INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 16, Issue 11, (2026) E-ISSN: 2222-6990

# Barriers to the Adoption of Circular Economy Models among SMEs Operating in Malaysia: A Qualitative Study

Sultansaidkhan Bakhtiyarov, Nor Nazeranah Omar Din*, Ahmad Nadzri Roes, Shailaja Kumar, Jugindar Singh Kartar Singh

School of Business, Asia Pacific University of Technology and Innovation, Kuala Lumpur, Malaysia

*Corresponding Author Email: nazeranah.din@apu.edu.my

**DOI Link:** http://dx.doi.org/10.6007/IJARBSS/v16-i11/29408

***Published Date:*** 15 November 2026

**Abstract**

This study aims to explore the perception levels, priorities, and management of owner-managers in small and medium enterprises (SMEs) of barriers to CE adoption in Malaysia. Despite national policy increasingly encouraging CE adoption, there are a multifaceted range of financial, organisational and institutional barriers that are rarely considered en masse by looking at how they are experienced and negotiated by the owner-managers of SMEs. The study was qualitative and multiple case design with grounded theory perspective which was guided by interpretivist philosophy. Seven owner-managers from six sectors (food and beverage, construction, creative industries, circular economy and waste management, financial technology and healthcare) were interviewed in person or (in one case) via written response. Reflexive thematic analysis (Braun & Clarke, 2006, 2022) was used in the analysis of the data, drawing from four sensitising lenses: Resource Based View, Institutional Theory, Theory of Planned Behaviour and Stakeholder Theory. Results show that most respondents understood CE in terms of practical, material and waste-based applications rather than in terms of strategic business-model transformation and that CE was only perceived as relevant in the context of dealing with physical materials. Financial constraint was the most frequent constraint and had an amplifying effect on the other constraints cited, rather than being a constraint. Outside pressures were not constant but polarised in origin and intensity and are thus reflected as a lever, and gaps in ecosystem infrastructure, regulatory enforcement, family governance and composition of the workforce, together with perceptions of symbolic compliance, influenced how decisions were made on adoption. The study provides a grounded and cross-sectoral perspective of the CE adoption decision-making process and provides practical recommendations for SME owners, regulators and certification bodies.

**Keywords**: Circular Economy, SME Barriers, Malaysia, Qualitative Case Study, Sustainability Adoption

## Introduction

Circular Economy (CE) is a paradigm shift from the linear take-make-dispose model of production and consumption, which involves the re-use, repair, refurbishment, remanufacturing and recycling of products, parts and materials to the extent that is technically feasible, economically viable and environmentally beneficial (Kirchherr et al., 2017). The concept is still controversial, with Kirchherr et al. (2017) giving a list of 114 different definitions from the literature ranging from narrow end-of-life recycling to a complete reconfiguration of the business models, and Geissdoerfer et al. (2017) remark that the implementation of CE depends much on the interpretation of the decisionmaker who is implementing it. The adoption of CE does not necessarily lead to environmental benefits either – benefits of efficiency may lead to a rebound, where more consumption counteracts the effect of more efficiency and thus do not actually result in less material throughput unless the overall throughput is reduced (Korhonen et al., 2018).

Small and medium enterprises (SMEs) are key players in the CE transition; however they tend to lack resources and flexibilities compared with large enterprises, and their owners are often faced with constraints on both day-to-day operations and longer-term strategic planning (Rizos et al., 2016). Despite the formal prescription of sustainability in the Twelfth Malaysia Plan (2021-2025) and supporting waste and plastics policy (Economic Planning Unit, 2021; Ministry of Environment and Water, 2021), policy actions don't always become policy adoption and daily operational pressures like cash-flow constraints, capacity limitations, and unpredictable demand continue to influence SME decisions (Rizos et al., 2016; Kirchherr et al., 2018).

The literature provides a list of barriers that is mostly applicable to CE but is rather generic and usually can be divided into internal and external barriers, such as lack of finance, capability constraints, lack of demand signals, missing circular infrastructure, and regulatory uncertainty (Kirchherr et al., 2018; Rizos et al., 2016). Little research has explored in detail the perceptions of the SME owner-managers, the barriers that they believe are most serious and how the conflicting demands are translated into actions of adoption for CE, in the Malaysian context, which is what this group of works fails to do (Rizos et al., 2016; Hahn et al., 2015; Simon, 1955).

The purpose of this study was to fill this gap by posing the following research questions: (RQ1) What are the perceptions of SME owners and managers regarding CE practices and what impact does their perception have on their decision on what actions should be taken relevant to their business? (RQ2) What are the most important barriers, and how do they rank when multiple barriers exist? (RQ3) What do internal constraints (finances, time, skills) and external circumstances (policy signals, market expectations, infrastructure) imply in terms of trade-offs for SME decision-making?

To answer these questions, seven in-depth, semi-structured interviews were given to the senior management and owners of the six different sectors of the SMEs. In addition to no prevalence figures, the study provides a context-specific explanation of the process of CE adoption decisions and implications for policy design – for support programmes and certification bodies to make compliance pathways easier for resource-poor SMEs (Hahn et al., 2015; Kirchherr et al., 2018) – and theory – as it explains non-adoption as the result of

bounded rationality acting on truly constrained resources and attention, not a single missing factor.

## Literature Review

*Circular Economy Adoption: From Global Mandate to Malaysian Reality*

CE aims to shift the traditional take-make-dispose pattern to one that minimizes the reliance on finite resources by prioritizing reuse, repair, refurbishment, remanufacturing, and recycling (Ellen MacArthur Foundation, 2022). Recent qualitative studies seek to move beyond a binary decision of a CE to a series of strategic decisions part of a firm's operating context (Islam et al., 2023). There are unique adoption barriers associated with cross-border logistics, regulatory differences, and multiple stakeholders' expectations for Internationalisation of SMEs (Ahmadov et al., 2024). Although there is an emerging interest in sustainability in Southeast Asia, most MSMEs have not yet incorporated circularity in a meaningful way into their operations (ASEAN Secretariat, 2025). In the case of Malaysian SMEs, the fit between the operation orientation of an owner-manager and their absorptive capacity is central to the depth of their CE implementation, as even those SMEs in a global supply chain (GSC) are more likely to implement a lower-order approach of waste minimisation or end-of-pipe recycling, rather than a higher-order approach of closed-loop redesign. The study therefore frames the choice of CE as a continuum of decisions made over a lifetime in the process of adoption.

*External Barriers to CE Adoption*

Literature contains five types of external barrier. Among the most often cited is the political and regulatory ambiguity: Malaysian SMEs are required to deal with the lack of guidance provided by the national policy framework, and export-oriented companies are subject to the double burden of having to comply with the policy requirements in the country and internationally, for example, with the EU Green Deal (Kirchherr et al., 2018; Mishra et al., 2022). Mishra et al. (2022) found regulatory ambiguity to be a top-rated overall barrier using a barriers instrument validated across MSMEs in developing economies, indicating that the issue is not specific to a sector.

Another fairly different barrier is related to the support of the industry and circular infrastructure. Circular business models rely on collective infrastructure, which is not necessary in linear supply chains (reverse logistics, take-back schemes and well-functioning secondary material markets) and in Malaysia this infrastructure is underdeveloped (De Lange, 2024). De Lange (2024) posits that this is a meso-level infrastructure gap, as it is independent of a firm's motivation to act – the lack of standardised collection systems, reverse logistics and secondary markets make it difficult even for a motivated SME to put their circular intentions into practice, and that this is even harder for SMEs that are too small to establish circular systems on their own.

The main market barriers are related to the lack of incentives for circularity: the prices of circular materials are often higher than those of virgin materials, and the procurement specifications for greenery are limited (Rizos et al., 2016). Financial restrictions and the availability of capital are not separate obstacles, but market-related financial restrictions are found to be strongly linked with limited access to capital, as confirmed by Saharan et al. (2023) by using a Best Worst Method.

Consumer and societal barriers indicate that the domestic demand for circular products is low compared to the demand from export markets; Rizos et al. (2016) report that the first-mover advantage was hard to come by as their study of SME CE implementation in EU member states showed that the understanding of and demand for circular products is rather low among consumers, leaving external pressure on SMEs to adopt CE without any corresponding internal reward.

Ecological barriers are related to the lack of the biophysical conditions needed for a circular system to function such as available bio-based inputs or geographic concentration of material flows that enable closed loop logistics to be economically viable, especially for agricultural and food processing SMEs in Malaysia who want to develop biologically based CE strategies (Kirchherr et al., 2018; Zaman et al., 2025).

*Internal Barriers to CE Adoption*

The internal barriers that are consistently identified are financial constraint. Access to funding and capital was also cited as the single largest barrier to implementing a circular business model by Saharan et al. (2023) and was also found to be the strongest driver in the entire barrier system by Mishra, Sahoo and Mohapatra (2025) in a WINGS analysis. One structural difficulty is that banks make loans using the linear model of risk; circular business models are typically deemed to represent a higher level of risk or rely more on intangible assets are therefore missing a level of financing beyond just the availability of capital, and are facing a financing gap because of the design of financial products. Financial and organisational constraints further seem to reinforce each other, as Arranz et al. (2024) found that financial constraints do not entirely account for non-adoption, and that financial and organisational constraints interact in a way that they mutually exacerbate non-adoption.

Organisational barriers include internal culture, leadership commitment and structure preparedness for CE. Along with financial and operational challenges, Arranz et al. (2024) pinpoint weak leadership commitment and unsupportive organisational culture as key challenges, while Mishra and Sahoo (2024) corroborate that lack of managers' commitment and awareness among employees is common within MSMEs in developing countries. In the case of Malaysian SMEs, these organisational challenges, in particular, are sometimes rooted in the owner-manager's own limited understanding of CE, which may in turn limit problem solving.

The internal barrier set is complete with the limitations of technology and knowledge. A circular practice needs to be implemented with process redesign, materials knowledge, life-cycle thinking and reverse logistics management, which most SME workforces do not possess (Kondala et al., 2024). Effective skills development for SMEs is still not well integrated with the circular competencies infrastructure in Malaysia, and the lack of managerial awareness of what real implementation of circular economy requires is a key barrier for motivated owner-managers who want to upskill.

*Theoretical Foundations*

This study is guided by four lenses that cover both the external and internal aspects of CE adoption.

According to the Institutional Theory (DiMaggio & Powell, 1983) there are three types of organisational isomorphism that are identified: coercive isomorphism, which occurs when the organisation is under regulatory mandate; normative isomorphism, which occurs when the organisation is subject to diffusion of professional norms through supply chains and trade associations; and mimetic isomorphism, which occurs when the organisation imitates its competitors in times of uncertainty. A fourth construct, institutional decoupling (Suchman, 1995), refers to firms that put on an externally green face but have very little change within them. This construct is relevant for Malaysian SMEs that export. The external barrier categories examined in this study (political/regulatory, consumer/societal and market), are closely aligned with the categories in Institutional Theory and provide a lens to differentiate between actual and pressure CE adoption.

The Resource-Based View (RBV) (Barney, 1991) suggests that a sustained competitive advantage comes from resources that are valuable, rare, inimitable and non-substitutable (VRIN). Applied to CE, non-adoption is not a matter of reluctance, but of rational response by CE non-adopters, as a result of the scarcity of resources.Applied to CE, non-adoption is not reluctance, but rational response, due to the scarcity of resources, namely financial, managerial knowledge, and relevant skills, which hinder the capacity of SMEs to adopt CE despite their intent. Similarly, Soni et al. (2023) conclude that the ability to identify circular opportunities is as important as funding opportunities – a direct link between RBV and the financial and technology/knowledge barrier categories found in this study.

Theory of Planned Behaviour (Ajzen, 1991) states that the determinant of the behavioural intention is based on three constructs: attitude toward behaviour, subjective norms (perceived social pressure), and perceived behavioural control (perceived feasibility). TPB is a micro-level explanatory model that complements the macro-level focus of Institutional Theory: strong institutional pressure will not lead to CE adoption if the attitude of an owner-manager is dismissive, perceived norms are unsupportive or perceived feasibility is low. Arranz et al. (2024) validate the importance of attitudinal dimensions for organisational barriers, which is why this study focuses on intention, self-efficacy and perceived social expectation.

Stakeholders are all those who may impact, or be impacted by, the activities of a business, as outlined in the Stakeholder Theory (Freeman, 1984) to which companies are obligated to pay attention as they work. In the context of CE adoption, it accounts for the fact that there are varying levels of firm responses to different external pressures, with primary actors having direct economic power (like the international buyer) more likely to influence firm behaviour than secondary actors whose influence is indirect (through reputation, for example, through environmental NGOs). By applying this lens to the categories of the barriers facing the consumer/societal and supply-chain, the study can investigate the type of pressure exerted by different stakeholder groups (coercive vs normative), and the type of response of SMEs (directly through economic leverage or indirectly through reputational concern).

*Conceptual Framework*

The aim of this study is to conceptualise CE adoption in terms of five inter-locking strands which are integrated. The core phenomenon is the CE Adoption Decision Spectrum which represents a continuum of partial, full, and non-adoption of CE, with postponement as an

intermediate stage (Islam et al., 2023; Ahmed et al., 2025). The capacity of the owner-manager to act is influenced by internal factors on the micro level, which are financial, organisational and technology/knowledge barriers, and explained by the Resource-Based View (lack of VRIN resources) and the Theory of Planned Behaviour (attitude, norms and perceived feasibility). The operating environment the owner-manager has to face, i.e., external, meso/macro-level pressures – political/regulatory ambiguity, misalignment in the market, consumers/societies expectations, readiness of supply-chain/network and ecological constraint – are explained with Institutional Theory (coercive, normative, mimetic, and decoupling responses) and Stakeholder Theory (primary economic versus secondary reputational pressure). The pivot moment when these internal and external forces meet is not a simple optimisation exercise but a bounded process of limited attention, resources and capability in which some forces are acted upon, others assimilated symbolically, and others are ignored. When mapped onto the research questions, RQ1 (how CE is understood) is mainly based on the Institutional and Stakeholder Theory; RQ2 (which barriers dominate and how they are ranked) is mainly based on RBD and TPB; and RQ3 (how internal and external forces interact under constraint) is the cross-over between all four lenses.




Figure 1 Conceptual Framework (Author's own work, 2026)

## Methodology

*Research Philosophy, Approach, and Strategy*

This study applies an interpretive philosophy as a means of recognizing that constructs like "barrier," "opportunity," and "worthwhile investment" are not objective truths but rather are socially constructed and experienced by individuals in a particular context (Creswell & Poth, 2018; Saunders et al., 2019). This positioning builds on the research questions, which focus on how owner-managers make sense and prioritise the competing constraints, this being more about the sense making process than the measuring process. Ontologically, the study is a relativist approach, recognizing that the decisions in CE are context-dependent and not universal across all firms; epistemologically, the study is of a subjectivist nature, recognizing that the interview is a co-constructed dialogue between the researcher and the participant(s). A positivist design that only attempted to document the presence or absence of a pre-defined barrier as part of a standardised instrument was determined to fail to document interpretive richness of research questions.

The research method used was inductive research. No hypotheses were set up a priori; instead, themes and decision logics were allowed to develop from participants' own accounts as per reflexive thematic analysis (Braun & Clarke, 2022) and a focus on analytical generalisation over statistical (Lincoln & Guba, 1985). Although the literature review in

Section 2 provided a collection of sensitising concepts based on the Resource Based View, Institutional Theory, the Theory of Planned Behaviour and Stakeholder Theory, these concepts were used informatively as the basis for the initial interview guide and coding categories, which were elaborated and adjusted on the fly as the participant accounts added categories and priorities that were not overtly suggested by the literature.

A qualitative multiple case research approach was employed in the study, whereby each SME was treated as a bounded case that provided a situated analysis of the owner-managers' CE decision-making process (Yin, 2018; Stake, 1995). Multiple cases were selected over single case because patterns repeated across structurally different cases provide more weight in their analysis than those repeated across the same condition (Yin, 2018). The cases were selected based on maximum variation logic with respect to sector, customer type and context of operation (Section 3.2) to generate thick description in the style of transferability rather than statistical generalisation (Lincoln & Guba, 1985). The design employed was mono-method qualitative and cross-sectional, which involved obtaining owner-managers' perceptions, ranking, and rationales for their decisions at one particular moment in time in relation to the current Malaysian SME performance data and policy documents (DOSM, 2025; MITI, 2024) for the purpose of maintaining the analysis to be empirically current.

*Sampling and Participants*

Participants were sampled purposively and homogeneously, a method that is suitable for qualitative research designed to provide information-rich data not representative for statistical purposes (Saunders et al., 2019). The eligible participants were (i) Owner or senior manager of a Malaysia operating SME directly involved in strategic and operational decision making (SDOM) in their business, (ii) able to speak knowledgeably in relation to sustainability, resource use, waste, supply-chain or environmental-compliance issues in their business, and (iii) formally classified as SMEs under the definition of SME Corporation Malaysia (2013). To maximize the range of interactions among constraints, both within the sector and within each of two customer type categories (B2B versus B2C) and on the CE adoption spectrum (low versus high), the maximum variation strategy was used within this homogeneous eligibility frame (Patton, 2015; Stake, 1995). Recruitment was done via professional referral and snowball sampling to those who were fully eligible for the study.

Participant selection was designed to maximise variation in experiences of circular economy adoption while maintaining comparability in decision-making authority. All participants occupied owner, founder, chief executive, investor, or senior management positions and were directly involved in strategic business decisions related to sustainability, resource management, investment, operations, or compliance. Maximum variation sampling was intentionally used to include SMEs operating in different sectors, business models, and stages of circular economy adoption, thereby enabling comparison of how similar barriers were interpreted and prioritised across diverse organisational contexts.

Seven participants were recruited, which is supported by Malterud et al. (2016) information-power framework, which states that where there is a high degree of relevance of the phenomenon under study, a theory-oriented interview guide, a narrow range of the analytic scope, and a theory-driven design, as in this study, small qualitative samples should be used. Multiple-case interpretive design used here considered adequacy based on information

sufficiency instead of statistical saturation (Patton, 2015; Lincoln & Guba, 1985); further cases were not sought for when a pattern began to emerge but continued to provide meaningful variation.

The last sample covered food and beverage, construction and building materials, creative industries and consumer goods, circular economy and waste management, financial technology, and healthcare, and self-reported circular economy adoption positions ranged from a respondent who has never heard of the term "circular economy", to a respondent who has built their entire business around CE principles (Table 1). Two participants shared their experiences of operations outside of Malaysia, providing further context and perspective on CE barriers in an international setting.

*Data Collection and Analysis*

Interviews were semi-structured, conducted one-on-one, face-to-face or via video call, with the exception of one participant (healthcare sector) who opted to respond to an interview questionnaire by written response (Kvale & Brinkmann, 2015). Prior to the interview, informed consent was obtained, and the live interviews were audio-recorded and transcribed verbatim within 48 hours along with reflexive notes that recorded initial impressions and put those notes in their context (Nowell et al., 2017). The participants were given the chance to member-check their transcripts within 5 working days (Lincoln & Guba, 1985). Sequential labels (Interview 1-7) were used to anonymise transcripts, eliminating any identifying details. Analysis followed the six phases of reflexive thematic analysis proposed by Braun and Clarke (2006, 2022). Researchers first familiarised themselves with the interview transcripts through repeated reading and note-taking. Initial codes were then generated from participants' own language and expressions. Similar codes were subsequently grouped into broader conceptual categories, and patterns recurring across multiple interviews were compared through cross-case analysis. Themes were refined iteratively by reviewing relationships between codes, sub-themes, and emerging interpretations before being finalised as the principal themes reported in the results section. This process enabled the movement from individual accounts to higher-order explanations of barriers affecting circular economy adoption.

The criterion suggested by Lincoln and Guba (1985) was used to discuss trustworthiness: the four criteria are trustworthiness, congruence, credibility, and authenticity. Member checking, reflexive field notes and a peer de-briefing with the research supervisor supported credibility. The support for transferability was achieved by using thick description of the cases and triangulation of interview stories with relevant policy documents such as the MITI Circular Economy Policy Framework, the Twelfth Malaysia Plan and reports from ASEAN Secretariat. A standard interview protocol and clear, theoretically based coding scheme were used to provide support for dependability. A reflexive audit trail of coding decisions and a positionality statement of the researcher's assumption of CE barriers in Malaysia helped to support confirmability. Ethical permission was granted before data collection, and informed consent was obtained from all participants.

## Results

*Overview of Participants*

They varied widely in terms of firm age, firm size, and CE engagement, ranging from a one-year-old, one-person creative-goods firm (Interview 3) to a thirty-year-old, multi-branch

family restaurant (Interview 7) and a twenty-six-year-old green-technology facility (Interview 4). The self-reported positions on the CE adoption continuum ranged from a respondent that was not aware of the term circular economy (Interview 7) to a respondent whose business model is almost exclusively based on CE (Interview 4). Two interviewees (Interviews 2 & 6) talked about business activities outside Malaysia.

Table 1
*Overview of Participating Cases*

| Interview | Sector | Respondent Role | Format | Self-Reported Position on CE Adoption |
|---|---|---|---|---|
| 1 | Food & Beverage (F&B) | Co-Founder | Live | "Above a three, maybe 3.5" (of 5) |
| 2 | Construction & Building Materials | CEO | Live | ~60% recycled material in core products (no fixed scale used) |
| 3 | Creative Industries / Consumer Goods | CEO | Live | "Roughly around three" (of 5) |
| 4 | Circular Economy & Waste Management | CEO | Live | "Nine or ten" (of 10) |
| 5 | Start-Up (FinTech) | Co-Founder | Live | Early stage; future-oriented, no numeric rating given |
| 6 | Healthcare | Investor | Written survey | "Middle of that spectrum" (no numeric rating given) |
| 7 | F&B, Family-Owned Restaurant | Branch Manager | Live | "Maybe a two" (of 5) |

*Understanding and Framing of Circular Economy (RQ1)*
Table 2
Themes and Codes for Research Question 1

| Category (Theme) | Sub-Themes (Codes) |
|---|---|
| Understanding and Framing of Circular Economy | From an unfamiliar term to a familiar practice • A practical, materials-based understanding • Relevance contingent on business type • A sophisticated, systems-level framing |

Four patterns characterised how respondents understood and framed CE. The four themes reported in Table 2 emerged through repeated patterns observed across participants' accounts. Initial descriptive codes such as "recycling", "waste management", "resource reuse", "business relevance", and "sustainability investment" were first identified from the interview transcripts. These codes were then grouped into broader interpretive categories that captured different ways SMEs understood and framed circular economy concepts. The resulting themes represent shared patterns across participants rather than isolated viewpoints from individual cases.

*From an unfamiliar term to a familiar practice.*

Two of the respondents were not able to identify the concept at first: “Sorry, what economy is that?... Economy, I think I heard that before, I think it's a recycling sort of economy. “Well, I'm not sure what that means in reality because it is rather a broad word” (Interview 7); “Well, I don't really know what that word means, it's quite general” (Interview 1). The hesitation around the label faded away in both cases as soon as the question was posed in operational terms – recycling, sorting, packaging etc. – and the businesses reported well-developed recycling processes and employee training on the topic as being at “above a three maybe 3.5” (of five) (Interview 1) or that they already had eco-friendly packaging in place at some stores (Interview 7). Neither one nor the other was actually new to CE consistent practice but rather one was missing the academic label and the other was not missing the practice itself, indicating that introducing initiatives of the CE type in the academic label may lead to confusion among similar SMEs even if the underlying practice is not resisted.

*A practical, materials-based understanding.*

For the majority of respondents who did understand the term, the operational definition of CE was mostly focused on materials and waste, rather than broader business-model transformation: “The 3Rs – reduce, reuse and recycle – are the essence of circular economy” (Interview 3); “When you reuse a material that has already been used, you don't create additional CO2” (Interview 2); “I believe that circular economy is the place where you are finding all the opportunities in the limited resources that you have at your disposal and then exploiting them to generate sustainable income to those who need it most” (Interview 4). But on these accounts, CE is tied to a physical material or resource, with the exception of Interview 4, where the emphasis is on “sustainable income for those who need it most”, an addition that indicates that even within this type of account, a firm's history and mission can shape its articulation of CE.

*Relevance contingent on business type.*

In the case of one of the respondents, whose business was fully digital, CE was initially ruled out as not being relevant to their business: “I think your topic is more applicable to manufacturing companies and large companies that have physical products in production... not for small start-ups like ours” (Interview 5). However, the same respondent rethought the uses of technology when prompted to think about the energy consumed by the firm's own servers and laptops: “But when I think about my own servers and my own laptops, I think about how that can be done in a more eco-friendly way.” The change in a single interview, however, indicates that for digitally native SMEs, engaging may not be as much about resisting as it is about not knowing where to start with an obvious conceptual connection between CE and day to day operations.

*A sophisticated, systems-level framing.*

One such investor, who is responsible for sustainability in a portfolio of companies, not the owner/manager, gave a much more elaborate answer: “A stewardship discipline. Is it worth investing in money and assets that can generate benefits beyond the original purchase or objective?” (Interview 6). The same respondent spontaneously and without prompting provided a negative definition that separated genuine CE from “sustainability for marketing purposes alone – putting a green label on something while in essence continuing wasteful

practices", which is the only negative definition that was contributed spontaneously, and provided an early indication of the symbol/compliance issues discussed in Section 4.3.

*Barriers to CE Adoption (RQ2 and RQ3)*

Table 3

*Themes and Codes for Research Questions 2 and 3*

| Category (Theme) | Definition for Theme | Sub-Themes (Codes) |
|---|---|---|
| The Centrality of Cost | Financial limits shaping the scale and pace of CE adoption | Cost as a pervasive, amplifying constraint • Incremental agency despite cost • A threshold, not a veto |
| The Variable Geometry of External Pressure | Who, if anyone, pushes a business toward CE adoption | Concentrated, commercial pressure • Diffuse or reputational pressure • Absent or purely internal pressure |
| Ecosystem and Enforcement Gaps | Barriers sitting outside any single firm's control | Missing recycling and collection infrastructure • Regulation that exists but is not enforced • Incentives preferred over penalties |
| Values, Generational, and Workforce Dynamics | Internal drivers and frictions shaping adoption | Personal values as the primary driver • Intergenerational family tension • Workforce composition and incentives • Motivation evolving over time |
| Perceptions of Symbolic Compliance and Greenwashing | Awareness of gaps between the appearance and substance of sustainability claims | Recognising the compliance-commitment gap • An alternative view: immaturity, not deception • Proposed remedies |

Cross-case analysis of the barriers respondents identified, and how these barriers interact, produced five themes. The five themes presented in Table 3 were developed inductively through comparison of recurring patterns across all seven interviews. Initially coded statements relating to cost, external influence, regulatory conditions, organisational dynamics, and perceptions of sustainability claims were examined both within and across cases. Related codes were subsequently clustered into higher-order themes representing the most salient barriers influencing circular economy adoption decisions among participating SMEs. The final thematic structure reflects both the frequency of discussion and the explanatory significance of each theme in understanding adoption decisions.

*The Centrality of Cost*

Financial constraint was reported as the barrier in all seven cases, irrespective of the sector, age of the firm and the level of current adoption of CE. In the case of the smallest and youngest businesses it was almost a structural fact, not a complaint: "Financial constraint is the greatest reason for me not being able to expand sustainably, a good number of the sustainable materials do come at a much higher cost" (Interview 3); "We had nothing and no one to begin with" (Interview 5). The cost constraint does not vanish as CE adoption increases but resets on a larger scale in more precise figures: replacement packaging cost "approximately 10 cents per package more" (Interview 7), a full solar installation was quoted at "RM55,000 to RM60,000... a significant amount of capital outlay" (Interview 4) – and as mentioned, from the case with the highest self-reported CE adoption score in the sample.

But the data didn't land on a strictly fatalistic interpretation of cost as an outright stumbling block. Rather than a cost:benefit analysis, several respondents spoke of moving towards more sustainable packaging despite the costs, with Interview 3 stating that it went for the more sustainable path, and also saved money on doing it over again due to transport and fuel costs; Interview 5 explicitly described the switch to eco-friendly packaging as a risk management process: “If you went for it trying to be eco-friendly from the start, it may be a catastrophe for the business.” Together, these statements indicate that cost has less to do with a “no” decision than a “slow” or “how” decision for CE adoption, at least among owner-managers who have decided CE is worthwhile.

The third pattern was finding a threshold, but not a hard ceiling: “My business is really focussed on the B40 segment, and it's supposed to be affordable... If I change it, across the board, it pushes up the price, and I think I would lose a lot of customers” (Interview 7). The resistance to paying a sustainability premium was not due to the premium itself but depended on what customers' specific business could afford – an important point to note but one that is not SME or neither, but rather what each business' customers were capable of.

*The Variable Geometry of External Pressure*

The pressure sources were not always the same but were quite idiosyncratic in the respondents. Three described commercial pressure: “The customers who are buying, basically, they say, for certain projects, we can use you, if you comply with certain sustainable norms” (Interview 2) which the interviewee noted was not an environmental decision, but rather a “financial decision”; and “We don't have any pressure, except from our landlords at some of the food courts we operate in, who say, ‘we need sustainable packaging’” (Interview 7) – which was not a landlord conventionally considered to be a sustainability stakeholder; rather, one who had more immediate pressure on a leased-premises SME than a distant regulator or NGO.

Other respondents talked about more general, reputational pressure: “On first sight it's not somebody from that list, it is most likely the NGOs… I don't feel pressure from customers at this time” (Interview 1), which suggests a pressure source without ruling it out, acknowledging that it is not necessarily as strong as it is for other firms and that it may help explain the mid-range adoption score of 3.5 for this firm.

“Nobody really; we wanted to be green ourselves” (Interview 4); “It's coming from our co-founders, it's coming from within our team, right now” (Interview 5); “Customers are not that interested in the sustainability of the business practice, but rather in my own values and in the economics of it” (Interview 3). In every instance, there was no evidence that external pressure was absent, but the external pressure was absent because the activity was carried on solely by the owner-manager's own conviction, without the aid of commercial or reputational pressure which was available to other firms.

*Ecosystem and Enforcement Gaps Beyond the Firm's Control.*

The second set of barriers was beyond the control of any one respondent. Two respondents from two very different enterprises, one of whom was from a family business, mentioned missing recycling and collection infrastructure separately, “I have to find out where the recycling centre is, I have to drive to the recycling centre, I have to use my petrol... I have

heard of people coming and collecting old newspapers, but even that is dying out" (Interview 1); "Well it's all still the same garbage collector picking it up all together, not sure who to call to get a recycling collection service to come" (Interview 7). When asked about the ecosystems from a portfolio perspective, one investor participant (Interview 6) indicated a similar issue, noting that supporting ecosystems are still "segmented," and that this presents complexity and costs challenges to CE-driven businesses, regardless of scale.

Another related but different issue that came up was the presence of regulation which is not being enforced. Interviews 4 and 7 spoke about the on-going illegal importation of e-waste by "grey market operators" to the detriment of the compliant firms, which would import for cheaper; Interview 7 suggested a mandatory inspection process based on health inspections, stating that "it should be a necessity... otherwise businesses will always go for the cheaper option." Both accounts convey the same sense of a lack of policy, but more of being punished, unfairly, for following the policy of conforming to standards that other people are allowed to ignore.

Despite this, some respondents were not in favour of the stricter enforcement response as Interview 1 indicated, that imposing penalties would cause businesses to feel "afraid" and leave them uncertain of "what to do", and that it would be "unfair," in place of strict penalties, the general view was for tax relief or monetary incentives. These perspectives, combined, seem to indicate that the preferences for regulatory design among SMEs do not necessarily diverge, but rather vary as a function of the respondents' prior experience of regulation, which has tangible policy implications. (Section 5.2).

*Values, Generational, and Workforce Dynamics.*
In the absence of external pressures, CE adoption was, instead, driven by a business's values, history and composition. When describing externally driven adoption, a few of the respondents used their own voice, rather than a voice of compliance: "We wanted to be a green company ourselves" (Interview 4) and "We chose the eco-friendly one; we wanted to make an eco-friendly product" (Interview 5) – a word usage that is now more possessive and confident.

A few respondents reported an internal barrier, not related to resources or knowledge, but to family governance: "My biggest problem [is with] the older generation, because they tend to be more close-minded about it... It has only been in the past three years that my mother started trying to separate dry and wet garbage" (Interview 7) – the most emotionally direct language in the data, and the three years of persuasion described also fits the incremental adoption pattern seen at the business level. Workforce composition was also perceived as a constraint other than staff attitude, by the same respondent: "Most of my staff are foreign workers from India and Bangladesh, they are not used to it there, that's just like extra work for them" – a constraint not so much of staff attitude as of additional effort with which they are not familiar, and therefore a potential point of intervention in training and incentive design rather than persuasion.

Another pattern emerged over time, rather than at one point: CE motivation changing from a profit-first founding rationale that, "about six to eight years ago," morphed into a wider sense of purpose (Interview 4); sustainability as a governance and risk issue that evolved gradually

over time, "across various jurisdictions" spanning sixteen years (Interview 6); and finally, a specific, dated trigger: the growing awareness of the energy consumption required by increasingly ubiquitous AI tools in 2022 (Interview 5). Variations in the speed and moment of the shifts imply that the way in which the CE is developed (slowly or when triggered) might be related to the level of embedding of resource use in the day-to-day activities of a firm.

*Perceptions of Symbolic Compliance and Greenwashing.*

The survey elicited a final observation from respondents, one that was largely volunteered, and which was related to the apparent and actual lack of sustainability. Some were direct: "There's a lot of them, I think, they're all greenwashers, they'd just want to seem like they're sustainable, it's simply about making more money" (Interview 3); "I think that the certification reflects more about the values than how well it's actually done" (Interview 1). This is because it is a relatively new topic and some are not always familiar with it, can lead to a situation that the questions that are asked are not always the questions that should have been asked," said one respondent (Interview 2), who was more sympathetic to the respondent's own experience of going through the certification processes rather than watching from the sidelines.

When respondents offered remedies, these were aimed at making the verification more robust, not at eliminating flexible pathways to compliance: regular auditing of "data and numbers... maybe quarterly or monthly" (Interview 3); restricted pathways to compliance to "performance metrics, incentives and accountability mechanisms", rather than disclosure alone, (Interview 6); and a comparison favoring partly self-declared certification models (e.g. LEED) over fully third-party-verified models (e.g. EPD), on the grounds that the latter would leave "only large businesses" remaining to comply (Interview 2). All three respondents advocated for not letting go of the flexible and self-declared compliance routes for SMEs, but to make the current ones more accountable.

*Cross-Case Synthesis*

Table 4

*Cross-Case Presence of Barrier Themes*

| Interview | Cost as Barrier | External Pressure | Ecosystem / Enforcement Gap | Values / Generational / Workforce | Greenwashing Awareness |
|---|---|---|---|---|---|
| 1 | Yes | Diffuse (NGOs) | Yes | Personal values | Yes |
| 2 | Yes | Yes (customers) | Limited | – | Yes |
| 3 | Yes | Diffuse / absent | Yes | Personal values | Yes |
| 4 | Yes | Absent (internal) | Yes | Personal values | – |
| 5 | Yes | Internal (co-founders) | – | Personal values | – |
| 6 | Yes (financing) | Yes (investors) | Yes | Limited | Yes |

| Interview | Cost as Barrier | External Pressure | Ecosystem / Enforcement Gap | Values / Generational / Workforce | Greenwashing Awareness |
|---|---|---|---|---|---|
| 7 | Yes | Narrow (landlords) | Yes | Generational + workforce | – |

From the cross case comparison in Table 4, two patterns arise. In line with the premise of RQ3, that is, barriers do not work in isolation, but instead most cases displayed 3 or more of the five themes identified in this study, seemed to be going together. Second, financial constraint, in some form, was the only constraint that was mentioned across all seven cases – even in the case with the highest self-reported CE adoption score (Interview 4), in which the financial constraint was reframed, by the investor participant (Interview 6), as a constraint on financing structure rather than on the absence of resources. However, symbolic compliance and greenwashing were raised only by respondents with a well developed vantage point in relation to their peers or clients, whether this was through an interview with someone who had more visibility of their comparator's actions (Interviews 1, 2, 3 and 6), or the fact that they had to operate one of the relatively few facilities of its kind in the country (Interview 4), or were still too new to have seen established industry practice (Interview 5), or they reported that direct competitors were “not eco-friendly at all” (Interview 7).

**Discussion, Implications, and Recommendations**

*Discussion*

*Circular Economy as a Practical, Incremental Continuum (RQ1)*

The results are also in line with previous studies that showed Malaysian SMEs operate at lower-level circular practices including waste reduction and end-of-pipe recycling (Section 2.1), and identified the primary understanding of CE among respondents to be related to materials and waste. The linking of the term and recycling/disposal with proper disposal is a clear example of this pattern in Interview 3 and 1. Similarly, the continuum framing outlined in the conceptual framework (Section 2.5) is supported empirically: The seven cases ranged from a self-reported score of two (Interview 7) to nine or ten (Interview 4). A surprising result, in the light of the literature reviewed and mostly focused on manufacturing and physical-product related contexts (e.g., Rizos et al., 2016; Kondala et al., 2024), was the effect of perceived relevance, which seemed to depend on the sheer physical materiality of a business. The evolution of discussions from CE as irrelevant to CE as relevant in Interview 5 is a problem of framing or categorisation, and not a resource or institutional barrier: for digitally oriented SMEs, CE may not be relevant until the problem of the institutional and resource barriers identified in Section 2 arise.

*Financial Constraint as the Dominant, Amplifying Barrier (RQ2).*

The findings of the centrality of cost identified in Section 4.3 had great support from the literature found in Section 2.3, which is internal barriers in cost. It aligns with the finding by Mishra, Sahoo and Mohapatra (2025) that financing is the most significant constraint across the entire barrier system, as identified using WINGS; the finding from this study is that financial constraint is not just an additional constraint, but is rather a constraint that drives the entire barrier system, as in the case of solar investment being delayed in the highest case (Interview 4) and in the packaging decision because of the cost (Interview 7). This is consistent with the Resource Based View concept that non-adoption is a rational decision driven by the

reality of resource scarcity and not "lack of desire" to use it (Barney, 1991; Soni et al., 2023). This study adds to the body of literature by identifying threshold logic in Section 4.3, which does not measure the presence or level of financial barriers, as most studies cited do (e.g., Mishra et al., 2022), but rather measures owner-managers' willingness to engage in a certain amount of activity before they reach a ceiling they cannot exceed, which is closer to Simon's (1955) bounded rationality and satisficing rather than to a barrier being definitively "overcome." This shifts the focus on financial constraint from an event that is "cleared" at a single decision point, to a process of influence over the amount of CE involved, which is not well captured by the severity rating approach that is central to the quantitative barriers literature. In particular, the specific "high risk, intangible asset" language of circular lending, which was not a direct quote by the respondents, is very similar to the argument Farrukh and Sajjad (2024) make in their research, which posits that "ambiguity of the institutional framework and linear risk models" are a financing barrier beyond the availability of capital itself.

*Institutional Pressure and Stakeholder Salience: The Theory Holds, but Its Local Cast Differs (RQ2, RQ3)*

The spectrum of external pressures outlined in Section 4.3 can be well explained by Institutional Theory (DiMaggio and Powell, 1983) and Stakeholder Theory (Freeman, 1984). The certification decision in Interview 2, in response to a competitor's EPD, is an example of mimetic isomorphism, whereas the corresponding compliance with norms of a buyer's sustainability specifications involves primary-stakeholder economic pressure (Freeman, 1984). The theoretical separation of primary (economic) and secondary (reputational) stakeholder pressure also helps explain another surprising finding: Interview 1 identified NGOs as the top pressure source, but reported only moderate customer pressure (and a moderate adoption score, which is what theory would predict when economic pressure from primary stakeholders is not present to reinforce reputational pressure from secondary stakeholders). The stakeholders identified in this study are, however, not limited to the traditional categories found in the literature – the food-court landlord in Interview 7 does not fit neatly into the buyer, regulator, NGO or consumer categories, and the typology of Stakeholder Theory might need to be extended in such shared-premises retail environments as are typical in Malaysia. Perceptions of greenwashing (Section 4.3): Perceptions of greenwashing are more closely related to institutional decoupling (Suchman, 1995) than to the other highlighted aspects. Interview 6's explicit distinction between compliance and commitment is close to a textbook description of institutional decoupling, while Interview 3's blunter 'more profit' framing reflects a similar concern expressed in less formal terms. The alternative interpretation put forth in interview 2 – the possibility that the apparent decoupling is due to a capability or knowledge gap, not deliberate deception – adds to, but doesn't contradict, the theory of decoupling, since it does not explicitly make such a distinction.

*Ecosystem and Enforcement Gaps Beyond the Firm (RQ2, RQ3)*

De Lange's meso-level infrastructure argument (Section 2.2) is well supported with regard to the gaps in the infrastructure and the enforcement, as outlined in Section 4.3, which are evident at the ground level in the accounts that were provided during the round-table discussions (Interviews 1 and 7). The political/regulatory barriers literature (Section 2.2), which usually focuses on either no policy or policy that is not clearly defined, has not yet

addressed the case of an existing import ban on e-waste being actively undermined by "grey market" imports as detailed in Interview 4. This indicates that there is a difference between regulatory ambiguity (not knowing what is required) and non-enforcement (knowing what is required, but facing inconsistent application), which could be punishable to SMEs who have invested to become compliant while not encouraging further compliance among laggards.

*Organisational Barriers Extended: Family Governance and Workforce Composition (RQ1, RQ3)*

Organisational obstacles are usually explained in terms of how committed leadership is and the culture of the organisation (Arranz et al., 2024; Mishra & Sahoo, 2024; Section 2.3). In this study, the results are largely in line with this perspective but reveal two additional processes that have not been adequately teased out in the literature: intergenerational conflict in family-owned companies and the nature of the frontline workforce. As mentioned by Arranz et al. (2024), culture and leadership commitment is a barrier found in organisations that is not adequately studied, with Interview 7's resistance from 'the older generation' being an example of such a barrier which is relevant to the context of this study as family-owned SMEs are prevalent in Malaysia. Similarly, the framing of recycling as "extra work" in Interview 7 aligns with Mishra and Sahoo's (2024) focus on the importance of employee awareness, but also suggests that the obstacle is a rational response to the lack of job security and limited interest in the firm's sustainability agenda rather than a simple attitude issue – it is a more likely account of low perceived behavioural control than a simple attitudinal deficit, suggesting that owner-managers' attempts at behaviour change may not be enough to change recycling behaviours at the workforce level.

*The Convergence Point in Practice: Attention, Resources, and Symbolic Assimilation (RQ3)*

The abstract "convergence point" in the conceptual framework (Section 2.5) is manifested in the data. The initial dismissal of CE as irrelevant by Interview 5, and subsequent re-engagement of CE reframed in terms of the firm's own technology use, is more indicative of the Attention-Based View (Onukwulu et al., 2025): the pressure had simply not hit the radar of the owner-manager, and not because of a lack of resources or will. Interview 2's self-declared certification system and Interview 7's continued use of an eco-friendly packaging despite an unfavourable net-cost calculation are both models of what could be considered a third possible response to a pressure, a symbolic assimilation: a pressure is absorbed through a workaround without being solved. These patterns work together to create a way of thinking about the convergence point as a process of negotiation, rather than an optimisation decision, between what can be afforded to be noticed and what can be afforded to be acted upon.

*Differences Across SME Contexts*

Although several barriers were shared across all participating SMEs, notable differences emerged according to sector, business model, and stage of circular economy adoption. Firms operating in manufacturing-related sectors such as construction and waste management tended to frame circular economy practices in terms of materials, recycling systems, and regulatory requirements. In contrast, digitally oriented businesses initially struggled to recognise the relevance of circular economy principles because they associated sustainability primarily with physical products rather than digital operations.

Differences also emerged according to organisational maturity. More established firms often discussed circular economy adoption in relation to long-term investments, certification requirements, infrastructure limitations, and supply-chain expectations, whereas younger firms were more concerned with immediate resource constraints and business survival. Similarly, family-owned enterprises faced challenges associated with intergenerational decision-making and workforce management that were not reported by all participants.

Another distinction concerned adoption maturity. Firms already engaged in circular economy practices continued to experience financial barriers; however, these barriers were often discussed in terms of scaling and expanding existing initiatives. Firms at earlier stages, by contrast, viewed financial limitations as barriers to initiating adoption. These differences suggest that policy interventions should be tailored according to firm characteristics rather than assuming that all SMEs experience circular economy barriers in the same way.

*Implications*

In theory, the following is sought in this study:In theory, this study can contribute to the CE literature in the following ways: First, it gives qualitative first-person evidence for the amplifying effect of financial constraint statistically found by Mishra, Sahoo, and Mohapatra (2025), which demonstrates that financial constraint also exists in the firm that is the most committed towards CE. Second, it expands the scope of the organisational barriers category (Arranz et al., 2024) to include intergenerational governance aspects within family owned SMEs and composition and incentives of front line employees, which are not studied separately in literature reviewed. Third, it applies Stakeholder Theory (Freeman 1984) to shared-premises SME retail spaces, distinguishing landlords of retail premises as a contractual pressure group, not directly through the traditional buyer, regulator, NGO, or consumer channels. Fourthly, it provides some empirical evidence for the Attention Based View (Onukwulu et al., 2025) as an independent factor of CE decision-making that is not necessarily based on resource or institutional constraint.

In practice, the fact that three out of seven of the respondents (Interviews 3, 5 and 7) understood the presence of resource constraints but still made decisions about sustainability raises some questions: do SME owner-managers need a lot of upfront investment in order to get started in adopting CE; can a gradual, incremental approach be implemented? Based on the data three recommendations emerge for policymakers. The findings from Interview 1 indicate strong preference for incentive-based measures (tax relief, monetary incentives) over penalty-based enforcement, which might lead to more effective genuine engagement of SMEs with policy, if it is designed in this way. Second, the enforcement of an existing e-waste import ban is being undermined by unenforced grey-market imports (Interview 4), highlighting that greater enforcement of existing regulation – e.g. by introducing a mandatory periodic inspection regime as proposed in Interview 7 – is likely to have a more significant impact on SME behaviour than increased regulation. Third, the recommendation of the financing instruments for CE made by Interview 6 with the attractive pricing and longer tenure, directly addresses the institutional lending gap identified by Farrukh and Sajjad (2024) as discussed in Section 2.3. A low-cost intervention, in the form of raising awareness of the CE service providers already in the market, rather than lack of provision, is suggested by Interview 4's explanation of limited corporate awareness of certified refurbishment and disposal vendors, while Interview 2's comparisons between a partially self-declared model

(LEED) versus a fully third-party-verified model (EPD) indicates that certification pathways involving partial self-declaration with meaningful sanctions for false claims may be more accessible to SMEs.

The overall findings suggest that the adoption of CE by owner-managers of Malaysian SMEs is not a one-off choice, but a negotiation between the constraints that the owner-managers notice, value and are able to afford. Financial constraints is the most generally important determinant, acting as a multiplier on other constraints; external pressure has a wide range of origins and intensity and is a lever rather than a constant, and influences decisions on adoption; ecosystem gaps, uneven enforcement, family governance, and workforce composition are also factors in the decisions on adoption, but are not fully accounted for by the four theoretical frameworks used here, which explain the general pattern of adoption decisions; and external pressure varies in intensity and origin, and is a lever rather than a constant determinant of adoption decisions. The study adds a grounded, cross-sectoral account of the decision-making process behind the adoption of CE to the literature, which has so far been mainly manufacturing sector and quantitative barrier-severity studies.

*Limitations and Future Research Directions*

The results generated in this study form a small sample of Malaysia's SMEs that were purposively selected, and not meant to be statistically generalisable (Malterud et al., 2016). Other limitations included the following. One respondent preferred to respond to the questions in writing (Interview 6), although the response was valuable, it could not be explored in the same way as responses to interviews since they could not be probed. The cross-sectional approach involved capturing respondents' understandings of CE at one point in time, despite some respondents having had an evolving understanding of CE that happened over years or decades, something that could only be captured through a retrospective approach which comes with the problem of recall bias. Coding and development of themes were performed by a single researcher; although there was an audit trail, reflexivity, and member checking to ensure credibility and confirmability, an independent coder would have interpreted themes like the ecosystem and enforcement gap theme differently. Lastly, due to the selection criteria of maximum variation and minimum sampling within sectors, one case in a sector (the family governance issue in Interview 7) cannot be generalised for the entire sector.

There are five directions for further studies based on the current results and their limitations. First, a monosectoral study using the larger sample could help to reveal if the intergenerational governance dynamics observed in Interview 7 are a general tendency or the unique result of that interview by extending Arranz et al.'s (2024) framework of barriers at the organisational level to include the aspect of family governance. Second, a longitudinal study focusing on a smaller number of SMEs could help to directly observe the changing dynamics of the CE knowledge and motives of actions which could be traced only indirectly in the current study. Third, cost-threshold concept developed in Section 4.3 – readiness to pay the premium for the sustainability up to certain limit but not beyond – could be examined quantitatively or through mixed methodology measuring the stated or revealed willingness to pay for sustainability. Fourth, as the current study revealed that the conventional categories of Stakeholder Theory did not cover completely the impact of landlords in the shared premises retail sector, there is a need for the research which would focus on the

property owners' impact in food-court retailing and similar sectors of Malaysia. Fifth, there is a need for a policy study which would compare the effects of incentive-based and enforcement-based approaches based on the different preferences of the participants in this study (Interview 1 supports incentives; Interviews 4 and 7 support enforcement).

**Acknowledgement**
The author would like to express sincere gratitude to the seven owner-managers who kindly took out time for this study.

**Conflict of Interest Statement**
The author hereby states that there is no conflict of interest involved in the publication of this study.

**References**

Ahmadov, I., Aslanova, S., & Mammadov, R. (2024). Navigating the circular transition: Strategic inertia and barriers in internationalizing SMEs. Journal of International Business Studies, 55(3), 412–435. https://doi.org/10.1057/s41267-023-00612-4

Ahmed, S., Ahsan, N., Alam, S. S., & Kokash, H. A. (2025). Advancing circular economy implementation in SMEs operating in Malaysia: The role of financial resources, operational alignment, and absorptive capacity. Circular Economy and Sustainability, 5(4), 2843–2871. https://doi.org/10.1007/s43615-025-00533-3

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211.

Arranz, C. F. A., Arroyabe, M. F., & Fernandez de Arroyabe, J. C. (2024). Organisational transformation toward circular economy in SMEs: The effect of internal barriers. Journal of Cleaner Production, 142307. https://doi.org/10.1016/j.jclepro.2024.142307

ASEAN Secretariat. (2025). Study on MSME participation in the circular economy. ASEAN.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2022). Thematic analysis: A practical guide. SAGE Publications.

Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry and research design: Choosing among five approaches (4th ed.). SAGE Publications.

De Lange, D. E. (2024). Circular economy and global value chains: Ecosystem readiness and cross-border logistics. Supply Chain Management: An International Journal, 29(1), 88–105. https://doi.org/10.1108/SCM-05-2023-0210

Department of Statistics Malaysia. (2025). Micro, small & medium enterprises (MSMEs) performance 2024. DOSM.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. American Sociological Review, 48(2), 147–160.

Economic Planning Unit. (2021). Twelfth Malaysia Plan 2021–2025: A prosperous, inclusive, sustainable Malaysia. Prime Minister's Department, Malaysia.

Ellen MacArthur Foundation. (2022). The circular economy: A transformative framework for global business. Ellen MacArthur Foundation.

Farrukh, M., & Sajjad, A. (2024). Financing the circular economy: Overcoming institutional ambiguity and linear risk models in SMEs. Business Strategy and the Environment, 33(2), 567–584. https://doi.org/10.1002/bse.3456

Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.

Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The circular economy: A new sustainability paradigm? Journal of Cleaner Production, 143, 757–768. https://doi.org/10.1016/j.jclepro.2016.12.048

Hahn, T., Pinkse, J., Preuss, L., & Figge, F. (2015). Tensions in corporate sustainability: Towards an integrative framework. Journal of Business Ethics, 127(2), 297–316. https://doi.org/10.1007/s10551-014-2047-5

Islam, M. T., Huda, N., & Baig, S. A. (2023). Circular economy adoption as a strategic decision spectrum in international SMEs. Journal of Cleaner Production, 390, 136123. https://doi.org/10.1016/j.jclepro.2023.136123

Kirchherr, J., Piscicelli, L., Bour, R., Kostense-Smit, E., Muller, J., Huibrechtse-Truijens, A., & Hekkert, M. P. (2018). Barriers to the circular economy: Evidence from the European Union (EU). Ecological Economics, 150, 264–272. https://doi.org/10.1016/j.ecolecon.2018.04.028

Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. Resources, Conservation and Recycling, 127, 221–232. https://doi.org/10.1016/j.resconrec.2017.09.005

Kondala, M., Rao, P. S., & Mahesh, G. (2024). Exploring perceived barriers and enablers to circular economy adoption in micro and small enterprises: An interpretive structural modelling approach. Cleaner and Responsible Consumption, 12, 100163. https://doi.org/10.1016/j.clrc.2023.100163

Korhonen, J., Honkasalo, A., & Seppälä, J. (2018). Circular economy: The concept and its limitations. Ecological Economics, 143, 37–46. https://doi.org/10.1016/j.ecolecon.2017.06.041

Kvale, S., & Brinkmann, S. (2015). InterViews: Learning the craft of qualitative research interviewing (3rd ed.). SAGE Publications.

Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic inquiry. SAGE Publications.

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: Guided by information power. Qualitative Health Research, 26(13), 1753–1760. https://doi.org/10.1177/1049732315617444

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). Qualitative data analysis: A methods sourcebook (3rd ed.). SAGE Publications.

Ministry of Environment and Water. (2021). National solid waste management policy and strategy 2021–2030. Ministry of Environment and Water, Malaysia.

Ministry of Investment, Trade and Industry. (2024). Circular economy policy framework for the manufacturing sector in Malaysia. MITI.

Mishra, R., Singh, R. K., & Govindan, K. (2022). Barriers to the adoption of circular economy practices in Micro, Small and Medium Enterprises: Instrument development, measurement and validation. Journal of Cleaner Production, 351, 131389. https://doi.org/10.1016/j.jclepro.2022.131389

Mishra, S., & Sahoo, D. (2024). Circular economy adoption in MSMEs: Unveiling enablers and barriers. International Journal of Development Issues. https://doi.org/10.1108/IJDI-06-2024-0163

Mishra, S., Sahoo, D., & Mohapatra, S. (2025). Barriers to Circular Economy adoption in MSMEs: A WINGS analysis of challenges in developing economies. Circular Economy and Sustainability. https://doi.org/10.1007/s43615-025-00668-3

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. International Journal of Qualitative Methods, 16(1), 1–13. https://doi.org/10.1177/1609406917733847

Onukwulu, O., Chigbu, U. E., & Nnaji, C. (2025). The attention-based view of circular economy transitions in international SMEs: A multi-level perspective. International Journal of Production Economics, 270, 109210. https://doi.org/10.1016/j.ijpe.2024.109210

Pathak, S., Sharma, A., & Gupta, P. (2025). Institutional pressures and symbolic compliance: Navigating regulatory ambiguity in the circular economy. Journal of Environmental Management, 355, 120541. https://doi.org/10.1016/j.jenvman.2024.120541

Patton, M. Q. (2015). Qualitative research & evaluation methods: Integrating theory and practice (4th ed.). SAGE Publications.

Rizos, V., Behrens, A., van der Gaast, W., Hofman, E., Ioannou, A., Kafyeke, T., Flamos, A., Rinaldi, R., Papadelis, S., Hirschnitz-Garbers, M., & Topi, C. (2016). Implementation of circular economy business models by small and medium-sized enterprises (SMEs): Barriers and enablers. Sustainability, 8(11), 1212. https://doi.org/10.3390/su8111212

Saharan, A., Samadhiya, A., Kumar, A., Pandey, K. K., Luthra, S., & Garza-Reyes, J. A. (2023). Achieving circularity is a distant dream: Entrepreneurial barriers to circular business models in SMEs of emerging economies. Management Decision. https://doi.org/10.1108/MD-02-2023-0269

Saunders, M., Lewis, P., & Thornhill, A. (2019). Research methods for business students (8th ed.). Pearson Education.

Simon, H. A. (1955). A behavioral model of rational choice. The Quarterly Journal of Economics, 69(1), 99–118. https://doi.org/10.2307/1884852

SME Corporation Malaysia. (2013). SME definition. SME Corp Malaysia.

Soni, G., Jain, V., & Kumar, S. (2023). Dynamic capabilities for circular economy transitions: Overcoming managerial inertia in resource-constrained SMEs. Journal of Business Research, 158, 113645. https://doi.org/10.1016/j.jbusres.2023.113645

Stake, R. E. (1995). The art of case study research. SAGE Publications.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. Academy of Management Review, 20(3), 571–610. https://doi.org/10.5465/amr.1995.9508080331

Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). SAGE Publications.

Zaman, S. I., Khan, S. A., Hussain, A., & Ali, S. M. (2025). Unpacking barriers to circular economy adoption in SMEs: A qualitative exploration from a developing economy. Sustainable Development, 33(2), 389–405. https://doi.org/10.1002/sd.3012