Building Sustainable Advantage through Visionary Entrepreneurship in an Emerging Economy SME: A Case Study from Sri Lanka

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Abstract

This study examines how visionary entrepreneurship enables sustainable industrial innovation in resource-constrained small and medium-sized enterprises (SMEs) in emerging economies, with a focus on how internally driven innovation contributes to sustainable competitive advantage. A qualitative single-case study was conducted in a Sri Lankan apparel SME engaged in bonded apparel production and in-house machinery development. Data were collected through semi-structured interviews, on-site observations and internal documents, and analysed using thematic analysis guided by the Triple Bottom Line framework. The findings identify three key innovation mechanisms: technical self-reliance, niche opportunity recognition and resource-conscious innovation practices. These mechanisms show how resource constraints can be transformed into drivers of operational efficiency, economic resilience and reduced material dependency, indicating potential sustainability outcomes across economic, environmental and social dimensions. The findings also highlight the role of HRM-related processes, including skill development, knowledge sharing, and employee involvement, in supporting these innovation mechanisms. However, the study is limited to a single case within one industry and context, and future research should examine multiple cases across different sectors to extend and validate the findings. The study offers practical insights for SME leaders by highlighting the importance of developing internal capabilities, encouraging adaptive experimentation and focusing on niche market opportunities to enhance sustainability without relying on formal research and development systems. It also highlights the broader social contribution of such innovation practices, including skill development, knowledge retention and local capability building. Overall, the study contributes by proposing a Vision-Driven Sustainable Innovation Model, with Human Resource Management (HRM) integration,

showing how visionary entrepreneurship can activate internal innovation mechanisms to generate sustainability outcomes in resource-constrained settings.

Key Words: Economic, Environmental and Social Sustainability, Emerging Economies, Human Resource Management, Resource-constrained Innovation, SMEs, Sustainable Innovation, Visionary Entrepreneurship

Introduction

Entrepreneurship and innovation are widely recognised as key drivers of sustainable economic development, particularly in emerging economies where small and medium-sized enterprises (SMEs) contribute significantly to employment generation, export earnings, and industrial growth. However, SMEs in developing countries often operate within structurally constrained environments characterised by limited financial capital, weak infrastructure, minimal technological support, and restricted access to formal research and development (R&D) systems (Naudé, 2010; George et al., 2012). These constraints are frequently assumed to limit innovation capacity and sustainable competitiveness.

Despite these challenges, certain SMEs demonstrate an ability to innovate consistently and strategically. Rather than depending on external institutional ecosystems, these firms rely on internal capability building, entrepreneurial foresight, and adaptive experimentation (Baker & Nelson, 2005; Teece, 2007). Such behaviour reflects what scholars describe as visionary entrepreneurship; the capacity to anticipate long-term opportunities, mobilise available resources creatively, and pursue future-oriented strategies beyond immediate operational pressures (Baum et al., 1998; Kuratko et al., 2017).

Sustainable development discourse increasingly emphasises the need for inclusive innovation pathways that extend beyond high-tech firms and formal R&D-intensive industries. In this study, sustainability is understood as a multidimensional concept encompassing economic viability, environmental responsibility, and social well-being, consistent with the Triple Bottom Line framework (Elkington, 1997) and Sustainable HRM perspectives (Ehnert, 2009). In manufacturing sectors within developing economies, sustainability is not only about environmental compliance but also about economic resilience, reduced resource dependency, and operational efficiency as well as social outcomes such as employee well-being, skill development, and knowledge retention within the organisation. Environmental sustainability, in this context, extends beyond compliance to include proactive resource efficiency, waste reduction, and responsible production practices. SMEs that innovate internally may therefore contribute simultaneously to economic sustainability and responsible resource management while also strengthening internal human capabilities through HRM-related processes.

This article examines Bondville (Pvt) Ltd, a Sri Lankan apparel SME that deviates from conventional industry patterns. While most garment manufacturers in Sri Lanka focus on

assembly-based production guided by global buyers (Gereffi & Frederick, 2010), the company has adopted a dual innovation strategy: manufacturing bonded apparel and designing its own bonding machinery. This internally driven approach reduces import dependency, enhances production flexibility, and supports niche export competitiveness. The study addresses the following research question:

How does visionary entrepreneurship enable sustainable industrial innovation in resource-constrained SME environments?

By exploring this question, the study contributes to sustainable development studies by illustrating how internally embedded innovation practices can shape resilient industrial futures in emerging economies.

Literature Review

Triple Bottom Line and Sustainable Industrial Development

Sustainable development in organisational and industrial contexts is most widely conceptualised through the Triple Bottom Line framework introduced by Elkington (1997), which emphasises the integration of economic, environmental, and social performance. The Triple Bottom Line perspective argues that firms must move beyond a narrow focus on financial returns and instead pursue long-term value creation that balances profitability, ecological responsibility, and social contribution. In developing economies, the implementation of this framework is often constrained by institutional limitations, infrastructure gaps, and restricted access to capital and technology (Naudé, 2010). Small and medium-sized enterprises dominate industrial sectors in many emerging markets, yet they frequently operate under conditions that prioritise immediate survival over formal sustainability planning. Despite these limitations, sustainability may still emerge through embedded operational practices that enhance efficiency, reduce waste, and build long-term resilience (Boons & Lüdeke-Freund, 2013).

Within the Triple Bottom Line framework, economic sustainability refers to the firm's ability to maintain competitiveness and financial stability over time. Environmental sustainability concerns the responsible use of resources, reduction of waste, and minimisation of ecological impact. Social sustainability includes employment stability, skill development, and contributions to local capability building. From a HRM perspective, social sustainability is strongly linked to practices such as employee development, training, well-being, and retention, which enable organisations to sustain long-term performance (Ehnert, 2009). For SMEs operating in resource-constrained environments, innovation often becomes the mechanism through which these dimensions intersect. Rather than implementing formal sustainability systems, firms may achieve Triple Bottom Line outcomes indirectly through adaptive innovation practices that strengthen internal capability and operational resilience.

Innovation in Resource-Constrained SME Contexts

Innovation literature has traditionally been shaped by models developed in advanced economies, where firms benefit from formal research and development systems, venture

capital, institutional support, and technological infrastructure. These assumptions rarely reflect the operational realities of SMEs in developing countries, where resource scarcity and institutional gaps are common (George et al., 2012). As a result, innovation in emerging economies often takes alternative forms that are less formalised but equally significant for long-term competitiveness.

Baker and Nelson (2005) introduce the concept of entrepreneurial bricolage to describe how firms create new solutions by recombining available resources in novel ways. This form of innovation is particularly relevant in contexts where financial and technological inputs are limited. Instead of waiting for ideal conditions, firms experiment with what they have, gradually improving processes and products through iterative learning. Similarly, frugal innovation emphasises cost-efficiency, simplicity, and minimised resource use (Radjou et al., 2012). Zeschky et al. (2014) argue that frugal innovation represents a distinct innovation logic grounded in contextual necessity rather than technological inferiority.

From a Triple Bottom Line perspective, innovation under resource constraints contributes directly to sustainability. Economic sustainability is strengthened when firms reduce capital dependency and improve operational efficiency. Environmental sustainability is supported when resource intensity is minimised and equipment life cycles are extended. Social sustainability emerges when local technical knowledge and internal capabilities are developed rather than outsourced. These processes are closely supported by HRM practices such as skill development, employee learning, and knowledge sharing, which enable continuous innovation within SMEs. These perspectives suggest that innovation in constrained environments may be inherently aligned with sustainable development, even if firms do not explicitly frame their practices as sustainability initiatives.

Visionary Entrepreneurship and Long-Term Sustainability

Visionary entrepreneurship refers to the capacity of entrepreneurs to articulate and pursue long-term strategic goals that extend beyond immediate operational concerns (Baum et al., 1998). Visionary leaders demonstrate foresight, proactive behaviour, and the willingness to invest in future-oriented capabilities despite present uncertainty (Kuratko et al., 2017). This orientation is particularly significant in resource-constrained contexts, where institutional systems do not automatically generate innovation or strategic direction.

Long-term orientation has been identified as a core dimension of entrepreneurial behaviour and is closely associated with proactive opportunity pursuit and sustained competitive advantage (Lumpkin & Dess, 1996). Entrepreneurs who adopt a future-focused mindset are more likely to invest in durable systems, capability development, and internal experimentation rather than short-term cost reductions. Sarasvathy's (2001) theory of effectuation further explains how entrepreneurs in uncertain environments construct opportunities by leveraging existing means and gradually expanding their capabilities through iterative action. This effectual logic aligns closely with sustainability principles because it encourages incremental improvement, adaptability, and resilience.

Within the Triple Bottom Line framework, visionary entrepreneurship serves as a strategic catalyst that connects innovation behaviour to sustainable outcomes. By prioritising long-term positioning and internal capability development, visionary entrepreneurs enable firms to build economic resilience, improve environmental efficiency, and strengthen social capital through knowledge retention and skill enhancement. Such capability development is often facilitated through HRM functions, including training, employee involvement, and organisational learning mechanisms.

Opportunity Recognition and Sustainable Market Positioning

Opportunity recognition remains central to entrepreneurship research and is defined as the process through which individuals identify, evaluate, and exploit potential value-creating situations (Shane & Venkataraman, 2000). In emerging economies, opportunities often arise from contextual awareness, experiential learning, and informal network interactions rather than from formal analytical systems (De Carolis & Saparito, 2006). Entrepreneurs operating within constrained environments must interpret market signals subjectively and act upon perceived gaps or unmet needs. Ramoglou and Tsang (2016) argue that opportunities are enacted through entrepreneurial interpretation rather than objectively discovered. In export-oriented industries such as apparel manufacturing, niche opportunities may emerge from specialised buyer demands, regulatory changes, or technological limitations within global supply chains. SMEs that successfully identify and exploit such niches can reduce direct competition in mass markets and create differentiated value propositions.

From a sustainability perspective, niche positioning supports economic sustainability by stabilising revenue streams and reducing vulnerability to price-based competition. Specialisation may also encourage more efficient production systems tailored to specific product categories, thereby indirectly contributing to environmental sustainability. Opportunity recognition therefore represents a critical mechanism linking entrepreneurial cognition to sustainable market performance.

Informal Innovation and Embedded Environmental Efficiency

Environmental sustainability in SMEs is often associated with compliance-based practices such as certification, reporting, and regulatory alignment. However, many SMEs in developing economies engage in environmentally efficient practices without formally categorising them as sustainability strategies. Orlikowski (2002) highlights practice-based learning as a process through which knowledge is generated through action and continuous engagement rather than structured research planning. This perspective is highly relevant to manufacturing SMEs operating under constraints.

Seyfang and Smith (2007) emphasise that grassroots innovation systems contribute significantly to sustainable development because they are embedded in local contexts and driven by practical problem-solving. In manufacturing settings, practices such as modular machinery design, reuse of components, adaptive maintenance, and internal experimentation extend equipment life cycles and reduce waste. These practices lower material dependency and energy consumption while improving operational flexibility. Although such approaches

may not be formally recognised as environmental strategies, they contribute directly to environmental sustainability and economic resilience. At the same time, these practices support social sustainability through employee skill enhancement, experiential learning, and knowledge retention, which are key concerns of HRM. Recognising embedded environmental efficiency practices is important for developing sustainability frameworks that are relevant to emerging economy contexts. Rather than assuming that sustainability requires formal reporting structures, it is necessary to examine how everyday operational innovation contributes to resource conservation and long-term viability.

Research Gap and Theoretical Integration

Although significant research exists on entrepreneurial bricolage, frugal innovation, opportunity recognition, and visionary leadership, these strands of literature are rarely integrated within a comprehensive Triple Bottom Line framework in the context of manufacturing SMEs in developing economies. Sustainability research often focuses on large corporations with formal governance systems, while entrepreneurship research tends to emphasise opportunity creation without systematically linking it to sustainability outcomes. As a result, there remains limited understanding of how visionary entrepreneurship activates internally embedded innovation mechanisms that generate economic and environmental sustainability simultaneously under resource constraints. Furthermore, limited attention has been given to the role of HRM in enabling such innovation processes, despite evidence that capability development, employee involvement, and knowledge retention are central to sustainability outcomes in SMEs.

This study addresses this gap by examining how entrepreneurial foresight, internal capability development, and resource-conscious innovation collectively contribute to Triple Bottom Line outcomes in a Sri Lankan apparel SME. By analysing innovation practices through a sustainability lens, the study advances a more context-sensitive understanding of sustainable industrial development in emerging economies and provides empirical grounding for integrating visionary entrepreneurship with sustainable innovation theory.

Methodology

Research Design

This study adopted a qualitative single-case study design to explore how visionary entrepreneurship enables sustainable industrial innovation in a resource-constrained SME context. A qualitative approach was considered appropriate because the research objective required an in-depth understanding of processes, behaviours, and strategic decision-making within a real-life organisational setting (Yin, 2018). The case study method is particularly suitable when investigating complex phenomena that are embedded within contextual conditions and where boundaries between phenomenon and context are not clearly evident. The study was analytically guided by the Triple Bottom Line framework in order to interpret innovation practices through economic and environmental sustainability dimensions. Rather than imposing predetermined sustainability indicators, the analysis examined how internally generated innovation practices contributed to long-term competitiveness, operational

efficiency, and resource responsibility. This interpretive lens allowed the study to move beyond descriptive entrepreneurship analysis and situate the findings within sustainable development discourse.

Case Selection and Rationale

Bondville (Pvt) Ltd was purposively selected as an information-rich and theoretically significant case. Purposive sampling is recommended in qualitative research when the objective is to select cases that illuminate the research question most effectively (Patton, 2002). The firm represents an unusual example within the Sri Lankan apparel sector because it simultaneously manufactures bonded apparel and designs its own bonding machinery. This dual innovation pathway distinguishes it from typical small and medium-sized garment manufacturers in Sri Lanka, which largely depend on imported machinery and buyer-driven production specifications (Gereffi & Frederick, 2010).

The rationale for selecting this case was grounded in three interrelated considerations. First, the firm demonstrated internally driven product and process innovation without formal research and development systems. This characteristic made it suitable for examining how innovation emerges under resource constraints. Second, the firm had maintained export operations over a sustained period, indicating economic resilience within a competitive global value chain. Third, preliminary engagement with industry stakeholders suggested that the owner's long-term strategic orientation played a significant role in shaping the firm's innovation trajectory. These characteristics positioned the case as theoretically valuable for understanding the intersection between visionary entrepreneurship and sustainable innovation. The case was therefore selected not as a representative example of the sector, but as an analytically powerful case capable of generating theoretical insight into sustainable innovation in constrained environments. This aligns with the logic of extreme or revelatory case selection in qualitative research (Yin, 2018).

Data Collection

Data were collected through multiple sources to ensure triangulation and enhance credibility (Creswell & Poth, 2018). Primary data consisted of five in-depth semi-structured interviews conducted with key personnel who were directly involved in strategic decision-making, production management, compliance oversight, and market engagement. Interviews focused on innovation history, machinery development, opportunity identification, production adaptation, and long-term strategic thinking.

Although an HR Manager was not available as a formal respondent within the organisation, HRM-related insights were captured through roles such as the Administrative Executive and Production Manager, who were directly involved in employee coordination, skill utilisation, and operational support. These roles provided indirect evidence of HRM practices such as knowledge sharing, skill development, and employee involvement in innovation processes. Each interview lasted between forty-five and ninety minutes and was conducted on-site in either Sinhala or English depending on participant preference. All interviews were audio-recorded with consent and subsequently transcribed verbatim. Observational data were

gathered through direct site visits, including examination of machinery layout, bonding equipment structure, modular systems, and production flow. These observations enabled verification of technical adaptations described during interviews. Secondary documentation, including product catalogues, machinery diagrams, buyer correspondence, and export records, was reviewed to corroborate interview data and contextualise innovation practices. The use of multiple data sources strengthened construct validity and allowed cross-verification of emerging themes (Yin, 2018).

Table 1. Profile of Respondents

Respondent Code	Position	Role in Innovation Process	Years of Experience
R1	Owner and Founder	Strategic decision-making, machinery design, opportunity identification	18 years
R2	Production Manager	Machinery operation, process adaptation, technical coordination	12 years
R3	Compliance Officer	Quality standards, technical modifications, regulatory alignment	10 years
R4	Marketing Manager	Buyer interaction, niche market development, product feedback integration	9 years
R5	Administrative Executive	Operational coordination, modular repair systems	8 years

As shown in Table 1, although a dedicated HR Manager was not included, HR-related responsibilities were embedded within operational roles, reflecting the informal and integrated nature of HRM in SMEs.

Data Analysis

Thematic analysis was employed to identify patterns related to sustainable innovation and visionary entrepreneurship. A hybrid coding strategy was adopted, combining inductive coding from interview transcripts with sensitising concepts derived from the Triple Bottom Line framework and entrepreneurship literature (Fereday & Muir-Cochrane, 2006). Initial open coding identified recurring ideas related to machinery design, opportunity recognition, cost efficiency, experimentation, and long-term orientation.

Codes were then grouped into second-order themes that captured broader innovation mechanisms. These themes were subsequently aggregated into higher-level categories representing core innovation pathways within the firm. During interpretation, each

aggregated theme was examined through the Triple Bottom Line lens to determine its contribution to economic sustainability, environmental efficiency, and internal capability development including HRM-related aspects such as employee skill development, knowledge sharing, and involvement in innovation processes.

To enhance rigour, coding was conducted manually by the lead researcher and independently reviewed by a second academic familiar with qualitative SME research. Discrepancies were discussed until consensus was achieved. Data triangulation across interviews, observations, and documentary evidence reduced the likelihood of subjective bias and strengthened analytical reliability.

Table 2. Thematic Coding Structure

First-Order Codes	Second-Order Themes	Aggregated Themes
Internal design of bonding machines Building machines to fit product requirements	In-house machinery development	Strategic Innovation through Technical Self-Reliance
Trial-and-error prototyping Continuous machine modification Immediate in-house repair and problem resolution	Iterative problem-solving	
Identification of specialised export demand Recognition of future demand for bonded products Focus on medical and industrial safety apparel markets	Niche opportunity recognition	Opportunity Recognition in Niche Markets
Customisation based on buyer feedback Rapid adaptation to client-specific requirements	Market-responsive adaptation	
Reuse of machine components Repairing or replacing only failed sections Extending equipment life cycles through modification	Frugal engineering design	Resource-Conscious Innovation Practices
Modular system construction Minimising downtime through flexible repair systems	Flexible and adaptive maintenance	

This coding structure (Table 2), demonstrates how operational practices were systematically interpreted and elevated into analytically meaningful themes.

Ethical Considerations

All participants were informed of the purpose of the study and provided written consent prior to participation. The organisation granted permission for its name to be used due to the non-sensitive nature of the innovation practices discussed. Confidential operational details unrelated to innovation and sustainability were excluded from the analysis to protect proprietary information. Ethical clearance procedures were followed in accordance with institutional research guidelines.

Findings

The findings of this study are organised around three aggregated themes that emerged from the thematic analysis. These themes illustrate how visionary entrepreneurship activates internally embedded innovation mechanisms that contribute to sustainability in a resource-constrained context. Each theme is analytically interpreted through the Triple Bottom Line framework to demonstrate how innovation practices contribute to economic, environmental, and social sustainability outcomes.

Strategic Innovation through Technical Self-Reliance

A central finding of this study is the firm's deliberate pursuit of technical self-reliance as a strategic innovation pathway. Unlike many SMEs in the Sri Lankan apparel sector that depend heavily on imported machinery and external technical expertise, the company chose to internally design and develop its own bonding machines. This decision was not merely reactive to cost constraints but reflected long-term strategic thinking grounded in the owner's vision for operational independence. The owner explained that reliance on imported machinery created both financial and operational vulnerability. Imported bonding machines were expensive and often unsuitable for customised production requirements. He stated:

"*We realised very early that if we depend on imported machines, we will always adjust our products to fit the machine. Instead, we decided to build machines that fit our products.*"

This statement illustrates a proactive inversion of dependency logic. Rather than adapting products to existing technological constraints, the firm engineered technology to serve strategic product goals. This approach reflects visionary entrepreneurship as defined by Baum et al. (1998), where long-term orientation guides internal capability development. The development process itself was iterative and experimental. The owner described continuous trial-and-error prototyping, supported by in-house technicians. He noted:

"*We built the first version, then we changed it many times. Every mistake taught us something. Slowly the machines became more stable and more suitable for our needs.*"

This learning-through-doing process aligns with effectuation theory (Sarasvathy, 2001), which emphasises constructing opportunities through available means and iterative adaptation. It

also reflects practice-based innovation, where knowledge emerges through operational engagement rather than formal research systems (Orlikowski, 2002). From a Triple Bottom Line perspective, technical self-reliance contributes to economic sustainability. The firm reduced capital outflow associated with imported equipment and avoided long waiting periods for foreign spare parts. The Production Manager explained:

"If something breaks, we do not wait for parts from abroad. We fix it ourselves. That saves both time and money."

This internal capability enhanced operational resilience and reduced production downtime. Environmental sustainability was also indirectly supported, as the firm extended equipment life cycles through continuous modification rather than replacing entire units. This reduced material waste and dependency on external supply chains.

In addition, these practices indicate social sustainability outcomes through employee involvement in machine development, skill enhancement, and knowledge retention, reflecting the role of HRM-related processes in supporting innovation.

The evidence suggests that technical self-reliance functioned not merely as a cost-saving tactic but as a strategic innovation mechanism embedded in visionary orientation. Through internal engineering capability, the firm strengthened both economic resilience and resource efficiency while indicating potential sustainability outcomes across all three dimensions.

Opportunity Recognition in Niche Export Markets

The second major theme relates to opportunity recognition and niche market positioning. The firm deliberately shifted away from mass subcontracting toward specialised bonded apparel products, including medical-grade and industrial safety garments. This strategic repositioning emerged from direct engagement with European buyers and the owner's interpretation of emerging market demands. The owner described the decision-making process as forward-looking rather than reactive:

"Many companies avoided bonded products because they were technically difficult. But we saw that there was future demand, especially for medical and safety wear."

This demonstrates entrepreneurial alertness in identifying opportunities that others perceived as risky or technically challenging. According to Shane and Venkataraman (2000), opportunity recognition involves perceiving value where others do not. In this case, the technical complexity of bonded garments became a barrier for competitors but a strategic entry point for the firm. The Marketing Manager further explained how continuous buyer feedback shaped innovation:

"Clients sometimes asked for adjustments that we had never tried before. Because we control our machines, we can experiment quickly."

This responsiveness reflects an interaction between opportunity recognition and internal technical flexibility. Rather than relying on external suppliers for adaptation, the firm integrated market signals directly into internal innovation processes. From a sustainability perspective, niche positioning contributes to economic sustainability by reducing price-based competition common in mass garment production. Specialisation allowed the firm to command relatively higher margins and develop stable export relationships. This reduced vulnerability to fluctuating global demand and strengthened long-term competitiveness.

Environmental implications also emerged indirectly. By focusing on specialised products rather than high-volume mass production, the firm avoided excessive resource-intensive scaling. Production remained aligned with demand-driven batches, reducing overproduction and associated waste. Furthermore, the integration of buyer feedback and internal adaptation processes reflects employee involvement and learning, indicating HRM-supported mechanisms that contribute to capability development and innovation. Thus, opportunity recognition functioned as a sustainability-enabling mechanism, connecting visionary foresight with long-term market resilience and indicating potential sustainability outcomes.

Resource-Conscious Innovation Practices

The third theme highlights resource-conscious innovation practices embedded within production systems. These practices included reuse of machine components, modular design architecture, and continuous incremental improvement. Rather than discarding malfunctioning equipment, the firm systematically dismantled, modified, and reassembled components to extend operational life cycles. The Compliance Officer described this approach clearly:

"We do not throw machines away. If a part fails, we repair or replace only that section. Most parts are reused or modified."

This approach reflects entrepreneurial bricolage, where available resources are recombined to create functional solutions (Baker & Nelson, 2005). However, in this case, bricolage was not random improvisation. It was structured and strategically aligned with long-term cost control and operational sustainability. The modular system design allowed specific machine units to be replaced independently without shutting down entire production lines. The Administrative Executive explained:

"Our machines are built in sections. If one section fails, we remove that part and continue production with minimal delay."

This modularity reduced downtime, material waste, and capital replacement costs. From a Triple Bottom Line perspective, these practices contribute to economic sustainability through operational efficiency and indicate environmental sustainability outcomes through waste minimisation. Furthermore, internal experimentation enhanced local skill development. Technicians were actively involved in machine modification and design improvements, indicating social sustainability outcomes through employee capability development,

knowledge retention, and continuous learning, which are closely aligned with HRM practices. Although the firm did not formally label these practices as sustainability initiatives, they embodied sustainability principles through embedded operational logic.

Overall, resource-conscious innovation emerged as a deliberate and systematic approach rather than a reactive survival response. It reflected visionary intent to operate independently, efficiently, and sustainably within structural constraints while indicating potential sustainability outcomes across economic, environmental, and social dimensions.

Discussion

This study set out to examine how visionary entrepreneurship enables sustainable industrial innovation in a resource-constrained SME context. The findings demonstrate that innovation in such environments does not emerge randomly or merely as a survival reaction. Rather, it is activated through a coherent visionary orientation that translates constraints into strategic opportunity. When interpreted through the Triple Bottom Line framework, the evidence reveals a systematic linkage between entrepreneurial foresight, internally embedded innovation mechanisms, and sustainability outcomes.

The first major contribution of this study lies in demonstrating how technical self-reliance strengthens economic sustainability. Existing innovation literature often assumes that access to advanced technological infrastructure is a prerequisite for meaningful innovation (George et al., 2012). However, the case illustrates that internal engineering capability can substitute for formal research and development systems. By designing and modifying bonding machinery in-house, the firm reduced import dependency, minimised downtime, and improved operational flexibility. These outcomes directly enhance economic sustainability by stabilising production continuity and reducing financial vulnerability. At the same time, the extension of equipment life cycles and avoidance of full-system replacement indirectly contribute to environmental sustainability through reduced material consumption. Importantly, these internally driven innovation processes are supported by HRM-related mechanisms such as employee skill development, experiential learning, and knowledge retention. The involvement of employees in machine design, modification, and problem-solving reflects the role of HRM in facilitating capability development and sustaining innovation within the organisation.

The second finding regarding niche opportunity recognition extends entrepreneurship theory by linking market foresight with sustainable competitiveness. Visionary entrepreneurship enabled the firm to move beyond mass subcontracting toward specialised bonded apparel markets. This strategic repositioning reduced exposure to intense price competition and enabled long-term export stability. From a Triple Bottom Line perspective, this strengthens economic sustainability by creating differentiated value propositions and protecting revenue streams. Unlike short-term reactive behaviour, the owner's decisions reflect long-term market anticipation consistent with visionary orientation (Baum et al., 1998; Kuratko et al., 2017). The integration of buyer feedback into internal experimentation further demonstrates how opportunity recognition becomes operationalised through technical adaptability. This

process also reflects HRM-supported practices, particularly employee involvement, learning, and responsiveness to external stakeholder requirements, which enable organisations to adapt and innovate effectively.

The third theme relating to resource-conscious innovation highlights how frugal and modular design practices contribute simultaneously to economic and environmental sustainability. Entrepreneurial bricolage has often been conceptualised as improvisational adaptation under constraint (Baker & Nelson, 2005). However, the evidence suggests that in this case, bricolage evolved into a structured innovation logic aligned with long-term sustainability objectives. Modular machine construction reduced material waste, minimised production interruptions, and enhanced system flexibility. These outcomes contribute directly to environmental efficiency and operational resilience. Moreover, the involvement of internal technicians in continuous modification processes enhanced skill development and knowledge retention, indirectly supporting social sustainability within the Triple Bottom Line framework. Such outcomes further highlight the importance of HRM functions in sustaining innovation, particularly through continuous learning, employee empowerment, and the development of internal competencies.

Taken together, the three themes reveal that visionary entrepreneurship functions as an activating force that aligns internal innovation mechanisms with sustainability outcomes. Rather than viewing sustainability as a separate strategic objective, the firm embedded sustainability within everyday operational decisions. Innovation became the medium through which economic resilience and environmental efficiency were achieved simultaneously. This integration challenges dominant sustainability narratives that prioritise formal compliance systems or large-scale green investments. Instead, the case demonstrates that sustainable industrial development in emerging economies may emerge through internally driven innovation practices guided by long-term entrepreneurial vision. The findings therefore extend the Triple Bottom Line framework by illustrating how sustainability dimensions can be activated through constraint-based innovation mechanisms within SMEs. In addition, the study contributes to HRM literature by demonstrating that human resource-related processes are not peripheral but central to innovation and sustainability in SMEs. The findings indicate that HRM acts as an enabling mechanism that translates visionary intent into operational outcomes through people, skills, and knowledge systems.

Emergent Conceptual Model

Based on the empirical findings and theoretical integration, this study proposes an emergent conceptual framework titled the Vision-Driven Sustainable Innovation Model. The model explains how visionary entrepreneurship activates internal innovation mechanisms that generate Triple Bottom Line outcomes and ultimately produce sustainable competitive advantage in resource-constrained SME environments. In addition, the model incorporates HRM as a central enabling and mediating mechanism that supports the translation of visionary intent into sustainable innovation outcomes through people, skills, and organisational processes.

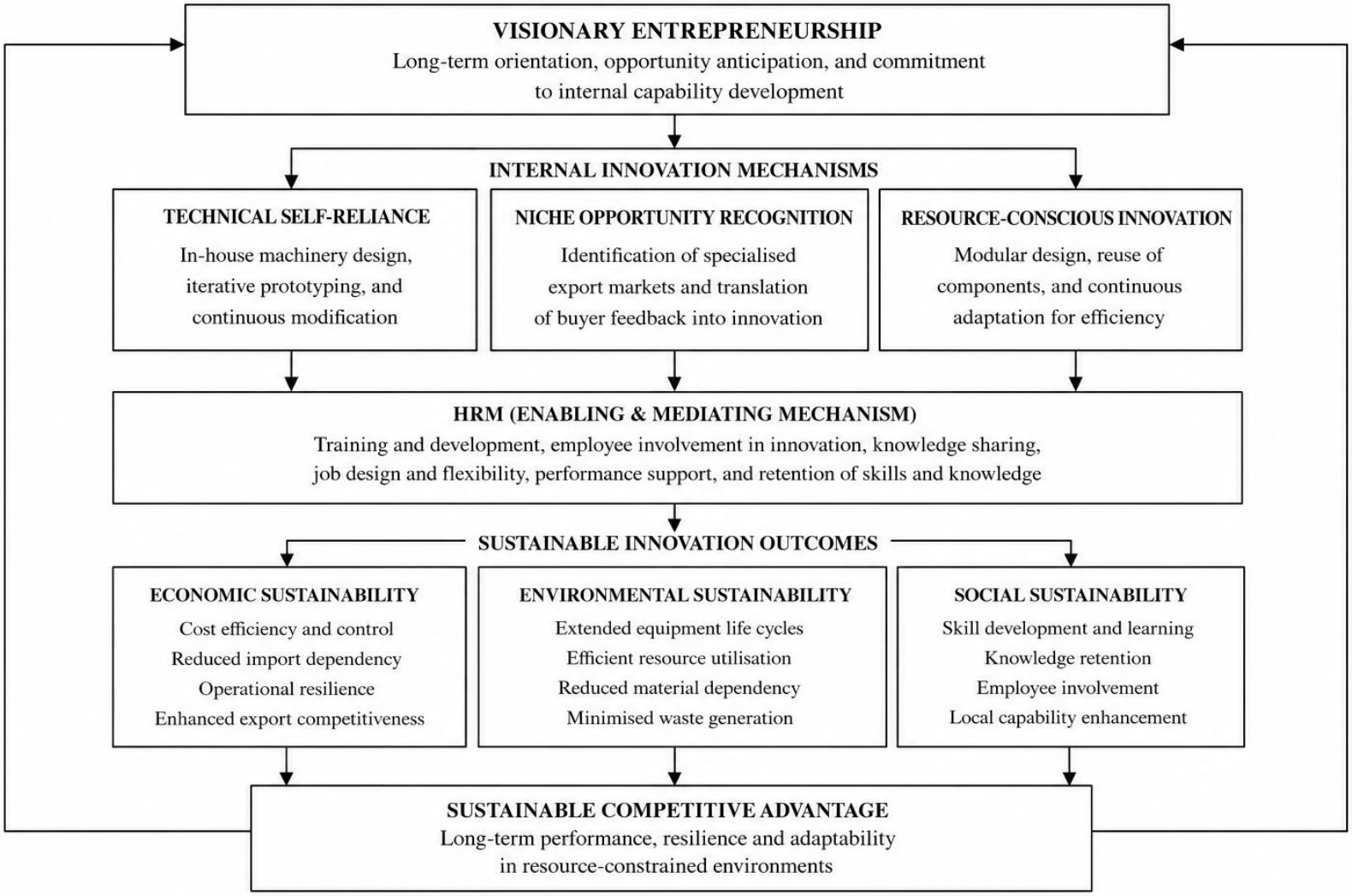
The model begins with visionary entrepreneurship as the foundational driver. Visionary orientation is characterised by long-term thinking, proactive opportunity anticipation, and commitment to internal capability development. This orientation activates three interrelated internal innovation mechanisms identified in the findings: technical self-reliance, niche opportunity recognition, and resource-conscious innovation practices. HRM functions operate across these mechanisms by facilitating employee skill development, training, knowledge sharing, and employee involvement in innovation processes, thereby strengthening internal capability building.

Technical self-reliance enables firms to develop internal engineering capabilities, reducing dependency on external suppliers and enhancing economic resilience. Niche opportunity recognition allows firms to reposition strategically within specialised export markets, strengthening long-term competitiveness. Resource-conscious innovation practices promote modularity, reuse, and continuous adaptation, thereby improving environmental efficiency and operational sustainability. Through HRM-supported processes, these innovation mechanisms are effectively implemented and sustained within the organisation.

These three mechanisms collectively generate sustainable innovation outcomes that align with the Triple Bottom Line dimensions. Economic sustainability is achieved through operational resilience, cost control, and export competitiveness. Environmental sustainability emerges through reduced material dependency, extended equipment life cycles, and waste minimisation. Social sustainability develops indirectly through internal skill enhancement and knowledge retention. HRM plays a critical role in strengthening these outcomes by ensuring continuous learning, employee engagement, and the development of organisational capabilities necessary for long-term sustainability.

The integration of these sustainability outcomes ultimately leads to sustainable competitive advantage, defined as the firm's ability to maintain long-term performance and resilience within constrained environments. The model therefore illustrates a sequential but interconnected pathway from visionary orientation to sustainable industrial performance.

Figure 1: Vision-Driven Sustainable Innovation Model with HRM



The Vision-Driven Sustainable Innovation Model with HRM (Figure 1) illustrates how visionary entrepreneurship functions as the foundational driver of sustainable industrial innovation within resource-constrained SME environments. The model is derived directly from the empirical findings and interpreted through the Triple Bottom Line framework. In this model, HRM is positioned as an enabling and mediating system that operates across all innovation mechanisms, supporting their effective implementation.

At the top of the model, visionary entrepreneurship represents the initiating force. Visionary orientation is characterised by long-term strategic thinking, proactive opportunity anticipation, and a commitment to developing internal capabilities rather than depending on external systems. This orientation shapes organisational decision-making and influences how constraints are interpreted and managed.

Visionary entrepreneurship activates three interconnected internal innovation mechanisms. The first mechanism, technical self-reliance, reflects the deliberate development of in-house machinery design and iterative prototyping capacity. This mechanism reduces technological dependency and strengthens operational control. The second mechanism, niche opportunity recognition, captures the entrepreneur's ability to identify specialised export markets and translate buyer feedback into internal innovation. The third mechanism, resource-conscious innovation, reflects frugal engineering practices, modular system construction, and continuous reuse of components. HRM supports these mechanisms through practices such as training and development, employee involvement in innovation activities, knowledge sharing, and job design, ensuring that human capabilities are aligned with innovation processes.

These three mechanisms collectively generate sustainable innovation outcomes. Economic sustainability emerges through cost efficiency, reduced import dependency, enhanced export competitiveness, and operational resilience. Environmental sustainability develops through extended equipment life cycles, minimised waste, and efficient resource utilisation. Social sustainability is strengthened through internal skill development, knowledge retention, and local capability enhancement. The integration of HRM ensures that these outcomes are not incidental but systematically supported through people management practices, thereby enhancing the sustainability of innovation processes.

The integration of these sustainability outcomes ultimately produces sustainable competitive advantage, defined as the firm's ability to maintain long-term performance stability within structurally constrained environments. The model therefore demonstrates a sequential and reinforcing relationship between visionary entrepreneurial orientation, internally embedded innovation mechanisms, Triple Bottom Line outcomes, and enduring industrial resilience.

Conclusion

This study examined how visionary entrepreneurship enables sustainable industrial innovation within a resource-constrained SME operating in Sri Lanka's apparel sector. By adopting a qualitative case study approach and interpreting the findings through the Triple

Bottom Line framework, the research provides a contextualised understanding of how sustainability can emerge through internally embedded innovation practices rather than through formal research and development systems. The findings demonstrate that visionary entrepreneurship acts as the foundational driver of sustainable innovation. The owner's long-term orientation, proactive strategic intent, and commitment to internal capability development shaped the firm's innovation trajectory. Rather than perceiving constraints as barriers, the firm interpreted them as opportunities to develop technical self-reliance, reposition in specialised export niches, and embed resource-conscious production practices. These mechanisms collectively contribute to economic sustainability by enhancing operational resilience, reducing import dependency, stabilising export revenue, and lowering capital intensity. Environmental sustainability is supported through modular machinery design, component reuse, and extended equipment life cycles, which reduce material waste and improve production efficiency, while social sustainability emerges through internal skill development and knowledge retention within the firm. Importantly, these outcomes are supported by HRM-related processes, including employee skill development, knowledge sharing, and employee involvement in innovation activities, which enable the effective implementation and continuity of these innovation practices.

The study contributes to the literature by integrating visionary entrepreneurship, resource-constrained innovation, and the Triple Bottom Line framework within a single analytical perspective, thereby extending entrepreneurship theory by demonstrating how internally driven innovation mechanisms contribute to sustainability outcomes in SMEs operating in developing economies. In addition, the study advances HRM literature by positioning Human Resource Management as an enabling and mediating mechanism that translates entrepreneurial vision into operational innovation and sustainability outcomes. The proposed Vision-Driven Sustainable Innovation Model with HRM integration offers a context-sensitive theoretical framework that enhances understanding of how sustainability is achieved through people-driven innovation processes in SMEs. From a managerial and practical perspective, the findings suggest that SME leaders should prioritise internal capability development, continuous learning, and employee involvement as key drivers of innovation and sustainability. Rather than relying solely on external technologies or formal R&D systems, firms can achieve sustainable outcomes by leveraging internal knowledge, encouraging experimentation, and fostering adaptive problem-solving practices. The study also highlights the importance of HRM in supporting these processes through training, knowledge sharing, and employee engagement. Furthermore, policymakers and development agencies should recognise the value of internally generated innovation capabilities in SMEs, as supporting skill development, technical learning, and niche market positioning may be more effective than focusing exclusively on external technology transfer.

Despite these contributions, the study is subject to several limitations. It is based on a single-case study within one industry and national context, which does not allow for statistical generalisation to a wider population. However, the purpose of this study is analytical generalisation, where the findings contribute to the development and extension of theoretical constructs related to visionary entrepreneurship, innovation, and sustainability

(Yin, 2018). In addition, although HRM-related processes such as skill development, knowledge sharing, and employee involvement were evident in the findings, the absence of a dedicated HR Manager as a respondent limits the depth of direct HRM analysis. Future research could incorporate multiple cases and include specialised HR respondents to further examine the role of HRM in enabling sustainable innovation. Moreover, the study relies primarily on qualitative data, which, while rich in contextual insight, may benefit from complementary quantitative validation in future studies to strengthen the generalisability of the relationships identified. Overall, this research affirms that sustainable industrial development in emerging economies can be driven from within, where visionary entrepreneurship, when aligned with internal innovation capability and resource-conscious design, can transform constraints into pathways for resilience, efficiency, and long-term competitiveness through the effective mobilisation and management of human resources.

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Ethical considerations:
The University of Kelaniya Ethics Review Committee at Kelaniya University Sri Lanka approved our interviews (approval: UOK/ERC/CM /2024/027) on September, 30, 2024. Respondents gave written consent for review and signature before starting interviews.

Consent to participate:
Informed consent was obtained verbally before participation. The consent was audio-recorded in the presence of an independent witness.

Consent for publication:
Informed consent for publication was provided by the participant.

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Data availability:
All data generated or analyzed during this study are included in this published article