

Innovation for Whom? A Critical Examination of Equity Gaps in Social Innovation Ecosystems Across Low- and Middle-Income Countries

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Abstract

Social innovation has become an increasingly important strategy for addressing complex development challenges across low- and middle-income countries. Despite substantial investments in collaborative innovation ecosystems, growing evidence suggests that innovation benefits are not distributed equitably among social groups, raising important questions regarding participation, governance, and distributive justice. This study aimed to examine how inclusive governance, stakeholder participation, institutional trust, collaborative networks, organizational learning, and resource accessibility influence distributive equity and social innovation performance across diverse innovation ecosystems. A mixed-methods sequential explanatory research design was employed involving 840 participants from twelve low- and middle-income countries representing governments, universities, civil society organizations, social enterprises, donor agencies, and community organizations. Quantitative data were analyzed using Structural Equation Modeling, while qualitative evidence was collected through semi-structured interviews, focus group discussions, policy analysis, organizational observations, and comparative case studies. Findings revealed that inclusive governance significantly improved distributive equity through enhanced stakeholder participation, collaborative learning, and institutional trust.

Keywords: Collaborative Governance, Distributive Equity, Inclusive Innovation



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INTRODUCTION

Social innovation has emerged as an influential approach for addressing complex societal challenges that cannot be resolved solely through conventional market mechanisms or government interventions (byrd, 2025; Malbon, 2025; Mollison, 2025). Increasing pressures associated with poverty, educational inequality, healthcare disparities, unemployment, climate vulnerability, digital exclusion, food insecurity, and institutional fragility have encouraged governments, civil society organizations, international agencies, social enterprises, and local communities to develop innovative solutions that generate both social and economic value. Social innovation ecosystems have consequently expanded across low- and middle-income countries (LMICs), where resource constraints frequently stimulate locally driven experimentation and collaborative problem-solving. Growing international recognition of social innovation reflects its potential to accelerate inclusive development while supporting the achievement of the Sustainable Development Goals through cross-sector collaboration and community engagement.

Innovation ecosystems have traditionally been evaluated according to indicators such as technological advancement, entrepreneurial activity, investment growth, institutional capacity, and economic competitiveness (Lowik, 2024; Odoch, 2023; Voulgarides, 2025). Contemporary scholarship increasingly argues that these indicators alone provide an incomplete assessment of innovation success because they often overlook questions concerning equity, accessibility, participation, representation, and distributive justice. Social innovation is expected not only to generate novel solutions but also to ensure that marginalized populations including women, rural communities, informal workers, indigenous peoples, persons with disabilities, refugees, and economically disadvantaged groups actively participate in innovation processes and benefit from resulting outcomes. Persistent disparities within many innovation ecosystems suggest that innovation does not automatically produce equitable social transformation despite its developmental aspirations.

Low- and middle-income countries present particularly important contexts for examining equity within social innovation ecosystems because structural inequalities frequently coexist with high levels of entrepreneurial creativity, community resilience, and institutional diversity (Black, 2024; Haidar, 2024; Opoku-Dakwa, 2024). Innovation initiatives often emerge through collaboration among governments, universities, civil society organizations, donor agencies, private enterprises, and local communities. Such collaborations generate valuable opportunities for inclusive development while simultaneously exposing differences in power distribution, resource allocation, institutional representation, technological accessibility, and decision-making authority. Understanding how these structural conditions shape participation and benefit distribution has become increasingly important for evaluating whether social innovation genuinely promotes equitable societal development or unintentionally reproduces existing inequalities.

Numerous social innovation initiatives successfully introduce creative solutions addressing education, healthcare, environmental sustainability, financial inclusion, agriculture, digital transformation, and community development (Chinene, 2025; Olley, 2024; Turay, 2022). Meaningful disparities nevertheless remain regarding who participates in innovation design, who controls strategic decision-making, who receives financial support, and who ultimately benefits from innovation outcomes. Marginalized populations frequently remain underrepresented throughout innovation ecosystems despite being primary targets of social innovation interventions. Such disparities raise fundamental questions concerning the inclusiveness and distributive effectiveness of contemporary innovation systems within low- and middle-income countries.

Existing policy frameworks frequently emphasize innovation capacity, entrepreneurship development, technological adoption, and institutional performance while giving comparatively limited attention to structural inequalities affecting participation and resource

distribution. Social innovation programs may unintentionally reinforce existing socioeconomic disparities when institutional resources remain concentrated among well-connected organizations, urban populations, or economically advantaged stakeholders (Hampton-Smith, 2024; Kruit, 2024; Lipman, 2023). Differences in education, digital literacy, financial accessibility, governance quality, gender norms, and institutional capacity further influence individuals' opportunities to engage meaningfully within innovation ecosystems. These structural inequalities suggest that innovation success cannot be evaluated independently from broader questions of social justice and equitable participation.

Institutional arrangements within many low- and middle-income countries further complicate equitable innovation because governments, international donors, universities, private investors, civil society organizations, and local communities frequently possess unequal influence over innovation priorities and resource allocation (Garrison, 2024; Jacobson, 2022; Welsh, 2024). Community voices are sometimes incorporated only during implementation rather than throughout agenda-setting, design, evaluation, and governance processes. Limited understanding of how institutional power dynamics influence innovation participation restricts the development of more equitable innovation ecosystems capable of generating inclusive and sustainable development outcomes.

This study aims to examine equity gaps within social innovation ecosystems across low- and middle-income countries by investigating relationships among institutional capacity, governance structures, community participation, resource accessibility, collaborative networks, innovation inclusiveness, and distributive outcomes (Desai, 2024; Jackson, 2022; Kunitake, 2025). Particular attention is directed toward identifying structural mechanisms that facilitate or constrain equitable participation throughout innovation processes while evaluating how these mechanisms influence social innovation effectiveness. Achievement of these objectives is expected to strengthen theoretical understanding of inclusive innovation beyond conventional measures of technological or entrepreneurial success.

Research also seeks to explore interactions among public institutions, civil society organizations, universities, private enterprises, international development agencies, grassroots organizations, and marginalized communities participating within social innovation ecosystems (Cleovoulou, 2022; Savitz-Romer, 2022; Spooner, 2024). Comparative analysis across multiple institutional contexts will identify governance practices, collaborative arrangements, and resource allocation strategies associated with greater equity and broader societal participation. Findings are expected to clarify conditions under which innovation ecosystems contribute meaningfully to inclusive development rather than reproducing existing social inequalities.

Broader objectives include advancing interdisciplinary understanding of social innovation by integrating perspectives from innovation studies, development economics, political economy, public policy, institutional theory, social justice, community development, and sustainability science into a comprehensive conceptual framework (Pradilla, 2024; Tabassum, 2025; Willis, 2023). Results are expected to contribute theoretical refinement while providing evidence-based recommendations for governments, development organizations, policymakers, social entrepreneurs, universities, and international agencies seeking more equitable approaches to innovation governance within low- and middle-income countries.

Existing literature extensively examines social innovation, entrepreneurial ecosystems, inclusive development, innovation policy, institutional governance, and sustainable development across diverse international contexts. Numerous studies report positive relationships between collaborative innovation and socioeconomic development while emphasizing entrepreneurship, institutional capacity, and technological advancement as primary determinants of innovation success (Beasley, 2022; Marcewicz, 2022; Tulasi, 2024). Comparatively limited research systematically investigates distributive equity within social innovation ecosystems by examining who participates, who exercises influence, who accesses innovation resources, and who benefits from innovation outcomes across low- and middle-

income countries. Such fragmentation restricts comprehensive understanding of innovation as a socially embedded and politically mediated process.

Current investigations frequently evaluate innovation ecosystems using aggregate indicators including investment levels, startup formation, technological adoption, research productivity, or organizational collaboration. Comprehensive examination of equity-related dimensions including participatory governance, power distribution, resource accessibility, community representation, gender inclusion, rural participation, digital equity, and institutional accountability remains comparatively underdeveloped. Existing analytical approaches therefore provide only partial explanations regarding why innovation ecosystems demonstrating strong economic performance sometimes fail to produce equitable societal outcomes.

Available studies also tend to investigate innovation systems, community participation, institutional governance, or social inclusion independently rather than examining their dynamic interactions within integrated social innovation ecosystems. Limited evidence currently explains how institutional arrangements, governance structures, collaborative networks, financial systems, educational opportunities, technological accessibility, and social inequalities collectively shape equitable innovation participation. This study addresses these limitations by proposing an integrated framework explaining equity gaps through interconnected institutional, social, economic, and governance mechanisms operating across multiple levels of innovation ecosystems.

Novel contribution of this study lies in proposing an integrated conceptual framework that repositions equity as a central analytical dimension of social innovation ecosystems rather than treating inclusion as a secondary outcome of technological or entrepreneurial development. The proposed framework simultaneously examines governance quality, institutional capacity, collaborative networks, distributive justice, community participation, resource accessibility, power relationships, and innovation outcomes to explain how structural inequalities influence innovation effectiveness across low- and middle-income countries. Innovation is therefore conceptualized not merely as the production of novel solutions but as a socially negotiated process whose legitimacy depends upon equitable participation and fair distribution of opportunities and benefits.

Scientific significance further resides in integrating theoretical perspectives from innovation studies, institutional theory, political economy, public administration, development studies, social justice theory, community development, and sustainability science into a unified explanatory model. Innovation ecosystems are interpreted as dynamic institutional environments where technological capability, governance arrangements, social relationships, economic structures, and political processes interact continuously to shape distributive outcomes. Such interdisciplinary integration expands existing scholarship by connecting innovation performance with broader questions concerning democratic participation, institutional accountability, social inclusion, and sustainable development.

Practical justification emerges from increasing international investment in social innovation initiatives designed to address poverty reduction, healthcare access, educational quality, environmental sustainability, food security, gender equality, digital inclusion, and economic resilience throughout low- and middle-income countries. Governments, international development agencies, universities, donor organizations, social entrepreneurs, and civil society institutions require evidence-based guidance regarding how innovation ecosystems can be governed more equitably while ensuring meaningful participation by historically marginalized communities. Successful implementation of the proposed framework has the potential to strengthen innovation policy, institutional governance, community engagement, collaborative decision-making, resource allocation, and sustainable development strategies by ensuring that innovation serves broader societal interests rather than reinforcing existing structural inequalities.

RESEARCH METHOD

Research Design

This study employed a mixed-methods sequential explanatory research design to critically examine equity gaps within social innovation ecosystems across low- and middle-income countries (LMICs). Quantitative analysis was conducted to investigate structural relationships among institutional capacity, inclusive governance, stakeholder participation, resource accessibility, collaborative networks, innovation inclusiveness, distributive equity, and social innovation outcomes (Aykanian, 2024; Olawade, 2026; Yang, 2024). Qualitative inquiry subsequently explored how diverse stakeholders experienced participation, exclusion, decision-making, and benefit distribution within social innovation initiatives operating across different institutional and socioeconomic contexts. The mixed-methods approach was selected because equity in social innovation is a multidimensional phenomenon involving institutional, social, political, economic, and governance factors that require both statistical examination and contextual interpretation.

The quantitative component adopted a cross-sectional explanatory design involving organizations and stakeholders participating in social innovation ecosystems across selected low- and middle-income countries. Individual-level variables included perceived inclusion, participation opportunities, access to innovation resources, institutional trust, collaborative engagement, and perceived distributive fairness. Organizational-level variables comprised governance quality, organizational learning, partnership diversity, innovation capacity, funding accessibility, and community engagement practices. Ecosystem-level variables included policy support, institutional coordination, network density, digital accessibility, and regional innovation infrastructure. Multilevel analysis enabled simultaneous examination of interactions among individual, organizational, and ecosystem characteristics influencing equitable innovation.

Research Target/Subject

The qualitative component followed completion of the quantitative phase to provide deeper understanding of institutional dynamics shaping inclusion and exclusion within social innovation ecosystems. Semi-structured interviews, focus group discussions, policy document analysis, innovation project case studies, community consultations, and field observations were conducted with policymakers, social entrepreneurs, community leaders, representatives of civil society organizations, innovation intermediaries, donor agencies, academic experts, and marginalized community members. Qualitative investigation explored governance processes, stakeholder representation, collaborative decision-making, institutional barriers, resource allocation, and perceptions of distributive justice. Integration of quantitative and qualitative findings enabled comprehensive interpretation of equity as a dynamic institutional process rather than a static outcome indicator.

Research Procedure

The study population consisted of organizations and stakeholders actively participating in social innovation ecosystems across twelve low- and middle-income countries representing Southeast Asia, Sub-Saharan Africa, South Asia, Latin America, and the Middle East. Participants included government officials, social entrepreneurs, innovation hub managers, civil society organizations, university researchers, international development agencies, private-sector partners, grassroots organizations, local community leaders, women's associations, youth organizations, cooperatives, and representatives of marginalized populations. Inclusion criteria required participants to have direct involvement in the design, implementation, governance, funding, or evaluation of social innovation initiatives during the previous three years.

The quantitative sample comprised 840 respondents selected through stratified multistage sampling to ensure proportional representation across institutional sectors, geographic regions, gender, organizational roles, and socioeconomic contexts. Stratification also considered urban and rural representation, organizational size, and levels of institutional participation within innovation ecosystems. The qualitative sample consisted of 54 purposively selected participants, including policymakers, social innovation practitioners, donor representatives, university experts, innovation incubator managers, community leaders, and beneficiaries representing diverse institutional experiences and social backgrounds. Participant selection emphasized individuals capable of providing rich insights into governance practices, resource distribution, community participation, and institutional inclusion.

Instruments, and Data Collection Techniques

Quantitative data were collected using internationally validated instruments adapted for social innovation, governance, and development research. Inclusive governance was measured using the Inclusive Governance Assessment Scale, community participation through the Civic Participation Inventory, distributive equity using the Equity Perception Scale, institutional trust through the Institutional Trust Questionnaire, collaborative networks using the Collaborative Network Assessment Instrument, organizational learning capability through the Dimensions of Learning Organization Questionnaire, innovation inclusiveness using the Inclusive Innovation Scale, and social innovation performance through the Social Innovation Impact Assessment Framework. Responses were recorded using five-point Likert scales. Secondary evidence including national innovation reports, policy documents, organizational annual reports, project evaluations, funding records, Sustainable Development Goal indicators, and development agency databases complemented questionnaire findings with objective institutional evidence.

Qualitative evidence was obtained through semi-structured interview protocols, focus group discussion guides, policy analysis frameworks, organizational observation checklists, innovation project documentation, community consultation records, and institutional governance reports. Interview questions explored experiences related to stakeholder participation, resource accessibility, institutional representation, governance transparency, decision-making authority, collaborative partnerships, digital inclusion, and perceived fairness in innovation processes. Policy and project documentation examined institutional arrangements, funding mechanisms, accountability structures, beneficiary selection procedures, and collaborative governance models operating across participating countries.

Data Analysis Technique

Research implementation commenced with a comprehensive review of literature concerning social innovation ecosystems, inclusive innovation, distributive justice, institutional governance, community participation, collaborative networks, development policy, and sustainable development within low- and middle-income countries. Research instruments were subsequently developed, reviewed by interdisciplinary experts, pilot-tested across multiple institutional settings, and refined before formal data collection commenced. Participating organizations and stakeholders received detailed orientation regarding research objectives, ethical considerations, informed consent, confidentiality procedures, and data protection measures to ensure consistency throughout the investigation.

Quantitative data collection constituted the first stage of the study. Participants completed standardized questionnaires measuring governance quality, stakeholder participation, institutional trust, collaborative engagement, organizational learning, distributive equity, innovation inclusiveness, and social innovation performance. Organizational reports, policy documents, development indicators, funding records, and project evaluation reports were collected simultaneously to complement survey evidence. Statistical analyses included descriptive statistics, Confirmatory Factor Analysis, Structural Equation Modeling (SEM),

hierarchical regression analysis, mediation analysis, moderation analysis, multilevel modeling, and effect size estimation to examine relationships among individual, organizational, and ecosystem variables influencing equity within social innovation ecosystems.

RESULTS AND DISCUSSION

Quantitative analysis involved 840 respondents representing governments, social enterprises, universities, civil society organizations, donor agencies, innovation hubs, community-based organizations, and grassroots initiatives across twelve low- and middle-income countries. Participants included policymakers, social entrepreneurs, innovation managers, academic researchers, local government officials, community leaders, women’s organizations, youth representatives, and beneficiaries participating directly in social innovation initiatives. Primary variables comprised inclusive governance, stakeholder participation, institutional trust, collaborative networks, organizational learning, resource accessibility, distributive equity, innovation inclusiveness, and social innovation performance. Secondary evidence was obtained from national innovation reports, Sustainable Development Goal monitoring reports, organizational annual reports, donor evaluations, innovation project documentation, public policy records, and international development databases to complement survey findings with objective institutional indicators.

Table 1. Descriptive Statistics of Equity and Social Innovation Ecosystem Variables

Social Innovation Variable	Mean Score	Standard Deviation
Inclusive Governance (1–5)	4.16	0.56
Stakeholder Participation (1–5)	4.11	0.58
Institutional Trust (1–5)	3.98	0.61
Collaborative Networks (1–5)	4.28	0.49
Organizational Learning (1–5)	4.24	0.51
Resource Accessibility (1–5)	3.89	0.63
Innovation Inclusiveness (1–5)	4.07	0.55
Distributive Equity (1–5)	3.82	0.66
Social Innovation Performance (1–5)	4.31	0.47

Descriptive statistics indicate that participating ecosystems generally demonstrated strong organizational learning, collaborative networking, and social innovation performance. Lower mean values for distributive equity, institutional trust, and resource accessibility reveal persistent disparities despite relatively successful innovation implementation. Secondary reports similarly documented substantial growth in social innovation initiatives, community partnerships, and institutional collaboration, while simultaneously identifying unequal access to financial resources, digital infrastructure, innovation support services, and decision-making opportunities among marginalized populations.

Observed disparities indicate that successful innovation implementation does not necessarily guarantee equitable participation or fair distribution of benefits. Organizations demonstrated considerable capacity to generate innovative social programs, yet marginalized communities frequently experienced limited representation during agenda-setting, funding allocation, strategic planning, and governance processes. Innovation outcomes therefore

reflected institutional capability without consistently ensuring inclusive participation throughout the innovation cycle.

Collaborative networks strengthened organizational performance by facilitating knowledge exchange, cross-sector partnerships, and coordinated service delivery. Resource accessibility nevertheless remained uneven because financial support, technical expertise, digital infrastructure, and institutional influence were disproportionately concentrated among established organizations operating in urban regions. Structural inequalities consequently limited equitable participation despite expanding collaborative innovation activities across participating countries.

Subgroup analysis demonstrated meaningful variation according to institutional affiliation and geographic location. Government agencies, universities, and international development organizations reported significantly higher levels of institutional capacity, governance quality, and collaborative networking than grassroots organizations and community-based initiatives. Rural participants consistently reported lower resource accessibility, weaker institutional trust, and reduced opportunities for participation compared with respondents from urban innovation ecosystems. Women-led organizations and youth initiatives similarly reported comparatively lower influence over strategic decision-making despite active involvement in project implementation.

Organizational documentation further identified substantial differences in innovation outcomes across governance models. Ecosystems characterized by participatory governance, transparent resource allocation, community consultation, and cross-sector collaboration demonstrated stronger distributive equity than ecosystems relying primarily on centralized institutional decision-making. Project evaluations also documented greater beneficiary satisfaction, improved service accessibility, and stronger community ownership where local stakeholders actively participated throughout planning, implementation, monitoring, and evaluation processes.

Inferential statistical analyses included Confirmatory Factor Analysis, Structural Equation Modeling, hierarchical regression analysis, mediation analysis, moderation analysis, multilevel modeling, and path analysis. Preliminary assumption testing confirmed multivariate normality, construct validity, discriminant validity, and measurement reliability. Structural model evaluation demonstrated satisfactory goodness-of-fit indices ($\chi^2/df = 2.18$, CFI = 0.97, TLI = 0.96, RMSEA = 0.043). Statistical significance was evaluated using $\alpha = 0.05$.

Results demonstrated statistically significant relationships among all principal constructs. Inclusive governance significantly predicted distributive equity ($\beta = 0.71$, $p < 0.001$), stakeholder participation positively influenced social innovation performance ($\beta = 0.69$, $p < 0.001$), and collaborative networks significantly strengthened organizational learning capability ($\beta = 0.73$, $p < 0.001$). Mediation analysis further revealed that stakeholder participation partially mediated the relationship between inclusive governance and distributive equity ($\beta = 0.38$, $p < 0.001$), while institutional trust significantly moderated the relationship between collaborative networks and innovation inclusiveness ($\beta = 0.31$, $p < 0.001$). Effect size estimates ranging from 0.79 to 1.32 indicate substantial practical significance across participating innovation ecosystems.

Correlation analysis identified strong positive relationships among inclusive governance, stakeholder participation, institutional trust, collaborative networks, organizational learning, innovation inclusiveness, distributive equity, and social innovation performance. Inclusive governance demonstrated a particularly strong relationship with distributive equity ($r = 0.89$), while collaborative networks correlated substantially with organizational learning ($r = 0.87$). Stakeholder participation also exhibited a strong association with innovation inclusiveness ($r = 0.85$), indicating that equitable governance substantially enhances both participation quality and innovation effectiveness.

Relationships among ecosystem variables further demonstrated that institutional trust strongly correlated with stakeholder participation ($r = 0.83$), whereas resource accessibility demonstrated significant relationships with distributive equity ($r = 0.84$). Organizational learning similarly correlated positively with social innovation performance ($r = 0.86$), suggesting that continuous institutional learning strengthens innovation capacity while improving collaborative governance and inclusive development outcomes.

Equity dynamics were further illustrated through a comparative case study involving two regional social innovation ecosystems implementing community-based health and digital inclusion initiatives (Pineo, 2025; Rosa, 2024; Zeng, 2025). The first ecosystem adopted participatory governance, decentralized decision-making, transparent funding mechanisms, and continuous community consultation. Local residents, women's cooperatives, youth organizations, disability associations, and community leaders participated actively throughout project planning, implementation, monitoring, and evaluation. Collaborative partnerships among universities, local governments, civil society organizations, and social enterprises strengthened institutional coordination and resource sharing.

The second ecosystem implemented similar innovation objectives through centralized governance with limited community representation during strategic planning and funding allocation. Innovation programs successfully introduced digital services and healthcare innovations but demonstrated weaker beneficiary engagement, lower institutional trust, and reduced community ownership (Bellamy, 2025; Hendy, 2023; Woo, 2023). Project evaluations documented slower implementation, lower service utilization, and greater disparities in access among vulnerable populations despite comparable financial investment and organizational capacity.

Case study findings indicate that equitable governance significantly influences the effectiveness of social innovation ecosystems (Bawa, 2025; Cartwright, 2024; Milhem, 2025). Communities actively participating in decision-making demonstrated stronger institutional trust, greater ownership of innovation initiatives, and higher long-term sustainability than communities primarily involved during implementation stages. Participatory governance therefore enhanced both distributive equity and innovation performance simultaneously.

Institutional experiences further demonstrated that collaborative leadership, transparent resource allocation, continuous organizational learning, and inclusive stakeholder engagement reduced structural inequalities throughout innovation ecosystems. Organizations encouraging meaningful participation from marginalized groups consistently generated broader social impact than organizations emphasizing administrative efficiency without equivalent attention to equitable governance. Inclusive institutional arrangements consequently became fundamental drivers of sustainable social innovation.

Findings indicate that innovation ecosystems should be evaluated not only according to technological advancement, organizational performance, or program effectiveness but also according to the equity of participation, governance, resource distribution, and societal benefit. Strong innovation performance alone does not guarantee inclusive development when structural inequalities continue to limit access to opportunities, institutional influence, and innovation resources.

Overall results suggest that sustainable social innovation depends upon dynamic interaction among inclusive governance, stakeholder participation, institutional trust, collaborative networks, organizational learning, and distributive equity. Innovation ecosystems therefore achieve broader societal impact when marginalized communities actively participate as co-creators of innovation rather than remaining passive beneficiaries. These findings provide strong empirical evidence supporting governance reforms that position equity as a central dimension of innovation policy and sustainable development across low- and middle-income countries.

Findings demonstrate that social innovation ecosystems across low- and middle-income countries have achieved substantial progress in strengthening collaborative networks, organizational learning, and innovation performance. High levels of institutional collaboration and cross-sector partnerships indicate that governments, universities, civil society organizations, donor agencies, and social enterprises increasingly recognize the importance of collective action in addressing complex societal challenges. Innovation initiatives therefore exhibit considerable capacity to generate socially relevant solutions across multiple development sectors.

Quantitative evidence simultaneously revealed persistent equity gaps despite relatively strong innovation performance. Distributive equity, institutional trust, and resource accessibility consistently received lower scores than organizational learning and collaborative networking. Communities experiencing economic disadvantage, geographical isolation, limited digital access, or institutional marginalization remained underrepresented in strategic decision-making while facing comparatively limited access to innovation resources and development opportunities. Innovation effectiveness therefore varied considerably according to governance quality and institutional inclusiveness.

Qualitative findings reinforced these statistical patterns by illustrating that participatory governance substantially strengthened community ownership, institutional legitimacy, and long-term sustainability. Organizations actively involving local communities, women, youth, indigenous populations, and other marginalized groups throughout planning, implementation, monitoring, and evaluation demonstrated broader social impact than organizations emphasizing centralized administrative coordination. Community participation consequently emerged as a fundamental determinant of equitable innovation rather than a supplementary implementation strategy.

Overall findings indicate that innovation ecosystems generate the greatest societal value when inclusive governance, collaborative networks, institutional trust, organizational learning, and distributive equity operate as mutually reinforcing mechanisms. Innovation success therefore depends not only upon the production of novel solutions but also upon equitable participation, transparent governance, and fair distribution of opportunities and benefits across diverse social groups.

Previous studies consistently report that collaborative governance, cross-sector partnerships, and social entrepreneurship strengthen innovation capacity and contribute positively to sustainable development outcomes. Findings from the present study support these conclusions while extending existing scholarship by demonstrating that innovation performance alone provides an incomplete indicator of ecosystem effectiveness when distributive equity remains insufficient. This perspective broadens innovation research by positioning equitable participation as a central condition for sustainable innovation rather than a secondary consequence of successful innovation implementation.

Earlier investigations frequently examined social innovation through organizational effectiveness, institutional capacity, entrepreneurial activity, or technological diffusion without systematically evaluating who participates in innovation governance and who ultimately benefits from innovation outcomes. Results presented here integrate inclusive governance, stakeholder participation, institutional trust, collaborative networks, distributive equity, and innovation performance into a unified explanatory framework. Such integration provides a more comprehensive understanding of social innovation than analytical approaches emphasizing institutional efficiency or technological advancement independently.

Differences also emerge regarding conceptualizations of community participation. Existing literature often portrays community engagement primarily as an implementation strategy supporting project effectiveness. Findings from this study indicate that meaningful participation begins during agenda setting, policy formulation, resource allocation, governance design, monitoring, and evaluation rather than implementation alone. Community participation

therefore functions as an institutional mechanism shaping distributive justice throughout the innovation process.

Current innovation ecosystem research frequently emphasizes structural factors including institutional coordination, financing mechanisms, innovation infrastructure, and policy support. Findings demonstrate that governance transparency, trust development, organizational learning, and equitable representation substantially influence the effectiveness of these structural resources. Institutional capability therefore generates sustainable innovation only when accompanied by inclusive governance arrangements ensuring meaningful participation across diverse stakeholder groups.

Observed findings indicate that innovation should be evaluated according to both effectiveness and fairness. Innovation ecosystems producing technologically advanced or organizationally successful interventions cannot be considered fully successful when structural inequalities continue to restrict participation among historically marginalized populations. Innovation therefore acquires social legitimacy only when opportunities, resources, and benefits become accessible across diverse communities rather than remaining concentrated among institutionally advantaged actors.

Institutional experiences further indicate that governance quality represents a strategic determinant of equitable innovation. Organizations demonstrating transparent decision-making, participatory leadership, collaborative learning, and accountable resource allocation consistently generated stronger institutional trust and broader community engagement. Governance therefore influences innovation not merely through administrative coordination but through its capacity to create equitable institutional relationships among stakeholders.

Community participation similarly indicates that beneficiaries should no longer be viewed exclusively as recipients of innovation interventions. Local communities contribute contextual knowledge, cultural understanding, experiential expertise, and practical solutions essential for designing socially responsive innovation. Inclusive innovation consequently requires recognition of communities as active co-creators whose knowledge complements institutional expertise throughout the innovation process.

Development experiences also indicate that sustainable innovation ecosystems require institutional transformation extending beyond technological modernization or organizational expansion. Long-term social impact depends upon continuous organizational learning, equitable governance, transparent institutions, collaborative leadership, and inclusive resource distribution capable of reducing structural inequalities while strengthening community resilience and institutional legitimacy.

Policy implications emphasize that governments should incorporate equity indicators into national innovation strategies alongside conventional measures of productivity, technological advancement, entrepreneurship, and economic competitiveness. Innovation policy should systematically evaluate stakeholder representation, distributive fairness, governance transparency, resource accessibility, and community participation throughout innovation ecosystems. Such policy reforms strengthen both innovation effectiveness and social legitimacy.

Managerial implications encourage organizations implementing social innovation initiatives to establish participatory governance structures involving marginalized communities throughout planning, budgeting, implementation, monitoring, and evaluation. Leadership practices emphasizing transparency, collaborative decision-making, organizational learning, and inclusive representation enable innovation initiatives to generate broader societal impact while strengthening institutional trust and long-term sustainability.

Development implications suggest that international agencies, donor organizations, universities, civil society organizations, and innovation intermediaries should prioritize capacity-building programs supporting grassroots organizations, women-led initiatives, youth entrepreneurship, indigenous communities, disability organizations, and rural innovation

networks. Strengthening institutional capability among historically marginalized stakeholders expands participation while reducing structural inequalities within innovation ecosystems.

Societal implications extend beyond organizational performance because equitable innovation ecosystems contribute directly to democratic governance, social cohesion, institutional accountability, sustainable development, poverty reduction, digital inclusion, and community resilience. Innovation systems capable of integrating marginalized voices throughout governance processes are therefore better positioned to address complex development challenges while generating broadly shared social value.

Improved innovation performance primarily resulted from strong collaborative relationships among governments, universities, civil society organizations, donor agencies, and social enterprises. Cross-sector partnerships facilitated knowledge exchange, institutional coordination, organizational learning, and resource mobilization supporting innovation development across participating countries. Collaborative governance therefore strengthened institutional capability while expanding opportunities for collective problem-solving.

Persistent equity gaps emerged because institutional resources, funding opportunities, technical expertise, digital infrastructure, and strategic decision-making authority remained unevenly distributed across participating ecosystems. Organizations possessing stronger institutional capacity consistently exercised greater influence over innovation priorities and resource allocation than community-based organizations operating under more constrained conditions. Structural inequalities consequently limited equitable participation despite expanding collaborative innovation activities.

Institutional trust significantly influenced innovation inclusiveness because transparent governance, accountability mechanisms, and participatory leadership strengthened stakeholder confidence while encouraging sustained community engagement. Organizations demonstrating inclusive governance practices consistently generated broader participation and stronger ownership than institutions relying primarily on centralized administrative coordination. Trust therefore functioned as a critical mechanism linking governance quality with equitable innovation outcomes.

Coordinated interaction among inclusive governance, stakeholder participation, collaborative networks, organizational learning, institutional trust, and distributive equity ultimately explains why innovation ecosystems emphasizing participatory institutional arrangements consistently achieved stronger societal outcomes than ecosystems emphasizing technological innovation or organizational efficiency without equivalent attention to equitable governance. Sustainable innovation therefore emerged through institutional transformation rather than technological advancement alone.

Future investigations should examine equity within social innovation ecosystems longitudinally to determine how governance reforms, institutional learning, stakeholder participation, and distributive outcomes evolve throughout extended implementation periods. Longitudinal evidence would strengthen understanding of institutional adaptation while identifying governance practices supporting sustainable equitable innovation across changing socioeconomic conditions.

Comparative international research deserves continued attention because cultural values, governance systems, political institutions, historical inequalities, regulatory environments, and development priorities differ substantially across low-, middle-, and high-income countries. Cross-national analysis will strengthen theoretical understanding of contextual influences shaping equitable innovation ecosystems while identifying transferable governance practices suitable for diverse institutional environments.

Emerging digital technologies including artificial intelligence, digital participation platforms, blockchain governance systems, open innovation networks, civic technology, and data-driven public administration present valuable opportunities for extending research concerning equitable innovation. Future studies should investigate how digital transformation

influences participation, transparency, institutional accountability, resource distribution, and collaborative governance while preventing new forms of technological exclusion.

Interdisciplinary collaboration among innovation scholars, development economists, public administration researchers, political scientists, sociologists, sustainability experts, policymakers, and community practitioners will be essential for advancing future research. Continued integration of innovation studies, institutional theory, political economy, governance research, social justice, and sustainable development will contribute to the design of innovation ecosystems where equitable participation becomes a defining characteristic of innovation success rather than an aspirational policy objective.

CONCLUSION

Findings demonstrate that the effectiveness of social innovation ecosystems cannot be evaluated solely through innovation outputs, organizational performance, or collaborative activity. Distinctive evidence from this study indicates that inclusive governance and stakeholder participation are the primary mechanisms through which innovation ecosystems generate equitable social outcomes. Although participating ecosystems exhibited strong organizational learning, cross-sector collaboration, and innovation performance, substantial disparities remained in resource accessibility, institutional trust, and distributive equity. Innovation therefore produced meaningful societal value only when marginalized communities actively participated in agenda setting, decision-making, implementation, and evaluation rather than functioning exclusively as beneficiaries. This perspective reframes equity as a foundational dimension of innovation effectiveness rather than a supplementary outcome of successful innovation initiatives.

Scientific contribution of this research extends both conceptually and methodologically. Conceptually, the study proposes an integrated framework linking inclusive governance, stakeholder participation, collaborative networks, institutional trust, organizational learning, distributive equity, and social innovation performance into a comprehensive model explaining equitable innovation ecosystems across low- and middle-income countries. Methodologically, the mixed-methods sequential explanatory design combines Structural Equation Modeling with qualitative interviews, focus group discussions, policy analysis, community consultations, organizational observations, and comparative case studies to capture the multidimensional nature of equity within innovation systems. Integration of quantitative and qualitative evidence provides a more comprehensive understanding of how institutional structures, governance practices, and social relationships collectively shape innovation outcomes while offering practical guidance for governments, development agencies, universities, social enterprises, and civil society organizations.

Scope of this investigation remains limited to selected low- and middle-income countries and relies primarily on cross-sectional evidence drawn from established social innovation ecosystems. Variations in political institutions, cultural contexts, governance traditions, economic structures, technological readiness, and historical patterns of inequality may influence the transferability of these findings to other regions. Future research should adopt longitudinal and cross-national comparative designs while incorporating digital governance, artificial intelligence for inclusive public services, participatory policymaking, intersectional inequality, climate-related social innovation, and community-led innovation models to strengthen understanding of how equitable innovation ecosystems can promote sustainable and inclusive development across diverse institutional environments.

DECLARATION OF AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work, the authors used ChatGPT, developed by OpenAI, to assist with language refinement, grammatical correction, structural organization, and improvement of the academic style of the manuscript. After using this tool, the authors carefully reviewed, verified, and edited the content as necessary and take full responsibility for the accuracy, integrity, and content of the publication.

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AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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