

**MEASURING SUSTAINABLE IMPACT IN ENGINEERING CONSULTING: A REVENUE-BASED FRAMEWORK FOR OPERATIONALIZING THE UN SDGS**

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*Engineering consulting plays a pivotal role in advancing sustainable infrastructure, energy systems, and community development. However, the sector has lacked standardized, decision-useful methodologies to measure its contributions to the United Nations Sustainable Development Goals (SDGs). This paper presents a replicable, revenue-based framework to operationalize SDGs within engineering consulting, drawing on CIMA+'s implementation of SDG-driven revenue attribution. Building on the Corporate Knights Sustainable Economy Taxonomy, the framework evaluates projects against five sustainability indicators: greenhouse gas (GHG) reduction, water conservation, waste minimization, climate resilience, and contributions to Indigenous and local communities. Results from the 2024 reporting year indicate that 62.3% of CIMA+ revenues were SDG-aligned, with significant sectoral variation. Compared with existing approaches such as Ramboll's SDG Revenue Framework and EU taxonomy-based methods, the proposed model offers greater operational flexibility, inclusivity, and integration with internal financial systems. The paper discusses methodological limitations, uncertainty, and data constraints, and outlines directions for future research, including impact quantification and cross-sector benchmarking.*

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## 1. Introduction

The adoption of the United Nations 2030 Agenda for Sustainable Development marked a vital moment in aligning global development ambitions across social, environmental, and economic dimensions (United Nations, 2015; Sachs et al., 2022). While governments remain central actors, the private sector—particularly engineering and infrastructure services—plays a decisive role in translating policy ambitions into physical, operational outcomes. Recent literature has emphasized the growing expectation that firms move beyond high-level SDG

mapping toward measurable, decision-relevant indicators embedded in core business processes (Miola et al., 2019; Palau-Pinyana et al., 2023).

Despite increased uptake of ESG reporting frameworks such as GRI, TCFD, and the EU Taxonomy, significant gaps remain in linking engineering project portfolios to SDG outcomes in a consistent and auditable manner (WEF, 2020; European Commission, 2020). Prior studies note that many corporate SDG disclosures remain narrative-driven, lack comparability, or focus primarily on internal operations rather than value-chain or project-level impacts. This challenge is especially pronounced in engineering consulting, where sustainability impacts are largely realized through client projects rather than firm-owned assets.

This paper contributes to the literature by proposing and empirically testing a revenue-based framework that operationalizes SDG alignment at the project level while remaining compatible with financial reporting systems. Building on attribution theory, sustainability accounting, and inclusive development research, the study responds to calls for pragmatic yet rigorous SDG measurement tools applicable to professional services firms. The paper addresses three research questions:

- (1) How can SDG alignment be operationalized within engineering consulting using revenue As a proxy?
- (2) What insights emerge from applying this framework at firm scale?
- (3) What are the methodological strengths and limitations of such an approach relative to existing frameworks (Lisowski et al., 2023; Ramboll, 2021)?

## **2. Methodology and Framework Design**

### **2.1 Framework Rationale and Scoring Logic**

The SDG-driven revenue attribution framework evaluates each project based on its contribution to five sustainability indicators:

- (1) greenhouse gas (GHG) reduction,
- (2) water conservation,
- (3) waste minimization,
- (4) climate resilience, and
- (5) contributions to Indigenous and local communities.

Alignment scores of 0%, 25%, 50%, 75%, or 100% were selected to balance methodological rigor with usability for project managers and financial teams, consistent with SDG attribution and sustainability accounting literature (Lisowski et al., 2023; Saha et al., 2024). These discrete intervals reduce false precision while enabling differentiation between marginal, partial, and core sustainability contributions. Thresholds were calibrated through internal pilot testing and ESG committee review to reflect materiality, intent, and outcome significance.

Projects inherently aligned with sustainability outcomes—such as renewable energy, water treatment, or healthcare infrastructure—are attributed 100% alignment, consistent with established practice in sustainability taxonomies. Partial scores reflect mixed-purpose projects where sustainability outcomes are present but not primary.

## **2.2 Indigenous and Community Weighting**

Projects serving Indigenous or underserved communities receive enhanced weighting to reflect distributive equity considerations embedded in the SDGs (Bidarbakhtnia, 2025). This approach is grounded in inclusive development literature and recognizes that identical technical outcomes may generate different social value depending on context. While this introduces normative judgment, it is transparently documented and aligned with SDG principles of “leaving no one behind.”

## **2.3 Data Sources and Validation**

Project-level revenue data covering approximately 95% of total revenues were analyzed. Alignment assessments were validated through internal ESG governance processes and subject to external assurance, consistent with best practices in corporate sustainability reporting (GRI, 2021; KPMG, 2022). Sensitivity testing was conducted to assess the impact of alternative scoring assumptions on aggregate results.

## **3. Results and Comparative Discussion**

### **3.1 SDG-Aligned Revenue Outcomes**

Application of the framework to CIMA+’s 2024 project portfolio indicates that 62.3% of total revenues were classified as SDG-aligned. These results provide empirical validation of the framework’s decision usefulness and demonstrate its capacity to differentiate sustainability alignment across business sectors.

Sectoral performance revealed notable variation, reflecting both market conditions and the types of projects undertaken. Earth & Environment services exhibited the highest alignment, followed by Buildings and Infrastructure, while Energy & Resources and Transportation displayed more moderate alignment levels.

Table 1. Sectoral Revenue Alignment with SDGs (2024)

Sector	Revenue Alignment (%)	Key SDGs
Earth & Environment	90.75%	SDG 6, 13, 15
Buildings	74.49%	SDG 7, 11, 12
Infrastructure	68.91%	SDG 9, 11, 13
Energy & Resources	57.57%	SDG 7, 12, 13
Transportation	52.44%	SDG 9, 11, 13

These sectoral patterns highlight differences in sustainability maturity and opportunity across service lines, while also illustrating how revenue-based attribution can surface strategic insights not visible through operational metrics alone.

### **3.2 Outcome Linkages and Impact Interpretation**

While revenue alignment serves as a practical proxy for SDG contribution, it does not directly quantify physical impacts such as tonnes of CO<sub>2</sub> avoided or cubic meters of water saved—a limitation widely recognized in SDG measurement research (Miola et al., 2019; Sachs et al., 2022). Nevertheless, examination of highly aligned projects indicates consistent association with measurable environmental and social outcomes, including GHG reductions, improved water quality, and enhanced community resilience.

Selected project case illustrations demonstrate how the framework operates in practice. The Onimiki Hydropower Project (67 MW, Indigenous-led) achieved full alignment with SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action) by delivering renewable electricity while advancing Indigenous economic participation. The Kitcisakik Electrification Project transitioned a remote Indigenous community from diesel-based generation to clean grid-connected power, contributing to SDG 7 and SDG 10 (Reduced Inequalities). Upgrades to the North Toronto Wastewater Treatment Plant supported SDG 6 (Clean Water and Sanitation) and SDG 13 through improved treatment performance, reduced emissions, and enhanced climate resilience.

These examples illustrate how revenue-based alignment can be meaningfully linked to real-world outcomes, even where direct impact quantification remains incomplete.

### **3.3 Comparison with Existing Frameworks**

Compared with Ramboll's SDG Revenue Framework, the proposed approach places greater emphasis on inclusivity, internal governance, and equity-adjusted weighting, while offering similar advantages in financial system integration (Ramboll, 2021). Relative to the EU Taxonomy, the framework is less prescriptive but more adaptable to non-EU contexts and professional services firms, where activity-based eligibility criteria may be difficult to apply directly.

## **4. Limitations and Challenges**

Several limitations warrant discussion, consistent with prior critiques of corporate SDG measurement frameworks (Miola et al., 2019; Palau-Pinyana et al., 2023). First, revenue is an imperfect proxy for sustainability impact and may obscure efficiency differences between projects. Second, scoring and weighting decisions involve expert judgment, introducing potential bias despite governance controls. Third, cross-sector comparability remains challenging due to differing project types and impact pathways. Finally, data availability and quality vary across business units, requiring continued investment in internal systems, training, and assurance processes.

## 5. Recommendations for Future Research

Future research should focus on integrating physical impact metrics with revenue attribution to strengthen outcome linkage, testing the framework across multiple firms and regions to assess generalizability, and exploring AI-assisted attribution tools to reduce subjectivity and resource intensity. Comparative studies across consulting, construction, and infrastructure ownership models would further advance research on SDG operationalization.

## 6. Conclusion

This study demonstrates that a revenue-based framework can meaningfully operationalize the SDGs in engineering consulting while remaining compatible with financial and governance systems. By explicitly addressing methodological trade-offs, inclusivity, and uncertainty, the framework advances both academic understanding and practical application of corporate SDG measurement.

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