

Community-Driven Digital Platforms as Environmental Innovation: A Critical Analysis of *MallSampah* Makassar

*Platform Digital Berbasis Komunitas sebagai Inovasi Lingkungan: Analisis Kritis
terhadap MallSampah Makassar*

Arryad Firdauzi Ramly¹, Agung Widhi Kurniawan², Burhanuddin Burhanuddin³

¹⁻³Universitas Negeri Makassar, Indonesia

Corresponding Email: arryad2002@gmail.com

[Published: 21 September 2026]

Abstract

This study examines MallSampah, a Makassar-based digital platform for waste collection and recycling, as a case of grassroots environmental innovation in South Sulawesi. The research is motivated by the persistent waste crisis in Makassar, where the Antang landfill receives 800 to 1,000 tons of waste daily, and by the need to critically assess whether community-driven digital solutions represent genuine systemic innovation or merely a small-scale palliative. Using a qualitative descriptive approach based on secondary data from media reports, government statements, and organizational publications, this study analyzes MallSampah through classical and contemporary innovation theories, including Schumpeter's creative destruction, Christensen's disruptive innovation, Chesbrough's open innovation, and the eco-innovation framework. The findings show that MallSampah introduces meaningful innovation at the level of incentive design, informal-sector formalization, and cross-disciplinary integration of law, technology, and behavioral economics. However, its processing volume of approximately 30 tons per month remains marginal against the city's daily waste output, its operations depend partly on philanthropic grants, and it has not yet been integrated with municipal waste infrastructure such as the planned waste-to-energy facility. The study concludes that MallSampah represents authentic but sub-systemic innovation, requiring stronger policy integration and scaling mechanisms to generate citywide impact.

Keywords: environmental innovation, digital platform, waste management, cross-disciplinary innovation, Makassar

Abstrak

Penelitian ini menganalisis MallSampah, platform digital pengelolaan dan daur ulang sampah berbasis Makassar, sebagai contoh inovasi lingkungan berbasis komunitas di Sulawesi Selatan. Penelitian ini dilatarbelakangi oleh krisis persampahan yang terus berlangsung di Kota Makassar, di mana Tempat Pembuangan Akhir (TPA) Antang menerima 800 hingga 1000-ton sampah per hari, serta kebutuhan untuk secara kritis menilai apakah solusi digital berbasis komunitas merupakan inovasi sistemik yang sesungguhnya atau sekadar solusi paliatif berskala kecil. Dengan pendekatan deskriptif kualitatif berbasis data sekunder dari pemberitaan media, pernyataan pemerintah, dan publikasi organisasi, penelitian ini menganalisis MallSampah melalui teori inovasi klasik dan kontemporer, termasuk *creative destruction* Schumpeter, *disruptive innovation* Christensen, *open innovation* Chesbrough, dan kerangka *eco-innovation*. Hasil penelitian menunjukkan bahwa MallSampah menghadirkan inovasi yang bermakna pada level desain insentif, formalisasi sektor informal, serta integrasi lintas-disiplin antara hukum, teknologi, dan ekonomi perilaku. Namun, volume pengolahan sekitar 30 ton per bulan masih marginal dibandingkan volume sampah harian kota, operasionalnya sebagian

bergantung pada hibah filantropi, dan belum terintegrasi dengan infrastruktur persampahan kota seperti proyek pengolahan sampah menjadi energi listrik yang direncanakan. Penelitian ini menyimpulkan bahwa MallSampah merupakan inovasi yang autentik namun belum sistemik, sehingga memerlukan integrasi kebijakan dan mekanisme penskalaan yang lebih kuat untuk menghasilkan dampak pada level kota.

Kata kunci: inovasi lingkungan, platform digital, pengelolaan sampah, inovasi lintas-disiplin, Makassar

1. INTRODUCTION

Makassar, the largest city in South Sulawesi, faces a chronic waste management crisis. The Antang landfill, the city's primary disposal site, has been reported as operating far beyond capacity, receiving an average of 700 to 1,000 tons of waste per day, with waste piles reaching heights of up to 50 meters (Detik Sulsel, 2022, 2023). The city has repeatedly failed to receive the national Adipura environmental award, a result partly attributed to landfill mismanagement (Detik Sulsel, 2023). Within this context, a locally grown digital platform, MallSampah, has emerged as a widely cited example of grassroots environmental innovation. Founded in 2015 by Adi Saifullah Putra, then a law student at Universitas Muslim Indonesia (UMI) Makassar, MallSampah connects households, businesses, and informal waste collectors through an application-based marketplace, offering instant cash payment for sorted waste at the point of pickup (Greeners.co, 2019; Kompas.id, 2021). The initiative has attracted national media attention and philanthropic support (Antara News Makassar, 2020) and has been positioned as a model for reducing recycling gaps in urban Indonesia. A critical question, however, remains underexplored: to what extent does MallSampah constitute genuine, cross-disciplinary innovation capable of addressing Makassar's waste crisis at scale, rather than a well-designed but structurally limited community initiative? This study addresses that question by analyzing MallSampah through established innovation theories and by explicitly comparing its operational scale against the city's documented waste volume.

2. LITERATURE REVIEW

Innovation Theory

Joseph Schumpeter (1934) defines innovation as new combinations of products, processes, markets, or organizational forms that disrupt existing economic equilibrium. Clayton Christensen (1997) extends this through the concept of disruptive innovation, in which simpler, more accessible solutions gradually displace established systems from the margins. Henry Chesbrough (2003) contributes the notion of open innovation, emphasizing that value is increasingly created through collaboration between organizations, communities, and external stakeholders rather than within a single closed entity.

Eco-Innovation and Environmental Innovation

Carrillo-Hermosilla, del Río, and Könnölä (2010) define eco-innovation as change in products, processes, or organizational structures that simultaneously generates economic value and reduces environmental impact. This framework is particularly relevant for evaluating community-based waste platforms, as it requires assessing both the novelty of the intervention and its measurable environmental outcome, rather than novelty alone.

Informal Sector Integration and the Circular Economy

In many Indonesian cities, waste collection has historically depended on an informal economy of *pengepul* (collectors) and *pemulung* (scavengers) operating with minimal legal protection or price certainty. Literature on inclusive circular economy models



argues that formalizing and integrating this informal workforce into structured value chains, rather than replacing it, is essential for both environmental and social sustainability outcomes (Mongabay Indonesia, 2024).

Critical Perspective on Grassroots Environmental Innovation

A critical strand of innovation literature cautions that grassroots or community-based innovations, however well-designed, can remain trapped at demonstration scale if not eventually integrated with municipal infrastructure, financing, and policy (Fajar, 2025, in a related discussion of corporate ESG symbolism). This raises the analytical distinction between innovation that is authentic in design but sub-systemic in impact, and innovation that achieves genuine citywide transformation.

3. METHODS

This study employs a qualitative descriptive approach based on secondary data. Data sources include national and regional news media (Kompas.id, Antara News, Detik Sulsel, Mongabay Indonesia, Media Indonesia, Greeners.co, Tribun Timur, and Pejuang Iklim), official government statements from the Makassar City Environmental Agency (Dinas Lingkungan Hidup), and publicly available organizational information about MallSampah published between 2018 and 2024. Data were analyzed thematically according to three dimensions commonly used in sustainability innovation assessment: platform and incentive design, environmental and social impact, and institutional or governance integration, before being interpreted through the innovation theories outlined in the literature review.

4. RESULTS AND DISCUSSIONS

Platform and Incentive Design

MallSampah's core innovation lies not in its underlying technology, which mirrors standard e-commerce marketplace logic, but in its incentive redesign. Unlike conventional community waste banks (bank sampah), which typically require residents to deposit waste and wait roughly a month before proceeds can be withdrawn, MallSampah collects waste directly from the point of origin and pays cash, or convertible points, immediately upon pickup (Media Indonesia, 2020). This adjustment directly addresses a behavioral friction point that has historically limited public participation in waste banks.

Legal and Institutional Dimension

The founder's academic background in law, including postgraduate study in environmental law, is reflected in the platform's approach to the informal waste economy. Rather than displacing existing pengepul and pemulung, MallSampah formalizes their role as paid collection partners, reportedly engaging several hundred local collectors and operating dozens to hundreds of sorting facilities in and around Makassar (Kompas.id, 2021; Pejuang Iklim, 2021).

Environmental and Circular Economy Dimension

As of 2020, MallSampah reported processing an average of approximately 30 tons of waste per month, with tens of thousands of registered application users (Antara News Makassar, 2020). The organization has stated a public target of raising Makassar's recycling rate from roughly 10 percent to 40 percent by 2027 (Tribun Timur, 2018), and has extended training activities to surrounding regencies such as Jeneponto in partnership with local environmental agencies (Mongabay Indonesia, 2024).

Scale versus Systemic Impact

When measured against Makassar's documented daily waste volume of 800 to 1,000 tons entering the Antang landfill (Detik Sulsel, 2022, 2023), MallSampah's reported monthly processing volume, equivalent to roughly one ton per day, represents a small fraction of the city's total waste stream. The initiative has also relied in part on philanthropic grant support for its operations (Antara News Makassar, 2020), raising questions about the sustainability of its business model absent external subsidy. In addition, an application-based model may inadvertently exclude the most economically vulnerable segments of the informal waste sector, who may lack smartphone access or digital literacy, even as the platform aims to serve precisely this population.

Innovation Analysis

Viewed through Christensen's (1997) lens, MallSampah exhibits characteristics of disruptive innovation at the margins, entering an underserved segment (informal waste transactions) with a simpler, more accessible value proposition than formal waste management systems, though it has not yet displaced or been absorbed into the dominant municipal system. Its collaborations with local government agencies and a regional power company reflect elements of Chesbrough's (2003) open innovation. However, from a Schumpeterian (1934) perspective of new combinations reshaping economic structures, MallSampah's impact remains localized rather than transformative at the scale of the city's waste economy. This suggests that MallSampah is best characterized as authentic, cross-disciplinary innovation at the community level that has not yet achieved the systemic integration required to qualify as citywide disruptive change.

5. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

MallSampah demonstrates that meaningful environmental innovation can emerge from cross-disciplinary, grassroots initiatives that combine legal insight, digital platform design, and behavioral economics, rather than solely from corporate or governmental programs. Its incentive redesign and informal-sector formalization represent genuine innovations relative to conventional waste banks. However, when evaluated against the scale of Makassar's waste crisis, its impact remains sub-systemic, constrained by limited processing volume, reliance on philanthropic funding, and the absence of integration with municipal waste infrastructure.

Recommendations

1. Integrate MallSampah's collection and sorting data with the Makassar City Environmental Agency's waste strategy, including potential feedstock linkages to the planned waste-to-energy (PSEL) facility at Antang.
2. Diversify funding beyond philanthropic grants toward blended finance, extended producer responsibility schemes, or municipal service contracts to ensure long-term operational sustainability.
3. Design low-digital-literacy onboarding pathways for informal collectors, such as assisted registration or non-smartphone interfaces, to avoid excluding the most vulnerable participants in the informal waste economy.
4. Publish standardized, measurable indicators, such as tons of waste diverted and income change for collector partners, to allow independent evaluation of impact over time.

support Indonesia's digital economic growth. Through the adoption of disruptive innovation, Tokopedia has transformed conventional trading systems into a digital marketplace that is more accessible to the general public. The company also practices open innovation through partnerships with banks, fintech firms, logistics providers, and technology companies, enabling its services to evolve more quickly and efficiently. Tokopedia also embodies the concept of creative destruction: its presence has driven a shift in consumer behavior from offline to online shopping, from cash payments to digital payments, and from traditional business models toward digital platform-based businesses. Furthermore, the Pentahelix approach which involves the government, academia, the business sector, the community, and the media demonstrates that Tokopedia's success stems not only from internal innovation but also from cross-sector collaboration. Tokopedia's presence has had a positive impact on the empowerment of SMEs, the expansion of business opportunities, and the equitable distribution of economic benefits nationwide through the use of digital technology.

Recommendations

Despite its many strengths, Tokopedia still faces challenges such as user data security, increasingly intense industry competition, disparities between large sellers and small MSMEs, and the environmental impact of its logistics operations. Therefore, the company needs to strengthen its cybersecurity systems, improve transparency in data management, and establish better protections for consumers and small businesses. In addition, Tokopedia needs to develop green logistics through the use of eco-friendly packaging, more efficient distribution, and collaboration with sustainable delivery partners. The company also needs to improve digital financial literacy education to ensure that features like PayLater are used wisely. With these strategies, Tokopedia has the potential to become an increasingly competitive, inclusive, and sustainable digital platform in the future.

REFERENCES

- Haeruddin, M. (2017). Should I stay or should I go? Human Resource Information System implementation in Indonesian public organizations. *European Research Studies Journal*, 20(3A), 989-999.
- Carrillo-Hermosilla, J., del Río, P., & Könnölä, T. (2010). *Eco-innovation: When sustainability and competitiveness shake hands*. Palgrave Macmillan.
- Christensen, C. (1997). *The innovator's dilemma: When new technologies cause great firms to fail*. Harvard Business School Press.
- Chesbrough, H. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business School Press.
- Schumpeter, J. (1934). *The theory of economic development*. Harvard University Press.
- Idris, M. M., Mustafa, M. Y., & Putra, M. A. F. A. (2025). Entrepreneurship Knowledge and Vocational Policy's Effect on MSMEs Business Strategy: Artificial Intelligence Moderation Analysis. *Reviu Akuntansi, Manajemen, Dan Bisnis*, 5(2), 579-591. <https://journals.goodwoodpub.com/index.php/rambis/article/view/6336>
- Musa, M. (2022). Pengaruh motivasi dan kompetensi kerja terhadap prestasi kerja karyawan sales. *Jurnal Akuntansi, Manajemen dan Ekonomi (JAMANE)*, 1(1), 55-62.
- Mustafa, Muh. Yushar. (2026). AI Conceptualisation and Nostalgic Marketing: Toward A Future Research Agenda on Meaning-Making and Consumer Engagement. *Journal of Studies in Academic, Humanities, Research, and Innovation*, 3(1), 751-770. <https://doi.org/10.71305/sahri.v3i2.1315>

- Tribun Timur. (2018, November 27). TribunWiki: Profil Adi Saifullah Putra, founder Mall Sampah. Tribun Timur. <https://makassar.tribunnews.com/2018/11/27/tribunwiki-profil-adi-saifullah-putra-founder-mall-sampah>
- Greeners.co. (2019, September 6). Mallsampah, aplikasi jual beli sampah online. Greeners.co. <https://www.greeners.co/ide-inovasi/mallsampah-aplikasi-jual-beli-sampah-online/>
- Media Indonesia. (2020, April 23). Adi Saifullah Putra: Mengolah limbah jadi berkah. Media Indonesia. <https://mediaindonesia.com/humaniora/306715/adi-saifullah-putra-mengolah-limbah-jadi-berkah>
- Antara News Makassar. (2020, October 8). MallSampah di Makassar daur ulang 30 ton sampah per bulan. Antara News. <https://makassar.antaranews.com/berita/216529/mallsampah-di-makassar-daur-ulang-30-ton-sampah-per-bulan>
- Pejuang Iklim. (2021, September 2). Adi Saifullah, atasi problem sampah dengan Mallsampah. Pejuang Iklim. <https://pejuangiklim.id/adi-saifullah-atasi-problem-sampah-dengan-mallsampah/>
- Kompas.id. (2021, October 28). Adi Saefullah Putra, Iwar Hablokjin Ekhanem: Mallsampah. Kompas.id. <https://www.kompas.id/baca/sosok/2021/10/28/adi-saefullah-putra-iwar-hablokjin-ekhanem-mallsampah>
- Detik Sulsel. (2022, March 25). TPA Antang Makassar melebihi kapasitas, sampah menggunung 50 meter. Detik.com. <https://www.detik.com/sulsel/berita/d-6000340/tpa-antang-makassar-melebihi-kapasitas-sampah-menggunung-50-meter>
- Detik Sulsel. (2023, March 2). Makassar gagal raih penghargaan Adipura gegara sapi di TPA Antang. Detik.com. <https://www.detik.com/sulsel/berita/d-6596972/makassar-gagal-raih-penghargaan-adipura-gegara-sapi-di-tpa-antang>
- Mongabay Indonesia. (2023, March 13). Makassar dan masalah darurat sampah. Mongabay Indonesia. <https://mongabay.co.id/2023/03/13/makassar-dan-masalah-darurat-sampah/>
- Mongabay Indonesia. (2024, June 18). Belajar kelola sampah dengan MallSampah. Mongabay Indonesia. <https://www.mongabay.co.id/2024/06/18/belajar-kelola-sampah-dengan-mallsampah/>