

COST action CA19104 (a-STEP) D3.2. Joint Roadmap:

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1. Introduction to the Good Practices Framework

The Good Practices Framework serves as a structured, actionable guide for enhancing Assistive Technology (AT) practices in diverse settings, including social, educational, and community environments. The primary goal of this framework is to facilitate effective AT implementation by emphasizing inclusivity, accessibility, and user-centered design. AT is increasingly recognized as a transformative tool that can support individuals with disabilities to live independently, engage in educational opportunities, access employment, and participate actively in social life. However, ensuring that AT systems are accessible, effective, and sustainable requires a robust framework that considers the unique needs of users, as well as the roles of policymakers, educators, AT professionals, and end-users.

Building upon prior deliverables such as the *Roadmap (T3.2)* and the *Competency Framework*, the *Good Practices Framework* consolidates and expands on best practices to maximize the benefits of AT for individuals with disabilities, especially those with autism and other diverse needs. This document outlines clear strategies and recommendations for creating environments where AT is fully utilized and tailored to the individual's daily life. By focusing on practical, evidence-based approaches, the framework enables stakeholders across sectors to implement AT solutions that are adaptable, sustainable, and user-focused.

At the heart of this framework is a commitment to inclusive design and participatory action, which involves directly engaging end-users—such as individuals with autism, their families, and caregivers—in the co-design process of AT tools. This participatory approach ensures that AT products and services reflect the lived experiences and specific needs of users, increasing their practical applicability and minimizing abandonment rates. By incorporating end-users' perspectives, the framework ensures that AT solutions not only fulfill functional requirements but also align with the personal, social, and cultural contexts of users. This user-centered approach enhances the overall relevance and sustainability of AT interventions, fostering greater user satisfaction and longer-term adoption.





To further support these goals, the framework promotes interdisciplinary collaboration among researchers, practitioners, policymakers, and community organizations. This collaborative effort fosters a culture of innovation and responsiveness, where the development and implementation of AT are continuously refined based on user feedback and emerging technologies. This culture of collaboration ensures that AT practices remain flexible and responsive to the changing needs of individuals with disabilities, while also promoting knowledge-sharing and mutual support among different stakeholders.

In alignment with established digital inclusion initiatives, including the *Right to Connect Competence Framework* (*RTCN*) and the *Entelis+* project, the *Good Practices Framework* integrates the World Health Organization's GATE 5P model. This model—focusing on People, Products, Provision, Personnel, and Policy—offers a structured methodology that guides stakeholders in mapping, assessing, and implementing AT solutions. Each of the 5P elements is essential to creating a comprehensive AT service delivery system that is accessible, user-centered, and adaptable across sectors. By applying this model, the framework ensures that AT systems are designed to meet the diverse needs of users across a variety of environments, from schools and workplaces to homes and community settings.

Overall, the *Good Practices Framework* offers stakeholders a clear, structured pathway for advancing digital inclusion and AT accessibility. It empowers them to make informed decisions and implement AT solutions that enhance the quality of life for individuals with disabilities. This framework serves not only as a technical guide but as a call to action for creating a more inclusive society where individuals can fully engage with AT in ways that are meaningful and impactful. Through this framework, policymakers, educators, and AT professionals can collectively work towards an inclusive future that leverages AT to its full potential, fostering empowerment, independence, and active participation for all.

2. Core Principles and Theoretical Foundations





The Good Practices Framework is built on core principles and theoretical foundations that prioritize person-centered and co-design approaches. These methodologies ensure that assistive technology (AT) solutions are not only technically effective but also inclusive, accessible, and deeply relevant to the users' real-world needs. By involving end-users—such as persons with disabilities and their families—in the design process, this framework aims to co-create AT solutions that enhance quality of life, increase usability, and reduce abandonment rates. A person-centered approach considers the unique experiences, preferences, and goals of each individual, ensuring that AT tools empower users rather than impose rigid, one-size-fits-all solutions.

Central to this framework are the principles of Universal Design (UD) and Universal Design for Learning (UDL), which emphasize flexibility and adaptability to create environments that are inherently accessible to all. Universal Design principles advocate for products and spaces that are usable by individuals with a wide range of abilities, without the need for further adaptation. For example, UD principles may influence the development of digital interfaces with intuitive navigation and adjustable settings, making them easier to use for individuals with visual, auditory, or cognitive impairments. Universal Design for Learning (UDL) extends these principles to educational contexts, promoting adaptable teaching methods that meet diverse learner needs and support inclusive learning experiences.

In alignment with these principles, the framework also incorporates guidelines and standards like the Web Content Accessibility Guidelines (WCAG), Cognitive Accessibility (COGA) standards, and the ADAPT framework. WCAG provides technical standards for web accessibility, covering aspects such as perceivability, operability, understandability, and robustness. Adhering to WCAG ensures that digital tools and resources are accessible to individuals with various disabilities, particularly those who rely on assistive technologies like screen readers. Similarly, COGA standards focus on creating accessible experiences for individuals with cognitive and learning disabilities by recommending design approaches that simplify navigation, reduce cognitive load, and support independent usage. The ADAPT framework adds an emphasis on adaptable learning and interaction methods, further aligning the framework with best practices for cognitive and digital accessibility.





Together, these principles, guidelines, and standards form a cohesive approach to creating accessible digital environments that empower individuals with disabilities. The framework emphasizes that accessible design should not only meet regulatory standards but also respond to the nuanced needs of users across diverse contexts. By fostering environments that are inclusive by default, AT solutions become more intuitive, user-friendly, and empowering, allowing users to engage with technology in ways that enhance independence, productivity, and social participation.

Additionally, this framework integrates interdisciplinary collaboration among designers, educators, healthcare professionals, policymakers, and end-users, fostering a culture of innovation and responsiveness. Interdisciplinary collaboration ensures that AT solutions benefit from diverse perspectives, drawing from the expertise of various fields to address complex user needs holistically. This collaborative approach promotes the continuous improvement of AT solutions, where feedback loops between users and designers drive iterative advancements, refining technologies to better meet evolving needs.

Overall, the *Good Practices Framework* establishes a foundation for accessible, inclusive, and person-centered AT practices. By adhering to established standards and universal design principles, and by engaging users in co-design, it provides a robust foundation for creating AT solutions that are not only accessible but also genuinely empowering. This ensures that individuals with disabilities can benefit from AT solutions that enhance their quality of life, support lifelong learning, and foster greater independence and social inclusion.

3. Development Pathways for Key Competency Areas

The Good Practices Framework establishes structured development pathways for building essential competencies among assistive technology (AT) users, caregivers, and co-designers. These pathways are organized across Core, Intermediate, and Advanced levels, allowing individuals to progressively develop expertise based on their unique roles, needs, and abilities. The framework's competency areas—co-design skills, digital





literacy, problem-solving, inclusive collaboration, and self-advocacy—provide a comprehensive foundation that supports effective, meaningful engagement with AT.

Each competency area is designed to equip participants with the skills needed to maximize the benefits of AT, while also encouraging adaptability and growth. At the **Core level**, participants acquire foundational skills, such as basic digital literacy, understanding AT functionality, and initial self-advocacy techniques. This stage focuses on introducing individuals to AT concepts and creating a comfort level that supports further exploration and engagement. For example, digital literacy training at the Core level includes navigating digital tools and understanding basic safety practices, setting the stage for more complex tasks in later stages.

Moving to the **Intermediate level**, participants expand on their foundational skills with targeted training that deepens their understanding and application of AT. This stage emphasizes skill development in areas like co-design, where participants actively contribute feedback on AT products or collaborate in creating accessible solutions tailored to user needs. At this level, problem-solving skills become more advanced, as individuals learn to troubleshoot common issues with AT, adapt tools to specific contexts, and collaborate effectively within user and caregiver networks. Inclusive collaboration training also grows in scope, enabling caregivers and co-designers to better support AT users and engage in more dynamic teamwork.

The **Advanced level** pathways are designed for participants who have achieved a high degree of competency and are ready to take on leadership or specialized roles within the AT ecosystem. At this level, co-design skills evolve into roles where individuals may lead or facilitate co-design workshops, contribute to AT development projects, or consult on user-centered design processes. Advanced problem-solving involves strategizing solutions for complex accessibility challenges and refining AT usage in unique scenarios. Self-advocacy at this level encourages individuals to advocate for broader accessibility initiatives, participate in policy discussions, and educate others on the importance of accessible technology.

These development pathways also support caregivers and professionals by providing them with adaptive skills that enhance their ability to engage with AT and support users effectively. For instance, caregivers gain insights into adapting AT for specific user





needs, ensuring safety, and empowering individuals to gain independence in using technology. Co-designers and professionals, meanwhile, gain the necessary skills to conduct inclusive design processes, incorporating user feedback to continuously improve AT solutions.

By offering progressive learning opportunities across these competency areas, the framework enables individuals to gain confidence and expertise in AT, fostering self-reliance, problem-solving, and active participation in the design and application of assistive technologies. This structured pathway approach ensures that each participant, regardless of starting level, can advance at their own pace while building competencies that enable a meaningful, empowered engagement with AT in daily life.

4. Framework for Implementation and Good Practice Guidelines

The Good Practices Framework establishes a comprehensive approach to implementing assistive technology (AT) across multiple sectors, providing actionable guidelines that promote accessible, adaptable, and user-responsive AT solutions. This framework details essential steps for selecting appropriate AT tools, setting up effective monitoring and feedback systems, and defining roles and responsibilities across stakeholders to create a cohesive AT ecosystem. By incorporating both short-term and long-term goals, the framework supports sector-specific implementation that empowers users, fosters inclusion, and enhances digital accessibility.

Guidelines for Selecting and Implementing AT Tools

A key component of this framework is the development of best practices for selecting AT tools that align with the needs of users and accessibility standards. This involves a user-centered approach to ensure that selected AT products are tailored to individual abilities, goals, and contextual requirements. The framework recommends conducting thorough needs assessments with users, caregivers, and AT professionals, thereby





ensuring that technology solutions are relevant and supportive. Additionally, the framework encourages the inclusion of both specialized AT and mainstream technologies with assistive features to broaden the range of accessible options available. Selecting the most appropriate tools supports the individual's overall experience, enhancing usability and promoting sustained engagement with the technology.

Monitoring, Feedback, and Continuous Improvement

Successful AT implementation requires a robust system for monitoring outcomes and gathering ongoing feedback from users and stakeholders. The framework provides guidelines for establishing monitoring systems that track AT usage, effectiveness, and user satisfaction over time. These systems are essential for assessing the real-world impact of AT solutions and ensuring they meet user needs. Continuous feedback loops allow users to report any challenges and suggest improvements, enabling timely adaptations to AT practices. This iterative refinement process keeps AT solutions adaptable, ensuring they remain relevant and responsive to evolving requirements and preferences.

Adapting Practices to Local Contexts

The framework emphasizes the importance of adapting AT practices to meet the specific needs of diverse local contexts while maintaining accessibility standards. Local adaptability is essential, as resources, infrastructure, and cultural considerations can vary widely across regions. Stakeholders, including policymakers, educators, and healthcare providers, are encouraged to collaborate with local communities to tailor AT solutions effectively. This flexibility in implementation allows AT practices to be applied meaningfully in different environments, extending the framework's reach and impact across communities.

Roadmap for Implementation: Short-term and Long-term Goals

The framework includes a roadmap with defined short-term and long-term goals for advancing digital inclusion and AT accessibility across key areas such as education, employment, social wellbeing, and independent living. Structured around Universal





Design (UD) principles, this roadmap aims to create inclusive, technology-enhanced environments that maximize AT's potential to support user needs across sectors.

Short-term Goals

Immediate objectives focus on raising awareness among individuals with disabilities and their families regarding their rights to education, employment, social participation, and independent living. Short-term goals include integrating AT into educational settings to foster inclusive learning environments, implementing accommodations in workplaces, and promoting community-based AT services to support social engagement. By building awareness and initiating AT integration, these short-term actions set the stage for more expansive, long-term AT adoption.

Long-term Goals

The framework envisions long-term goals that cultivate inclusive cultural norms, ensuring individuals with disabilities can fully engage in community life and access employment opportunities without discrimination. The roadmap emphasizes embedding AT into societal structures and systems to support sustainable independent living. This includes the development of workplaces that provide equal opportunities, universal AT access in educational settings, and comprehensive support systems for independent living. Long-term objectives aim to establish AT as an essential component of social, educational, and economic systems, fostering environments where individuals with disabilities have the tools they need to live autonomously.

Defining Roles and Engaging Key Stakeholders

Effective AT implementation depends on active engagement from diverse stakeholders, including policymakers, educators, healthcare providers, employers, and technology developers. The framework delineates specific roles for each stakeholder group, encouraging collaboration and shared responsibility to enhance AT accessibility. Policymakers are tasked with creating supportive legislation and funding mechanisms, while educators and employers incorporate AT into their environments to support daily activities. Healthcare providers play a critical role in assessing AT needs and guiding users through the implementation process. By involving all stakeholders, the framework





promotes a coordinated approach that ensures AT solutions are comprehensive, scalable, and responsive across sectors.

5. Assessment and Evaluation Mechanisms

To enhance the effectiveness of assistive technology (AT) within the *Good Practices Framework*, a comprehensive approach to assessment and evaluation is essential. This proposal introduces a dynamic, user-centered evaluation system designed to measure and refine AT practices continuously. Through a blend of established metrics, real-time feedback, and practical case studies, this approach ensures that AT solutions remain responsive, accessible, and adaptable over time. By centering on accessibility, usability, and user satisfaction, this proposal envisions a framework that not only delivers measurable outcomes but also promotes a culture of improvement that evolves with users' needs and technological advancements.

At the heart of this proposal lies the belief that AT should be continuously attuned to the unique needs and experiences of its users. To support this, three foundational metrics guide the assessment process: accessibility, usability, and user satisfaction. These metrics are designed to offer a multi-dimensional understanding of how effectively AT solutions meet user needs.

Accessibility is the cornerstone, ensuring that AT solutions align with established standards like the Web Content Accessibility Guidelines (WCAG), enabling access for individuals with varying disabilities. Accessibility assessments will delve into the practical aspects of AT, from compatibility with screen readers to the intuitiveness of navigation. By focusing on accessibility, this framework guarantees that AT solutions don't just function but provide meaningful, usable access for all.

Usability complements this by focusing on the ease of use. AT should simplify users' lives, not complicate them. Usability assessments consider how intuitive, navigable, and efficient AT tools are for users of all skill levels. High usability ensures that technology





aids users in achieving their goals smoothly, reducing frustration and promoting long-term engagement.

User satisfaction provides a more personal lens, capturing how individuals feel about their experience with AT. By using surveys, focus groups, and feedback forms, this assessment gathers insights into whether users feel empowered, supported, and capable with the AT solutions they use. User satisfaction highlights areas where AT meets or exceeds expectations and areas where improvements may enhance the user experience.

Central to this proposal is the creation of a **continuous feedback loop**. Technology needs and user preferences evolve, especially as new capabilities emerge and users become more familiar with AT. This proposal emphasizes ongoing feedback mechanisms that allow users to share their experiences, challenges, and suggestions for improvement. Regular feedback sessions create a two-way communication channel, enabling users to voice their needs and AT providers to adapt their solutions responsively. This iterative cycle ensures that AT solutions evolve in alignment with users' expectations, staying relevant and effective over time.

The proposal also suggests using **real-world case studies** as living examples of AT in action. These case studies will document implementation journeys, including initial successes, challenges encountered, and adjustments made in response to user feedback. Each case study provides an in-depth look at the assessment process, showcasing how iterative refinement strengthens AT effectiveness. For example, one case might illustrate how a digital learning tool was adapted based on students' feedback to better support various cognitive needs, thereby enhancing its educational impact. Such examples will help other stakeholders envision practical applications of the framework, providing models that can be adapted across different environments.

The implementation of this assessment approach requires active engagement from diverse stakeholders. Policymakers are crucial in supporting the necessary resources, educators and AT professionals serve as facilitators, and users provide essential insights through their lived experiences. Each group plays an interconnected role in a shared effort to foster inclusive, effective AT practices.





With this proposal, the *Good Practices Framework* aspires to establish a dynamic, adaptable model for AT implementation. By prioritizing user-centered evaluation and fostering a responsive feedback culture, this approach ensures that AT solutions remain impactful, responsive, and deeply attuned to the needs of those they serve.

6. Conclusion and Future Directions

The Good Practices Framework is a comprehensive, adaptable resource designed to advance assistive technology (AT) and digital inclusion. Grounded in principles of inclusivity, accessibility, and user-centered design, it provides structured guidance to stakeholders—including policymakers, educators, AT professionals, and community organizations—working to create accessible, empowering environments. By bringing together person-centered, collaborative, and adaptive approaches, the framework fosters conditions in which AT can effectively support individuals with disabilities in fully participating across all domains of life, from education and employment to social interactions and independent living.

One of the key strengths of this framework is its flexibility. It is structured to adapt to a wide range of contexts, recognizing that effective AT implementation requires attention to local needs, resources, and cultural nuances. This adaptability allows stakeholders to apply the framework's principles in various settings, ensuring AT solutions can be relevant and impactful across different regions and demographics. The framework encourages stakeholders to continuously refine AT practices based on user feedback, emerging needs, and evolving best practices, making it responsive not only to current requirements but also to future technological and societal shifts.

Collaboration is another cornerstone of the *Good Practices Framework*. By fostering cooperation across sectors, it encourages diverse stakeholders to pool resources, expertise, and perspectives, enhancing the quality and reach of AT solutions. Policymakers, for example, are urged to create supportive regulatory environments and funding mechanisms that incentivize innovation and inclusivity, while educators and employers are encouraged to integrate AT practices into their settings to support diverse learners and employees. AT professionals, in turn, contribute technical





knowledge and implementation expertise, while community organizations bring valuable insights into user experiences and local needs. This cross-sectoral collaboration ensures that AT solutions are not isolated efforts but part of a cohesive, inclusive ecosystem.

At the heart of the framework is a commitment to person-centered approaches. It emphasizes the importance of involving individuals with disabilities in the design, implementation, and evaluation of AT solutions. By prioritizing user engagement, the framework aligns AT practices with actual needs, fostering solutions that are practical, sustainable, and empowering. This person-centered focus not only enhances user satisfaction but also promotes a sense of agency among AT users, allowing them to shape the tools and systems that impact their lives.

Finally, ongoing stakeholder engagement is vital to maintaining the framework's relevance over time. As technological advancements and societal needs evolve, active involvement from all stakeholders—especially those directly affected by AT—ensures that the framework remains current, effective, and meaningful. The *Good Practices Framework* thus serves not just as a guide, but as a living tool that grows and adapts, driving a future where AT enables full and equitable participation for all.

7. Good Practices Framework: The Tools

The Good Practices Framework integrates a range of tools to equip stakeholders with the resources necessary to implement inclusive and effective assistive technology (AT) solutions. These tools—spanning competency frameworks, accessibility guidelines, and centralized knowledge repositories—provide practical and structured support to ensure that AT initiatives are accessible, relevant, and responsive to users' diverse needs.

One of the primary resources in the framework is the **Competency Framework**, based on the Right to Connect Competence Network (RTCN), which builds on the principles of the Entelis+ initiative. This framework offers structured pathways for developing critical digital and co-design competencies across various skill levels. It enables individuals with





disabilities, caregivers, AT professionals, and educators to progressively build digital literacy, co-design capabilities, and problem-solving skills that are essential for engaging with AT. By emphasizing person-centered development, the competency framework empowers users to actively participate in digital environments and confidently utilize AT tools. It also guides AT professionals in cultivating the skills necessary for creating inclusive solutions that respond directly to user feedback and real-world needs, fostering a more inclusive digital landscape.

In addition to competency development, the framework provides a **set of tools and accessibility guidelines** to guide the design and implementation of inclusive AT solutions. Key among these are the Web Content Accessibility Guidelines (WCAG), which establish international standards for making web content more accessible to people with disabilities. WCAG addresses diverse needs by focusing on aspects like perceivability, operability, understandability, and robustness, ensuring that digital platforms are navigable and user-friendly for individuals with a variety of disabilities, including visual, auditory, and cognitive impairments. Complementing WCAG, the **Cognitive Accessibility (COGA) standards**offer guidelines tailored specifically to users with cognitive and learning disabilities, promoting simplified design, reduced cognitive load, and intuitive navigation. This ensures that AT tools are not only accessible but also easier for individuals to use independently, supporting sustained engagement and usability.

Further enhancing accessibility, the ADAPT framework offers adaptable methodologies for creating inclusive learning and interaction environments, making it particularly useful in educational settings. It aligns closely with Universal Design (UD) and Universal Design for Learning (UDL), which are also central to the framework. Universal Design emphasizes creating products and environments that can be used by all people without the need for adaptation, while Universal Design for Learning focuses on creating flexible educational environments that accommodate diverse learning needs. Together, these tools and guidelines form a comprehensive blueprint for building inclusive AT solutions that align with recognized standards, supporting usability and accessibility across a range of applications and settings.

A key feature of the *Good Practices Framework* is the **AT Wiki**, a collaborative knowledge base developed with contributions from Working Groups WG2 and WG4.





The Wiki serves as a centralized repository for information on a wide array of AT tools, categorized and detailed to provide stakeholders with insights into available technology solutions, best practices, and emerging trends. The AT Wiki is designed to support continuous learning and knowledge-sharing among stakeholders, making it a valuable resource for practitioners, educators, and policymakers. By providing access to a diverse collection of tools, articles, case studies, and user insights, the Wiki helps stakeholders make informed decisions about AT selection, customization, and implementation. Additionally, the Wiki allows for ongoing updates, ensuring that it remains current with advancements in AT and digital inclusion.

Together, these tools within the *Good Practices Framework* create a robust support system for stakeholders, providing structured pathways for competency development, established standards for accessibility, and an evolving knowledge base for technology tools. These resources enable stakeholders to implement AT in ways that are inclusive, adaptable, and aligned with users' needs, fostering a digital environment where AT can be effectively utilized to enhance accessibility and participation across diverse settings.

The following list represents an initial examplar of tools and references for the Framework:

Here is a list of references to support the Good Practices Framework and the tools it leverages:

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Good Practices Framework and the AT Wiki





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