Triple Bottom Line Reporting Practices and Sustainability Perceptions Among Small Manufacturing Enterprises in an Emerging Economy

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Abstract - Small manufacturing enterprises play a disproportionately large role in the South African economy relative to their size, yet the translation of the triple bottom line (TBL) concept into everyday reporting practice among these firms remains limited. This paper examines how small manufacturing enterprises in KwaZulu-Natal (KZN), South Africa, perceive and apply the TBL concept as a reporting tool, and identifies the barriers and enablers that shape the extent of its adoption. The study followed a quantitative, positivist survey design. A structured online questionnaire was administered to small manufacturing enterprises registered with the Durban Chamber of Commerce and Industry NPC. From a population of 1,050 enterprises, a sample of 450 was drawn through stratified probability sampling using Cochran's formula with Yamane's finite population correction, yielding 380 usable responses (84.4% response rate). Data were analysed using descriptive statistics, Cronbach's alpha reliability testing, correlation analysis and chi-square tests of association. A majority of respondents (61.6%) associate TBL reporting with improved profitability, and 70.8% believe it supports long-term profitability. The absence of standardised reporting guidelines (56.1%) and constrained financial and human resources (42.9%) are the most significant barriers to adoption, while a lack of awareness of the TBL concept (40.3%) is the most commonly anticipated implementation challenge. Just over half of respondents (52.4%) regard the economic, social and environmental dimensions as equally important, rather than prioritising any single pillar. Government incentives (55.8%), access to funding (46.0%) and collaboration with larger corporations (52.9%) emerge as the principal enablers of adoption. The study contributes to the Environmental Management Accounting literature by providing empirical evidence on TBL reporting perceptions among small manufacturing enterprises in an under-researched emerging-economy setting, and offers guidance to policymakers, business-support agencies and larger corporations on the support mechanisms needed to mainstream TBL reporting among resource-constrained enterprises.

Keywords - triple bottom line, sustainability reporting, small manufacturing enterprises, environmental management accounting, KwaZulu-Natal

I. INTRODUCTION

Small manufacturing enterprises occupy a disproportionately large place in the South African economy relative to their size, accounting for close to half of national employment, roughly a fifth of gross domestic product, and about six percent of total corporate tax receipts [45]. Reference [43] situates these enterprises at the centre of the National Development Plan 2030, which relies on small business growth to drive job creation and broaden participation in the economy. Their contribution is not limited to output and taxation; small manufacturing enterprises are frequently the source of new products, services and business models that, through a multiplier effect, generate further employment and raise local consumption [46], [6]. The scale of this contribution nevertheless differs across countries and sectors, shaped by the particular conditions in which enterprises operate.

A persistent difficulty is that a large proportion of these enterprises do not survive their first year of operation [44], with South African failure rates estimated at close to seventy percent [35]. The literature attributes this fragility to a familiar cluster of constraints: weak managerial and planning capability, limited industry experience, difficulty attracting and retaining skilled staff, restricted access to finance, and inadequate digital infrastructure [29], [2], [7], [36], [12], [13], [1], [15], [8], [30], [33], [43], [26]. Layered onto these long-standing operational pressures is a newer expectation: that businesses, regardless of size, account for their environmental and social footprint alongside

their financial results. Large organisations have responded by investing more heavily in sustainable business practice, partly in response to stakeholder pressure [3]. Awareness of sustainability has consequently broadened, yet its translation into practice among small manufacturing enterprises remains limited, largely because these firms lack the slack resources that larger organisations can devote to environmental and social initiatives.

This paper argues that small manufacturing enterprises can no longer treat sustainability as optional. Competitive markets increasingly require environmentally and socially responsible conduct as a condition of reputation and continued trading [3], and the efficient use of scarce resources is itself a precondition for operating without compromising the ability of future generations to meet their own needs [20]. Over the past two decades, the triple bottom line (TBL) concept has become the dominant framework through which accounting and management scholarship approaches this challenge, evaluating enterprise performance jointly across economic, social and environmental criteria [5]. Against this backdrop, the present paper examines how small manufacturing enterprises in KwaZulu-Natal (KZN) perceive the TBL concept as a reporting tool and identifies the barriers and enablers that condition its adoption in day-to-day practice. Section II reviews the literature on the TBL concept and its relevance to small manufacturing enterprises. Section III sets out the research methodology, Section IV presents the findings, Section V discusses these findings, and Section VI concludes with recommendations.

II. LITERATURE REVIEW

A. Innovation, Sustainability and Small Manufacturing Enterprises

Innovation is widely regarded as integral to how organisations reconcile the competing demands of the economic, social and environmental pillars of sustainability [21]. Firms that innovate tend to use energy and resources more efficiently, a pattern that benefits both operating costs and the environment [17]. Reference [22] treat innovation as central to organisational success and call for further empirical work on this relationship in the specific context of small manufacturing enterprises. Sustainability itself has become a prominent theme in South African business discourse [5], though its visibility has so far been concentrated in the development sector and among large corporates. Reference [37] note that interest in the effect of TBL on small manufacturing enterprise performance intensified after the Covid-19 pandemic.

Even so, [38] observe that the relationship between innovation and sustainability, and its consequences for enterprise growth, remains under-researched. Much of the existing work on small manufacturing enterprise sustainability and performance has isolated either the economic or the environmental pillar of the TBL, without treating the three dimensions jointly [9], [23], [4], [11], [32], [34]. Reference [40] similarly point to the scarcity of scholarship on small manufacturing enterprise sustainability in developing countries, South Africa included. This gap is consequential given that South African small manufacturing enterprises fail at a rate of close to seventy percent within their first year of trading [35], and that, being comparatively less productive per unit of output, they are collectively responsible for a disproportionate share of pollution [39]. Understanding how these enterprises engage with the TBL concept is therefore a useful entry point for identifying both the drivers of their fragility and the levers available to improve their growth and performance.

B. The Triple Bottom Line Concept

Since [14] introduced it, the TBL concept has occupied a central place in sustainability discourse, offering an alternative to the narrowly profit-centred view of organisational performance that preceded it. Reference [14] proposed that sustainable business conduct be judged across three interdependent dimensions, economic, environmental and social, on the reasoning that financial performance alone is an incomplete and, over the long run, misleading measure of organisational viability. For small manufacturing enterprises operating in KZN, a province marked by pronounced socio-economic disparity and environmental vulnerability, the TBL concept offers a particularly apt lens through which to examine sustainability performance.

Reference [14] developed this argument in a seminal text on the triple bottom line of twenty-first century business, contending that organisations seeking durable legitimacy and competitiveness would need to account for performance beyond conventional financial reporting. The claim amounted to a direct challenge to the shareholder-primacy model that had until then dominated managerial and accounting thought [19], recasting environmental and

social performance as constitutive of organisational sustainability rather than as peripheral corporate social responsibility add-ons. The formulation has attracted both elaboration and critique, with several scholars raising the conceptual and methodological difficulty of operationalising the social and environmental pillars in a manner commensurable with financial measurement [31], [28]. Even so, the TBL concept continues to shape both academic inquiry and practitioner-oriented sustainability frameworks, owing to its intuitive tripartite structure and its adaptability to different organisational contexts.

C. TBL and Small Manufacturing Enterprises in KwaZulu-Natal

The relevance of the TBL concept to small manufacturing enterprises in KZN follows from the structural conditions that distinguish these firms from larger, better-resourced organisations. Small manufacturing enterprises typically operate with constrained access to capital, limited managerial capacity and reduced economies of scale [16], yet remain closely embedded in local economic and ecological systems, so that the externalities of their operations tend to be concentrated locally rather than dispersed. Within the economic dimension, the TBL concept draws attention to resource use and financial management practices that extend beyond short-term liquidity toward longer-term resilience. The environmental dimension carries particular weight in this setting given KZN's documented exposure to climate-related risk, including recurrent flooding and worsening water scarcity [27], which makes the environmental conduct of manufacturing firms a matter of immediate regional consequence rather than an abstract global concern. The social dimension foregrounds labour practices, community engagement and employment creation, issues that carry particular weight in a province marked by persistently high unemployment and entrenched inequality [41].

Taken together, the TBL concept does not treat environmental and social performance as a constraint on profitability but reframes sustainability as a precondition for continued economic viability [25]. For small manufacturing enterprises operating in resource-constrained and socially complex settings such as KZN, integrating the economic, environmental and social dimensions is therefore not simply a normative aspiration but a material determinant of organisational resilience, stakeholder legitimacy and competitive standing in markets that are becoming steadily more accountability-driven.

III. METHODOLOGY

This study followed a quantitative research design situated in the positivist tradition, aimed at establishing how small manufacturing enterprises perceive and apply the TBL concept as a reporting tool. Data were collected using a structured questionnaire administered online through Google Forms. The target population comprised 1,050 small manufacturing enterprises registered with the Durban Chamber of Commerce and Industry NPC, from which a sample of 450 enterprises was drawn using stratified probability sampling. Of the 450 questionnaires distributed, 380 were completed and returned, a response rate of 84.4%, which exceeds the 80% threshold generally regarded as acceptable in quantitative survey research [18].

Sample size was calculated using Cochran's formula [10]:

$$n = Z^2P(1-P) / e^2$$

where n is the required sample size, Z is the standard score associated with the chosen confidence level (1.96 for 95% confidence), P is the estimated proportion of the population possessing the characteristic of interest (set at 0.80 in the absence of prior population estimates), and e is the acceptable margin of error (0.05). This formula is well established for determining sample sizes in finite populations with a known or estimated proportion and has been used extensively in survey-based organisational research [24].

Because the sampling frame was relatively bounded, the resulting sample size was adjusted using Yamane's finite population correction [47]:

$$n_0 = n / (1 + (n-1)/N)$$

where n_0 is the corrected sample size, n is the sample size derived from Cochran's formula, and N is the total population (1,050). This correction calibrated the sample size to the known finite population of registered enterprises, rather than relying on an estimate more suited to an infinite population.

The questionnaire elicited responses on how small manufacturing enterprises understand and apply the economic, environmental and social dimensions of the TBL concept in daily operations. Before distribution, the instrument was content validated by two academic specialists in accounting and sustainability and piloted with a small subset of respondents to check clarity, relevance and internal consistency, following which minor adjustments were made. The comparatively high response rate obtained is attributable in part to the active facilitation of the Durban Chamber of Commerce and Industry, which encouraged its member enterprises to participate; this institutional backing is also likely to have strengthened the perceived legitimacy of the study among respondents.

To limit data collection bias, the questionnaire was administered solely by the researcher, ensuring consistency in how the instrument was presented and explained to participants. Internal reliability was assessed by grouping items intended to measure the same underlying construct and computing Cronbach's alpha for each group, consistent with established practice [42]. Correlation analysis was then applied to the grouped items to examine the relationships among the economic, environmental and social dimensions, together with descriptive and cross-tabulation analysis to characterise perceptions, barriers and enablers of TBL reporting; associations between categorical variables were tested using chi-square statistics.

IV. FINDINGS

A. Perceptions of TBL Reporting

This section reports how small manufacturing enterprises in the sample understand and evaluate the TBL concept as a reporting tool, before turning to their views on the underlying importance of the three sustainability pillars, the challenges they anticipate in implementation, and the strategies and enablers they associate with successful adoption.

Table 1: Perceptions of the TBL Concept as a Reporting Tool for Small Manufacturing Enterprises *(own compilation)*

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I believe that integrating TBL reporting will positively impact our enterprise's profitability	10.5%	13.9%	13.9%	26.3%	35.3%
Lack of standardised TBL reporting guidelines makes adoption challenging	23.4%	4.5%	6.8%	9.2%	56.1%
I understand how TBL reporting can contribute to assessing enterprise profitability	5.3%	19.5%	19.5%	31.3%	24.5%
I am familiar with the TBL concept as a reporting tool	18.2%	9.7%	13.7%	15.8%	42.6%
I believe TBL reporting will significantly contribute to the long-term sustainability of the enterprise	10.8%	5.5%	33.7%	12.1%	37.9%
TBL reporting is a valuable tool for evaluating the enterprise's financial performance	5.5%	9.7%	42.9%	15.3%	26.6%
Limited resources hinder effective implementation of TBL reporting	2.4%	16.3%	42.9%	22.1%	16.3%
TBL reporting helps identify opportunities for cost savings and efficiency improvements	1.8%	28.2%	23.9%	31.3%	14.7%
TBL reporting enhances understanding of the financial implications of social and environmental practices	19.5%	15.8%	16.1%	20.8%	27.9%

All chi-square p-values reported for Table 1 were significant at $p < 0.001$, with the exception of the item on financial implications of social and environmental practices ($p = 0.001$).

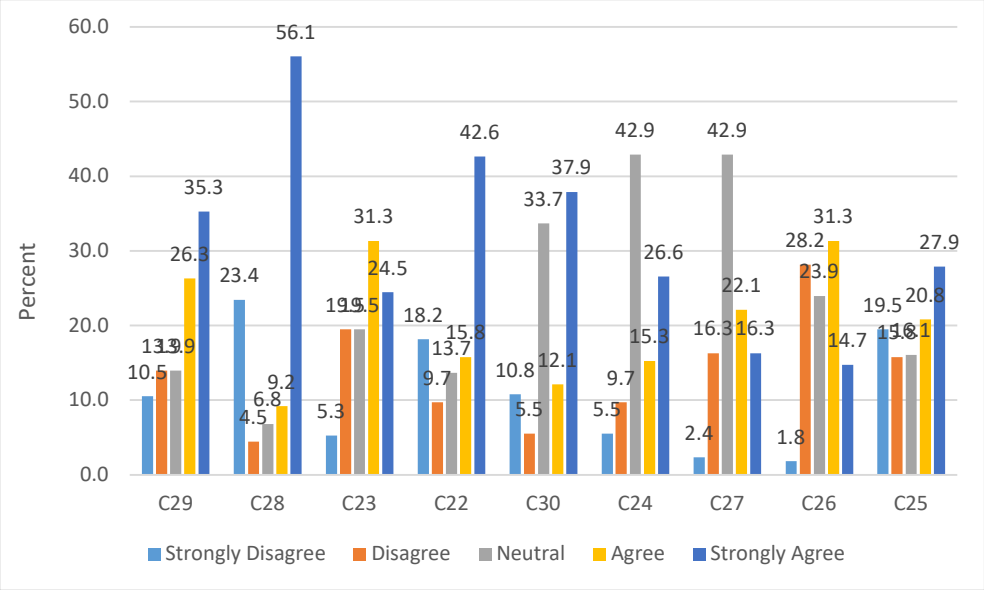

Figure 1: The Significance of the TBL Concept as a Reporting Tool *(own compilation)*

Two broad patterns emerge from Table I and Fig. 1. The first concerns the perceived benefits of TBL reporting and the extent of its adoption. A majority of respondents view TBL reporting favourably: 61.6% agree or strongly agree that it positively affects profitability, and 50.0% agree or strongly agree that it contributes to long-term sustainability. Familiarity with the concept is moderately high, with 58.4% of respondents reporting some degree of familiarity with the TBL concept and 42.6% regarding it as a valuable tool for evaluating financial performance. Set against this, the absence of standardised reporting guidelines is the single most strongly endorsed constraint, with 56.1% of respondents strongly agreeing that this limits adoption, while uncertainty about the financial implications of TBL reporting is reflected in a comparatively high proportion of neutral responses (42.9%).

The second pattern concerns resource and efficiency constraints. Limited financial and human resources, together with difficulty in quantifying financial implications, constrain the ability of small manufacturing enterprises to make full use of TBL reporting: 42.9% of respondents agree that resource limitations hinder effective adoption. At the same time, 46.0% recognise the potential for cost savings and efficiency gains, although the considerable proportion of neutral responses on this item suggests either limited prior exposure to TBL reporting or continuing uncertainty about its practical benefits.

B. Importance of the Sustainability Pillars

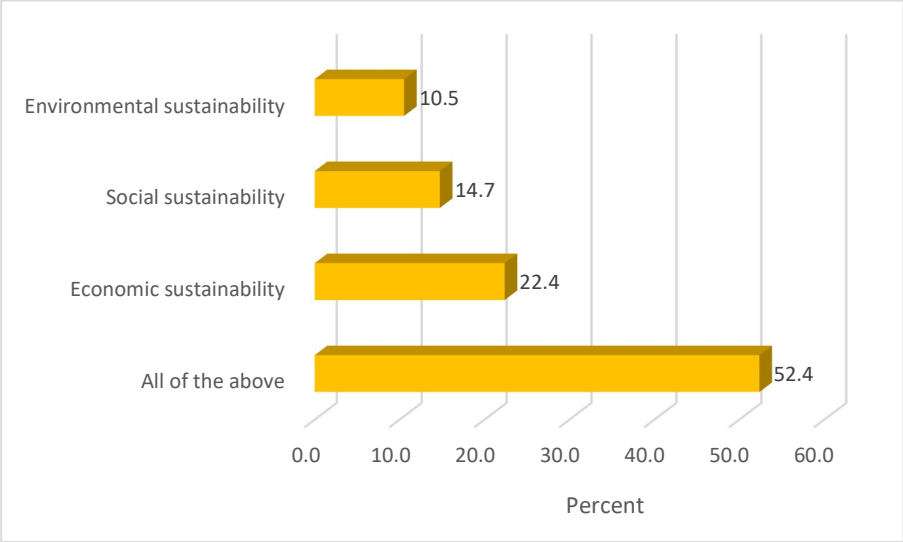

Figure 2: Aspects of Sustainability Regarded as Most Important *(own compilation)*

Fig. 2 reports which aspects of sustainability respondents regard as most important for their enterprise. Just over half (52.4%, N=199) regard the economic, social and environmental dimensions as equally important, rather than prioritising a single pillar. Among those who did prioritise, economic sustainability was the most frequently selected single dimension (22.4%, N=85), reflecting its immediate bearing on profitability and viability, followed by social sustainability (14.7%, N=56) and environmental sustainability (10.5%, N=40) ($p < 0.001$). This distribution points to a broad consensus that sustainability should be approached holistically, balancing economic goals against social responsibility and environmental stewardship, rather than as a set of competing priorities.

C. TBL as a Driver of Long-Term Profitability

TABLE II BELIEF IN THE TBL CONCEPT AS A DRIVER OF LONG-TERM PROFITABILITY (own compilation)

	Frequency	Percent
No	111	29.2
Yes	269	70.8
Total	380	100.0

A clear majority of respondents (70.8%, N=269) believe that integrating the TBL concept can support long-term profitability for their enterprise, while 29.2% (N=111) do not share this view ($p < 0.001$). This result indicates broad support for the profitability case for TBL adoption, although the sizeable minority who remain unconvinced suggests that further evidence or demonstrable examples may be required before adoption becomes more widespread.

D. Anticipated Implementation Challenges

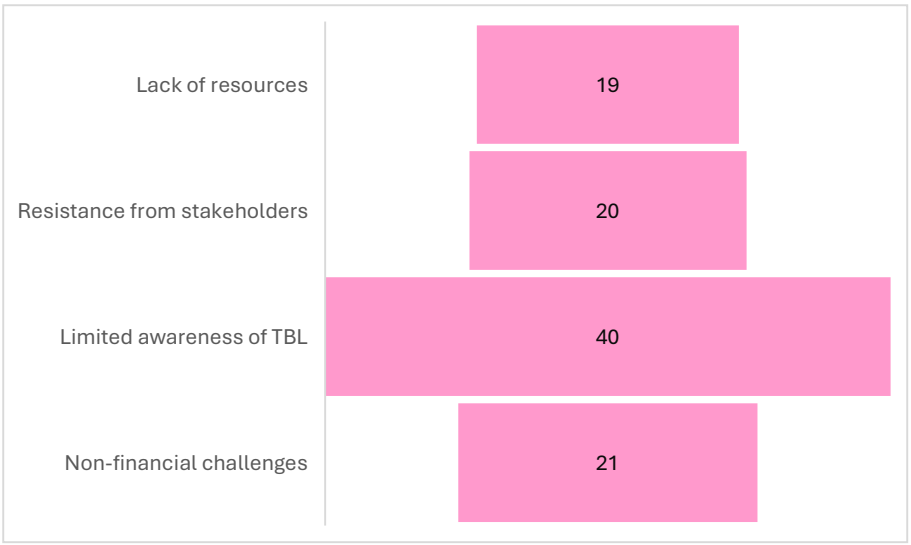

Fig. 3. Challenges anticipated in implementing the TBL concept (Authors, 2026)

Fig. 3 sets out the challenges respondents most commonly anticipate in implementing the TBL concept. A lack of awareness or understanding of the concept was the most frequently cited challenge (40.3%, N=153), ahead of difficulty in measuring non-financial impacts (21.3%, N=81), resistance from stakeholders (19.7%, N=75), and a lack of resources (18.7%, N=71). These findings point to a need for education and capacity-building initiatives that improve awareness and understanding of the TBL concept, alongside measures that address resource constraints, stakeholder engagement, and the measurement of non-financial outcomes.

E. Strategies for Effective Implementation

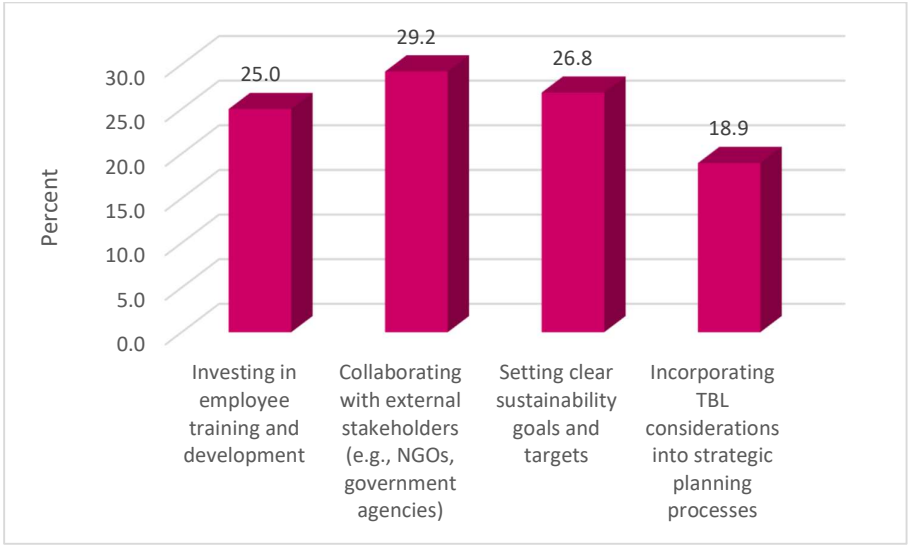

Fig. 4. Strategies for effectively implementing the TBL concept (Authors, 2026)

Fig. 4 reports the strategies respondents most frequently associate with effective TBL implementation. Collaboration with external stakeholders, including non-governmental organisations and government agencies, was the most frequently suggested strategy (29.2%, N=111), followed by setting clear sustainability goals and targets (26.8%, N=102), investing in employee training and development (25.0%, N=95), and incorporating TBL considerations into strategic planning processes (18.9%, N=72) ($p = 0.032$). These results suggest that partnership-

building, the setting of measurable objectives, and investment in employee capability are regarded as the more practical routes through which small manufacturing enterprises can pursue TBL adoption.

F. Respondent Profile

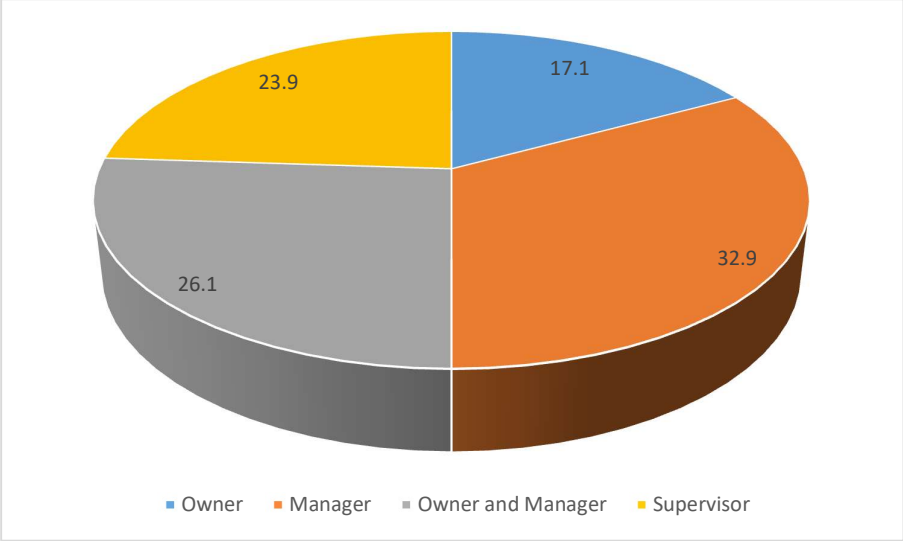

Fig. 5. Position of respondents within the enterprise (Authors, 2026)

Fig. 5 reports the distribution of respondents by position within the enterprise. Managers form the largest group (32.9%, N=125), followed by respondents holding a combined owner-manager role (26.1%, N=99), supervisors (23.9%, N=91), and owners (17.1%, N=65) ($p < 0.001$). This composition indicates that the responses captured in this study are drawn substantially from individuals in leadership and decision-making positions, which strengthens confidence in the relevance of their perceptions to how the TBL concept is understood and applied within small manufacturing enterprises.

G. Summary of Findings

Taken together, the findings indicate that small manufacturing enterprises face material challenges in adopting the TBL concept, with limited awareness, financial constraints, and stakeholder resistance emerging as the most prominent barriers. These results are broadly consistent with [35], who reported a failure rate of close to seventy percent among South African small manufacturing enterprises within their first year of operation, attributable in part to limited awareness and financial constraints. A substantial proportion of respondents in this study identified financial burdens (52.9%) and stakeholder resistance (47.7%) as critical impediments, while insufficient expertise (61.6%) and limited access to sustainable technologies (58.9%) were seen to further restrict TBL integration. Balancing short-term profitability against long-term sustainability (63.5%) and navigating regulatory complexity (53.4%) were also identified as significant constraints.

Set against these barriers, the findings also point to clear opportunities. Financial and strategic enablers, including access to funding (46.0%), collaboration with larger corporations (52.9%), and government incentives (55.8%), were widely endorsed, as were institutional and knowledge-based supports such as sustainability training (38.7%) and investment in TBL initiatives (53.7%). The overall picture is one of a dual narrative: while small manufacturing enterprises in KZN face genuine barriers to implementing the TBL concept, there are also substantial and identifiable opportunities to address these barriers through targeted support, strategic partnerships, and resource provision.

V. DISCUSSION OF FINDINGS

The findings offer insight into how small manufacturing enterprises in KZN regard the TBL concept as a tool for pursuing sustainability. While barriers such as limited access to expertise, financial pressure, and regulatory complexity continue to constrain adoption, the data also point to clear and actionable opportunities. The

comparatively strong endorsement of government incentives, funding availability, and collaboration with larger firms suggests that small manufacturing enterprises are not only aware of the benefits associated with sustainability but are also receptive to TBL-aligned practices where the appropriate support exists. The association between these enabling factors and reported adoption intentions was statistically significant, indicating that such support mechanisms are not merely perceived as helpful in the abstract but are meaningfully linked to greater readiness to adopt sustainable practices.

The results further point to the value of targeted training programmes that build awareness and practical capacity around TBL implementation. Although a considerable share of respondents remained neutral on items relating to training, this pattern is consistent with limited prior exposure rather than active disagreement and suggests that greater access to formal sustainability training could support further adoption. The relatively strong agreement on the long-term resilience benefits associated with TBL adoption also indicates that small manufacturing enterprises recognise its strategic value, even where short-term operating constraints take precedence in practice. In sum, the study suggests a promising interplay between institutional support, financial incentives, and strategic alignment, one capable of helping small manufacturing enterprises move past existing barriers and engage more substantively with the TBL concept. Policymakers, business-support agencies, and larger corporations each have a role to play in making sustainability more accessible, practical, and worthwhile for smaller enterprises. Where these opportunities are pursued deliberately, the TBL concept has the potential to move beyond a normative ideal and become a workable guide for sustainable growth within the small manufacturing sector.

VI. CONCLUSION

The study highlighted the high level of market and resource pressure experienced by small manufacturing enterprises in KZN, South Africa, and the need for these enterprises to embed sustainability more fully into their reporting and operating practices. The findings show that fixed, narrowly financial approaches to performance evaluation are still common, yet using the TBL concept results in a more complete and accurate picture of enterprise performance. Given the fast-paced, accountability-driven environment in which small manufacturing enterprises now operate, adopting TBL reporting is increasingly a matter of competitive necessity rather than choice. Shareholder and owner expectations, which remain heavily weighted toward short-term financial performance, together with limited resources and regulatory complexity, may continue to constrain the full adoption of TBL reporting systems.

The overall findings indicate that many small manufacturing enterprises in KZN are utilising elements of TBL thinking informally or partially, even where they do not label it as such. A key finding was that a majority of respondents recognise the profitability and long-term sustainability benefits of TBL reporting, even though awareness, standardisation, and resource constraints continue to limit its formal adoption. The benefits identified by respondents included improved accuracy of performance evaluation, enhanced strategic and operational management, and the identification of cost-saving opportunities. Challenges identified included a lack of awareness and expertise, the absence of standardised reporting guidelines, constrained financial and human resources, and difficulty quantifying non-financial impacts. While the adoption of TBL reporting offers significant advantages for small manufacturing enterprises, it is essential to establish supportive mechanisms, including training, funding access, and collaboration with larger corporations and government agencies, to enable its wider and more formal adoption.

A. Limitations of the Study

This study is subject to limitations that bear on the interpretation of its findings. The geographical scope was confined to small manufacturing enterprises registered with the Durban Chamber of Commerce and Industry in KZN. This focus allowed for an in-depth exploration of sustainability practices within a defined and substantial regional business network, but it correspondingly limits the extent to which the findings can be generalised to other provinces or regions within South Africa, or beyond. The socio-economic, cultural and regulatory environment of KZN, together with the specific characteristics of enterprises affiliated with the Durban Chamber of Commerce and Industry, may differ considerably from those found elsewhere, and the results should accordingly be applied with caution to small manufacturing enterprises operating in different geographical or institutional contexts. These

limitations do not, however, detract from the contribution the study makes to the existing body of knowledge on the TBL concept and small manufacturing enterprise sustainability.

B. Implications and Recommendations

The implications of the study span theoretical, policy and practical dimensions relevant to a range of stakeholders. From a theoretical standpoint, the findings support the applicability of the TBL concept in understanding the dynamics of small manufacturing enterprise growth within emerging economies, confirming that sustainability functions as a pragmatic strategy with direct operational consequences rather than merely a conceptual ideal. The findings affirm that economic viability, environmental responsibility and social equity are not separate trajectories but integrated components that, when harmonised, strengthen the competitiveness and resilience of small manufacturing enterprises.

On the basis of these findings, several recommendations follow for small manufacturing enterprises seeking to strengthen their sustainability practices and support long-term growth. Enterprises should integrate the economic, environmental and social dimensions of the TBL concept into their core business strategies, an approach that allows profitability to be balanced against responsible resource use and social equity, thereby improving competitiveness and resilience. In practical terms, this includes adopting energy-efficient technologies and resource-saving processes that lower operating costs while reducing environmental impact, and investing in employee welfare and skills development to build a motivated and productive workforce. Small manufacturing enterprises are further encouraged to establish internal systems for monitoring sustainability performance, which support the tracking of progress and the identification of areas for continuous improvement, and to engage proactively with local communities and stakeholders in ways that strengthen social legitimacy and contribute to a more supportive operating environment.

C. Recommendations for Future Research

The findings and limitations of this study point to several avenues for future research on sustainability and small manufacturing enterprise growth. Longitudinal research designs are recommended to capture how sustainability practices evolve over time and how this evolution affects enterprise performance, offering richer insight into the causal relationships and dynamic interplay among the economic, environmental and social dimensions within small manufacturing enterprises. Future studies could also extend the geographical scope beyond KZN to other South African provinces or comparable emerging economies, which would strengthen the generalisability of findings and support comparative analyses capable of identifying regional variation and the contextual factors that shape sustainability adoption and business growth.

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