

Research Collaboration Across Disciplines: A Systematic Literature Review of Multidisciplinary Research Network and Knowledge Exchange

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KEYWORDS

Interdisciplinary research; multidisciplinary collaboration; knowledge exchange; research networks; Africa; knowledge integration; PRISMA 2020

ABSTRACT

Purpose: Researchers from different fields, institutions and countries are working together to solve problems that one subject alone cannot fully address. However, publishing more papers together does not always mean that researchers share knowledge equally or that their findings influence policy. This review examines how multidisciplinary research networks support knowledge exchange and what helps these partnerships continue.

Design/methodology: This review examined selected journal articles published between 2011 and October 2026. The search involved academic and publisher websites, checking cited studies and screening individual articles. A total of 43 different articles were recorded, and 33 were selected for a descriptive review. The findings were grouped into research networks, knowledge integration, barriers to collaboration, fairness in partnerships and the use of research knowledge.

Findings: The review highlights three main points. First, bringing researchers from different subjects together creates opportunities, but meaningful knowledge sharing requires shared goals and regular interaction. Second, collaboration can improve research output and visibility, but it may also create extra work and unequal control over funding, authorship and research decisions. Third, African research networks are still influenced by historical ties and international partners, although recent studies also show growing regional cooperation and better ways for researchers and policymakers to work together. The proposed REACH model focuses on Relevance, Equity, Access, Co-production and Handover.

Originality/value: This review brings together studies on research networks and knowledge exchange, with a special focus on development in Africa. It explains why publishing together is different from truly combining knowledge. It also highlights the importance of African research leadership, learning from one another and using research findings in practice

1. INTRODUCTION

Major challenges such as climate change, food security, public health, digital inclusion and sustainable livelihoods cannot be addressed fully by one academic subject. Researchers therefore work with experts from other fields who bring different skills, methods and sources of information. Universities, funding agencies and governments support these partnerships because they combine knowledge that may not be available within one discipline. However, forming a team is only the first step. The more important task is to make different ideas work together.

Research collaboration is commonly measured through jointly written papers, links between universities, international



partnerships and citations. These indicators tell us who is working together, but they do not explain how much knowledge is actually shared. Wagner et al. (2011) noted that publication numbers alone cannot show whether researchers have combined ideas from different fields. Ow Yong and Oldac (2026) also found that joint publications receive more attention than activities such as mentoring, building research skills and maintaining long-term partnerships.

This difference is particularly important for African development. International partnerships can give researchers access to funding, laboratories, skills and wider academic networks. At the same time, some partnerships may give greater influence to researchers and institutions outside Africa. Owusu-Nimo and Boshoff (2017) found differences in funding and project roles among research partners in Ghana. Muriithi et al. (2018) showed that funding problems and university conditions also shape collaboration in Kenya. These studies do not suggest that international partnerships should stop. Rather, they show why projects should help local researchers keep useful skills, resources and knowledge after the partnership ends.

Many studies have examined research collaboration, but they often focus on different parts of the issue. Studies of publication networks show how researchers and institutions are connected. Research on teams looks at trust, communication and working across disciplines. Knowledge-management studies examine how ideas are shared and used. African development studies consider funding, institutional strength and unequal power. Earlier reviews discuss several of these issues (Newman, 2024; Vladova et al., 2025), but fewer bring them together. This review therefore looks beyond shared authorship to understand how research networks support real cooperation and learning.

1.1 Conceptual Boundaries and Research Gap

Multidisciplinary research means that experts from different subjects work on the same problem. Interdisciplinary research goes a step further by bringing their ideas or methods together. Transdisciplinary research may also involve people outside universities, such as professionals, policymakers and local communities. A project may use more than one of these approaches (Wagner et al., 2011; Vladova et al., 2025). In this review, 'cross-disciplinary collaboration' refers to researchers working across fields. 'Knowledge integration' means that the different ideas are actually brought together, rather than simply placed side by side.

A research network includes connections among researchers, laboratories, universities, public agencies, businesses and other organisations that create or use knowledge. Knowledge exchange takes place when partners share ideas, data, methods and experience and learn from one another. It involves more than sending out a final report. Isaac et al. (2024) explain that exchange includes creating, understanding, adapting and using knowledge in more than one direction. What is still unclear is how the structure of a research network affects these activities and their practical results.

1.2 Research Questions and Objectives

RQ1. Which features of multidisciplinary research networks help researchers maintain partnerships and share knowledge?

RQ2. What factors help or prevent researchers from different disciplines from combining their knowledge, rather than simply working together?

RQ3. How do unequal partnerships, geographical connections and institutional resources influence knowledge exchange in African research systems?

RQ4. What practical framework can universities, funding agencies and policymakers use to assess research collaboration and the value of shared knowledge for development?

The study has four objectives: to identify the main areas covered by previous research; to examine how research networks, teamwork and knowledge sharing are connected; to understand the challenges of fairness and institutional support in Africa; and to develop a practical framework that can be tested in future studies.

2. RESEARCH METHODOLOGY

2.1 Review Design and Reporting Standard

This review follows a structured approach and uses the main reporting principles of PRISMA 2020 (Page et al., 2021). PRISMA recommends clearly explaining how studies were found, screened, selected and excluded. Articles were identified through publicly accessible journal and publisher websites, academic search pages and citation checks. The review did not use a complete, verified export of search results from Scopus or Web of Science.

2.2 Identification Strategy and Time Boundary

The search focused on three groups of terms: (i) multidisciplinary, interdisciplinary and transdisciplinary research; (ii) research collaboration, co-authorship and research networks; and (iii) knowledge sharing, exchange, integration, co-production and translation. Articles published between January 2011 and 23 October 2026 were considered. This period covers earlier work on measuring collaboration as well as recent studies of regional partnerships and the practical use of knowledge.

The following example search string was used and adjusted for different academic and publisher websites: ("interdisciplinary research" OR "multidisciplinary research" OR "team science" OR "cross-disciplinary") AND ("research collaboration" OR "scientific network*" OR coauthorship OR "knowledge integration") AND ("knowledge exchange" OR "knowledge sharing" OR "knowledge translation" OR "research output"). Another search combined (Africa OR "African universit*" OR "sub-Saharan Africa") AND ("research collaboration" OR "research network*" OR "knowledge

exchange"). The wording was adjusted for each website, so this was not one identical search run across all databases.

2.3 Inclusion and Exclusion Rules

Include	Exclude
English-language journal articles published from 2011 to 23 October 2026	Reports, books, news and editorials without research findings that can be assessed
Research involving more than one discipline, institution or group that creates knowledge	General teamwork, classroom teaching or patent studies without a research-network focus
Original studies, network analyses, interviews, mixed-method studies, useful reviews or relevant conceptual papers	Articles without enough information to identify a relevant finding
Research on networks, knowledge sharing, integration, skills, fairness or use of findings	Articles that do not address any of the review questions

2.4 Screening and Extraction

The search and citation checks produced a list of 43 different articles. Of these, 33 had enough available information about their purpose, research approach and findings to help answer at least one research question. Ten articles were removed after checking their titles and abstracts. No duplicate articles remained in the recorded list, and no further articles were removed after the final content check. All 33 selected studies appear in Table 2. The publication-year and theme charts are also based on these 33 studies only.

For each selected article, the review recorded its publication year, geographical focus, research method, main theme and key finding. Where full articles were freely available, their methods and findings were examined. For articles behind access restrictions, the review used only the information available in public abstracts or publication records. This is an important limitation because not every full text was examined. Each study was placed under one main theme for counting purposes, even though some studies cover more than one theme.

2.5 Assessment of Evidence Strength and Synthesis

The studies were reviewed with attention to the type and quality of evidence rather than giving each one a single numerical score. For network studies, the review considered whether the findings were based mainly on joint publications, which journals were covered and how network positions were explained. Survey and interview studies were considered in relation to their location and sample. Review papers were treated as summaries of earlier evidence, not as new measurements of effects. Because the studies used different methods and outcomes, their results could not reasonably be combined into one statistical meta-analysis.

2.6 Prisma Flow

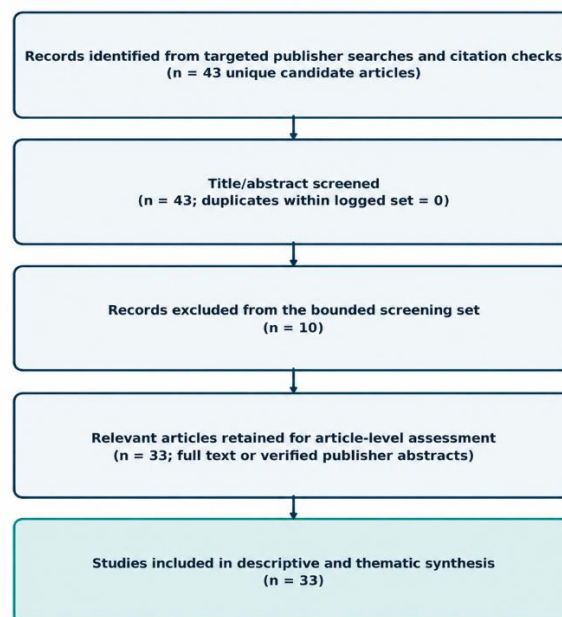


Figure 1. Prisma Flow Diagram

3. RESULTS AND EVIDENCE PROFILE

The final review includes 33 peer-reviewed articles published between 2011 and 2026. Nineteen focus directly on African research networks, universities, regional partnerships or the use of research in policy. The other fourteen examine ideas and measures that are useful across different countries. The selected studies include both analyses of research networks and studies of how people collaborate in practice. Together, they help show the difference between being connected and truly sharing or combining knowledge. However, the different methods make direct comparisons difficult.

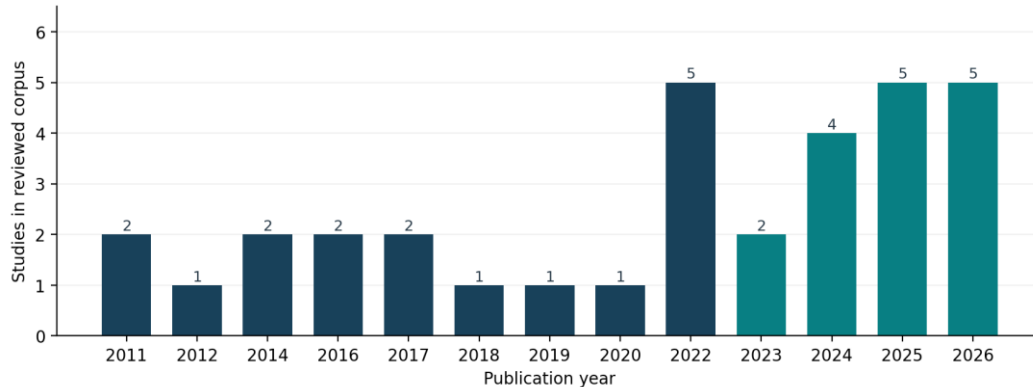


Figure 2. Publication year of included studies

The number of selected articles differs from year to year because of this review's limited search list and chosen topics. It should not be taken as the worldwide publication trend. Still, newer studies show a growing interest in how researchers combine knowledge, how fair partnerships are formed and why publication-based measures alone are not enough.

Table 1. Descriptive profile of the included corpus.

Corpus characteristic	Documented value
Articles in synthesis	33
Africa-specific empirical/review settings	19 of 33
General or cross-context studies	14 of 33
Publication range	2011–2026 (to October)
Unit of review	Peer-reviewed journal article
Synthesis method	Structured narrative/thematic; no statistical meta-analysis
Primary thematic code	One per paper for Figure 3; multiple mechanisms discussed in text
Screening limitations	Single-reviewer, selected public sources; full texts variably available

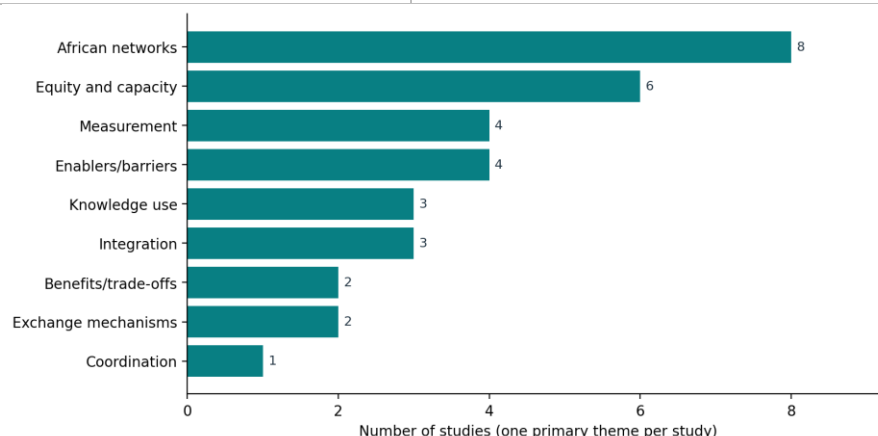


Figure 3. Concentration of primary review themes

3.1 Study-Level Evidence Matrix

Table 2 lists all 33 selected studies. The last column presents each study's main finding in brief. These findings show reported links or patterns and should not automatically be treated as proof of cause and effect. The research methods are

described in broad groups to help readers understand the kind of evidence used.

Table 2. Included-study corpus, evidence design and concise findings.

Study	Design / primary theme	Findings
Toivanen & Ponomariov (2011)	Bibliometric/network African networks	Different regional groups and unequal levels of cooperation across Africa
Wagner et al. (2011)	Review Measurement	Joint authorship alone does not show whether knowledge is truly combined
Kruss et al. (2012)	Survey/cases Knowledge use	Local and institutional conditions affect knowledge sharing between universities and firms
Adams et al. (2014)	Bibliometric/network African networks	Location, language and historical links influence African research partnerships
Pouris & Ho (2014)	Bibliometric/network African networks	High collaboration levels exist, but research priorities differ across disciplines
Zdravkovic et al. (2016)	Interviews/mixed Equity and capacity	Researchers report different resources, experiences and partnership roles
Maluleka et al. (2016)	Survey Enablers/barriers	Networks and shared resources help; rules and limited time create barriers
Leahey et al. (2017)	Longitudinal analysis Benefits/trade-offs	More citations may come with fewer publications and extra teamwork
Owusu-Nimo & Boshoff (2017)	Bibliometric/survey Equity and capacity	Funding, expertise and responsibilities are not shared equally among partners
Muriithi et al. (2018)	Mixed methods Enablers/barriers	Dependence on resources and university barriers affect collaboration
Aarons et al. (2019)	Practice analysis Coordination	Planned teamwork can help research findings reach other sectors
Kontinen & Nguyahambi (2020)	Critical reflection Equity and capacity	Joint writing shows differences in power and opportunities to learn
Vieira (2022)	Bibliometric/review African networks	Research identifies networks, unequal relationships, policies and visibility
Vieira & Cerdeira (2022)	Bibliometric/network African networks	Levels of international connection differ by country and research field
Specht & Crowston (2022)	Mixed methods Integration	Mixing different skills can help results, but can also create difficulties
Zwanenburg et al. (2022)	Conceptual/review Measurement	Different measures of interdisciplinarity can produce different findings
Thu et al. (2022)	Bibliometric Integration	Bringing expertise together affects outcomes in interdisciplinary machine-learning studies
Dosso et al. (2023)	Bibliometric/econometric African networks	Research links within Africa are growing, but outside partners remain important
Cerdeira et al. (2023)	Panel/bibliometric African networks	Shared language and existing relationships help explain cross-border partnerships
Vieira (2024)	Main-path analysis Knowledge use	Joint research contributes to important steps in the growth of knowledge
Newman (2024)	Systematic review Enablers/barriers	There is limited strong evidence on which measures improve collaboration
Qiu et al. (2024)	Scientometric Measurement	Links between collaboration and subject diversity differ by measure
Isaac et al. (2024)	Bibliometric/review Exchange mechanisms	Knowledge exchange involves creating, understanding, adapting and using ideas
Vladova et al. (2025)	Literature review Enablers/barriers	Trust, clear language and agreed roles help work across disciplines

Nakhoda et al. (2025)	Institutional bibliometric Integration	More authors do not always mean that research combines more disciplines
Punjabi et al. (2025)	Scoping/conceptual Exchange mechanisms	Knowledge integration involves resources, teams, working processes and results
Xiang et al. (2025)	Submission dataset Benefits/trade-offs	Different types of interdisciplinarity lead to different review outcomes
Onyancha (2025)	Bibliometric/statistical African networks	Collaboration is linked with research output and impact in Kenyan fields
Nyamukachi & Pouris (2026)	Bibliometric/political economy Equity and capacity	Dependence on outside partners and limited facilities restrict regional independence
Van Schalkwyk et al. (2026)	Bibliometric Equity and capacity	Leading roles and recognition remain unequal in collaborative education research
Sell et al. (2026)	Comparative case study Knowledge use	Researchers and decision-makers need organised ways to share and use findings
Bekele et al. (2026)	Empirical/qualitative Equity and capacity	Unequal value given to different kinds of knowledge can harm fair partnerships
Ow Yong & Oldac (2026)	Systematic review Measurement	Many measures focus on joint papers and miss mentoring or stronger local skills

3.2 Thematic Synthesis

3.2.1 Network reach does not necessarily mean network integration

Research collaboration often connects universities and countries across national borders. In Africa, Toivanen and Ponomariov (2011) found several regional patterns of cooperation rather than one equally connected continent-wide network. Adams et al. (2014) showed that location, language and earlier historical relationships also matter. Vieira and Cerdeira (2022) examined the connections of African countries within international research networks. Dosso et al. (2023) found that collaboration among African countries was increasing, although partners outside Africa continued to play an important role in many joint publications.

These findings show that international recognition and strong regional cooperation are not the same thing. A country may work with well-known overseas institutions but have only limited links with nearby universities. Similarly, many joint publications do not prove that researchers and policymakers regularly share useful information. Network charts can show where connections exist, but they cannot fully explain the quality of work carried out through those connections. This point is important when evaluating multidisciplinary research.

3.2.2 Integration depends on the work done between disciplines

A common finding in previous studies is that having experts from different subjects is not the same as combining their knowledge. Wagner et al. (2011) explained that researchers may exchange and combine ideas without publishing a paper together. On the other hand, people can co-author a paper without deeply combining their different approaches. Zwanenburg et al. (2022) showed that measures of interdisciplinary research can give different results because they focus on different types of subject diversity. Some measures use journal categories, which do not always show whether ideas were actually integrated.

Specht and Crowston (2022) studied 22 scientific working groups and found that teams with varied expertise can achieve good research results when their members actively combine ideas. However, different backgrounds can also create disagreements and dissatisfaction. Nakhoda et al. (2025) found limited support for the idea that simply adding more authors makes research more interdisciplinary. The range of knowledge already held by researchers was more important in their analysis. These studies suggest that shared research questions and combined methods are more useful measures than team size alone.

3.2.3 Knowledge exchange is reciprocal, iterative and situated

Knowledge can be shared when researchers discuss results, learn methods from one another, use common equipment, mentor colleagues or work with policymakers on a shared problem. Isaac et al. (2024) describe knowledge exchange as a two-way or multi-way process that includes understanding, adapting and applying information. Punjabi et al. (2025) developed a framework linking different forms of knowledge to team organisation, communication and results. Their work helps explain why a large research project may still have weak knowledge exchange if its teams work separately without sharing ideas.

The findings suggest that researchers should plan how they will work together before a project begins. Clear language, accessible data, agreed responsibilities and regular discussions can make sharing easier. Partners should also be able to question one another's ideas in a respectful way. Aarons et al. (2019) discussed ways to improve teamwork in health

research. Sell et al. (2026) examined how research findings were shared with decision-makers in a multi-country African health project. These studies suggest that research is more likely to be useful when the people who will use it help define the problem and discuss the findings throughout the project.

3.2.4 Collaboration produces scientific gains and real transaction costs

Working across disciplines may improve research impact, but it also involves difficulties. Leahey et al. (2017) found that interdisciplinary researchers could receive more citations while publishing fewer papers. This may happen because researchers need additional time to understand unfamiliar methods, agree on authorship, meet different academic standards and coordinate their work. Xiang et al. (2025) also found different publication outcomes depending on whether interdisciplinarity appeared in a paper's topic or in the knowledge it cited. These differences show why all interdisciplinary studies should not be evaluated in exactly the same way.

University managers should therefore avoid expecting every interdisciplinary project to produce papers as quickly as a project within one subject. Useful early achievements may include an agreed research plan, shared methods, a common dataset or a workshop with the people who may use the findings. These steps do not replace good scientific results, but they show whether researchers are genuinely working together. This recommendation comes from comparing different studies; it is not based on one combined statistical estimate.

3.2.5 Trust, organisational conditions and leadership shape what can be shared

Successful interdisciplinary research needs more than people with different qualifications. Team members should feel comfortable asking questions, explaining doubts and changing responsibilities when needed. Vladova et al. (2025) show that good communication, trust and understanding of other disciplines are important. However, Newman (2024) notes that many suggestions for improving collaboration have not yet been tested carefully. A programme may sound promising without strong evidence that it actually works.

Research from African universities shows how these problems appear in everyday work. Maluleka et al. (2016) found that professional networks and shared resources encouraged cooperation among information-science researchers in South Africa. At the same time, limited time, funding difficulties and administrative rules created problems. Muriithi et al. (2018) reported similar challenges related to resources and university policies in Kenya. As a result, even simple actions such as holding regular meetings or sharing data may be difficult. Stable funding, helpful administration and reliable communication are therefore important parts of a good research environment.

3.2.6 Partnership equity determines whose knowledge counts

Fair partnerships depend on who makes decisions, not only on whose name appears in a paper. Important questions include: Who chooses the research topic? Who manages the money and data? Who explains the results? Who keeps the equipment and skills after the project? Who receives the leading authorship role or advises policymakers? African studies show that these questions matter. Owusu-Nimo and Boshoff (2017) reported different roles for local and international partners in Ghana. Zdravkovic et al. (2016) described different experiences in North–South and South–South research partnerships. Kontinen and Nyuyahambi (2020) showed how joint writing can either maintain or challenge unequal relationships.

Recent studies continue to raise these concerns. Bekele et al. (2026) discussed North–South health research partnerships and how some forms of knowledge are given more importance than others. Van Schalkwyk et al. (2026) found that African education researchers did not always hold the most recognised authorship positions in joint papers. These findings suggest that the number of international partners is not enough to judge whether collaboration is fair. Researchers should also have a meaningful role in creating, explaining and using the knowledge produced.

3.2.7 African regional collaboration needs institutions, not just more connections

Stronger research links among African countries can reduce dependence on a few overseas institutions. However, this does not mean that useful international partnerships should be reduced. Cerdeira et al. (2023) found that shared language and earlier relationships influenced cooperation between countries. Dosso et al. (2023) reported that belonging to the same African regional economic group did not always lead to more joint scientific publications. Links through other countries and institutions also mattered. Regional collaboration therefore needs practical support, working systems and capable institutions. Policy statements alone are unlikely to create long-term research partnerships.

Nyamukachi and Pouris (2026) also reported continuing differences in scientific output across Southern Africa and a strong role for external partners. To respond to these issues, governments and universities need to improve laboratories, doctoral training, shared research facilities and long-term local funding. Better support can help universities move beyond short projects and build stronger research skills over time. It can also make findings on farming, health and climate change easier for African decision-makers to access and use.

3.2.8 Development relevance appears when findings are translated and retained

Research can contribute to development when it addresses a practical problem and its findings can be used. Kruss et al. (2012) studied links between universities and businesses in Nigeria, Uganda and South Africa and showed that national conditions affect these relationships. Vieira (2024) examined how collaboration supported knowledge about health conditions among newborn babies in Africa. Sell et al. (2026) studied how researchers and decision-makers worked together in a health research partnership involving several African countries. These studies show different ways in which

research can move closer to practical use.

The performance of research networks should be assessed in three areas. The first is scientific quality, including good publications and shared research methods. The second is institutional growth, including training, access to data, lasting partnerships and leadership by African institutions. The third is public benefit, such as findings being used by hospitals, agricultural agencies, local businesses or governments. These results may take different amounts of time to appear. They should therefore be measured separately instead of being reduced to one overall collaboration score.

4. Discussion: From Collaborative Connectivity to Productive Exchange

The studies suggest that successful collaboration happens at three connected levels. At the network level, relationships help researchers find expertise and resources. At the team level, shared goals, trust, leadership and access to facilities help people work together effectively. At the outcome level, this work may lead to combined research findings, stronger skills, improved practices or better policies. However, these results do not follow automatically. A well-connected network may still struggle if teams work separately, funding rules are too strict or partners disagree about ownership of knowledge.

Another important issue is whether collaboration works equally well for all partners. International networks may bring funding and resources while still giving some institutions more control over research topics and academic credit. This does not mean that international cooperation is harmful. It means that differences in power and resources should be considered from the start. If funders focus only on publication numbers, they may overlook the value of collecting local data, explaining community needs and maintaining relationships that help research findings reach the people who need them.

The review also shows that collaboration is difficult to measure. Researchers use subject categories, cited papers, authors' backgrounds and co-authorship links to measure work across disciplines. Knowledge sharing, meanwhile, is often described through interviews or project reports. Few studies measure both these areas over time. Future research should combine publication records with evidence of meetings, shared data, research decisions, changes in methods, policy discussions and skills retained by partner institutions. Without this wider evidence, a published paper may be mistaken for proof of meaningful knowledge exchange.

4.1 Proposed REACH Framework for Multidisciplinary Research Networks

Based on these findings, the review proposes the REACH framework to help plan and assess multidisciplinary research networks. This is a proposed model and has not yet been tested in a new research project. It includes five areas: Relevance, Equity, Access, Co-production and Handover. Together, these areas explain how research connections may lead to fair knowledge sharing and useful results for development. The framework can guide future studies, but it does not replace a full evaluation of research outcomes.

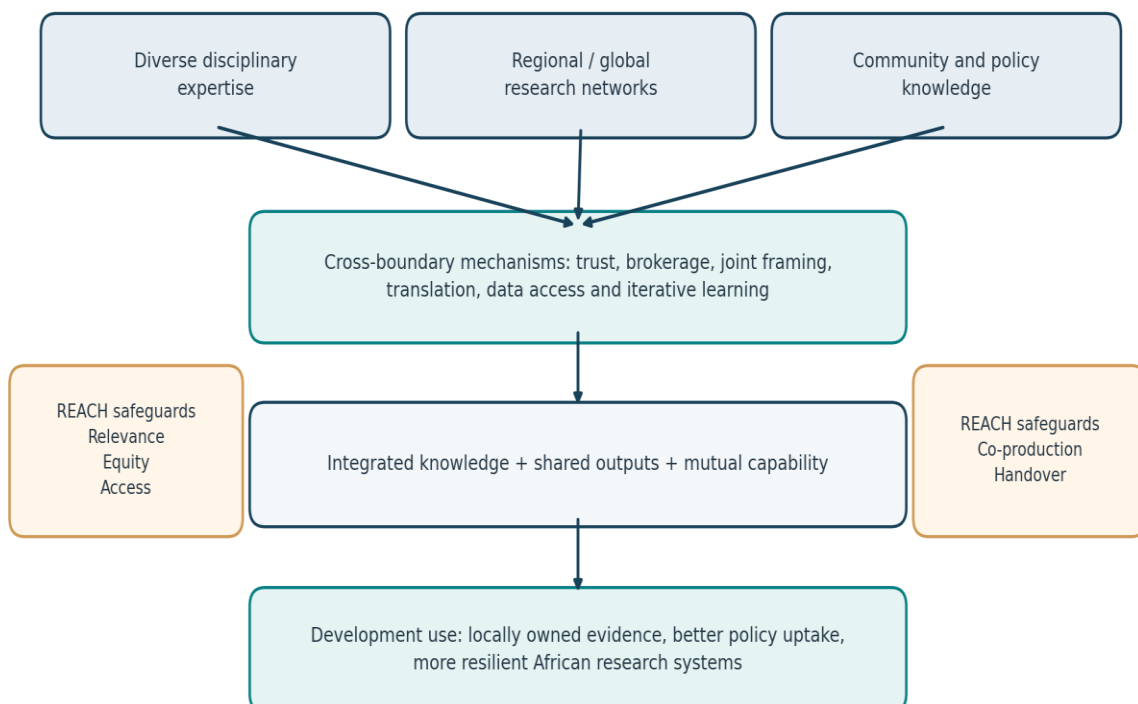


Figure 4. Proposed REACH Framework

Table 3. Proposed REACH Operationalisation.

REACH pillar	Question for a research network	Potential observable indicator
R – Relevance	Was the research problem chosen together with African communities or users?	Shared goals and records of stakeholder needs
E – Equity	Who makes key decisions and receives research credit?	Shared leadership, control of funds and fair authorship
A – Access	Can all partners use the data, tools and learning opportunities?	Data access, use of equipment, travel and training support
C – Co-production	Do partners develop and explain findings together?	Joint methods, shared analysis and regular partner workshops
H – Handover	What useful resources and skills stay locally after the funding ends?	Saved datasets, training, use in policy and lasting local partnerships

2. 5. IMPLICATIONS FOR AFRICAN RESEARCH POLICY AND INSTITUTIONAL PRACTICE

5.1 Universities and research institutes

Universities can make multidisciplinary projects easier by offering small joint research grants, shared administrative support and clear rules for data use, authorship and resolving disagreements. Funding decisions should recognise the time needed to build a team and develop common research methods. Training programmes can also help researchers learn how to manage data, write together and work with people who use different research approaches.

5.2 Funding bodies and international partners

Funding agencies should encourage African and international partners to design their projects together. African researchers should not be given only the task of collecting data or carrying out decisions made elsewhere. Partners should agree early on who will control the budget, lead activities, receive training and use research equipment. Project evaluation should consider publications as well as knowledge sharing and long-term benefits, such as new locally led grants, joint supervision of postgraduate students, useful datasets and continued regional partnerships. This reflects the Africa Charter's support for fairer research partnerships, although the Charter itself was not treated as a research study in this review (Association of African Universities, 2023).

5.3 Regional science organisations and governments

African regional organisations and governments can support joint research projects that address real policy needs. Important areas include climate change, farming, maternal and child health, water and access to digital services. Shared data systems, common research procedures, protected training funds and information in local languages may provide more lasting value than separate short workshops. Stronger African regional partnerships can work alongside global partnerships and give local institutions more choices and a stronger voice.

5.4 Monitoring and evaluation

A useful system for assessing research networks should cover several points: the range of partners, who makes decisions, how disciplines combine their methods, what data and skills are shared, whether partnerships continue and how research is used by society. Where information is available, results should also be compared across countries, types of institutions, career stages and project responsibilities. Having more connections is not always better. Research findings may also take years to influence policy, so evaluations should consider both time and local conditions rather than judging success only by the number of joint publications.

6. LIMITATIONS AND FUTURE RESEARCH

This review has four main limitations. First, the search used selected public academic and publisher websites. The 33 included articles therefore form a clearly recorded but limited set; they do not represent every study published worldwide. Second, one reviewer carried out the screening and grouping of themes, so agreement between independent reviewers was not checked. Third, some articles were available only through their abstracts, which may not include all methods or findings. Fourth, the included papers use very different research designs. Because of these differences, the findings cannot be combined into one reliable statistical effect or applied equally to every setting.

Future studies should test specific ways to improve research networks, such as small grants for new partnerships, interdisciplinary training, shared laboratories and rules requiring partners to design research together. Researchers should also follow teams over several years to see whether knowledge sharing continues after project funding ends. Studies using both numerical and qualitative methods could compare co-authorship patterns with data sharing, joint methods, decision-making, authorship and policy use. In Africa, future work should give more attention to smaller institutions, less-studied subjects, local-language networks, differences linked to gender and career stage, and South–South partnerships outside

major research centres.

7. CONCLUSION

Multidisciplinary research networks are useful because they bring researchers with different knowledge and skills together. However, simply connecting people does not mean that they share knowledge, and sharing does not always mean that ideas are combined. Good collaboration requires clear research questions, methods that all partners understand, mutual trust, suitable resources and openness to different views. It also requires time to coordinate activities and fair opportunities for researchers to make decisions and receive recognition.

The findings from Africa show why these issues matter. International partnerships help universities gain expertise and become more visible, but regional networks and local institutions also need steady support to build lasting research skills. Collaboration should be judged not only by publications but also by who helps choose the research questions, who keeps data and resources, who develops new skills and who uses the findings. The proposed REACH framework offers a starting point for considering these factors. Future research should test whether such practices really improve knowledge sharing and bring benefits to local communities.

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