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RESEARCH ARTICLE



Building effective leadership and coordination for assistive technology: best practices and recommendations from six countries across Sub-Saharan Africa

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ABSTRACT

Background: Effective leadership and coordination are essential for improving access to assistive technology (AT), particularly in low- and middle-income countries where efforts are often fragmented and resources limited, posing significant challenges. This study examines best practices, and lessons learned from efforts to strengthen AT leadership and coordination across six Sub-Saharan African countries. **Methods:** A qualitative descriptive thematic analysis was conducted, drawing on document reviews and semi-structured interviews with eight subject matter experts (SMEs) involved in AT policy and implementation. The study focused on the structures, processes and stakeholder engagement strategies underpinning AT coordination frameworks. **Results:** Findings reveal that strong government ownership, inclusive and structured coordination mechanisms such as technical working groups (TWGs), diverse stakeholder engagement and clear governance structures are critical for effective AT leadership and coordination. Successful initiatives emphasised transparent decision-making, sustainable funding and regular knowledge sharing. Key challenges include funding constraints, inter-ministerial coordination and limited capacity. **Conclusions:** Establishing inclusive, well-governed coordination mechanisms enhances AT access and aligns national efforts with international frameworks. The experiences of the studied countries offer actionable recommendations for policymakers and practitioners seeking to strengthen AT leadership and coordination. Ongoing capacity building, stakeholder engagement, awareness raising and global knowledge exchange are vital for sustainable progress.

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> IMPLICATIONS FOR REHABILITATION

- Institutionalising coordination through technical working groups (TWGs) is essential. This research highlights that rehabilitation is rarely a single sector issue. Establishing formal, government-led TWGs is essential to move beyond fragmented service delivery towards a cohesive national system that aligns clinical expertise with policy.
- Prioritising lived experience in service design. For rehabilitation to be truly effective, practitioners and policymakers must shift from a purely medical model to a participatory one. This requires treating Organisations of People with Disabilities as essential subject matter experts rather than passive recipients of technology.
- Bridging the gap between policy and practice, successful assistive technology implementation requires more than just high-level strategy. It demands clear terms of reference (ToR) and defined roles across ministries, such as health, education and social affairs to ensure that rehabilitation services do not fall through the cracks of bureaucratic silos.
- Sustainability through data and capacity, long term progress in the region depends on moving away from donor driven cycles and towards state owned systems. These systems must prioritise local workforce training and robust data collection to allow for evidence-based adjustments to rehabilitation programmes in real time.

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Introduction

Assistive technology (AT) plays a crucial role in promoting independence, participation and social inclusion for individuals with disabilities and those requiring assistance with activities of daily living such as older adults and those with chronic illness. However, the effective implementation and coordination of AT programmes remain challenging in many countries due to fragmented efforts across different ministries and agencies [1,2]. A lack of effective leadership and coordination has been identified as a major barrier to government-led responses to AT needs [3]. To address this issue, investment has been made in the development of government-led processes and mechanisms to improve the coordination and ensure collaboration across government and broader stakeholders. One approach has been the establishment of technical working groups (TWGs), whose membership represents a broad cross section of stakeholders, are government led and are established to strengthen leadership and coordination of AT service delivery. Across different countries, there has been variations in the types and modalities of approaches used to develop leadership coordination [4,5]. This article examines these coordination mechanisms within the Sub-Saharan African context, drawing on experiences from six countries in the region.

Effective development and implementation of AT programmes necessitate collaboration among diverse stakeholders, including clinical experts, policymakers and end-users [1,3–8]. Such collaboration is required to bridge the gap between government understanding, human needs and technological solutions, ensuring that AT devices provided and/or available are functionally appropriate, culturally appropriate, affordable and user-friendly [1,3–8]. Engaging a wide range of stakeholders in multidisciplinary AT TWGs, including Organisations of People with Disabilities (OPDs), government entities, Non-Governmental Organisations (NGOs), civil society and the private sector, is one method that has been used to facilitate this collaboration [3,9]. Actively involving OPDs and ensuring the meaningful participation of persons with disabilities in all aspects of AT policy development and implementation is a prerequisite to ensure the creation of user-centred solutions. Recognising the valuable insights and experiences of persons with disabilities is foundational for shaping AT initiatives that effectively respond to their needs and preferences, thereby enhancing AT leadership and coordination [10]. This collaborative framework aligns with international standards and frameworks, such as the Convention on the Rights of Persons with Disabilities [11–13] and the Sustainable Development Goals [14,15] further emphasising the importance of a rights-based approach. While AT benefits a broad range of users including older adults and people with chronic conditions, the coordination mechanisms examined in this study were primarily established within disability policy frameworks, and thus persons with disabilities feature prominently in both the data and the discussion that follows.

Capacity building, knowledge sharing, and awareness raising are critical for fostering a shared understanding of AT among all stakeholders [3]. Investing in these areas is essential to ensure that AT initiatives are responsive to the needs and preferences of end-users while leveraging the expertise and resources of various sectors [16]. However, despite the growing recognition of the importance of AT, access remains limited in many countries, particularly in low- and middle-income settings [3]. Barriers to access include high costs, lack of financing, limited availability, inadequate product range, procurement challenges, workforce capacity gaps, insufficient policies and sociodemographic obstacles [3]. Addressing these barriers necessitates a systematic, multi-stakeholder approach that actively engages governments, civil society, the private sector and international organisations [3].

To systematically address these challenges and enhance the implementation of AT, the World Health Organisation's (WHO) six building blocks of health system strengthening provide a comprehensive framework [17]. The building blocks of; Leadership and Governance, Health Workforce, Health Information Systems, Medical Products, Vaccines and Technologies, Health System Financing and Service Delivery, are all necessary to create an enabling environment for AT access and ensuring that initiatives are effective and sustainable. Aligning AT initiatives with these six building blocks, will enable adoption of a systematic and holistic approach to improving AT access and outcomes. Aligning with the goals to bring more effective leadership, better coordination, which will enable enhanced access to life-changing AT.

Government plays a pivotal role in fostering an enabling environment for AT access within countries through developing policies, programmes and funding mechanisms [3]. Establishing inclusive TWGs with clear governance structures and performance targets aligns efforts across stakeholders and enhances

inter-ministerial cooperation, which is essential for effective AT leadership and coordination [8]. Civil society organisations, including OPDs, NGOs and community groups, must all partner together in raising awareness, advocating for policy changes and supporting AT users. Through this partnership they must ensure that initiatives include AT users are seen as SMEs and those initiatives are responsive to end-users' needs and contribute to the realisation of their rights [9]. The private sector also plays a significant role in developing and distributing high-quality, affordable AT solutions that meet diverse user needs [3]. International organisations like the WHO, ATscale, Global Disability Innovation Hub provide key technical guidance and capacity-building support, exemplified by the WHO's Global Cooperation on AT initiative, which aims to improve access to quality AT for everyone [3].

Effective leadership and coordination are essential for improving access to AT and realising the rights and inclusion of persons with disabilities [7,15]. Establishing inclusive TWGs, fostering multidisciplinary collaboration, engaging OPDs, aligning with international frameworks and investing in capacity building and awareness raising are key factors for success. By learning from the experiences of different countries and leveraging the strengths of diverse stakeholders, significant progress can be made towards ensuring that no one is left behind in accessing the life-changing benefits of AT [2,4,5,7,8,18].

This article aims to identify approaches and practices used in the implementation, coordination and leadership of AT, drawing on the experiences of the six countries who have recently looked to build systems to implement and coordinate the provision of AT. By synthesising insights from a range of text and interview sources, actionable recommendations for policymakers and practitioners to improve the coordination and sustainability of AT programmes globally are suggested. Highlighting the critical role of capacity building and knowledge sharing, in strengthening AT leadership and coordination efforts.

Methods

This study employed a multi-step qualitative descriptive thematic content analysis to explore leadership and coordination mechanisms for AT across six Sub-Saharan African countries: Uganda, Ethiopia, Kenya, Nigeria, Sierra Leone and Zimbabwe. The research design was informed by established approaches to qualitative health research and thematic analysis [19–24].

Study design and population

The study focused on countries in Sub-Saharan Africa where documentation related to the establishment and implementation of AT initiatives within the past five years was available. Countries were purposively selected based on two main criteria: the availability of relevant documentation and the presence of established or emerging AT initiatives. This ensured that the study captured a range of experiences and approaches to AT leadership and coordination in the region. The selection of countries was also influenced by the availability of documentation in English or the research team's capacity to access translations, reflecting the linguistic parameters of the study.

The study population comprised eight SMEs who had direct experience with AT policy, leadership, or implementation in their respective countries. There was one SME from each of the six study countries and two programme-level SMEs. One programme SME was based in Rwanda during the programme implementation and study duration whilst the other was based internationally.

SMEs were identified through professional networks, involvement in national or regional AT initiatives, and recommendations from key stakeholders. All identified experts were invited to participate in the study, which included both an interview ([Appendix 1](#)) and the opportunity to review and provide feedback from the findings from the desktop analysis. This approach facilitated both data triangulation and member checking, enhancing the credibility and trustworthiness of the findings [23].

Data collection

Data collection was conducted in two main phases: a comprehensive document analysis and desktop review, followed by semi-structured interviews with SMEs.

The document analysis and desktop review involved systematic identification and review of both published and unpublished materials related to AT leadership and coordination in the six study countries. Published sources were identified through searches of PubMed, Google Scholar and the WHO Institutional Repository using combinations of the terms “assistive technology,” “assistive products list,” “coordination,” “governance,” “technical working group” and the individual country names. Grey literature was sourced from official government websites, WHO country office repositories and organisational programme files held by the Clinton Health Access Initiative (CHAI), accessed with appropriate permissions. The documentation encompassed government policy documents, programme reports, meeting records, terms of reference (ToR) for coordination bodies and project materials examining the development, structure and operationalisation of national assistive products lists (APLs). Country-specific materials provided detailed information on governance arrangements, stakeholder engagement processes and implementation progress.

Documents were included if they (a) described the development, implementation or evaluation of AT or APL initiatives in one or more of the six study countries, and (b) were produced within the five years preceding data collection. Almost all documents identified through the review were available in English. One APL document was in French; this was translated and subsequently discussed with the relevant SME, who was fluent in both languages, to ensure accurate interpretation. The review aimed to map the mechanisms, processes, and systems established for coordinated AT initiatives, with a particular focus on governance structures, membership composition, objectives, decision-making processes, funding arrangements and communication strategies. The review also examined differences in approaches, including the use of TWGs and other coordination modalities, to understand variations in implementation across countries [22,25]. Findings from the document review directly informed the development of the semi-structured interview guide and provided the initial deductive codes for the analytic framework (see [Appendix 2](#)).

Following the desktop review, semi-structured interviews were conducted, in English, with SMEs from each country ([Appendix 1](#)). Interviews were conducted online *via* Microsoft Teams by two authors: L.S., a female expert in the development of Assistive Product Lists (APLs) with specific contextual knowledge of the African region, and S.A., a female mixed methods researcher, PhD-qualified, with expertise in AT, health systems and policy. Interviews lasted an average of 33 min (range: 26–43 min). Interviews were audio-recorded and transcribed verbatim. The content of the interviews was checked with interviewees to ensure accuracy. The verified interview data has been used to provide additional context and insights. The interview guide was developed based on gaps and themes identified during the document review and was designed to elicit detailed information on TWG design, implementation experiences, challenges, successes and recommendations. Interviews explored topics, such as GS1, stakeholder engagement, policy development, capacity building, advocacy, knowledge sharing and the main challenges and facilitators encountered in AT leadership and coordination. Interviews were conducted online, audio-recorded with consent and transcribed verbatim. Interviewees were given the opportunity to review and verify their transcripts and the study findings, supporting the process of member checking and ensuring the accuracy of the data.

Data analysis

Data from both the document review and interviews were analysed using a hybrid thematic analysis approach, drawing on both deductive and inductive coding [19–21]. The Framework Method [22] was used to organise and synthesise the data, and the process was further guided by worked examples of codebook development and thematic tree construction [24].

The analytical process followed the Framework Method’s five stages of familiarisation, identifying a thematic framework, indexing, charting, mapping and interpretation. Following independent coding of interview transcripts, codes were systematically grouped based on conceptual similarity and relationship (see [Appendix 2](#)). For example, codes relating to sub themes such as GS1, technical working group establishment (TWG1) and political will (PW1) were clustered into a broader theme of “Governance and Leadership Structures”. This iterative process resulted in five overarching themes: Governance and Leadership Structures, Stakeholder Participation and Representation, Coordination Mechanisms and Processes, Technical Development and Capacity Strengthening and Sustainability and Resource

Mobilisation. These themes were then synthesised to identify the essential structural components that underpinned successful AT coordination across all six countries, resulting in the five-pillar framework of Membership, Decision-Making, Funding, Collaboration and Guidelines. Each pillar represents the distillation of empirical patterns observed consistently across country contexts, with particular attention to the elements that participants identified as critical to effective governance.

An initial codebook was developed based on the study objectives, interview guide and key concepts from the literature. This codebook was iteratively refined as new themes emerged from the data, ensuring that both anticipated and novel themes were captured. Codes were grouped into broader themes, which were organised into a thematic tree to illustrate the relationships between key concepts and to ensure a comprehensive understanding of the data.

Two researchers (SA and LS) independently coded a subset of transcripts to ensure consistency and enhance reliability, with discrepancies resolved through discussion and consensus [20]. S.A. is a PhD-qualified mixed methods researcher with expertise in AT, health systems, and policy and L.S., an expert in APL development in the African context. To ensure trustworthiness, we employed member checking, triangulation of data sources and maintained an audit trail of analytic decisions. All data were independently reviewed by two researchers, and discrepancies were resolved through discussion.

The coding process and analytic decisions were systematically documented, maintaining an audit trail to enhance transparency and rigour [23]. Thematic analysis continued until data saturation was achieved, with no new themes through the coding process or analysis. Themes were identified both deductively, based on the study objectives and interview guides and inductively, based on a measure of patterns from the interview and desktop data. The analysis focused on identifying best practices, challenges and recommendations related to AT leadership and coordination.

To further strengthen the trustworthiness and credibility of the findings SMEs reviewed the results and findings of the article supporting triangulation and the validity of the results. Appendix 2 provides the code book for the key themes and demonstrate the alignment from the data, the codebook and the reported themes.

Ethical considerations

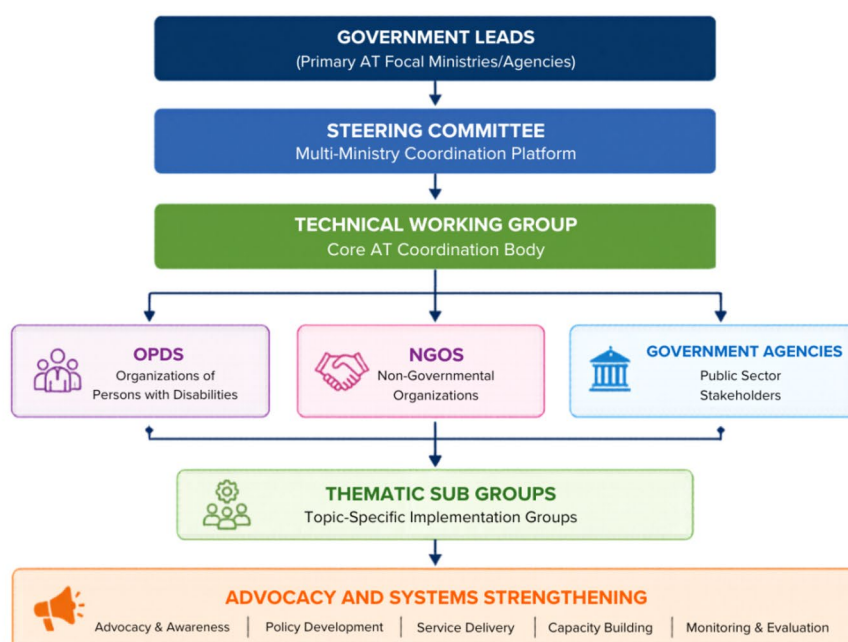
Ethical approval was not required for this programmatic analysis, as it did not involve human subjects research in the traditional sense. All interview participants were engaged as SMEs providing insights into organisational processes and policy implementation, rather than as research participants sharing personal or sensitive data. Nevertheless, ethical considerations regarding participant confidentiality and informed consent were strictly adhered to throughout the study. All interviewees provided informed consent for their participation, and their responses were anonymised in the analysis and reporting. The study adhered to ethical research principles as outlined in the Declaration of Helsinki.

Results

Overview of country experiences

This article aims to identify best practices in AT leadership and coordination across six countries in Sub Sahara Africa. The insights gathered from Ethiopia, Kenya, Nigeria, Sierra Leone, Uganda and Zimbabwe reveal significant variations in how these nations approach AT initiatives, highlighting the importance of effective frameworks to address the fragmented nature of services. Each country has developed unique systems for AT leadership and coordination, involving government entities and various stakeholders, including OPD and civil society.

A comprehensive analysis of these AT coordination frameworks in the studied countries reveals significant insights into their operational structures and effectiveness. While each country has developed unique approaches to AT coordination, several common elements emerged as pivotal for successful implementation. [Figure 1](#) highlights the key characteristics of each country's AT coordination structures illustrating respective coordination mechanisms alongside the organisational relationships that underpin these. This figure highlights variations in governance maturity, from Uganda's legislatively mandated



Note: OPDs = Organizations of Persons with Disabilities; AT = Assistive Technology.

Comparison of Assistive Technology Leadership and Coordination Mechanisms Across Six Countries

Country	Government Leadership (Primary AT Focal Point)	Coordination Mechanism (How Coordination is Organized)	Stakeholder Engagement (Key Participants)	Distinguishing Feature (Unique Strength)
Ethiopia	- Ministry of Health - MOU with Ministry of Women and Social Affairs	- AT and Rehabilitation Technical Working Group (TWG) - Linked to National Strategy for Health, Education and Social Support	- OPDs (e.g., FEAPD) - NGOs operating in the disability area - Government agencies	Strong inter-ministerial cooperation ensures all voices are heard in decision-making and implementation.
Kenya	- Ministry of Health - Ministry of Education - Ministry of Labor & Social Protection	- Multi-sector coordination platform - Quarterly meetings - Thematic working areas: AT Delivery, Training & Upskilling, Supply Chain	- Rehabilitation partners - NGOs - OPDs - Government agencies	Emphasizes "data and systems work magic" for effective decision-making and tracking progress.
Nigeria	- Ministry of Humanitarian Affairs - National Commission for Persons with Disabilities	- Decentralized structure with each ministry operating within its mandate - Commission coordinates across government entities	- NGOs - OPDs - International organizations - Government agencies	Disability Act of 2018 establishes the National Commission for Persons with Disabilities to enhance coordination.
Sierra Leone	- Ministry of Health – NCDs & Mental Health - Ministry of Social Welfare	- National Rehabilitation Program - Thematic areas: AT Quantification, Guidelines & Standards, Procurement	- OPDs - NGOs - Service providers - Government agencies	AT is framed as both a health issue and a social issue; OPDs play an integral advisory role.
Uganda	Multi ministry structure (various line ministries)	- Multi-sector Coordination Committee for Rehabilitation & AT - Representation at national and subnational levels (including local government and private sector)	- Government agencies - Local governments - Private sector - OPDs and other stakeholders	Consultative meetings are emphasized to coordinate players and align with national priorities.
Zimbabwe	Ministry of Health & Child Care – Rehabilitation Department	Multi-stakeholder coordination platform under the Rehabilitation Department	- Persons with Disabilities - Caregivers - NGOs - Government agencies	Emphasizes government leadership with strong engagement of persons with disabilities and caregivers in policy development.

Note: AT = Assistive Technology; OPDs = Organizations of Persons with Disabilities; NGOs = Non-Governmental Organizations.

Figure 1. Country level organisational structure for AT governance and implementation.

National Council for Disability and Kenya's three-tiered committee structure to Zimbabwe's maturing coordination arrangements. Across all six countries, ministries of health serve as the primary coordinating entity, with varying degrees of inter-ministerial collaboration, OPD engagement and stakeholder representation.

Table 1 presents a comparison of AT coordination mechanisms across the six study countries, organised by the framework pillars. Several commonalities emerge across contexts. All countries position ministries of health as the primary coordinating entity, reflecting AT's historical framing within health systems. Multi-stakeholder membership, including OPDs and development partners, is universal. However,

Table 1. AT Coordination findings for each country aligned to framework pillars.

Country	Membership	Decision-making	Funding	Collaboration	Guidelines
Ethiopia	MOH leads; multi-sectoral TWG includes Education, Labour, Social Affairs, NGOs, OPDs	MOH chairs coordination meetings; consensus-based decisions	Primarily donor-funded; limited government budget allocation which is gradually increasing	Inter-ministerial coordination through quarterly TWG meetings	Draft TOR developed; formalisation pending
Kenya	National Steering Committee with 10+ ministries, OPDs, NGOs, private sector	MOH as secretariat; Cabinet-level endorsement for major decisions	Mixed: government budget, NHIF, development partners; procurement via KEMSA	Partner mapping dashboard; cross-sectoral coordination through NSC	Formal TOR and M&E framework established, regular reporting to Cabinet
Nigeria	Federal-level TWG includes Health, Education, Women Affairs, NCPWD, NGOs, OPDs	Federal Ministry of Health chairs; state-level autonomy for implementation	State-dependent; federal guidance but limited central funding	North-South coordination challenges; focus on state-level capacity building	Legislative framework (Disability Act); operational guidelines under development
Sierra Leone	The National Disability, Assistive Technology and Rehabilitation Technical Working Group coordinates key line ministries plus NGOs and OPDs	MOH leads; inter-ministerial consensus required for APL decisions	Heavily donor-dependent; domestic budget advocacy ongoing	Strong partner coordination; regular stakeholder forums	TOR in place; procurement protocols established
Uganda	National Council for Disability (statutory body) leads; includes multiple ministries, NGOs, OPDs	Council has legislative mandate; formal authority for AT policy	Government budget line for disability; supplemented by development partners	Decentralised to district level; community health worker integration	National AT Policy (2023); formal M&E framework; procurement standards
Zimbabwe	Ad hoc coordination group: MOH, Social Welfare, Education, NGOs, OPDs participate	MOH convenes; informal decision-making structure	Almost entirely donor-funded; minimal government allocation	Limited inter-ministerial coordination; siloed ministry operations	No formal TOR; guidance documents in draft form

significant variations exist in formalisation and sustainability. Uganda and Kenya demonstrate the most institutionalised approaches, with legislative mandates, formal ToR and dedicated government budget allocations. Nigeria's federal structure creates coordination challenges, with implementation varying substantially across states. Ethiopia and Sierra Leone show strong coordination mechanisms but remain heavily donor-dependent for funding. Zimbabwe exhibits the least formalised structure, operating through *ad hoc* arrangements with minimal government financial commitment. These variations reflect different stages of AT systems strengthening and diverse political, legislative and resource contexts across the region.

Key lessons learned

Key lessons, and barriers and facilitators, were identified and learnings from the implementation of coordination frameworks in countries included in this study. Keys to success were highlighted including ownership of the implementation process, having a broad range of stakeholders involved in development, clearly defined requirements for the implementation and a willingness to communicate and share information. These key lessons underpin the development of the best practice framework below ([Figure 2](#)).

Importance of government ownership and drive

Effective AT leadership and coordination frameworks are heavily reliant on strong government ownership. In Sierra Leone, it was noted that "it's not just a health issue; it's also a social issue," underscoring the need for government commitment across multiple sectors. This is mirrored in Uganda, where a multi-sectoral coordination committee facilitates direct collaboration between ministries. Similarly, evidence from Ethiopia and Kenya suggests that without high-level government leadership



Figure 2. Best practice framework for AT leadership and coordination.

to align AT initiatives with national priorities, policy implementation remains stalled. The centrality of government authority and cross-sectoral commitment observed across all six countries and highlighted in this key learning formed the foundation for both the Decision-Making and Collaboration Pillar in the framework.

Diverse range of stakeholders

Successful frameworks are characterised by a broad variety of stakeholders, including OPDs, NGOs and private sector partners. Sierra Leone provides a clear example of this where OPDs play a pivotal role in advocating for the needs of individuals with disabilities. Uganda's framework includes representation from both national and subnational levels, ensuring that diverse voices are heard across these levels. Kenya highlighted the importance of including rehabilitation partners to enhance service delivery to ensure fit for purpose and appropriate service. Expansion of engagement in Nigeria is planned to include NGOs and international organisations as part of continuing development of implementation frameworks. It is this consistent emphasis on inclusive stakeholder composition that underpins the Membership pillar of the framework, where representativeness is positioned as a prerequisite for legitimate governance and appropriate AT provision.

Roles and responsibilities

Establishing clear ToR is key for effective coordination and prevention the duplication of efforts. In Sierra Leone, the framework serves as "an advisory board to the government," aligning goals and expectations from initiation to implementation. Uganda's framework directs and coordinates various stakeholders to minimise duplication and align with already established national priorities. Ethiopia and Kenya both stressed the importance of clear guidelines to define roles and responsibilities, as being fundamental in successful collaboration. Ensuring key activity is completed and duplication of others ideally prevented. Nigeria's establishment of the National Commission for Persons with Disabilities aims to enhance coordination among government entities, moving towards a more integrated approach. Across all six countries, the recurrent need for explicit role definitions and formal accountability structures pointed to a common governance gap.

Communication and knowledge sharing

Regular communication was highlighted as being essential for maintaining stakeholder engagement and fostering collaboration and continuing momentum in development and framework implementation, and this was synthesised through the collaboration pillar. In Sierra Leone, platforms for sharing information on disability and rehabilitation were highlighted as key for effective coordination, while Uganda emphasised the importance of consultative meetings for stakeholder engagement. Experience from Kenya identified that “data and systems work magic” for decision-making and tracking progress. However, Nigeria’s evolving coordination process underscores the need for ongoing dialogue, especially as leadership changes can shift priorities and budget implementation. Resource mobilisation and funding sustainability were evident across all countries and informed the funding pillar. Together these represent the operational and financial infrastructure required for sustaining coordination and successful implementation.

Data and framework development

The five-pillar framework emerged directly from thematic analysis of interview and document data across the six countries. The Membership pillar synthesised evidence on stakeholder composition and inclusive representation, drawing from codes on multi-sectoral engagement and OPD participation. Decision-Making consolidated findings on governance authority, leadership structures and mandate clarity. The Funding pillar distilled patterns related to resource mobilisation and financial sustainability mechanisms. Collaboration integrated evidence on cross-sectoral coordination, communication protocols and stakeholder engagement practices. Finally, the Guidelines pillar brought together codes addressing ToR, operating procedures, accountability mechanisms and monitoring frameworks. This analytical pathway ensured that each framework component is grounded in empirical patterns identified across multiple country contexts, rather than being imposed *a priori*. Table 2 illustrates specific country-level practices and challenges mapped onto each pillar demonstrating the empirical foundation of the framework.

Best practices framework for AT leadership and coordination

The analysis informed the development of a framework for effective AT leadership and coordination, identifying five core elements that underpin successful governance: Decision-Making, Membership, Funding, Collaboration and Guidelines. These components are interconnected, with each reinforcing the others to create a robust and integrated governance system.

Decision-making

Effective coordination relies on decision-making processes that are both clear and transparent. When frameworks are well-structured, they often act as advisory bodies that align the goals and expectations of various stakeholders. Success in this area requires a high degree of role clarity to ensure all participants understand their specific responsibilities. In addition, inclusive decision-making helps guarantee that AT initiatives remain responsive to the needs of all stakeholders, particularly persons with disabilities.

Table 2. Illustrative country practices mapped to framework pillars.

Framework Pillar	Illustrative country practices	Key lessons
Membership	Sierra Leone: OPDs advocate within TWG; Uganda: national-to-subnational representation; Nigeria: statutory disability group representation on Commission board	Diverse Stakeholders
Decision-making	Ethiopia: meetings require ministry presence; Kenya: three-tiered approval process; Sierra Leone: TWG as advisory board	Government Ownership; Roles & Responsibilities
Funding	Kenya: ATscale three-year funding with transition plan; Uganda: advocacy for AT in community health budgets; Ethiopia: dedicated government budget line	crosscutting
Collaboration	Uganda: inter-ministerial coordination committee; Ethiopia: MoU delineating ministry responsibilities; Kenya: partner mapping dashboard	Communication & Knowledge Sharing
Guidelines	Zimbabwe: co-developed TWG ToR; Nigeria: AT scale-up roadmap and product specifications; Kenya: national AT strategy with partner accountability	Roles & Responsibilities

Membership

Successful coordination frameworks are defined by their diverse and inclusive composition. This involves strong government leadership alongside the active participation of OPDs and stakeholders from national, subnational and local government levels. Including the private sector and partners from rehabilitation and related services ensures a broad range of perspectives. Such representation allows for all voices to be heard during the decision-making process, leveraging cross-sector expertise to address the diverse needs of all users.

Collaboration

Recognising that AT intersects health, education, and social welfare makes inter-ministerial and cross-sectoral collaboration indispensable. Multi-sectoral coordination committees facilitate the integration of AT initiatives into broader national systems. By fostering partnerships between these diverse sectors, countries can provide more comprehensive and holistic support for individuals requiring assistive products.

Guidelines

Clear agreed on ToR and well-defined guidelines are necessary for effective coordination. The development and use of the guidelines and documents assist in delineating roles, minimising the duplication of efforts, and ensuring that activities remain aligned with broader national priorities. When stakeholders have a shared understanding of their responsibilities, the framework becomes more effective and accountability is significantly strengthened.

Discussion

The findings of this study align with existing research emphasising the necessity of multidisciplinary collaboration in AT initiatives [1–8,10,26–28]. Effective AT implementation requires diverse stakeholder involvement, including government entities, civil society organisations, and end-users. This principle is evidenced through varied mechanisms such as Sierra Leone's inclusion of OPDs within the TWG, Uganda's national-to-subnational representation and Kenya's deliberate engagement of rehabilitation partners and is a key requirement for developing user-centred solutions [4,5,7]. Engaging diverse stakeholders in policy development is fundamental for realising the rights outlined in the Convention on the Rights of Persons with Disabilities [11], with attempts to meet this requirement evidenced through Nigeria's mandate for OPD inclusion and Ethiopia's progressive inclusion of OPD into governance and decision making. The importance of such collaboration is further highlighted by the need for inclusive practices that enhance the effectiveness of AT initiatives [10,12]. By integrating these perspectives, the findings of this work underscore the critical role of collaboration in bridging the gap between technological solutions and the needs of individuals with disabilities.

Capacity building emerges as a key theme in the literature surrounding effective AT implementation, with knowledge sharing and training among stakeholders vital to ensuring AT access. Insufficient training and awareness, hinders effective service delivery [16], the experiences across the six countries demonstrate that sustainable capacity building requires institutional anchoring rather than standalone training initiatives. Governments are proving that comprehensive capacity-building initiatives are necessary to ensure that AT services are responsive to user needs, as emphasised by the WHO [3] and illustrated by targeted efforts in developing national priority APL in low-resource countries [4,5]. For example, Kenya's development of 13 higher diploma curricula is paired with the requirement that healthcare workers are bonded to counties for two years post-training; and Uganda is integrating AT screening and health care worker education into its revised essential community health service package. This need for training is further highlighted in the systematic review by Owuor et al. [29] emphasises the role of AT in promoting social inclusion, and reinforcing the need not only for ongoing health care worker education training. These insights collectively highlight the importance of investing in human resources and knowledge dissemination to foster a supportive environment for AT initiatives.

Collaboration between government entities and civil society organisations is fundamental for fostering effective AT coordination, and Inclusive governance structures are necessary for successful outcomes in AT service delivery [11,12,30]. The findings of this study reveal that inter-ministerial collaboration, particularly critical for addressing the needs of individuals with disabilities, manifests differently across contexts depending on the degree of formal coordination. In this study, Ethiopia formalised responsibilities through a memorandum of understanding between the Ministry of Health and Ministry of Women and Social Affairs, Uganda established a multi-sectoral coordination committee linking three ministries, while Nigeria's coordination remains largely decentralised across ministries with the National Commission working to bridge these structures. These variations suggest that the degree of formalisation in inter-ministerial arrangements directly influences the coherence of AT governance to ensure that AT initiatives align with the rights and preferences of users as emphasised in the guidelines for AT service provision [14].

The diverse experiences of countries in implementing AT initiatives provide valuable lessons that can inform future efforts. Significant variations exist in how different nations approach AT coordination, consistent with the broader literature [4,5,14,28]. MacLachlan et al. emphasise the importance of developing comprehensive AT policies that consider local contexts and stakeholder needs [31], a principle reflected in the observed variations in governance maturity in this study. For example, the formal three-tiered governance model with data-driven decision making that was utilised in Kenya compared to others that are earlier in their maturity and stages of coordination. Lessons learned from Tajikistan illustrate the necessity of adapting successful strategies to fit specific cultural and resource environments [4] yet funding sustainability emerged in this study as critical challenge regardless of governance maturity with only Ethiopia having a dedicated budget line for AT. The three-year funding arrangement in Kenya with an explicit government transition plan offers a potential model for addressing this funding vulnerability. Additionally, the connection between AT products and the Sustainable Development Goals [14] suggests that effective AT coordination can contribute to broader health and social outcomes [14,15]., Reinforcing the need for flexible and context-sensitive approaches to AT, based in an understanding of the local context, is imperative for effective and sustainable implementation [4,5,28].

The recommendations emerging from this study reflect broader trends in health policy and AT literature, with emphasis on inter-ministerial collaboration aligning with calls for integrated approaches to health and social services [18]. Establishing clear goals and metrics for measuring progress is vital for guiding AT initiatives, such as Kenya's partner mapping dashboard designed to identify activity and prevent duplication [5]. Engaging diverse stakeholders, including NGOs and community groups, is vital for enhancing AT service provision [7], as is the development of formal guiding documents as suggested in this study. These may include co-developed TWG terms of reference or AT scale-up roadmap's as highlighted in Zimbabwe and Kenya as key to institutionalising coordination and development of guidelines that survive leadership transitions. The position article from the Global Research, Innovation and Education in AT Summit [10] also highlights the importance of collaborative frameworks in achieving effective AT outcomes. By situating these recommendations within the broader academic discourse, the study underscores the potential for collaborative efforts to enhance the effectiveness and sustainability of AT programmes.

Recommendations for future initiatives

Based on the findings, several actionable recommendations for policymakers and practitioners emerge. Enhancing inter-ministerial collaboration through continuous dialogue is a key requirement for effective AT initiatives. Engaging stakeholders at all levels, can facilitate better coordination. Expanding involvement to include diverse organisations, such as OPDs, NGOs and community groups, will strengthen AT programmes.

Establishing clear metrics is crucial for guiding activities and measuring progress. Countries should adopt systems for reporting and data capture to track advancements effectively. This analysis synthesises insights from the interviews and existing frameworks, documents and resources, providing an overview of the current state of AT leadership and coordination across these countries, including lessons learned with the aim of improving sustainability and effectiveness of AT programmes globally.

Limitations

The analysis has key limitations, including its focus on a small, purposive sample of countries and reliance on retrospective, self-reported data from a limited number of SMEs per country. The reliance on key informant perspectives means that findings reflect the views of individuals directly involved in AT coordination processes but may not capture the full diversity of stakeholder perspectives. Notably, the study did not include direct input from AT users or systematic engagement with organisations representing persons with disabilities as primary research participants, beyond their participation in the coordination mechanisms described by SMEs. Future research incorporating the voices of AT users and OPD representatives would provide critical complementary insights into the effectiveness and responsiveness of these frameworks.

Country selection was influenced by the availability of documentation in English or the research team's capacity to access translations, and all interviews were conducted in English. In the context of research in the Global South, the dominance of English as the language of knowledge production reflects broader power differentials in global health research. This linguistic constraint may have excluded relevant documentation in other languages, and potentially limited which countries could be included in the study, constraining the generalisability of findings beyond the six contexts examined.

However, the in-depth, multi-country nature of the analysis, combined with the triangulation of data from document reviews and subject matter expert interviews, provided rich insights and enabled meaningful conclusions about best practices and recommendations that can inform efforts to strengthen AT leadership and coordination in other countries.

Conclusion

Effective leadership and coordination mechanisms, such as TWGs, are vital for improving access to AT across diverse contexts. The experiences from six countries in Sub-Saharan Africa provide valuable lessons and best practices that can inform future initiatives. Key elements for success include the establishment of inclusive TWGs, fostering multidisciplinary collaboration, investing in capacity building and aligning with international frameworks. Further research is needed to explore the long-term sustainability and impact of these coordination mechanisms along with testing a best practice framework. Global knowledge sharing and support from international organisations can accelerate progress, ensuring that individuals with disabilities, along with others who benefit from AT including those who are ageing and those with chronic health conditions, have equitable access to the life-changing benefits of AT.

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Author contributions

CRedit: **Sarah Anderson**: Conceptualization, Data curation, Formal analysis, Methodology, Project administration, Writing – original draft, Writing – review & editing; **Frederic Seghers**: Conceptualization, Investigation, Methodology, Writing – original draft, Writing – review & editing; **Lily Saunders**: Data curation, Formal analysis, Project administration, Writing – original draft, Writing – review & editing; **Charles Reza**: Validation, Writing – review & editing; **Frank Chikhata**: Validation, Writing – review & editing; **Eshetu Bekele**: Validation, Writing – review & editing; **Isaac Okiring**: Validation, Writing – review & editing; **Kennedy Mugambi**: Validation, Writing – review & editing; **Gboyega Ibukun Alesinloye**: Validation, Writing – review & editing; **Satish Mishra**: Conceptualization, Methodology, Project administration, Supervision, Validation, Writing – original draft, Writing – review & editing.

Ethics approval

Ethical approval was not required for this programmatic analysis, as it did not involve human subjects research in the traditional sense. All interview participants were engaged as SMEs providing insights into organisational

processes and policy implementation, rather than as research participants sharing personal or sensitive data. Nevertheless, ethical considerations regarding participant confidentiality and informed consent were strictly adhered to throughout the study. All interviewees provided informed consent for their participation, and their responses were anonymised in the analysis and reporting. The study adhered to ethical research principles as outlined in the Declaration of Helsinki.

Consent for publication

All authors have reviewed and provide consent for publication and authors are the only participants in the publication.

Disclosure statement

The authors declare that they have no competing interests.

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Data availability

Due to the qualitative and identifiable nature of data, this data is not available in non-aggregate form.

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Appendix 1

Question guide

1. Introduction – who we are, and the purpose of the interview, consent and right to withdraw.

Member checking following interview and review of article and authorship.

Governance and Coordination:

2. How are different governmental or organisational bodies involved in AT provision and coordination, and how is collaboration achieved across these entities?

3. What role do technical working groups or advisory bodies play in supporting and guiding AT initiatives? How were these groups established, and who are the key stakeholders involved?

Policy and Stakeholder Engagement:

4. What policies or strategies are in place to support AT leadership and provision? How were these developed and implemented, and how are various stakeholders, including user organisations, engaged in the process?

Capacity Building and Advocacy:

5. What initiatives are undertaken to build capacity in AT, and how are advocacy efforts used to promote disability and AT issues? How are the voices of users ensured to be represented in these efforts?

Knowledge Sharing and Challenges:

6. What mechanisms exist for knowledge sharing among stakeholders in the AT sector, and how effective are these mechanisms? What are the main challenges faced in implementing AT initiatives, and how are these challenges being addressed?

Recommendations and Conclusion:

7. Based on your experience, what recommendations would you make for improving AT leadership, coordination, and service delivery? Is there anything else you would like to add regarding AT initiatives, policies, or practices?

Appendix 2 (codebook)

Table 2. Code Book

Theme	Code	Description	Example quote
Governance Structures	GS1	Role of the Ministry of Health and other ministries in AT leadership.	"We have three key ministries in Uganda that are responsible. We have Minister of Gender, Labour and social development which generally is responsible for the welfare of people with disabilities, then we have Minister of Health which is responsible for the health aspects relating to disabilities, including rehabilitation and provision of assistive technology devices, and then we have Minister of Education and Sports which basically comes and play in because of inclusive education policy." (Uganda)
Technical Working Group	TWG1	Establishment and function of the technical working group for AT.	"We have 3 levels of committees. So, we have the steering committee, which of course is the highest and has members from all those ministries, and then you have a technical working group which has around 13 people who are also reps from different organisations. Then that now work to implement the specifics of the different thematic areas." (Kenya)
Advocacy	ADV1	Advocacy efforts for disability and AT issues.	"One of the key functions is to then advocate on behalf of the AT and rehabilitation service users with appropriate government, land ministry and partners to just to increase awareness, understanding and prioritisation of at and rehabilitation issues. It's just a matter of making sure that the government they really prioritise issues to do with disabilities." (Sierra Leone)
Capacity Building	CB1	Efforts to build capacity within the Ministry and other stakeholders.	"We had to come up or develop new curriculums to be able to upscale these healthcare workers and this lead development of around 13 courses, higher diploma courses and this was through institutions in the country, universities as well as colleges. We didn't have a battle as in prosthetics and orthotics in the country, which now already is developed." (Kenya)

Theme	Code	Description	Example quote
Procurement Coordination	PC1	Coordination of procurement processes for AT devices.	"In 20/22 we then did was to see how we can then be able to capacitate the ministry so that they can be able to coordinate procurement. So, we help them to develop the procurement guidelines and also the standards. What we are thinking now is how can the Ministry of Health through the Technical Working Group be able to bring together the different stakeholders involved in the procurement so that they can have a national quantification report." (Sierra Leone)
Political Will	PW1	The influence of political will on AT initiatives.	"There's a strong political will from my experience, from the government itself. Throughout 2019 when we were starting, the appetite within the government during that time was different from as it now was. Things have shifted or have changed over the years, maybe because of the approach that we do working with the ministry, working with the government and also consulting them." (Sierra Leone)
Inter-Ministerial Dynamics	IMD1	Understanding the dynamics between different ministries involved in AT.	"If you look at disability, it's not just a health issue, it's also a social issue. There's a lot that needs to be done in terms of like to frame across different ministries. That's one. And then secondly help the Minister of the Government to have that cognition platform that brings in together different line ministries." (Sierra Leone)
Knowledge Sharing	KS1	Mechanisms for sharing knowledge and best practices among stakeholders.	"Data and systems work magic. You can go to a meeting and MOH meeting with your stories, they'll just listen and start even dozing off, but to show them numbers on the screen, it's a turning point. So, building in the system to be able to show what the problem is because people donate so visuals." (Kenya)
Challenges	CH1	Common challenges faced in implementing AT initiatives.	"Some of the organisation will, they are not really interested to go beyond the deliverables which was promised by their donors. That was also part of the challenge in the past few years. They are not really giving much attention on sustainability and establishing a kind of a sustainable system, but they will be focused on only providing the service." (Ethiopia)
Recommendations	REC1	Suggestions for improving AT leadership and coordination.	"I think data everything is about data. Without that initial data, people thought in Uganda there's just a very small population of people with disabilities. Besides natural disabilities, as we age we all become candidates for disability. So, packaging that data is very important in convincing policymakers and decision makers." (Uganda)
Policy Development	PD1	Development of national policies and strategies for AT.	"The policy was developed through the AT TWG, the assistive technology Technical Working group. Those were the main authors of that, but through consultation with other departments. In terms of development, all these line ministries, all these arms of the techno working group were actually present and all authors of the strategy." (Zimbabwe)
Stakeholder Engagement	SE1	Involvement of various stakeholders in the AT TWG.	"There is a representation of both national and subnational levels, including district local government and the private sector is very much a key part of it for local production. The NGOs, both local CSOs, general role players and organisations of persons with disabilities are also part of this committee." (Uganda)
Multi-Sectoral Coordination	MSC1	Coordination among multiple ministries for AT initiatives.	"The technical working group is comprised of all those line ministries. So, it's just one group of all these ministries, Minister of Public Health, Ministry of Education, Minister of Health and your OPD. So, everyone is just in one room to actually develop this, so it's in consultation with everyone." (Zimbabwe)