this university-industry collaboration has the potential to generate metrics and data-driven outcomes to improve its caregiving practices, social welfare program, organizational practices, and fundraising and donor engagement. Owen et al. (2012) argue that active engagement with stakeholders during the research process ensures relevance. When research is most responsive to specific needs, it becomes responsibly and positively impactful (Owen et al., 2012; Tercanli et al., 2022). Aly Sterling Philanthropy (2024) argues that nonprofit organizations that constantly seek to become strategically healthy do so because they genuinely care about fulfilling their mission and vision

to do good. Sustainable development happens when people and communities experience positive transformation (Burbridge & Morrison, 2021; Chen & Liu, 2021). And so, a Living Lab that undeniably involves the commitment of university resources in bringing about impactful positive change is what Kohl et al. (2021), Mohammadi and Shariati (2023), and Vallaey (2014) call mature USR.

The Living Lab will leverage time and talent at STU. It can provide motivated faculty members with meaningful opportunities to directly serve a community while also carrying out relevant applied research that contributes to their career and personal development as higher education professionals. Interested STU faculty members will be a part of a team that values applied research. Given the metrics that can be generated by the Living Lab, the availability of datasets for use by the STU community will also benefit researchers who hope to run data analyses and interpretation without necessarily being involved in actual data-gathering. This initiative can also be considered a “student talent incubator,” as STU students will have the opportunity to work alongside faculty members on a novel project that could impact their careers and professional development. Vallaey (2014) argues that mature USR programs practice engagement and knowledge generation founded upon a genuine desire for social change. Therefore, STU engagement in the Living Lab and its understanding and practice of USR and SDG advocacy can be enriched through its authentic support of the Taiwan Love and Hope International Charity. To do so leverages time and university talents for a deeper institutional purpose that goes beyond mere USR or SDG compliance.

The SROI estimate was further analyzed in consideration of possible shortcomings that can dampen the Living Lab’s potential impact. In the Approach Guide of the Family and Community Services Insights Analysis and Research (2020) of the NSW Department of Communities and Justice of the Australian Government, it is stated that confidence-adjusted estimates should opt for values that are conservative and it is good practice to avoid over-claiming. Therefore, a choice was made to buffer the SROI assuming only 45% to 50% valuation confidence. Table 3 further shows different confidence-adjusted SROI outcomes, such as: a) with 50% deadweight (SROI 2.30:1), b) 50% attribution (SROI 2.30:1), and c) 45% combined effects of confounding variables (SROI 2.53:1). Even with a worst-case scenario that there is a combination of 15% deadweight, 15% attribution, and 15% displacement, the proposed Living Lab initiative can arguably still have a moderate impact wherein NT\$2.53 value can be generated for every NT\$1 invested in the proposed initiative.

VI. Challenges and Limitations

With its ambitious scope and the involvement of several stakeholders, the proposed Living Lab is not without challenges. Any undertaking has potential conflicts, such as people-management issues, especially when dealing with diverse personalities. Managing a diverse group of individuals, including the participating STU academics, STU students, the charity organization's staff, community members, and industry partners, requires managing diverse expectations and social perceptions. Potential coordination challenges and conflicts of interest may arise from the varying expectations of the participating groups.

Conflicts are inevitable, and the core leadership is responsible for implementing effective conflict resolution strategies. Unless addressed appropriately, these challenges could limit the Living Lab's success. The founder of the Taiwan Love and Hope International Charity who also happens to be a faculty member of the DAFL will need to take on the challenging role of balancing conflicting views while ensuring that the Living Labs' operations remain committed to the overall vision to improve the lives of the community it serves. Other DAFL collaborators will essentially fill whatever communication (translation and interpretation) gaps.

It is unpredictable how this proposed Living Lab initiative will be received at STU. As previously mentioned, the establishment of the charity was painstakingly self-sustained. Despite repeated attempts to inform and seek support from immediate administrators and colleagues, the language barrier and differences in departmental priorities and leadership styles, have all proven to be roadblocks during attempts to get people on board to consistently support the charity. Hence, to seek out support for the LH x STU Living Lab can again fall on deaf ears, especially that STU is currently undergoing leadership, organizational, and financial challenges (see, Y.H. Zhu, personal communication, January 15, 2026).

In addition, a particular limitation of the analyses in this paper is the conflict of interest involving one of the researchers, who is also the founder of the Taiwan Love and Hope International Charity. The founder-researcher's lived experiences of underlying resentment for the lack of support and recognition at STU and confirmation bias regarding the Living Lab's potential success are undeniable issues. They possibly taint the overall objectivity and trustworthiness of the ideas and conclusions in this paper. They affect the hypothetical SROI projection and prospective evaluation of the Living Lab's impact.

Despite this, arguably, rigorous and total objectivity in the sciences are myths since as Weber (1919/1946) argues, research is never truly value-free. Traditionally, conflict of interest is considered as a threat to objectivity. But there is another way to look at the founder-researcher predicament. A researcher's embeddedness can be considered as a source of epistemic advantage instead due to one's relational expertise and moral alignment to the focus of research, both as object and subject. At one point, embedded researchers and practitioners are not just mere objective observers but should become active co-creators of meaningful solutions (Guba & Lincoln, 1994). Bias can be a powerful driver for desiring genuine social impact.

These acknowledged issues can be minimized or resolved through: a) the practice of reflexivity, b) involving more researchers to assess and ensure data reliability and trustworthiness, and c) dataset accessibility for confirmability and data triangulation (see, Guba & Lincoln, 1994). Datasets produced by the Living Lab can be made available and broadcasted within the STU system for third party analyses. Other STU faculty members and students not directly involved in the Living Lab operations or any of the teams can be invited to carry out independent analyses and evaluations of the different aspects and processes related to the Living Lab as their graduation project paper, thesis, or research project for publication.

VII. Conclusion

The novelty of the proposed LH x STU Living Lab is in how it upholds SDG 17: Partnership for the Goals while addressing several other Sustainable Development Goals (SDG 2, SDG 3, SDG 4, SDG 8, and SDG 10). The Living Lab challenges STU and its various academic communities to support a social responsibility and sustainable development initiative that for some time now has not been receiving any funding or recognition from the STU system. It is

necessary to reiterate that despite the absence of any STU funding and recognition, an STU faculty member, has through the years, been laboring on a grassroots social welfare organization which is on its 10th year of operation despite the COVID-19 pandemic and given Taiwan's challenging economic and cultural landscapes.

It is fair to conclude that the founder-researcher and charity team must be doing some things right as far as leadership and organizational practices are concerned and in leveraging and sustaining different partnerships within and outside Taiwan for the charity to have survived for 10 years. On the other hand, it also signifies in certain ways a failure of STU's system to recognize, align, and support an endeavor which is a selfless labor of love not for the accolades, but for the genuine pursuit of positive social change in Taiwanese society. It is providential that the Taiwan Love and Hope International Charity had survived many challenges in the past 10 years largely due to its effort to consistently strive for authenticity in what it does, which its network of partners recognize, align with, and sustainably support.

The proposed Living Lab represents a critical pivot for STU, offering a rare opportunity to redefine its brand identity as a force multiplier for social responsibility and sustainable development. While the prestige of such initiatives is typically associated with well-funded public or research-oriented universities, a commitment to social responsibility and sustainable development demonstrates how USR is most authentic when it lovingly instills the marginalized and underserved with hope for a better future.

Because storytelling and word-of-mouth have proven to be the most powerful drivers of institutional support, the 'Love and Hope' ethos must become more than a slogan associated with a charity organization. They are actually virtues that can shape the lived reality and culture of any organization. When STU's organizational culture is defined by its capacity to be a blessing to both its academic community and the communities it serves, it will naturally attract and cultivate a loyal network of partners and supporters committed to ensuring the university's own sustainable development. They will all become advocates invested in sustaining and amplifying STU's enduring impact.

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