

Kloth Circularity Malaysia as Social Business Model Innovation through Fabric Recycling

*Azni Hanim Hamzah¹, Nazlina Shaari², Nurhikma Mat Yusof¹

¹Fakulti Seni Lukis dan Seni Reka UiTM Cawangan Alor Gajah Melaka, Malaysia

²Fakulti Rekabentuk dan Seni Bina Universiti Putra Malaysia, Malaysia

Email: *azni.hanim@uitm.edu.my, nazlinashaari@upm.edu.my, hikmayusof@uitm.edu.my

Corresponding Author: Azni Hanim Hamzah

Abstract: This study investigates the role of Kloth Circularity Malaysia, a social enterprise, in advancing environmental sustainability through fabric recycling and upcycling initiatives. The issue of increasing textile waste and its improper disposal, including illegal dumping and ineffective recycling systems, presents a significant environmental challenge in Malaysia. The research addresses the problem of limited community engagement and the lack of sustainable textile waste management practices. A qualitative case study approach was adopted, using secondary data collected between 2018 and 2021, which identified 12 upcycling initiatives in Malaysia and focused on in-depth interviews with Kloth Circularity's co-founders and marketing executive as a current active social enterprise. The findings reveal that Kloth Circularity's success is rooted in its multi-stakeholder collaborations, community education, and inclusive business models that promote circular economy principles. The discussion emphasizes the importance of public participation, awareness, and industry cooperation in transforming textile waste into value-added products. It concludes that upcycling is a viable solution for textile waste management and recommends expanding educational programs, policy support, and innovative sustainability strategies to enhance environmental outcomes in Malaysia.

Keywords: *Social Business Model Innovation, Fabric recycling, Kloth Circularity Malaysia*

1. Introduction

The issue of environmental sustainability has gained attention in recent years, particularly regarding the increasing problem of textile waste. Malaysia faces challenges in handling discarded textiles and is the largest importer of second-hand clothing globally. The swift growth of the fast fashion sector and the increasing demand for affordable clothing have risen in textile waste, much of which is either sent to landfills or disposed of incorrectly.

Kloth Circularity Malaysia, a prominent social enterprise, is taking proactive steps to tackle these challenges by advocating for fabric recycling and upcycling initiatives. Through a circular economy approach, Kloth Circularity integrates environmental sustainability, community involvement, and business innovation to minimize textile waste while simultaneously creating economic opportunities. This case study explores Kloth Circularity's efforts, focusing on its partnership with organizations, educational programs, and sustainable business strategies that support environmental conservation.

Through analyzing Kloth Circularity's business model, recycling operations, and social impact, this study highlights the effectiveness of community-driven sustainability initiatives. It explores the organisation's innovative method, such as transforming discarded textiles into high-value products, demonstrating the role of social enterprises in promoting environmental sustainability. Additionally, this study enhances the significance of government support, corporate collaboration, and public participation in building a more sustainable textile industry in Malaysia, specifically focused on Kloth Circularity.

2. Literature Review

Malaysia is a major importer of discarded recyclable materials. According to a report by (*We Cannot Burn Our Way out of the Plastic Crisis - Sahabat Alam Malaysia*, 2021), the country became the largest recipient of plastic waste in 2018. This led to concerns over illegal plastic recycling operations, unauthorized dumpsites, and open burning, which were highlighted by affected communities and civil society groups, drawing both local and international media attention. Similarly, in the textile sector, data from the Observatory of Economic Complexity (OEC, 2021) revealed that Malaysia imported RM 105 million worth of used clothing, ranking as the world's eighth-largest importer of second-hand apparel. The report noted that Malaysia's primary sources

for these imports include South Korea, Japan, Australia, the United States, and Singapore, with South Korea, Pakistan, and China being the fastest-growing suppliers between 2019 and 2020. This trend reflects Malaysians' preference for international brands at more affordable prices through the second-hand market. However, it has also contributed to a growing textile waste problem, making recycling efforts crucial in managing excess textiles and minimizing environmental impact.

Recycling involves the recovery and reprocessing of waste materials to create new products. The fundamental recycling process includes collecting waste materials, processing or manufacturing them into new items, and purchasing products that can be recycled. Common recyclable materials include iron and steel waste, aluminium cans, glass bottles, paper, wood, plastics, and discarded textiles or clothing. Recycling fosters a culture of creativity and innovation. According to Leite Munaretto & da Silva (2023), several recycling initiatives have been explored by researchers, with brands contributing to the development of unique, sustainable lifestyle products. Additionally, Leite Munaretto & da Silva (2023) emphasize that recycling serves as an outlet for creativity, providing individuals with a sense of fulfilment as they contribute to environmental conservation while also managing their financial resources. Similarly, Shirvanimoghaddam et al. (2020) examined various methods for reusing, recycling, and repurposing textile waste, as well as groundbreaking scientific advancements, innovations, and strategies aimed at achieving a circular textile economy.

The circular economy focuses on strategies for reuse and recycling to reduce material consumption and improve overall sustainability in the textile industry by adopting a systems-thinking approach. According to Keßler, Matlin, and Kümmerer (2021), while recycling and reuse are key circular economy interventions, their effectiveness in significantly reducing material flows is limited when operating within conventional market structures and growth models. Consequently, adopting environmentally sustainable textile recycling practices is essential to mitigating waste and minimizing environmental impact.

Downcycle

Downcycling refers to the process of repurposing waste materials or used objects into products of lower value than the original items. In Malaysia, the second-hand shopping trend, known as "bundle", shopping, has gained popularity. Businesses involved in downcycling include bundle stores and thrift shops. One notable company, "Jalan Jalan Japan," specializes in importing second-hand goods from Japan and operates eight stores across the country. Another well-known chain, Family Bundle, has multiple outlets in Kuala Lumpur. Thrift stores, which sell pre-owned items at affordable prices, often allocate their profits to charitable causes (Hamzah & Shaari, 2024)

Upcycle

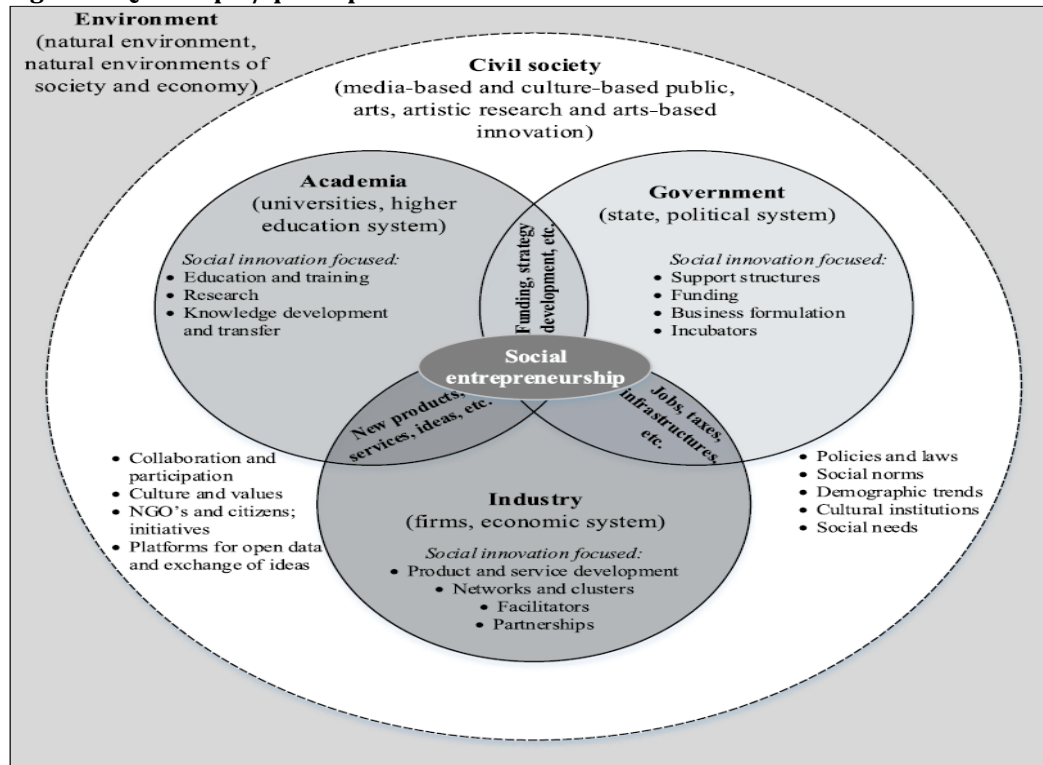
Reiner Pilz of Pilz GmbH (Kim, 2015) introduced the concept of "upcycling," which focuses on enhancing the value of old or used items. This idea challenges the common perception that recycling diminishes a product's worth (Kim, 2015). Upcycling combines environmental awareness, creativity, innovation, and effort to create unique, sustainable, and handcrafted products. The goal of upcycling is to develop items that are truly sustainable, accessible, and inventive. While recycling repurposes second-hand T-shirts into rags, upcycling transforms used tops into high-value products, such as intricately handmade braided rugs.

Quadruple and quintuple helix model framework as Social Business Model Innovation

The quadruple and quintuple helix models are frameworks (Figure 1) that emphasize the collaboration of multiple stakeholders to foster social innovation and sustainable development. (Carayannis et al., 2019) Quadruple helix model extends the traditional triple helix model includes three components (university, industry, and government), by adding a fourth helix, such as public society. The four helices interact in a dynamic way to promote innovation. First Helix University reacts as an educational institutions that contribute knowledge and training. The second helix industry as a business provides resources, drives economic growth and facilitates the application of innovations. Third helix, government as public authorities create policies, regulations and frameworks that support innovation initiatives. Fourth helix public society that involves individuals or groups that advocate for social issues and bring a community perspective into the innovation process. Additionally, Carayannis et al. (2019) highlighted that the quintuple helix Model builds upon the quadruple model by adding an environmental dimension as the fifth helix: environment. The component emphasizes sustainability and ecological considerations in all aspects of innovation processes. Both models offer structured ways for organisations to engage multiple stakeholders to drive social change

through innovative practice while considering economic viability alongside social equity and environmental sustainability.

Figure 1: Quadruple/quintuple helix innovation model for social innovation



(Source: Carayannis et al., 2019)

3. Methodology

Recycle goods in Malaysia

Using secondary data from Google searches, various case studies in Malaysia from 2018 to 2021 (Table 1) have been analysed, focusing on different areas involved in upcycling textiles into value-added products. The attributes of these case studies are categorized into 12 key aspects: category, group, type of business, type of product, location, product, material, production maker, collaboration, objective, product/art production process, and activity flow. These attributes highlight the role of textile recycling, encompassing both upcycling and downcycling practices.

Table 1: Secondary data from case studies in Malaysia

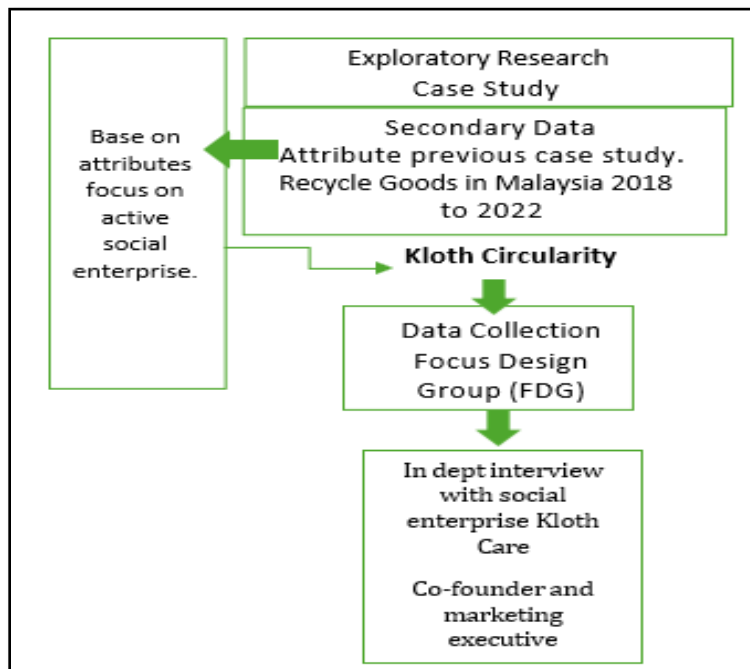
No	Categories	Source
1	Airline	(Chin, 2018)
2	E-Hailing	(Support Account, 2021)
3	Fabric Recycling Movement	(2021, February 15). <i>Kloth Denim Pocket Organiser</i> (A. H. Hamzah, Interviewer) [Review of <i>Kloth Denim Pocket Organiser</i>]
4	Malaysia environmental organisation	(Biji Biji, 2017)
5	Artist/researcher	Amin et al. (2021)
6	Fashion Designer	(<i>Pereka Fesyen M'sia Hatta Dolmat Hasilkan Koleksi Mesra Alam Bagi Kurangkan Lambakan Sisa Tekstil</i> , 2020)
7	Hospitality	(Shangri-La Group, 2021)

8	Food & beverage	(redaccion_nm, 2019)
9	Community Movement	(Upcycle4Better, 2021)
10	Fashion retail	(Up-Cycle and Recycle Your Fabrics through Project Denim Angel 2.0 by Voir Gallery, 2019)

Study identifies post-consumer textiles by practicing upcycled textiles toward value-added products. The authors have elaborated on nine components in the attribute there are engagement and education, type of business, activity, product, flow, location, material, production maker, and networking, focusing on case studies on upcycle textiles toward value-added products. The result of the study points to several key findings. The prominent social enterprises discovered as communities 'Kloth Circularity' Malaysia collaborated with different companies and organizations as partners, product makers, and involved as upcycle textile project financial contributors.

The secondary data involves attributes previous case study. The case study specifically looks at 'Kloth Circularity', which is depicted as an active social enterprise in the textile recycling sector. Data is collected through a Focus Design Group (FDG). Conducting in-depth interviews with the social enterprise Kloth Circularity co-founder and marketing executive. The interview session online links will also be obtained from the participants involved. Interviewed by the research investigator to find out more about related social enterprise businesses in the upcycle textile activity or program. The interview was conducted for one hour and 15 minutes. Co-founder and marketing executive are foundational understanding of Kloth Circularity, are part of the sampling process, providing insights or overseeing the methodology. Figure 2 shows the research flow of this part study.

Figure 2: Research Method Flow



(Source: Author, 2024)

Procedure

Selected participants attended an introductory briefing according to the date of appointment. In the briefing, firstly, a consent form will be distributed to the participants. The interviewer will start with an overview of the topic and ground rules and proceed with the discussion with pre-determined questions. The discussion will be held in 3 parts: Introductory and final questions. The questions used in semi-structured interviews are shown in Table 2. After all the questions were answered and the investigator was satisfied with the answers, the

discussion ended with a summary. Finally, all the data from interview observations will be translated, transcribed, and analysed accordingly. The thematic analysis is conducted to analyse interview data.

4. Findings and Results

Through the interview transcript, the implementation of thematic analysis can be analyzed into three themes, shown in Table 2.

Table 2: Thematic analysis from interview transcripts

Part 1: Founding And Mission	Part 2: Structure & Impact	Part 3 Business Model
The top management Initiative starts. Awareness o f Fabric recycling Circular economy Education	Brands Company structure Partnership Fabric recycling Process, Upcycle Achievements, Sustainability impact	Corporate engagement, Community involvement, public response

Part 1 (Founding and Mission)

Kloth Circularity Malaysia is a pioneering social enterprise dedicated to promoting environmental sustainability through fabric and plastic recycling. Founded by Susie and Sarah, Kloth Circularity integrates the principles of the circular economy to address the growing issue of textile and plastic waste. Their mission emphasizes awareness, education, and sustainable practices, encapsulated in their 5R philosophy: Rethink, Reduce, Reuse, Repurpose, and Recycle.

The organization creatively repurposes and recycles materials into functional and stylish products, thereby extending their lifecycle and minimizing waste. Operating as a small-scale but impactful enterprise, Kloth Circularity not only reduces environmental harm but also fosters social responsibility by providing employment opportunities, especially for women.

Starting from a corporate background, the co-founders were inspired at the 2013 World Marketing Summit to develop sustainable solutions. Since its inception, Kloth Circularity has expanded its operations across Malaysia, Singapore, and Australia, becoming a trusted brand in recycling innovation. Their vision is to enhance recycling rates and contribute positively to the environment, aligning with the United Nations' Sustainable Development Goals (SDGs).

This initiative highlights how a focused effort on sustainability can drive both environmental and social progress in a region facing significant waste management challenges.

Part 2 (Structure and Impact)

Kloth Care is a sustainability-oriented organization focused on preventing textile waste from ending up in landfills and oceans. They achieve this through various initiatives, including fabric recycling, upcycling, and strategic partnerships. Their fabric recycling program collects unwanted textiles from communities, which are sorted for reuse or repurposed into new products.

Part 3 (Business Model)

A key initiative is the Kloth Woman Up movement, which empowers vulnerable women by providing training in sewing skills and creating job opportunities. This program has distributed over RM100,000 to participants since its launch.

Kloth Circularity offers a diverse range of upcycled products created from collected fabrics. Examples include bags, pouches, work essentials, and festive items. In addition to product offerings, Kloth Circularity promotes environmental awareness through workshops that teach participants how to repurpose old clothing into useful items. Overall, Kloth Circularity integrates social responsibility with environmental sustainability while actively engaging with the community and corporate partners to foster a circular economy in textile consumption.

Kloth Circularity is a social enterprise established in 2013 across Malaysia, Singapore, and Australia, aiming to promote circularity in the textiles and plastics industries. Their vision for 2030 is to become a leading provider of impactful recycling solutions in Southeast Asia and Australia. They are accredited under the Social Enterprise Accreditation (SE.A) guidelines, which emphasize creating positive social or environmental impacts through financially sustainable practices.

One of their key initiatives is Kloth Woman Up, which empowers women from marginalized communities by providing job opportunities and fair wages. This initiative focuses on economic independence for these women while fostering community building and inclusivity. To measure their effectiveness, Kloth Circularity tracks various metrics such as economic impact on women (payments made), job creation (number of participants), volume of upcycled products sold, collaborative projects with other organizations for waste reduction, and feedback from customers.

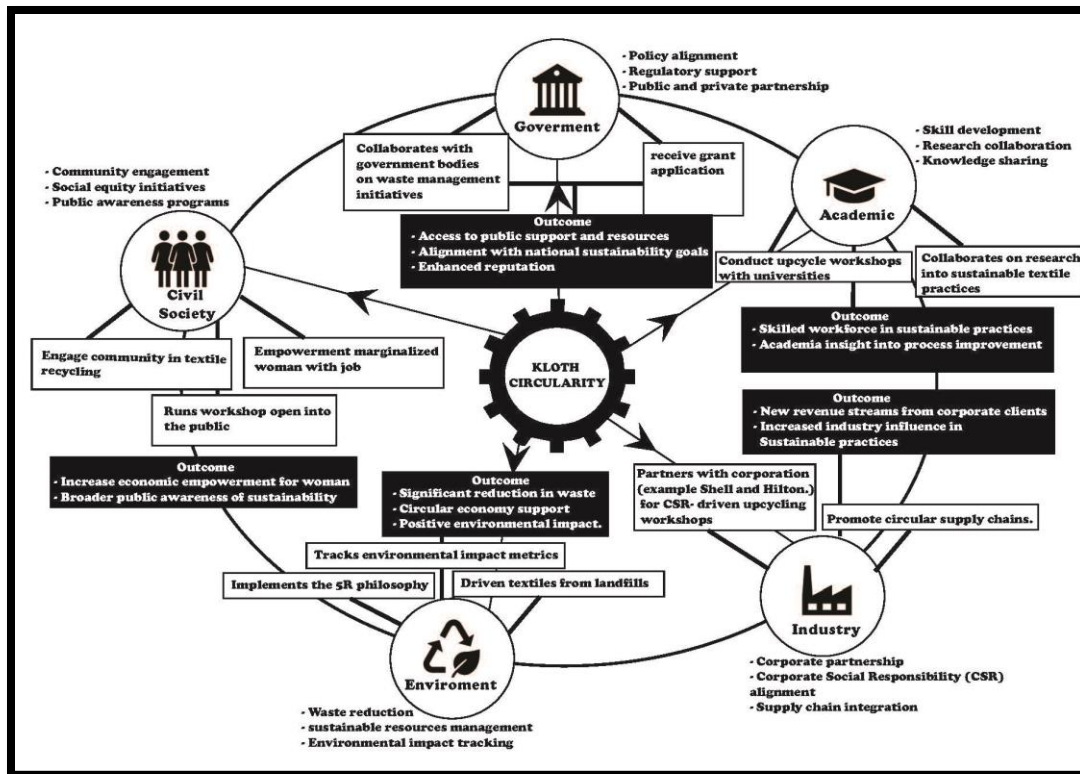
In terms of environmentally sustainable practices, Kloth Circularity employs methods such as sourcing repurposed materials, specializing in upcycling to extend material life cycles, ensuring fair wages and working conditions for their workforce, maintaining transparency in production processes, offering education and training to enhance skills among employees, and engaging in collaborative partnerships that align with circular economy principles.

Discussion

Kloth Circularity as a Quintuple Helix framework, a social innovation business model

The Quintuple Helix framework, a social innovation business model (Figure 3), integrates five key domains involving government, industry, academia, civil society, and the environment to drive sustainable development through collaborative, innovation-driven solutions. In Table 3, highlight the core actions and outcomes associated with each helix in the Kloth Circularity strategy. Kloth Circularity's business model aligns well with this framework, as it incorporates elements from each domain to enhance environmental sustainability, promote social equity, and stimulate economic opportunities.

Figure 3: Kloth Circularity as Quintuple Helix Framework



(Source: Author, 2024)

Kloth Care's initiatives connect with each helix of the framework

Government

Kloth Circularity engages with the government and administrative units to gain support for its sustainable initiatives. Aligned with policies on waste management and environmental sustainability, Kloth Circularity positions itself within national frameworks for recycling and social enterprise. Through collaborations with government agencies and grant providers, Kloth Circularity receives institutional support that strengthens its community and environmental impact. This alignment also enables them to influence broader sustainability policy by setting a precedent in circular economy practices.

Industry

Through its partnerships with corporations such as Shell, Hilton, and other large entities, Kloth Circularity incorporates upcycling practices into corporate social responsibility (CSR) programs. These partnerships support Kloth Circularity upcycling initiatives while providing corporate partners with avenues for social impact and environmental stewardship. Additionally, the company collaborates with private sector entities in textiles and waste management to promote sustainable practices within industry operations, contributing to a shift toward circular business models.

Academia

Kloth Circularity actively involves educational institutions by offering upcycling workshops and collaborating with community colleges. These partnerships promote skill-building, particularly in sustainable textile practices, and foster an academic environment supportive of sustainability. Educational initiatives also advance research and development in sustainable textile production, while the workshops provide students with hands-on experience, linking theory to practice and preparing them for careers in sustainable industries.

Public Society

Kloth Circularity empowers women from marginalized communities by providing them with job opportunities and fair wages, addressing social inequality through economic empowerment. By supporting low-income and vulnerable women, including those in informal work sectors, Kloth Circularity fosters social inclusion and enhances community well-being. The company's workshops also engage the public in sustainable practices, encouraging broader societal participation in environmental conservation and circularity. This connection with civil society is foundational to Kloth Circularity's mission of building a socially and environmentally conscious community.

Environment

Kloth Circularity 5R philosophy (Rethink, Reduce, Reuse, Repurpose, Recycle) reflects the framework's environmental focus, aiming to minimize waste and reduce environmental harm by diverting textiles from landfills and repurposing them into valuable products. This approach contributes directly to the circular economy by extending product lifecycles, lowering resource consumption, and reducing pollution. Through its commitment to sustainable production, Kloth Circularity not only preserves the environment but also educates stakeholders on the importance of ecological balance.

Table 3: Highlights the core action and outcomes associated with each helix in the Kloth Circularity strategy

Helix	Action	Outcomes
Government Helix: Policy and Institutional Support	Align with waste management policies and collaborate with public agencies on recycling initiatives. Obtain social enterprise tax incentives to support funding. Build partnerships with corporations for CSR-led upcycling workshops and	Provides financial relief and improves Kloth Circularity credibility. Aligns with national sustainability efforts, fostering a positive reputation within the regulatory framework. Increases revenue by offering sustainable workshops and solutions to corporate clients.
Industry Helix: Knowledge Transfer and Skills Development		

Academia Helix Knowledge Transfer and Skills Development	sustainable supply chain initiatives. Encourage clients to adopt circular practices. Conduct upcycle workshops, collaborate on sustainability research, and offer practical insights into circular economy practices.	Positions Kloth Circularity as a trusted partner for sustainability within the corporate sector. Develops a skilled workforce trained in sustainable production practices. Reinforces research into eco-friendly textile solutions and benefits from innovative academic ideas.
Civil Society Helix Sustainability and Resource Conservation	Apply the 5R philosophy (Rethink, Reduce, Repurpose, Recycle) across all operational processes, from sourcing to waste management.	Minimizes environmental footprint and reduces textile waste. Actively supports the circular economy, achieving measurable environmental benefits aligned with resource conservation.

Kloth Circularity demonstrates a social innovation business model by integrating environmental sustainability with community empowerment through a multi-stakeholder approach. It addresses the issue of textile waste by promoting circular economy practices such as upcycling and is suitable for the 5R philosophy. Besides that, creating economic opportunities for marginalized women and raising public awareness on sustainability. The model brings together government bodies, academic institutions, industries, civil society and environmental advocates to co-create value, aligning policy support, corporate social responsibility (CSR), skill development, and grassroots engagement. By measurable outcomes like waste reduction, workforce upskilling, and increased social equity, Kloth Circularity demonstrates that businesses to be a positive environmental and social change beyond traditional profit motives.

5. Conclusion and Recommendations

This study focuses on identifying the current community that involves recycled fabric. Existing studies on upcycling have mainly focused on environmental recycling practices that enhance upcycled textiles towards value-added products. Besides that, I discovered different case studies in Malaysia that involve upcycling textiles towards value added from 2018 to 2021. The case study specifically looks at 'Kloth Circularity', which is depicted as an active social enterprise in the textile recycling sector. Conducting in-depth interviews with the social enterprise Kloth Circularity co-founder and marketing executive. As a result of the data interview focus three main themes founding and mission, structure and impact and business model. Besides that, enhance sustainability through fabric and plastic recycling and highlight positive innovative components. Recommendation for the future is to expand awareness and education programs through workshops, campaigns and academic collaboration, promote widespread education on upcycling techniques and environmental benefits, among artisans, and corporate entities, to build capacity and enthusiasm for sustainable practices. More quantitative research needs to be explored for the upcycling and recycling product consumer products.

Acknowledgement: The authors would like to acknowledge the Faculty of Art and Design, Universiti Teknologi Mara Cawangan Melaka, the Faculty of Design and Architecture, Universiti Putra Malaysia, and express deep gratitude to Kloth Circularity Malaysia for their support and valuable information.

References

- Biji Biji. (2017). Biji Biji. <https://bijibiji.co>
- Carayannis, E. G., Grigoroudis, E., Stamati, D., & Valvi, T. (2019). Social business model innovation: A quadruple/quintuple helix-based social innovation ecosystem. *IEEE Transactions on Engineering Management*, 68(1), 235–248. <https://doi.org/10.1109/TEM.2019.2914408>
- Chin, C. (2018, November 20). *AirAsia is upcycling old life jackets into lifestyle products*. The Star. <https://www.thestar.com.my/lifestyle/living/2018/11/21/airasia-upcycling-old-life-jackets-into-lifestyle-products>
- Hamzah, A. H., & Shaari, N. (2023). Upcycle Fashion and Textile as a Sustainable Business Concept. In *Proceedings of the International Conference on Communication, Language, Education and Social Sciences (CLESS 2022)* (pp. 71–82). Atlantis Press SARL. https://doi.org/10.2991/978-2-494069-61-9_9
- Keßler, L., Matlin, S. A., & Kümmerer, K. (2021). The contribution of material circularity to sustainability—Recycling and reuse of textiles. *Current Opinion in Green and Sustainable Chemistry*, 32, 100535. <https://doi.org/10.1016/j.cogsc.2021.100535>
- Kim, H. E. (2015). A Study on the Characteristics and Trends of Sustainable Fashion through Esthetica at London Fashion Week. *Fashion & Textile Research Journal*, 17(2), 168–177. <https://doi.org/10.5805/sfti.2015.17.2.168>
- Leite Munaretto, E. C. de P., & da Silva, M. C. (2023). Textile waste as a resource for teaching, technology and art. *Journal of Textile Engineering & Fashion Technology*, 9(1), 1–5. <https://doi.org/10.15406/jteft.2023.09.00324>
- Mohamed Amin, N. H., Husain, A. H., Mohamed Shaari, Z., & Vermol, V. V. (2021). Strategizing Alternative Visual Artworks Medium through Upcycled Textile. *Environment-Behaviour Proceedings Journal*, 6(S16), 73–80. <https://doi.org/10.21834/ebpj.v6isi6.3043>
- OECD. (2022). *Used Clothing* | OECD. OECD - the Observatory of Economic Complexity. <https://oec.world/en/profile/hs/used-clothing>
- Pereka fesyen M'sia Hatta Dolmat hasilkan koleksi mesra alam bagi kurangkan lambakan sisa tekstil. (2020). BERITA Mediacorp. <https://berita.mediacorp.sg/gaya-hidup/pereka-fesyen-m-sia-hatta-dolmat-hasilkan-koleksi-mesra-alam-81386>
- Shangri-La Group. (2021). Shangri-La.com. https://www.shangri-la.com/group/media/media_post?post=Jul2_SEAA%20Linen%20donation
- Shirvanimoghaddam, K., Motamed, B., Ramakrishna, S., & Naebe, M. (2020). Death by waste: Fashion and textile circular economy case. *Science of the Total Environment*, 718, 137317. <https://doi.org/10.1016/j.scitotenv.2020.137317>
- redaccion_nm. (2019, April 24). *Starbucks collaborates with YWCA for an upcycling campaign*. TheSun.my; Sun Media Corporation Sdn. Bhd. <https://www.thesundaily.my/media-marketing/starbucks-collaborates-with-ywca-for-upcycling-campaign-XY818088>
- Support Account. (2021, July 27). *School Bags Made From Used Grabfood Delivery Bags*. Global Ehsan Relief. <https://www.global-ehsan-relief.org/news/lifestyle/fashion-label-turn-used-grabfood-delivery-bags-into-school-bags/>
- Upcycle4Better. (2021). Upcycle4Better. <https://www.upcycle4better.com/>
- Up-cycle and Recycle your Fabrics through Project Denim Angel 2.0 by Voir Gallery. (2019). Snowmansharing.com. <https://www.snowmansharing.com/2019/12/upcycle-and-recycle-unwanted-fabric-Project-Denim-Angel-2-Voir-Gallery.html>
- We cannot burn our way out of the plastic crisis - Sahabat Alam Malaysia. (2021, August 31). Sahabat Alam Malaysia. <https://foe-malaysia.org/articles/we-cannot-burn-our-way-out-of-the-plastic-crisis/>