



STAKEHOLDER COLLABORATION, ORGANISATIONAL TRUST, DIGITAL-GREEN CAPABILITY AND SUSTAINABLE SOCIAL IMPACT: A CONCEPTUAL FRAMEWORK FOR RESPONSIBLE COLLABORATION



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Original Article

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Abstract

Responsible sustainability programmes in India increasingly depend on collaboration among firms, public agencies, civil-society organisations, technology providers and communities, yet collaboration alone may not ensure sustainable outcomes. This conceptual paper develops a framework integrating stakeholder collaboration, organisational trust, digital-green capability and sustainable social impact to explain how collaborative efforts are converted into meaningful and lasting outcomes. Drawing on stakeholder, organisational trust, digital transformation and sustainability literature, the paper develops six propositions and advances a dual-conversion explanation in which stakeholder collaboration influences sustainable social impact directly and indirectly through two complementary parallel pathways. Organisational trust represents the relational conversion pathway by supporting credibility, acceptance and continued cooperation, while digital-green capability represents the operational conversion pathway by enabling collaborative intentions to be translated into responsible digital and environmentally sustainable action. The framework is critically compared with alternative explanations, and relevant contextual boundary conditions are identified. A future empirical design is proposed using validated measurement bases, power-oriented sampling, PLS-SEM, construct reliability and validity assessment, common-method safeguards and endogeneity checks. The framework provides a theoretically grounded and empirically testable explanation of how responsible collaboration can contribute to sustainable social impact in the Indian context.

Keywords: *Digital-Green Capability; India; Organisational Trust; Responsible Collaboration; Stakeholder Collaboration; Sustainable Social Impact*

Introduction

The sustainability agenda in India is taken forward through CSR programmes, public-service initiatives and community partnerships with various actors who have the resources and legitimacy to carry out these programmes. Firms can fund and enable the transfer of technology, public agencies can offer authority and coordination, civil-society organisations can offer field knowledge, and communities can share local knowledge. Having several partners does not guarantee quality partnerships or lasting results. Stakeholder research thus considers engagement to be a continuous dialogue, sharing knowledge and value creation [1, 2, 3, 4].

Two issues emerge when collaboration is digitally supported and environmentally focused. When intentions, competence, procedures or reporting are not trusted, partners might be reticent to take joint action. Negotiation, conflict and exchange performance can be influenced by interorganisational trust, and studies on sustainability governance demonstrate that repeated interaction and governance impact information sharing and acceptance [5, 6, 7]. Technologies

and green innovations are also not automatic. Digital tools can facilitate information and governance, but their effectiveness relies on the capacity to implement, as well as on human oversight and contextual appropriateness [8]. Indian evidence also suggests that digital transformation and climate-smart technologies go hand in hand with green innovation, sustainability practice and local compatibility [9, 10]. Digital and sustainability effects are therefore mediated or conditioned by innovation, governance and responsibility and are not automatic [11, 12, 13].

These issues are tackled by the framework via stakeholder collaboration, organisational trust, digital-green capability and sustainable social impact. Its novelty lies not in the constructs per se. Instead, a relational route of acceptance and ongoing collaboration and an operational route of collaborative intention to digital-green action are explained. Thus, trust is not an alternative to capability, and technology is not considered evidence of social change.

The Indian context brings in substantial boundary conditions. The level of development capacity and digital access also differs across states and social groups, and digitally enabled programmes must also function in the context of changing data-governance requirements [14, 15]. Different studies for UPI adoption by hawkers and Solar-PV adoption by micro entrepreneurs show that usefulness, support, awareness and local enabling conditions are important for technology adoption [16, 17]. Programmes involving data on beneficiaries from databases, platforms or automated decision systems (ADS) have relevance for the lawful handling of personal data and accountability, as per the Digital Personal Data Protection Act, 2023 and the Digital Personal Data Protection Rules, 2025 [18, 19]. These are not among the four constructs, but they are likely to affect whether collaboration can build trust and capability and thereby contribute to responsible and lasting impacts.

Literature Review

Stakeholder Collaboration

Stakeholder theory acknowledges that value can be created among different groups of people who are impacted by organisational decisions [20, 21]. More recent research has been directed towards the processes of engagement in sustainability action. Engagement, according to Fobbe et al. [2], is continuous and changing; according to Rathobei et al. [4], there are recurring elements in the form of communication and knowledge sharing; and, according to Nonet et al. [3], there is a relational and strategic alignment between sectors. These studies underpin the paper's emphasis on collaboration quality, not on the number of organisations involved in collaboration.

Collaboration with stakeholders is seen as a relationship that is manifested in communication quality, effectiveness of coordination and inclusive participation. These dimensions are those of understandable information; aligned roles and resources; and meaningful influence of affected groups. Thomson et al. [22] confirm collaboration as a multidimensional phenomenon and explain why it is important to differentiate collaboration from trust when trust is explicitly modelled as a mediator.

Organisational Trust as a Relational Mechanism

Trust is the relational mechanism in the proposed framework, and it is of organisational type. In this framework, organisational trust refers specifically to trust between organisational partners participating in responsible collaboration. Mayer et al. [23] and Rousseau et al. [24] have set the stage theoretically for the importance of willingness to accept vulnerability under conditions of uncertainty. Zaheer et al. [5] distinguish between trust between organisations and trust between individual boundary spanners and demonstrate that the effects of each on the exchange processes are different. In sustainability-based value chains, de Vries et al. [6] and Grohmann et al. [7] also demonstrate that trust is a feature of governance structures, of ongoing interaction and of anticipating how other actors in the chain will behave.

This renders trust not just an ethical value but also a mechanism. Continuous engagement allows partners to see whether information is credible, decisions are transparent and commitments are reliable. Good experience can improve the willingness to share information, accept dependence and cooperate. Other Indian studies on complementary areas, like digital retail and banking, have found that transparency, fairness and responsible processes are a source of trust and acceptance, but without testing interorganisational sustainability partnerships [25, 26]. This supports mediation from collaboration to trust to impact, and formal governance, contracts and monitoring remain viable options.

Digital-Green Capability as an Operational Mechanism

Digital-green capability is the operational enabling mechanism: digital tools for deployment, green innovation and learning from evidence and adapting implementation. It is not about owning technology or digital intentions. The dynamic-capability theory is used to explain how resources can create value when an organisation can integrate and reconfigure resources [27]. Khin and Ho [11] connect digital capability with digital innovation, and Dangelico et al. [28] tackle the issue of innovation with sustainability-oriented dynamic capabilities.

There is also new research that explicitly specifies the responsibility condition. Although humans are still needed, digital technology can enhance project governance and engagement [8]. Digital transformation can be realised via green management innovation and external governance [12], and digital responsibility can differentiate the substantive and symbolic innovation impacts [13]. Digital-green capability is thus enabling, not determining digital and green systems provide support if they can be used, are governed responsibly and are integrated into practice.

Sustainable Social Impact

Sustainable social impact is described as lasting improvements in social value, environmental responsibility and economic sustainability. It is wider than the short-term organisational performance. Chow and Chen [29] confirm that corporate sustainable development (CSD) can be measured in social, economic and environmental dimensions and that it is a good anchor, but it is not a programme-level measure. Indian green-consumer research also reveals that sustainable behaviour reflects the psychological, social, economic and contextual factors, and not one factor alone [30]. Engagement and environmental innovation are correlated with wider sustainability responses [31, 32]. Sustainable social impact needs to be measured separately from the processes which are expected to generate it.

Critical Comparison with Existing Frameworks

It is not integration itself that is seen as novel, and Table 1 is a critical comparison of the nearest theoretical and empirical streams. The literature already published addresses collaboration, trust, digital capacities and sustainability in a diverse manner in terms of mechanisms and outcomes. The current framework has a more limited scope: it sees these streams linked through two pathways of conversion but maintains the separation between sustainable social impact and organisational performance.

Table 1. Critical Comparison with Closest Frameworks and Empirical Evidence

Evidence stream	Established point	Unresolved issue	Role in framework
Thomson et al. [22]; Fobbe et al. [2]; Rathobei et al. [4]	Collaboration is multidimensional and linked to communication and knowledge sharing.	Does not isolate trust or digital-green execution.	Stakeholder collaboration as initiating condition.
Zaheer et al. [5]; de Vries et al. [6]; Grohmann et al. [7]	Trust affects exchange and is shaped by governance and interaction.	Does not explain digital-green capability or social impact.	Organisational trust as relational mechanism.
Khin and Ho [11]; Dangelico et al. [28]; Tumpa and Naeni [8]	Digital and green capabilities enable innovation and implementation.	Firm-level outcomes do not establish community-level social impact.	Digital-green capability as operational mechanism.
Sun et al. [12]; Zhu et al. [13]; Chen et al. [33]	Governance, responsibility and engagement can alter sustainability outcomes.	Effects are conditional and may follow rival mechanisms.	Supports boundary conditions and alternative explanations.

Chow and Chen [29]; Agrawal et al. [31]; Netti et al. [32]	Sustainability is multidimensional and stakeholder processes matter.	Corporate sustainability is not identical to programme social impact.	Keeps the outcome conceptually distinct.
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Source: Author's own work

Research Gap and Theoretical Positioning

However, the gap is not simply that stakeholder collaboration, trust, digital capability, green innovation and sustainability have been studied in isolation. In the verified literature, there are significant overlaps between these streams, and some recent models already relate sustainable innovation and stakeholder engagement to the impact on society or digital transformation and green management innovation to CSR performance [12, 33]. Thus, a defensible gap must be more specific.

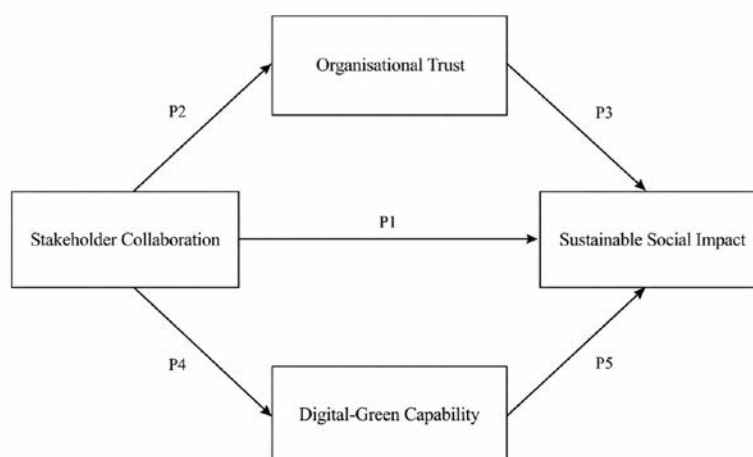
There are three issues that are not specified sufficiently. Trust is frequently integrated in relationships or considered a general rule, and its relational nature is hard to discern. Programme-level social value is not often used in digital and green studies, but innovation or performance outcomes are. Finally, competing pathways of formal governance, relational capacity, stakeholder engagement and green management innovation demonstrate that a constructive framework needs to account for why trust and digital-green capability are added and what these pathways bring to the mix.

The theoretical contribution is the explanation of "dual conversion". Collaboration provides contact, information and coordinated resources. These are translated into organisational trust, resulting in credibility and ongoing collaboration, and into digital-green capability, enabling usable and adaptable action. There are two conceptually different routes, and they may run in parallel; complementarity refers to the different contributions made by the two, not to a statistical interaction. This is not a statement that each construct and path is new, but an integrative process explanation with explicit boundaries.

Conceptual Framework

Figure 1 and Table 2 presents the four constructs and five direct structural paths, *P1–P5*. Stakeholder collaboration is the initiating condition, organisational trust is the relational mediator, digital-green capability is the operational pathway, and sustainable social impact is the outcome. *P1* represents the direct collaboration–impact relationship; *P2–P3* form the trust-mediated route; and *P4–P5* form the digital-green route. *P6* is not an additional construct or moderation path. It summarises the proposition that the two indirect routes operate as complementary parallel pathways.

Figure 1: Conceptual Framework: Collaboration, Trust, Digital-Green Capability and Sustainable Social Impact



Source: Author's conceptual framework based on the cited literature

Table 2: Constructs, Dimensions and Theoretical Roles

Construct	Dimensions	Theoretical role	Linked propositions
Stakeholder collaboration	Communication quality; coordination effectiveness; inclusive participation	Initiating relational condition that creates information exchange, resource alignment and stakeholder voice.	P1, P2, P4, P6
Organisational trust	Credibility; transparency; reliability	Relational mechanism explaining acceptance, vulnerability and continued cooperation.	P2, P3, P6
Digital-green capability	Digital capability; green innovation; learning and evidence use	Operational enabling mechanism that converts collaborative intent into usable, adaptive and accountable action.	P4, P5, P6
Sustainable social impact	Social value; environmental responsibility; economic continuity	Development-centred outcome distinct from short-term organisational performance.	P1, P3, P5, P6

Source: Author's conceptual synthesis based on the cited literature

Propositions

Stakeholder Collaboration and Sustainable Social Impact

Stakeholder collaboration can influence sustainable social impact directly by combining knowledge, legitimacy and resources. Communication reveals needs and risks, coordination clarifies responsibility and inclusive participation can strengthen legitimacy. Engagement research links these processes to knowledge sharing, value creation and sustainability responses [1, 2, 4]. Chen et al. [33] also links stakeholder engagement to societal impact, although with different causal ordering. A direct stakeholder route is therefore included alongside the two mechanisms.

P1. Stakeholder collaboration is positively associated with sustainable social impact.

Stakeholder Collaboration and Organisational Trust

Trust should not be treated as an automatic feature of collaboration. It develops when interaction supplies evidence about the competence, intentions and consistency of partners. High-quality communication reduces information asymmetry, coordinated action creates observable interdependence and inclusive participation gives stakeholders opportunities to test whether decisions are transparent and fair. Thomson et al. [22] show that collaboration has multiple relational and governance dimensions, while de Vries et al. [6] and Grohmann et al. [7] show that trust in sustainability-based relationships is influenced by governance and repeated interaction. The expected direction is therefore from the quality of collaborative interaction to the level of organisational trust between partner organisations.

P2. Stakeholder collaboration is positively associated with organisational trust.

Organisational Trust and Sustainable Social Impact

Collaborative programmes operate under incomplete control, so partners cannot verify every decision. Organisational trust between partner organisations can reduce conflict and negotiation burdens and support exchange performance [5]. In sustainability governance, it also affects information sharing and acceptance of joint decisions [6, 7]. When programme actors are viewed as credible, transparent and reliable, stakeholders are more likely to remain engaged. P2 and P3 therefore form a mediation logic, while formal controls remain a plausible alternative mechanism.

P3. Organisational trust is positively associated with sustainable social impact.

Stakeholder Collaboration and Digital-Green Capability

Digital-green capability requires knowledge, data, implementation expertise, local feedback and environmental learning, not only technology acquisition. Collaboration can supply these inputs because partners hold different information and resources. Dynamic-capability reasoning suggests that dispersed resources matter when they can be integrated and reconfigured [27]. Tumpa and Naeni [8] also show that digital technology can improve governance and engagement while requiring human oversight. Collaboration is therefore linked to the development of operational capability rather than adoption alone.

P4. Stakeholder collaboration is positively associated with digital-green capability.

Digital-Green Capability and Sustainable Social Impact

The second route concerns execution. Digital capability supports the acquisition and use of technology, while green innovation capability supports environmentally oriented change [11, 28]. These abilities can improve monitoring; evidence use and adaptation. Yet technology does not equal impact: effects may depend on green management innovation, governance and digital responsibility [12, 13]. Digital-green capability should therefore contribute when solutions are useful, accessible and responsibly governed.

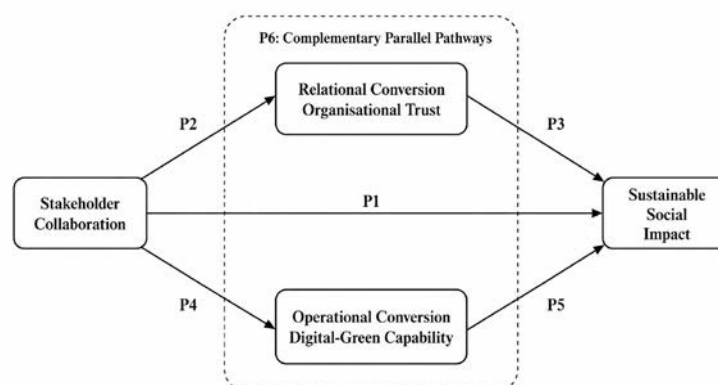
P5. Digital-green capability is positively associated with sustainable social impact.

Complementary Parallel Pathways

The preceding propositions imply two indirect routes: stakeholder collaboration → organisational trust → sustainable social impact, and stakeholder collaboration → digital-green capability → sustainable social impact. They are complementary because they represent different processes – relational acceptance and operational execution – not because they statistically interact. Trust explains continued cooperation under vulnerability, while digital-green capability explains whether collaborative intent becomes usable and adaptive action. The two routes can therefore be estimated in parallel and compared across contexts without introducing a three-way interaction.

P6. Organisational trust and digital-green capability provide complementary parallel pathways through which stakeholder collaboration contributes to sustainable social impact.

Figure 2. Complementary Parallel Routes from Collaboration to Sustainable Social Impact



Source: Author's own work

Suggested Methodology for Future Empirical Testing

Unit of Analysis and Sampling

The preferred unit of analysis is the responsible collaboration or programme because the framework concerns interorganisational relationships and programme-level impact. Eligible cases should involve at least two organisational actors in a CSR, public-service, community-development or sustainability programme with a meaningful digital or green component. A multistage purposive design can select states, sectors and eligible collaborations. Multi-informant data are preferable; a single-informant design requires a clear programme-level referent.

Sample size should be determined from statistical power and model complexity rather than the ten-times rule. Kock and Hadaya [34] provide inverse-square-root and gamma-exponential approaches for PLS-SEM. The target should reflect the expected minimum path coefficient, significance level, desired power and any planned group comparisons or measurement-invariance tests.

Measurement Strategy

Measurement must preserve construct meaning and avoid overlap. Future work should begin with validated measurement bases. Thomson et al. [22] support multidimensional collaboration but include trust-related norms, so items must be adapted carefully when trust is modelled separately. Zaheer et al. [5] provide an interorganisational trust basis; Khin and Ho [11] support digital capability; Dangelico et al. [28] support green capability; and Chow and Chen [29] provide social, economic and environmental sustainability domains. Programme-level adaptations require content validation.

Digital-green capability should be operationalised as a higher-order composite drawing on validated digital-capability and green-innovation dimensions, followed by expert review, cognitive pretesting and pilot testing at programme level. Sustainable social impact also requires programme-level content validation and, where feasible, triangulation with beneficiary or programme evidence [Refer to Table 3].

Table 3: Measurement and Empirical Testing Requirements

Construct / issue	Verified basis	Empirical requirement
Stakeholder collaboration	Thomson et al. [22]; Fobbe et al. [2]; Rathobei et al. [4].	Avoid trust overlap; validate communication, coordination and participation items.
Organisational trust	Zaheer et al. [5]; Mayer et al. [23]; Rousseau et al. [24].	Use an organisation/partner referent and test discriminant validity.
Digital-green capability	Khin and Ho [11]; Dangelico et al. [28].	Operationalise as a higher-order composite using validated digital and green dimensions; validate at programme level.
Sustainable social impact	Chow and Chen [29] as a domain anchor.	Validate programme-level outcome items and triangulate where feasible.
Measurement quality	Hair et al. [35]; Henseler et al. [36].	Assess reliability, AVE and discriminant validity including HTMT.
Structural model	Hair and Alamer [37]; Hair et al. [35].	Report collinearity, paths, confidence intervals, R-squared, effect sizes, indirect effects and prediction.

Bias and endogeneity	Podsakoff et al. [38]; Hult et al. [39].	Use procedural CMB safeguards, multi-source/time-lag options, controls and endogeneity checks.
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Source: Author's conceptual synthesis based on the cited literature.

PLS-SEM Justification and Assessment

PLS-SEM is defensible if the study is prediction-oriented, includes a higher-order digital-green composite and assesses out-of-sample prediction [35, 37]. Mediation alone is not sufficient justification. Reflective measures should be assessed for indicator reliability, internal consistency, composite reliability, AVE and discriminant validity including HTMT [36]. Higher-order measurement must follow its specified measurement mode rather than being assumed reflective. Structural assessment should report collinearity, path coefficients, bootstrapped confidence intervals, R-squared, effect sizes and predictive performance. The trust-mediated and digital-green indirect effects should be estimated separately within the same model. *P6* is supported when both specific indirect routes operate in the hypothesised positive direction; no interaction term or joint-moderation test is required. Measurement invariance should precede meaningful group comparisons where sample size permits.

Common Method Bias, Endogeneity and Design Risks

Common method bias can be dealt with in a few ways, most importantly in the design of the study, such as using anonymity, separation of predictor and criterion sections and clear wording, as well as different sources of data when possible and temporal separation when feasible [38]. The risk of self-report inflation can be mitigated by adding beneficiary reports or programme records or a second organisational informant.

Endogeneity is also a possibility. High-performing partnerships can also subsequently report higher levels of trust, coordination or investment in digital-green capability, which presents reverse causality risk. Governance quality, funding intensity, programme maturity and sector regulation may also affect predictors and outcomes and are omitted here. Following Hult et al. [39], time-lagged designs, relevant controls, alternative causal models and appropriate endogeneity procedures are recommended for future studies applying PLS-SEM.

Discussion

How the Proposed Framework Differs from Prior Models

The proposed framework differs from existing models mainly in the roles assigned to the constructs. Thomson et al. [22] conceptualise collaboration broadly and include relational norms. This paper separates collaboration quality from organisational trust to test whether collaborative interaction builds trust and whether trust helps convert interaction into impact. The separation is theoretically useful but requires non-overlapping measurement.

Khin and Ho [11] link digital capability and innovation to organisational performance, whereas this framework places digital capability within a broader digital-green operational construct and uses sustainable social impact as the outcome. Indian evidence strengthens the contextual case without testing the exact model: Sheethal [9] connects digital transformation, environmental proactivity and green innovation; Suvarni and Deeksha [10] show the importance of compatibility and usefulness in climate-smart technology adoption; Aparna [16] identifies enabling conditions in informal-sector digital adoption; and M et al. [17] emphasise institutional support in sustainable technology adoption. Sun et al. [12] and Zhu et al. [13] further show that governance and responsibility can condition digital effects.

Chen et al. [33] provide a rival sustainability model in which stakeholder engagement mediates sustainable innovation's effect on societal impact and anticipatory governance moderates the pathway. The causal ordering differs from the present framework, where collaboration initiates two conversion routes through trust and capability. The present claim is therefore deliberately bounded rather than presented as the only possible architecture. Future empirical work should compare it with alternatives involving engagement, governance or relational capacity.

Theoretical Contribution

The framework contributes in four interrelated ways. First, stakeholder collaboration is seen as a starting condition that needs to be translated. Second, the concept of organisational trust is transformed into a testable mediator within the relationship instead of a general norm. Third, digital-green capability encompasses the execution without being synonymous with technology ownership. Fourth, the trust and capability routes are complementary parallel pathways and not another moderator or construct in P6. The two mechanisms are theoretically distinct but are made explicit in Figure 2.

India-Specific Boundary Conditions

The same collaboration architecture can operate differently across Indian contexts that have differential access to digital tools and institutional capacities [14, 15]. High capacity at the lead organisation may coexist with low local access and/or limited beneficiary influence. Data governance is another boundary condition, as lawful processing, transparency and accountability are related to digital legitimacy. The Authors do not believe these conditions should simply be treated as an interaction across the two effects, as they may alter the strength of each of the two indirect pathways.

Practical Implications

The framework indicates that counts of partnerships are not a good measure of the quality of the collaboration for policymakers or programme sponsors. Monitoring should observe the degree to which information is comprehensible, responsibilities are synchronised and groups with interests are properly involved. There are also visible practices that help to foster trust, including transparent role allocation, accessible grievance processes and credible reporting. These practices are not alternatives to performance but are ways of fostering the relational environments within which stakeholders can remain engaged.

The framework clarifies two management challenges for firms, CSR leaders, NGOs and technology providers. Weak trust means that attention must be paid to credibility, transparency and consistency. A low level of digital-green capability requires skills, interoperable systems, local adaptation, green innovation routines and learning from implementation evidence. The investment in technology should therefore be evaluated based on the resulting capability to use the technology and whether the programme has tangible social, environmental and economic impacts that have been proven. Digital responsibility and human oversight are particularly crucial where systems involve the application of personal data or automated decisions.

Limitations and Future Research

The framework is conceptual and the causal relationships have not been tested in the context of Indian responsible collaborations. The six propositions should therefore be viewed as hypotheses and not known effects. The model also streamlines the complex governance landscape. Different formal contracts, power imbalance, funding security, programme maturity, institutional capacity and regulatory quality can have an impact on trust and capability. Future research should consider credible alternative mechanisms to the proposed routes, such as stakeholder engagement, relational capacity and anticipatory governance.

Care needs to be taken in the adaptation of measurement, as there are trust-related aspects to collaboration, a digital-green capability that combines digital and green aspects and corporate sustainability that is not the same as programme-level social impact. In future studies, content validity and piloting of the measures prior to structural testing is recommended.

The third limitation is generalisability to context. The framework is built for responsible collaboration in India, where digital access, administrative capabilities and stakeholder power are far from uniform. It cannot be assumed that it can be transferred to other countries or to purely commercial interfirm alliances. Comparative work across states, sectors and organisational forms in India could identify those aspects of the framework that are stable and those that are context dependent.

Conclusion

Drawing on a set of key insights from the literature, this paper theorises a four-construct and six-proposition model with stakeholder collaboration as the initiating condition, organisational trust as the relational conversion mechanism, digital-green capability as the operational enabling mechanism and sustainable social impact as a distinct development-centred

outcome. Its contribution lies not in asserting the novelty of the individual constructs but in its dual-conversion logic and in explicit comparison with other mechanisms and contextual boundary conditions.

Responsible collaboration can make a lasting contribution through two conversion processes. Partners should trust each other to continue cooperating, and the partnership should be able to translate joint intentions into tangible and responsibly managed digital-green activities. The routes are complementary and parallel; no moderation or three-way interaction is assumed within the framework. Future testing should be conducted with non-overlapping measures, with appropriate sampling, with bias and endogeneity control and with outcome measures that clearly differentiate between sustainable social impact and organisational performance.

Conflict of Interests

The authors declare that they have no conflict of interests.

Acknowledgement

The authors are thankful to the institutional authority for completion of the work

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