Accelerating the Adoption of True Sustainability: Why Firms are Delaying Adoption and How We Can Help Them

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Problem: The urgency of the climate crisis has stimulated global initiatives, most notably the United Nations Sustainable Development Goals (SDGs), which set a 2030 deadline for major progress (United Nations, 2015). Despite these ambitions, business-as-usual practices remain insufficient, particularly within the private sector, which is responsible for a substantial share of global emissions. Small and medium-sized enterprises (SMEs) in the industrial sector are especially critical: they account for the majority of enterprises globally and collectively contribute to a disproportionate share of environmental pollution (Hillary, 2003; Moore & Marnring, 2008; Sun et al., 2024). Yet, despite mounting evidence of the need for systemic transformation, most firms have failed to move toward true sustainability – defined here as the adoption of sustainable business models (SBMs) – beyond incremental sustainability initiatives such as slightly decreasing emissions and establishing recycling programs (Schaltegger, Hansen & Lüdeke-Freund, 2015; Shevchenko et al., 2016). These 'compensating' actions offset the negative impact of a firm, but do not eliminate it, leaving the problem largely intact, and merely postponing the structural changes required.

Methods and model description: This study examines why the adoption of true sustainability remains slow, despite its ethical and strategic necessity, and how targeted policies can accelerate the transition. Unlike much of the existing sustainability literature that focuses on isolated, incremental practices, this research highlights the systemic interdependencies that shape firm behaviour over time. A system dynamics approach is employed to model the feedback loops that shape firms' risk perceptions and decision-making over time. The analysis shows that while awareness of sustainability has increased significantly since the mid-twentieth century, structural adoption remains slow. Historical patterns suggest that without intervention, widespread adoption will not occur until well beyond the SDGs' 2030 target, undermining global mitigation efforts (Pagell & Shevchenko, 2013).

The model reproduces the fact that firms often perceive risks of adopting SBMs – higher costs, operational complexity, and uncertainty about outcomes – as outweighing the risks of remaining unsustainable (McDermott & O'Connor, 2002; Shevchenko et al., 2016). Compensatory actions play a central role in this dynamic. By offering a relatively low-cost and quick response to stakeholder expectations, they provide temporary legitimacy while reinforcing a balancing loop that sustains the status quo (Shevchenko et al., 2016). Only as compensatory actions lose credibility does pressure build for deeper transformation (Linton, Klassen & Jayaraman, 2007). Several reinforcing feedback loops drive eventual adoption. Peer learning reduces uncertainty as pioneering firms demonstrate the feasibility of SBMs (McDermott & O'Connor, 2002), and stakeholder pressure intensifies as environmental impacts become more visible and urgent. However, these forces take decades to overcome entrenched resistance.

Findings and discussion: Policy analysis indicates that not all interventions are equally effective in accelerating adoption. The often implemented policy of offering subsidies for compensatory measures showed to be counterproductive, as it reinforces the balancing loop and further delays structural change. More promising are policies that both increase the perceived risk of remaining unsustainable and lower the perceived risk of becoming sustainable. Awareness campaigns that highlight the severity of climate consequences raise stakeholder pressure, while critical thinking initiatives help consumers and investors identify and resist greenwashing. At the same time, subsidies or incentives targeted

specifically at SBMs reduce firms' perceived financial and operational risks, encouraging earlier adoption. Simulations suggest that combining these approaches – strengthening external pressure and reducing internal barriers – yields the most effective acceleration adoption.

The study faces limitations. It relies on conceptual modelling and soft variables rather than empirical datasets, which constrains predictive precision. Financial dynamics such as shareholder pressure and sectoral cost structures were not explicitly modelled, nor were international regulatory interactions. Future research should integrate empirical calibration, explore sectoral heterogeneity, and endogenize certain variables.

Nevertheless, the findings carry practical implications. For policymakers, they caution against rewarding superficial sustainability and underscore the need to align subsidies directly with SBM adoption. For firms, they highlight the strategic value of adopting SBMs early, before pressure intensifies, thereby securing competitive advantage and reputational gains. For stakeholders, the study affirms the importance of coordinated scrutiny and informed activism to dismantle the effectiveness of compensatory responses.

In conclusion, accelerating the adoption of true sustainability requires systemic interventions that reshape firms' perceptions of risk. Only by combining pressure that raises the costs of inaction with support that reduces the risks of transformation can firs be moved away from compensatory responses and toward genuine sustainable business models. Given the urgency of the climate crisis, such acceleration is not only desirable but essential to align private sector practices with the 2030 Agenda and the preservation of planetary boundaries.

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