a-STEP
ADVANCING SOCIAL INCLUSION THROUGH TECHNOLOGY AND EMPOWERMENT

COST action CA19104 (a-STEP) D3.2. Joint Roadmap: short-term and long-term goals through the use of AT solutions

Authors: Silvio Pagliara, Katerina Mavrou, Maria Mouka, May Agius

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

Contents

List of tables

Funded by the European Union

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

General notes

The "Consensus Roadmap for Assistive Technology" (AT) within the COST Action CA19104 (a-STEP) project builds on foundational work that developed a general framework of best practices in inclusive design and participatory action. This prior framework established core principles for inclusive and user-centered approaches to AT, providing a structured, evidence-based foundation for effective implementation. The roadmap presented in this deliverable translates these best practices into a strategic plan, outlining short- and long-term goals for enhancing AT accessibility and integration across key sectors: education, employment, wellbeing, and independent living. By using a cross-sectoral approach, the roadmap aims to support informed decision-making and collaboration among organizations, policymakers, industry, and other stakeholders to advance AT availability and inclusivity.

Central to this roadmap is the 5P framework, which identifies and organizes the roadmap's goals around five critical elements—People, Products, Provision, Personnel, and Policy—adapted from the WHO's Global Cooperation on Assistive Technology (GATE) community model. Each component plays a role in fostering an inclusive, adaptable AT service delivery system, ensuring the person using AT remains at the center of development and decision-making processes. The *People* component highlights a person-centered approach, with the goal of creating AT systems that empower individuals, respect their rights, and enhance social inclusion. The *Products* component focuses on developing AT devices and tools that are functional, user-friendly, and accessible, supporting participation in areas such as communication, mobility, education, and employment. *Provision* emphasizes accessible and sustainable AT services, covering the identification, funding, and distribution of AT products. *Personnel* refers to a trained, knowledgeable workforce to deliver AT services effectively, supporting individuals across health, education, and social sectors. Finally, *Policy* addresses the need for a robust legislative and policy framework to ensure equitable access to AT, fostering cross-sector collaboration and consistent governance.

The roadmap adopts an inter-sectoral approach that reflects the complexity of achieving true inclusivity in AT. It emphasizes that comprehensive AT access requires coordinated efforts across multiple sectors. Each sector—education, health, employment, and independent living—plays a critical role in promoting AT adoption and integration. For example, in the education sector, the roadmap encourages

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

creating inclusive, AT-enabled learning environments that support all learners, including those with disabilities. In employment, the roadmap supports workplace accommodations and job adaptations, enabling individuals with disabilities to contribute fully and effectively. In health and social care, AT can significantly improve wellbeing by supporting social participation and reducing isolation. Independent living goals include expanding AT support to enable individuals to live autonomously and safely.

To implement this roadmap effectively, a strategic approach inspired by the Entelis Network and the White Paper on Digital Inclusion emphasizes four pillars: goal setting, consolidation, development and innovation, and assessment. These pillars guide the roadmap's application, from establishing measurable targets to adapting policies as technologies and needs evolve. Continuous monitoring and evidence-based evaluation ensure that AT investments and innovations are responsive and impactful, while consolidation efforts focus on aligning policies and resources with AT goals. Development and innovation prioritize creating inclusive technologies, and assessment provides feedback loops to refine AT delivery and access.

This roadmap, thus, represents an evolution from the initial framework of best practices to a cohesive, actionable plan that outlines practical steps for advancing AT accessibility and inclusion. It serves as a guide for stakeholders across sectors to work collaboratively, aiming for a future where AT is seamlessly integrated into society, empowering persons with disabilities to participate fully and independently across all areas of life.

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

1. Presentation of Roadmap: Overview

The roadmap for assistive technology (AT) within the COST Action CA19104 (a-STEP) project presents a comprehensive strategy aimed at supporting persons with disabilities across multiple life domains, including education, wellbeing, employment, and independent living. Developed around a structured framework of People, Personnel, Policy, Products, and Provision, the roadmap defines both short- and long-term goals to ensure that AT is available, accessible, and supportive of inclusive participation in society. This presentation of the roadmap outlines key objectives for each area, providing a strategic vision that spans immediate actions and future ambitions.

Education

In the field of education, the roadmap prioritizes creating learning environments that meet the diverse needs of all learners by leveraging technology. The short-term goal is to establish technology-enhanced learning environments that are responsive to the individual needs of students, including those with disabilities. This involves not only the provision of AT but also integrating principles of Universal Design for Learning (UDL) to promote accessibility. The long-term vision is for educational settings to fully support AT-enabled learning, with universally designed resources that ensure all learners can reach their full potential. Through this approach, the roadmap aims to eliminate barriers in education and promote a culture where AT is naturally embedded within inclusive learning practices.

Wellbeing (Health and Social Life)

For wellbeing, the roadmap emphasizes raising awareness among persons with disabilities (PwD) and their families about their rights to social inclusion and participation in community life. The short-term objective is to foster awareness around the right to a fulfilling social life, supported by AT and inclusive practices. As AT in health and social services becomes more widespread, people with disabilities are better equipped to build social connections, reducing isolation and enhancing quality of life. Long-term goals focus on establishing a cultural context where full social participation for PwD is normalized and valued, ensuring that individuals can engage meaningfully within their communities with the help of AT. This shift not only enriches individual lives but also strengthens community integration and support systems.

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

Employment

In the domain of employment, the roadmap highlights the importance of recognizing and supporting PwD's rights to work, as well as the value they bring to the labor market. Short-term goals include raising awareness among PwD and employers about available AT solutions and possible job adaptations, helping to remove barriers to workplace participation. The roadmap emphasizes capacity building in AT and job accommodations, aiming to equip workplaces with the tools and knowledge necessary to support diverse employees effectively. Looking forward, the long-term goal is to create a job market where access to employment is realistic and discrimination-free. By fostering inclusive policies and work environments, this roadmap envisions a labor market that values diverse abilities and provides equal opportunities.

Independent Living

Independent living represents a critical area within the roadmap, focusing on empowering PwD to live autonomously and with dignity. In the short term, the roadmap seeks to build awareness among PwD and their families about the rights and resources available for independent living, with an emphasis on AT solutions that enhance daily living. A workforce of personal care assistants and clinical professionals trained to support independent living goals is crucial in both the short- and long-term perspectives. The ultimate vision is a societal context in which independent living for PwD is a given, supported by accessible AT solutions and a network of trained professionals who can facilitate this independence.

Personnel

The roadmap also addresses the importance of developing a competent workforce to support AT across sectors. Short-term goals involve implementing AT training programs and capacity-building initiatives for personnel in health, social care, education, and employment sectors. In the long term, the roadmap envisions a workforce fully prepared to support inclusive practices with AT, enabling individuals to access assistance wherever needed. This includes establishing specialized teams capable of providing job support, educational assistance, and independent living resources.

Policy

Policy plays a foundational role in the roadmap, with a focus on enforcing accessibility legislation and fostering cross-sector collaboration. In the short term, policies are

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

needed to recognize and support the roles of AT and specialized services across sectors. The roadmap calls for anti-discrimination regulations and funding mechanisms to support independent living, alongside a long-term vision for a policy framework that enables AT access and removes participation barriers for PwD. This commitment to policy development aims to ensure that AT systems are sustainable, equitable, and responsive to evolving societal needs.

Products (Industry)

In collaboration with industry, the roadmap underscores the importance of adopting best practices in AT product design and development to meet educational, employment, and independent living needs. Short-term goals include ensuring the availability of AT products across various sectors, while the long-term objective is to promote co-creation processes, integrating user feedback to develop innovative solutions. Emphasis on Universal Design principles ensures that mainstream technologies also serve as effective AT solutions, facilitating greater independence and quality of life for PwD.

Provision (Service Delivery)

Lastly, the roadmap emphasizes the need for effective AT service delivery systems that are accessible and affordable. Short-term efforts focus on sharing best practices across countries to adapt services to local needs, while the long-term vision aims for a standardized AT provision system that ensures accessibility in education, employment, and independent living. A coherent service delivery model will enable consistent access to AT, empowering individuals to utilize these technologies as easily as other essential resources.

Overall, this roadmap offers a comprehensive, structured approach to integrating AT across sectors, aiming to create a society that fully supports the participation, independence, and wellbeing of persons with disabilities.

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

Table 1: Overview of the Roadmap

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

	Education	Wellbeing (Health, Social life)	Employment	Independent living
GOAL Persons	*Short term:* All learners' needs are met and supported by technology enhanced learning environments. *Long term:* All learners are supported in fully using their AT and reaching their accessibility requirements by universally designed and AT enabled learning environments.	*Short term:* Raise awareness among Persons with Disabilities (PwD) and their families about their right to a social life. *Long term:* Create a cultural context in which people with disabilities fully participate in the social life of their communities.	*Short term:* Raise awareness among Persons with Disabilities (PwD) and their families about their right to work and their intrinsic value to the labor market. Increase awareness about Assistive Technology (AT) and possible job adaptations. *Long term:* Ensure that entering the job market is perceived as a realistic goal without any discrimination.	*Short term:* Raise awareness among Persons with Disabilities (PwD) and their families about their right to live independently. Increase awareness about Assistive Technology that supports independent living. *Long term:* Create a cultural context in which living independently is a natural possibility for everyone.

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

	Education	Wellbeing (Health, Social life)	Employment	Independent living
Personnel	*Short term:* An assistive technology implementation plan is in place including resources and competence development needs and actions.	*Short term:* Foster a basic understanding of disability throughout society. Incorporate necessary knowledge on how to support people with disabilities into all professions that contribute to the wellbeing of people (health sector, social sector, entertainment sector).	*Short term:* Conduct capacity building in Assistive Technology (AT) and job adaptations.	*Short term:* Develop the necessary workforce (e.g., personal care assistants) to support persons with disabilities in living independently. Integrate the goal of independent living into current clinical practice.
	Long term: Educational settings' capacity is fully developed for supporting inclusive education practices with the use of (assistive) technology.	*Long term:* Ensure everyone knows how to interact properly with and support people with disabilities.	*Long term:* Develop specialized teams capable of supporting people with disabilities in applying for, starting, and maintaining a job.	*Long term:* Ensure clinical practice consistently promotes independent living and that a sufficient number of qualified professionals are available to support the needs of everyone who

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

	Education	Wellbeing (Health, Social life)	Employment	Independent living
				desires to live independently.
Policy	*Short Term:* Recognition and establishment of cross-sectorial collaboration and the role of specialised services across sectors. *Long term:* Develop a policy framework for funding and supporting a coherent service delivery	*Short term:* Enforce existing legislation on accessibility. *Long term:* Foster a culture of accessibility where all	*Short term:* Implement regulations against negative discrimination and introduce transitory positive discrimination policies. *Long term:*	*Short term:* Establish legislation recognizing the profession of personal care assistants. Create funding mechanisms to support independent living. Recognize in funding schemes that mainstream technology may serve as assistive technology for people with disabilities living independently. *Long term:* Eliminate all barriers, whether legislative or

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

	Education	Wellbeing (Health, Social life)	Employment	Independent living
	system including funding, provision, monitoring and systemic evaluation.	barriers to full participation for people with disabilities are removed.	Ensure the job market is open and accessible to all individuals.	financial, that impede anyone who desires to live independently.
Products (industry)	*Short Term:* Adoption of best practice in design and development of assistive technology for education and models of integration in the learning process. *Long term:* Adoption of co-cocreation processes involving all stakeholders for designing inclusive learning opportunities at all levels with the use of technology.	*Short term:* Ensure health and entertainment services have the necessary assistive products to support the needs of people with disabilities. *Long term:* Promote Research & Development in Assistive Technology (AT) with a focus on assistive products that support wellbeing, utilizing co-design methodologies.	*Short term:* Ensure Assistive Products exist to meet the needs of persons with disabilities in the labor market. *Long term:* Promote Research & Development in Assistive Technology (AT) with a focus on assistive products that support full participation in	*Short term:* Ensure Assistive Products are available to meet the needs of persons with disabilities living independently. *Long term:* Promote Research & Development in Assistive Technology (AT) with a focus on assistive products that support independent living,

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

	Education	Wellbeing (Health, Social life)	Employment	Independent living
			the labor market, utilizing co-design methodologies.	utilizing co-design methodologies. Ensure design for all principles are widely adopted when developing mainstream technologies that facilitate activities of daily living.
Provision (service delivery)	*Short term:* Share models of service delivery practice among different countries and stakeholders and identify elements for localization and contextualization. *Long term:* Establish a coherent assistive technology service delivery system based on standardised models that promote inclusive education.	*Short term:* Ensure Assistive Products are available and affordable for everyone who needs them. *Long term:* Ensure all products that support accessibility are widely available.	*Short term:* Ensure Assistive Products are available and affordable for everyone who needs them. *Long term:* Create streamlined Assistive Technology (AT) provision services so that necessary AT can be obtained as easily as	*Short term:* Ensure Assistive Products (both special purpose and mainstream technology) are available and affordable for everyone who needs them. *Long term:* Create assistive technology provision services specialized in solutions for independent living.

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

	Education	Wellbeing (Health, Social life)	Employment	Independent living
			any other equipment required for a job.	

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the European Union

2. Roadmap Elements

Core Roadmap Elements

The roadmap for assistive technology (AT) integration within the COST Action CA19104 (a-STEP) project is structured around the World Health Organization's 5P Framework: People, Personnel, Policy, Products, and Provision. This framework, which also guided the consensus framework of good practices in T3.1, emphasizes a comprehensive, person-centered approach to AT service delivery. The alignment between these two deliverables underscores their shared commitment to establishing robust, inclusive AT systems that meet the diverse needs of individuals with disabilities. Each element of the 5P Framework is expanded upon below to capture the roadmap's aims and strategies.

People (GOAL)

At the heart of the 5P Framework is the individual, the "People" component, underscoring the central goal of creating AT systems that are inherently person-centered. This element focuses on engaging the individual who requires AT directly in the development, implementation, and refinement of these systems. This approach ensures that each person's unique needs, preferences, and goals drive the AT solutions provided to them, fostering a more meaningful and empowering AT experience. By actively involving persons with disabilities in the design and decision-making processes, the roadmap supports the realization of their rights and aspirations, advancing toward broader AT accessibility and societal inclusion. The goal is to create a user-centered environment where AT solutions seamlessly integrate into individuals' lives, enabling them to live, learn, work, and interact as equal members of society.

Personnel

The "Personnel" element addresses the development of a skilled workforce essential for delivering effective AT support and services across multiple sectors, including health, education, employment, and social care. This workforce ranges from highly trained allied health professionals and educators to community-level workers who provide day-to-day support. Personnel need specialized training and ongoing education to equip them with the knowledge and skills required to work with AT users effectively. In the short term, the roadmap emphasizes implementing comprehensive training programs that build competencies across roles, covering both the technical aspects of AT and the interpersonal skills needed to engage with persons with disabilities. Long-term goals focus on establishing a stable, knowledgeable AT

workforce that is deeply integrated within inclusive education, healthcare, and employment systems. This dedicated workforce will be capable of providing guidance, support, and training to AT users, enabling individuals to maximize the benefits of assistive technology across all life areas.

Policy

Policy forms the overarching structure that connects and supports all other elements—Products, Personnel, and Provision—creating an environment in which AT is accessible, equitable, and sustainable. Effective policy-making is essential for developing rights-based, inclusive AT systems. In the short term, the roadmap aims to foster cross-sectoral collaboration, enforce accessibility legislation, and establish frameworks that recognize the role of AT in supporting independence and inclusion. Policies are also needed to introduce funding mechanisms that ensure AT is affordable and available to everyone who requires it. Long-term goals include cultivating a culture of accessibility in which barriers to full participation for people with disabilities are removed. This involves building a policy framework that promotes systemic coordination and governance, supported by monitoring and evaluation systems that ensure AT systems remain responsive to evolving societal needs and technology advancements. Policymakers are encouraged to consider AT as a fundamental right, supported by legislation that mandates access and prevents discrimination.

Products (Industry)

The “Products” element focuses on the design, development, and accessibility of AT products. This includes a wide array of devices that support cognition, communication, hearing, vision, mobility, and self-care. Products can be physical, such as hearing aids or mobility devices, or digital, such as communication apps or cognitive aids. In the short term, the roadmap advocates for the adoption of best practices in AT product design, including adherence to Universal Design principles to ensure these products are accessible to a diverse user base. Immediate actions prioritize making AT available within key sectors like education, employment, and health, ensuring that persons with disabilities have access to the tools they need. The long-term goal emphasizes promoting Research & Development in AT, with a strong focus on co-design methodologies that involve end-users throughout the product creation process. This collaborative approach ensures that the products developed are not only functional and effective but also align closely with users' actual needs and preferences. Additionally, the roadmap encourages the integration of assistive features in mainstream technologies, broadening the applicability of these products and fostering a more inclusive environment.

Provision (Service Delivery)

The “Provision” element pertains to the systems and processes involved in delivering AT products and services to individuals, ensuring these resources are accessible, affordable, and appropriately tailored to individual needs. Provision includes identifying suitable AT devices for each user, securing funding, and organizing distribution in a way that prioritizes accessibility. The roadmap emphasizes a short-term goal of sharing models of AT service delivery across different countries and stakeholders, encouraging the adaptation and localization of effective strategies. These models provide valuable guidance for implementing AT services that can be customized according to regional contexts. The long-term objective is to establish a coherent AT service delivery system that promotes consistent, reliable access to AT solutions across various life domains. Provision is ideally integrated with major sectors—education, health, employment, and social care—creating a supportive ecosystem where AT devices and services are as readily available as any essential resource. This system is designed to evolve in response to technological advancements and user feedback, ensuring that AT remains accessible and responsive to individual and community needs.

Integrated Framework for a Holistic AT Service System

Together, the 5Ps framework—People, Personnel, Policy, Products, and Provision—represents a holistic approach to establishing inclusive, sustainable AT systems. Each element serves a unique function, yet they are interconnected, creating a unified roadmap that promotes AT accessibility and integration across multiple sectors. By focusing on person-centered engagement, skilled workforce development, supportive policies, innovative products, and effective provision, the roadmap envisions a future where AT empowers individuals to participate fully in all aspects of life. This integrated framework aligns with the broader vision of the a-STEP project, fostering a society that values and supports the independence, productivity, and inclusion of persons with disabilities. Through collaboration, innovation, and dedication to accessibility, the roadmap lays the groundwork for a transformative AT service delivery system that benefits individuals, communities, and society at large.

Inter-sectorial Approach of the Roadmap

The roadmap for assistive technology (AT) implementation emphasizes an inter-sectorial approach, recognizing that meaningful advancements in AT accessibility and integration require collaboration across multiple domains, including education,

health, employment, and independent living. By distributing both short-term and long-term goals across these sectors, the roadmap aims to enhance quality of life, educational opportunities, employment prospects, and social participation for persons with disabilities. This integrated approach allows organizations, industry players, and policymakers to make well-informed decisions on AT investments, aligning technological innovations and priorities with the diverse needs of individuals. The following sections outline the unique roles of each sector as envisioned in this roadmap, identifying key stakeholders and their contributions to achieving a cohesive AT ecosystem.

Education

In the education sector, assistive technology is foundational to creating inclusive learning environments. Aligned with a social model of education, which promotes inclusivity, AT enables children with disabilities to access educational resources equitably. Access to AT in education is often a vital first step, as it supports not only academic success but also the development of social relationships, fostering an environment where all students can participate fully. Rapid technological advancements have expanded the options available for inclusive education, allowing students to use specialized tools and software that make learning accessible and interactive. AT in education includes a range of devices, from speech-to-text software to adaptive learning platforms, that may be recommended through collaboration among health professionals, educators, and families.

Moreover, in certain cases, mainstream technologies like iOS, Windows, and Android devices equipped with screen readers or other accessibility features can supplement specialized AT. Educators play a pivotal role in implementing these tools effectively, and thus, must receive adequate training to support students in using AT within the classroom. This roadmap also underscores the need for dedicated AT-trained staff within educational institutions who can guide both students and teachers in maximizing AT's potential. By fostering an inclusive educational setting, this sector supports the development of lifelong learning and participation skills, empowering students with disabilities to thrive academically and socially.

Wellbeing (Health and Social Life)

In the area of wellbeing, AT can significantly improve the quality of life for persons with disabilities by enhancing social connectedness, promoting independence, and reducing risks of social isolation. Assistive products that support health and social participation range from mobility aids to hearing devices and communication tools, each designed to address specific aspects of daily interaction and personal development. For children, a mobility device might encourage active play and social

engagement, while for adults, hearing aids can facilitate more accessible communication, enriching social and family life.

The health, social, and entertainment sectors all play a role in promoting wellbeing through AT. Health practitioners, social workers, and entertainment providers are essential stakeholders in this realm, as they help identify, recommend, and adapt AT solutions that support an inclusive lifestyle. The roadmap advocates for a holistic approach, where AT for wellbeing is integrated across social services and healthcare, enabling individuals to enjoy meaningful social interactions and maintain strong connections within their communities. Additionally, by supporting initiatives that promote AT within social and recreational activities, the roadmap aims to create an inclusive society where wellbeing and social inclusion are accessible to all.

Employment

Employment is another key sector where AT can have a transformative impact, providing tools that enable individuals with disabilities to access job opportunities, enhance productivity, and contribute to the workforce. AT in the workplace includes adaptive software for time management, communication tools, and task assistance, which can benefit employees with autism, intellectual disabilities, and other cognitive or physical impairments. Such technologies support both productivity and job retention, ensuring that qualified individuals are not sidelined due to accessibility challenges.

Employers are crucial stakeholders in creating an inclusive work environment, as they are responsible for implementing accommodations that enable employees to perform effectively. This may require establishing specialized AT support teams that collaborate with individuals to identify the most appropriate tools for their specific needs. In promoting AT in employment, the roadmap envisions workplaces that value diversity, providing the necessary supports for all employees to contribute meaningfully. In the long term, the roadmap encourages policies that make workplace accommodations standard practice, thus ensuring that all employees have equal access to opportunities and resources.

Independent Living

The independent living sector focuses on enabling persons with disabilities to live autonomously, safely, and with dignity. AT solutions for independent living include mobility aids, smart home technologies, communication devices, and health-monitoring tools, all of which are designed to facilitate daily activities and personal independence. For many individuals, specialized AT assessment teams are necessary to identify products that are suited to their unique living environments and personal

needs. These teams can include AT specialists, occupational therapists, and social care providers who work together to recommend the most effective solutions.

To fully support independent living, the roadmap emphasizes the importance of strengthening the workforce, particularly in roles such as personal care assistants who provide essential support to individuals using AT. Additionally, the roadmap calls for policies and funding mechanisms that ensure AT solutions are affordable and accessible, reducing financial barriers to independent living. In the long term, this inter-sectorial approach aims to create a cultural context in which living independently is a viable and natural option for all, with AT seamlessly integrated into housing, social services, and community resources.

Bringing the roadmap to implementation

The roadmap for assistive technology (AT) implementation draws inspiration from the Entelis Network and the Entelis White Paper on Digital Inclusion (Hoogerwerf et al., 2016), which outlines a structured approach to digital inclusion for persons with disabilities. These frameworks provide a guiding rationale for effectively implementing AT systems that are sustainable, inclusive, and user-centered. Core components for achieving the roadmap's anticipated outcomes include setting clear goals, consolidating efforts across sectors, fostering development and innovation, and establishing robust evaluation and assessment mechanisms. This multi-faceted approach ensures that the roadmap not only guides immediate action but also builds a resilient, adaptable AT infrastructure for long-term impact.

Goals

To achieve meaningful digital inclusion and maximize the benefits of AT, all sectors must work collaboratively towards shared, high-level objectives that support universal accessibility and inclusion. Individual aspirations are diverse, and these differences are even more significant for persons with disabilities, who often face heightened challenges in reaching their goals. Therefore, the roadmap's goals focus on creating an inclusive digital landscape where AT empowers individuals to achieve personal and professional milestones without limitations. Key sectors—policy, education, social services, and technology—are expected to establish goals that are dynamic, emphasizing ongoing assessment and continuous improvement rather than static end-points.

Within this goal-setting framework, governments, organizations, and communities play vital roles in ensuring that the technological environment fosters inclusivity by actively removing barriers and enhancing access. Educational and support services that focus on empowerment are crucial to addressing existing disparities. By investing in accessible technology that is thoughtfully designed and rigorously tested, stakeholders help bridge these gaps, making it easier for persons with disabilities to navigate digital and social spaces. These high-level goals also include a commitment to a cycle of measurement, revision, and enhancement, ensuring that digital inclusion efforts remain responsive to emerging challenges and evolving technologies.

Consolidation

To effectively bring AT into mainstream use, the roadmap highlights the need for consolidation of policies, resources, and practices. As social, educational, and technological landscapes evolve, policies must be regularly reviewed and updated to ensure they continue to deliver positive impacts on quality of life and well-being. This approach requires ongoing monitoring to identify cost-effective and efficient service delivery methods. By integrating AT goals at both individual and sectoral levels, consolidation supports the widespread adoption of innovative, inclusive digital solutions that enable full participation for all individuals.

In educational settings, consolidation involves implementing regular assessments and tracking outcomes to gauge both personal progress and sectoral impacts. This includes not only monitoring individual achievements but also ensuring that inclusive practices become an intrinsic part of educational policies and curricula. Across sectors, a consolidated approach to AT supports the marketplace by creating demand for inclusive digital tools, thereby encouraging industries to prioritize accessibility in their product development and service offerings.

Development and Innovation

A key component of the roadmap is fostering development and innovation within AT policies and practices. This involves creating robust implementation plans, designing sector-specific strategies, and establishing tools for monitoring and feedback. Policies must support the development of training programs for both AT users and professionals, ensuring that staff and management are well-equipped to engage with AT in meaningful ways. Development efforts should also focus on user-centered approaches, cultivating skills that enable individuals to fully participate in and benefit from AT.

Change management is integral to the successful implementation of AT systems, especially in areas such as communication and social attitudes. Ensuring that all

stakeholders, from policymakers to end-users, are aligned in their understanding and support of AT is essential. This includes promoting adaptive thinking and flexibility to allow for continuous improvement. Training should address both technical and interpersonal skills, enabling professionals to provide not only technical support but also empathetic guidance that enhances user experience.

Assessment

Effective assessment strategies are crucial for identifying and addressing gaps and barriers within the current AT landscape. At the policy level, assessments must focus on analyzing legal and regulatory frameworks to ensure they align with best practices in AT and digital inclusion. Regular evaluation of policies helps in identifying areas where accessibility could be enhanced, leading to better service provision and reduced barriers to access. Key areas for assessment include legal gaps, resource availability, and barriers within service delivery that may hinder individuals from obtaining or using AT.

Assessments should focus not only on policies and systems but also on individual needs, ensuring that every person has access to the right AT for their unique circumstances. This individualized assessment approach helps in tailoring AT solutions to specific contexts, whether they involve learning environments, workplaces, or daily living. Furthermore, creating robust mechanisms for gathering and reporting data is essential, as it allows for ongoing improvements based on real-world feedback. This systematic collection of data on user experiences, service delivery challenges, and AT effectiveness ensures that the roadmap remains adaptable and continuously relevant.

Usage of the roadmap

The roadmap for assistive technology (AT) integration and digital inclusion provides a practical and strategic guide for stakeholders across multiple sectors, including policymakers, educators, healthcare providers, employers, and developers. Its structured approach facilitates the creation and scaling of accessible technologies, ensuring AT systems align with the unique needs of persons with disabilities. Central to the roadmap's usage is its inter-sectoral framework, which offers clear, actionable steps for implementing AT across different domains, from education to employment to independent living. By detailing short- and long-term goals within each sector, the roadmap enables stakeholders to focus on immediate actions while keeping sight of long-term

objectives, creating a cohesive strategy that balances current needs with future developments.

For policymakers, the roadmap serves as a blueprint for creating an enabling environment that promotes accessibility and inclusion. It provides guidance on forming policies that address critical components of AT systems, such as funding, service provision, legal frameworks, and cross-sector collaboration. Policymakers can use the roadmap to identify areas where existing policies need to be strengthened, ensuring that legislative frameworks support AT availability, affordability, and innovation. In addition, the roadmap emphasizes continuous policy assessment and adaptation, encouraging governments to respond proactively to emerging needs and technological advancements.

In education, the roadmap is a valuable tool for administrators and teachers working to create inclusive learning environments. It outlines specific strategies for integrating AT into classrooms and curricula, supporting all learners, including those with disabilities, to access education equitably. The roadmap promotes the use of both specialized and mainstream technologies, such as screen readers and adaptive learning platforms, which help students engage fully with the curriculum. Educators can refer to the roadmap to identify training opportunities that equip them with the skills needed to support AT usage effectively, ensuring that students benefit from a learning environment that respects diverse abilities and fosters independence.

For healthcare and social service providers, the roadmap highlights the importance of AT in supporting wellbeing and social participation. It provides a framework for incorporating AT into everyday services, from health assessments to social inclusion initiatives, ensuring that individuals have the tools to engage actively in their communities. Healthcare professionals can use the roadmap to enhance the provision of AT-related services, ensuring that assistive devices are not only accessible but also appropriately tailored to individuals' needs.

Employers and workplace administrators can use the roadmap to create more inclusive work environments. The roadmap's guidelines for workplace AT accommodations allow organizations to identify solutions that support employees with disabilities, enhancing productivity and job satisfaction. By incorporating AT into workforce development plans, employers can improve job retention and provide equal opportunities, fostering a culture of inclusivity within their organizations. The roadmap also serves as a resource for identifying funding options and partnerships that support AT adoption and integration within the workplace.

For developers and industry, the roadmap provides insights into best practices for designing and delivering AT solutions. Emphasizing user-centered design and collaboration with end-users, the roadmap guides developers in creating products that meet the real-world needs of persons with disabilities. By following the roadmap's principles, industry stakeholders can contribute to a more inclusive market, ensuring that their products are accessible, affordable, and effective. In this way, the roadmap serves as a comprehensive tool that supports AT adoption at every level, creating pathways to a society where assistive technology is universally integrated, empowering persons with disabilities to lead independent, fulfilling lives

Core Insights and Key Conclusions

The roadmap for assistive technology (AT) within the COST Action CA19104 (a-STEP) project presents a well-rounded strategy for advancing digital inclusion and improving quality of life for persons with disabilities. Built on the WHO's 5P Framework—People, Products, Provision, Personnel, and Policy—the roadmap establishes both an overarching vision and specific steps to support AT accessibility and integration across key sectors. By putting persons with disabilities at the center of AT planning and implementation, the roadmap advocates for a person-centered, rights-based approach that respects individual needs, empowering users to reach personal and professional goals across various domains, from education and employment to social and independent living.

A core insight from the roadmap is the need for strong inter-sectoral collaboration. Achieving comprehensive AT access requires coordinated action from policymakers, educators, healthcare providers, industry, and community organizations. Each sector contributes uniquely: policymakers lay the foundation with inclusive legislation, educators and employers create accessible environments, and industry innovates with user-centered product design. This collaborative framework ensures a cohesive AT ecosystem where policies, resources, and practices are aligned to facilitate a seamless experience for users. The roadmap's emphasis on partnerships and shared resources lays a foundation for sustainable AT systems that are both adaptable and socially integrated.

Equally important is the roadmap's commitment to continuous innovation and adaptation. AT must evolve with advancements in technology and respond to shifting societal needs. By promoting research, development, and co-design with end-users, the roadmap fosters AT products that are functional, accessible, and

responsive to real-world challenges. Adaptable policies and ongoing feedback mechanisms support a responsive AT system, allowing for refinement and improvement that keep AT relevant over time.

Lastly, the roadmap reinforces AT as a fundamental right rather than a privilege. A rights-based approach ensures equitable access, breaking down barriers and embedding AT into society as an essential component of inclusivity. Aligning with the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), the roadmap envisions a society where individuals, regardless of ability, can live independently and participate fully, supported by policies that promote universal access and anti-discrimination measures.

In conclusion, this roadmap provides a strategic, forward-looking guide for implementing AT systems that balance immediate needs with long-term sustainability. Through its person-centered, collaborative, and adaptive approach, the roadmap envisions a future where AT enables individuals with disabilities to pursue their aspirations and live inclusive, connected lives. It serves as a comprehensive call to action, urging stakeholders to collectively build a society where AT is universally accessible, equitable, and responsive to the diverse needs of all its users.