

THE EESI-DIGI PROJECT – HANDBOOK ON ASSISSTIVE TOOLS AND TECHNOLOGIES FOR SWD



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INTRODUCTION

The primary objective of this Handbook is to identify the needs and opportunities of people with disabilities in relation to the technological achievements that can support their daily living, the completion of their studies, their equal inclusion in society and access to equal opportunities. In the framework of the Erasmus + EESI-DIGI project, a team from University of Patras, with the invaluable feedback of project partners from 4 countries (Hungary, Lithuania, Italy, Spain) have prepared this practical and comprehensive handbook for supporting mainly the work of trainers and teachers in academy and universities managing effective accessible learning content and assistive learning technologies to the benefit of Students with Disabilities (SwD).

This handbook is aimed for those who teach SwD:

- at the classroom and have direct contact with participants,
- via the Internet and have more or less intensive relationship with students.

The whole material is comprised in 6 chapters. The first chapter is a rather introductory part of assistive technologies for PwD in general and then more specifically for SwD.

Chapters 2-5 are describing in a greater detail particular tools, technologies, equipment, systems, and methods that were reported from desk research and practical implementation in University of Patras.

In the sixth chapter leaning platforms and supportive technologies are described, reflecting on the accessibility needs and opportunities. Open-Source programmes and tools are also mentioned as a valuable tool for free and accessible learning for SwD.

Each chapter along with the theoretical part, includes a Good Case and good practices. Some good cases come from real cases confronted in the working environment of partners.

This handbook aims to prepare, equip and guide trainers in the academy to support socially and educationally inclusive ecosystem for SwD. The raised awareness of trainers and students on technologies that can critically assist them with their studies, can have a great impact on the successful completion of their studies. With proper guidance and an inclusive mindset, coupled with the use of innovative technologies, new learning opportunities are available for SwD.

1.1 ASSISTIVE TECHNOLOGIES IN TEACHING SWD

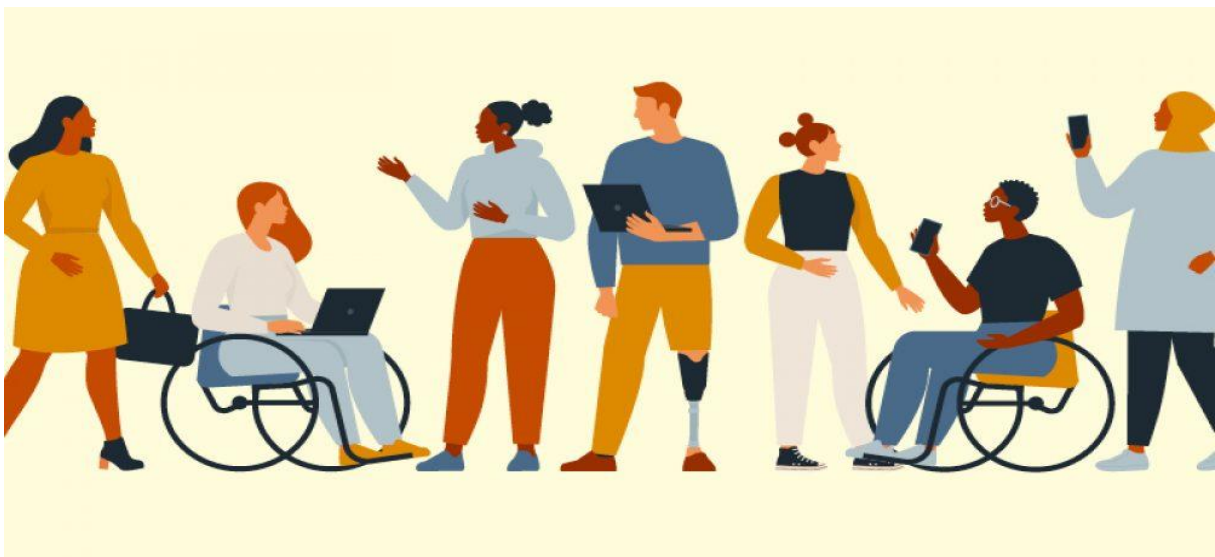
ASSISTIVE TECHNOLOGIES (AT)

According to the Assistive Technology Industry Association (ATIA), Assistive Technologies (AT) consist of products, equipment and systems that enhance learning, work and daily life for people with disabilities. As stated by the World Health Organization (WHO)¹, HT relates to the application of organized knowledge and skills related to assistive products, including systems and services. Assistive technology is a subset of health technology.

More broadly, Assistive or better Assistive Technology refers to a set of practical tools that enhance independence for people with disabilities and the elderly. According to a WHO² study, HT is any object, piece of equipment or product system that is either commercially acquired, modified or adapted and used to increase, maintain or improve the functional capabilities of persons with disabilities.

Assistive Technology can help to:

- Supporting people to access their human rights (United Nations Convention on the Rights of Persons with Disabilities)
- State support to address resource constraints in social welfare services and spending
- Support the state to respond to population increases among people with disabilities
- Supporting people to complete their education
- Supporting people to get and keep work
- Supporting people to live in their community
- Supporting people to become digitally literate.



¹ WHO global disability action plan 2014-2021

² World Health Organisation & World Bank 2011, p.101

Communications technologies and new media promise to "revolutionize our lives" by breaking down barriers³ and expanding access for people with disabilities. Technologies are becoming smaller, faster and cheaper, technology is also becoming easier to use and procure. Increasingly, the technology divide is less about access to technology and more about the deeper underlying meanings of "access."

Assistive technologies can be divided into two main categories⁴:

- Applications of information and communication technologies that facilitate communication, movement and in general the living of people with disabilities and in a sense act as a means of access for people with disabilities to the natural world. In this category belong applications of IT and communication technologies that are based on the technologies of wireless communication, robotics and virtual reality.
- Components, devices and applications that aim to facilitate the use of information and communication technologies by people with disabilities, and in a sense act as a means of access for people with disabilities to the digital world, such as the Internet. This category includes:
 - screen magnifiers and other visual reading tools used by people with visual, perceptual and/or physical disabilities to change font type and size, spacing, color, synchronization with speech, etc., so as to improve the visual readability of the text and of images
 - screen readers, which are used by people who are blind to read textual information through synthetic speech or Braille
 - text-to-speech software, used by people with intellectual, language and learning disabilities to convert text into synthesized speech
 - speech recognition software, which can be used by people with physical disabilities
 - alternative keyboards, used by people with specific physical disabilities to simulate keyboarding (including alternative keyboards that use head pointers, simple switches, sip/puff and other special input devices)
 - alternative pointing devices, which are used by people with specific physical disabilities to simulate mouse movement and keystrokes.

However, useful as they may be, technologies may work negatively for PWDs, due to the special abilities needed to implement them, and may work negatively by driving people who cannot follow these technologies further into social marginalization.

Despite the almost universal assumption that technology is a liberating force for disabled people, technology and electronic forms are often inaccessible or only partially accessible. They often create navigation and accessibility challenges for many users with disabilities. For example, many online forums do not meet accessibility guidelines. In addition, many people with disabilities, as a result of longstanding inequality, have one of the lowest education rates and the highest unemployment rates as social networking sites continue to become ubiquitous in our daily lives.

Rapid developments in Information Technology (IT) can lead to new risks, such as the manifestation of inequalities, exclusion and isolation for some from society and the economy. The danger of re-creating a two-speed society, haves and have-nots, is real and alarmingly possible: on the one hand, those who will enjoy full access to the resources of the CoP, and on the other, all those who will fatally face reduced possibilities of access and cannot join what today we call KtP. People with disabilities, in

³ Goggin and Newell, Digital Disability: The Social Construction of Disability in New Media, 2003

⁴ Νέες Τεχνολογίες και Αναπηρία - Εξίσωση των ευκαιριών ή νέες μορφές αποκλεισμού των ατόμων με αναπηρία; ΑΘΗΝΑ, Εθνική Συνομοσπονδία Ατόμων με Αναπηρία (Ε.Σ.Α. με Α.), 2014



particular, constitute a category of citizens whose needs have traditionally been ignored during the (initial) design of the ICT's technological means, resulting in the otherwise unjustified absence

Accessibility, by definition, is about ensuring access to online or digital information by providing assistive tools for specific disabilities. Increasingly, advanced technology systems are being developed to facilitate and support educational experiences. These technologies can be formal educational technologies such as Blackboard or other course management systems (eg Moodle). Higher education should be a continuum in terms of the use and scope of the technology of such solutions, but the numbers of universities or colleges supporting such technological elements are particularly low.

Existing Assistive Technologies – Good Practices

Assistive technology combined with additional aids such as personal assistants / chaperones, sign language interpreters, etc., is a key element in enhancing the education and social inclusion of young people studying with disabilities. Access to assistive technology is a prerequisite for access to equal opportunities. In this way, young men and women can enjoy basic human rights while living with dignity.

People with disabilities face a wide range of barriers, including access to information, education and lack of job opportunities. However, information and communication technologies (ICTs) can be a powerful tool to support education and inclusion for people with disabilities. In fact, the continuous progress of ICT shows the way to improve the quality of learning applied in education and training systems, facing new perspectives and opportunities. Therefore, the development of accessible online learning environments appears as a primary solution to address this issue and to remove the barriers that young people with disabilities may face when accessing these learning technologies.

Technologies, especially digital technologies, are evolving at great speed and can offer great and unexpected opportunities. Assistive or enabling technology includes devices, tools, hardware, or software that partially enable people with disabilities to use the computer. Special adaptation software or devices to operate the computer include:

- Screen reader software (voice display of text and allows simulation of mouse actions with the keyboard),
- Screen Magnifier Software (to magnify screen content),
- Braille screen (to display Braille characters),
- Alternative devices (eg on-screen keyboard)
- Keyboard enhancements and accelerators (such as StickKeys, Mousekeys, repeatKeys, SlowKeys, BounceKeys or ToggleKeys), and shortcut keys,
- Alternative on-screen guidance devices (eg, foot-operated mice, head-mounted pointing devices, or eye-tracking systems);

These assistive technologies can be either devices or equipment(s) e.g. Braille or software applications e.g. screen reader software. However, these technologies do not seem sufficient to fully support people with disabilities. Web content providers must also participate in the inclusion process by making arrangements that allow the specificities of people with disabilities to be taken into account when creating web content.

From the set of existing support services for Vulnerable Social Groups, throughout society, there is a small digital footprint, but with prospects for significant expansion.

Indicative Assistive Technologies that are already used to support PWDs are:

- Internet tourism
- Telematic transfer system
- Employment through telecommuting
- Electronic brain connection
- Sites of public bodies for easy access for the disabled
- Ability to access the internet
- "Autonomy" program for the movement of disabled people
- PC control with eyes
- Internet for the disabled from i-match
- Special computers for the disabled
- Sensor "obeys" the commands of the mind of the quadriplegic

Technologies, clearly, do not support in the same way all forms of needs, particularities and disabilities that a citizen, a student in this particular case, may have. Mobility difficulties are better supported with hardware solutions such as special wheelchairs, while vision difficulties are supported with special keyboards, Braille input devices, special canes, etc. A simple categorization will help more in separating the difficulties and the corresponding assistive technologies.

Technologies for people with mobility difficulties

Some technologies help people with little or no use of their hands to use a standard keyboard. People who use one finger, or have access with their mouth or head, or some other directional device, can control the computer by pressing the keys with the directional device. Software utilities can create "special keys" that electronically connect the SHIFT, CONTROL, and other keys to allow sequential typing to enter commands that usually require two or more keys to be pressed simultaneously. The operation Key retry can be disabled for those who cannot release a key quickly enough to avoid many options. Keyboard protectors (compact templates with holes above each key for accurate selection) can be used by people with limited movement control.

Sometimes repositioning the keyboard and screen can improve accessibility. For example, placing keyboards perpendicular to tables at head level can help people with limited mobility who use directional devices to press the keys. For people who need to operate the computer with one hand, the left and right keys are available. They provide more efficient key settings than standard keyboards designed for two-handed users.

Expanded keyboards (larger keys spaced apart) can replace standard keyboards for those with limited motion control. Mini keyboards provide access to those who have good motion control but don't have a wide range of motion to use a standard keyboard. Respectively special balls and specialized input devices can replace a mouse.

For those who have more serious difficulties with movement, keyboard emulation is available, including scanning and inserting Morse code. In any case, special switches use at least one muscle over which the person has voluntary control (eg head, finger, knee, mouth). At the scan input, lights or cursors scan letters and symbols that appear on computer screens or external devices. Users can use

switches that are activated by movement of the head, finger, foot, breathing, etc. In Morse code input, users insert Morse code by activating devices (e.g., a sip-and-puff switch registers blast dots and a puff dash). Special adaptive hardware and software translate Morse code into a format that computers understand so that standard software can be used.

Speech input provides another option for people with disabilities. Speech recognition systems allow users to control computers by pronouncing words and letters. A certain system is "trained" to recognize specific voices. Special software can further help people with mobility problems. Shorthand (macro) and word prediction extension software can reduce the requirements for commonly used text and keyboard commands. For example, Word prediction software predicts whole words after several keystrokes and increases the input speed.

Blindness

People who are blind cannot access visual material displayed on the computer screen or printed material. Most blind people use standard keyboards, however, Braille input devices are available. Braille key labels can help with keyboard usage.

Speech systems can be used to read screen text to computer users who are blind. Special software programs (so-called screen readers) and speech synthesizers "speak n" the text. Renewable Braille displays allow line-by-line translation of screen text into Braille in a display area where vertical pins are moved to Braille configurations as screen text is scanned. Braille displays can be read quickly by those with advanced Braille skills. They are suitable for detailed editing (e.g. programming and finishing of documents) and do not disturb others in workplaces because they are silent. Braille printers provide "hard copy" output for users who are blind.

Optical character recognition scanners can read printed material and store it electronically on computers, where it can be read using speech synthesis or printed using Braille translation software and Braille printers. Such systems provide independent access to journals, curricula and homework for students who are blind.

Low vision

For some visually impaired people, the typical size of letters on the screen or printed on documents is too small to read, while some other people cannot distinguish one color from another. Most visually impaired people can use standard keyboards, but large print keyboard labels are sometimes useful.

Special equipment for the visually impaired can modify the display or output of the printer. Computer-generated symbols, both textual and graphic, can be magnified on the screen or on the printer, allowing people with low vision to use standard word processing, spreadsheets, email, and other software applications. For people with some visual impairments, the ability to adjust the color of the screen or change the foreground and background colors is also useful. For example, special software can reverse the screen from black to white to white to black for people who are sensitive to light. Anti-glare screens can also make screens easier to read. Voice systems are also used by people with low vision.

Hearing or speech disorders

Speech and hearing disorders alone do not generally affect computer use. However, speech synthesizers simulate human speech well enough to act as a voice substitute and thus provide a compensatory tool for students who cannot communicate orally. Students with portable systems can participate in classroom discussions when their custom computers provide them with understandable speech voices. Word processing and educational software can also help students with problems hearing to develop writing skills.

Specific learning difficulties

Some students with learning disabilities who find it difficult to process written information can also benefit from completing writing assignments and computer-aided practice exercises. For example, a standard text editor can be a valuable tool for people with dysgraphia, an inability to produce text. Educational software where the computer provides multisensory experiences, interaction, personalized instructions, and repetition can be useful in developing such skills.

Some people can compensate for high error rates by using spelling and grammar checks. In addition, word prediction programs (software that predicts whole words) have been successfully used by students with learning disabilities. Similarly, macro software that extends abbreviations can reduce the need to memorize keyboard commands and can make it easier to enter commonly used text.

Some people with learning disabilities find adaptive devices designed for the visually impaired useful. In particular, large print screens, alternate colors on the computer screen, and voice adjustment can compensate for some reading problems. People who find it difficult to interpret visual material can improve their understanding and ability to detect and correct errors when words are pronounced or printed on large fonts.

In recent years, high-tech solutions have been presented that can help in the daily lives of people with disabilities with high needs, such as severe quadriplegics. Advanced technologies continue to be developed by special centers that support people with disabilities every day. In summary, such technologies include:

1. NEUTRAL IMPULSE ACTUATOR (NIA). Checking the computer hands-free with pulses detected by brain activity
2. EVIACAM, SWITZERLAND. Control your computer without the use of hands with a simple webcam and freeware.
3. SIP & PUFF. Breathing helps both extraction and inhalation. By sucking or blowing into a special cannula it is possible to manage an electronic device (PC, tablet, remote control, etc.) with simple controls.
4. VOICE COMMUNICATORS. Make your computer talk to you with simple commands
5. SPECIAL KEYBOARDS. Keyboards of various shapes and sizes, even wireless, with colored buttons, large or small compared to the standard, for the visually and motion impaired.
6. BONE HEADPHONES. Headphones that transmit and amplify sounds through the microaggregation of the facial bones.

3. Suggested Assisted and Supportive technologies

The ultimate goal is the educational and social integration of students in the University Community and the subsequent integration into society and the labor market.



The Social Welfare Office provides:

- Development of proposals and interventions to cover learning processes
- Personalized action plan
- Psychosocial Support
- Consulting support
- Psychological Support
- Medical Support and Physiotherapy
- Academic and Vocational Guidance Counselling
- Training seminars on outreach & support of Vulnerable Social Groups
- Information about the facilities of the University of Patras
- Financial Aid Scholarships
- Interconnection with Services of the University of Patras and with the wider Community
- Referral of students, where necessary
- Transportation of students with disabilities to and from the University Community

3.2 Support services for Vulnerable Social Groups

Office of Psychological Support of Students

The Office of Psychological Support for Students is addressed to students of all departments of the University of Patras, who face personal difficulties and concerns.

The main purposes of the Office of Psychological Support for Students are:

- The provision of counseling services and psychosocial support to students
- Raising the awareness of the student population on mental health issues
- Diagnosis and psychotherapeutic services

Liaison Office

The Liaison Office organizes events in collaboration with institutions and provides special information and consulting services, so that the student / graduate can plan his career and prepare properly for it.

The provision of professional counseling services and direct support to students regarding their studies (individual and group counseling, teleconsultation, support of students with special needs)

- Detection of abilities, interests and personal characteristics
- Information on undergraduate and postgraduate studies
- Job placement techniques and career management
- Job updates
- Organization of thesis writing time
- Writing a CV
- Presentation techniques in a selection interview

Support in the educational process – Training Seminars

Provision of services that make the educational material accessible to all, without exception, students.

Within the framework of the action "Support of Social Care Interventions for Students of the University of Patras", the Training and Lifelong Learning Center of the University of Patras organizes training seminars on student support issues, who belong to vulnerable / sensitive social groups.

The seminars aim to train volunteers of the University community in the social and academic support of students belonging to Vulnerable Social Groups. All members of the university community (academic, administrative staff, undergraduate and postgraduate students) can participate in the training.

Accessibility of Educational Material

Supporting students in order to ensure accessibility to the Educational Process.

- Conversion of educational material into an accessible format by the University's voluntary network in collaboration with the Library and Information Center
- Accessibility Guidelines for Original Educational Material
- AMELib
- Workstations for People with Disabilities Access

Medical Support Office - Clinical rehabilitation center

Support for students with disabilities, especially those with mobility problems.

Ascesiology. This section includes rehabilitation programs that can also be used from home for the treatment of various musculoskeletal disorders.

Transportation of Students with Disabilities

From the current academic year (2020-2021) the possibility of moving students with disabilities to and from the University Community is provided. Students will be transferred from their place of residence (within the Municipality of Patras), to the facilities of the University of Patras in Rio and Koukouli and vice versa. The transfer is done with a specially designed vehicle that has an escort to support the students. The itineraries are adjusted according to the academic needs of the beneficiary students (courses, examinations) after their registration at the beginning of each academic semester or each examination.

Financial aid scholarships

The Social Care Department of the University of Patras grants annual scholarships for undergraduate students. The financial support aims to ensure the equal participation in Higher Education of students belonging to Vulnerable Social Groups (EKO), with the ultimate goal of completing their studies on time. The selection of candidates is based on income, social criteria and academic performance. Each scholarship is 3.000 € and is provided for a period of 12 months.

Needs and particularities of a supported group of beneficiaries in relation to assistive technologies

4.1 Needs of Vulnerable Social Groups

The aim of the EKO Action is to provide supportive services of Education, Psychosocial Support, Socialization, Counseling, Rehabilitation, Independent Living, Entertainment and Sports to all students of the University of Patras who belong to the category of Vulnerable Social Groups.

Chronic diseases, cancer, cerebral palsy, mental impairment, paralysis, economic poverty - every person with a disability has different needs, but all have similar basic needs.

It is internationally recognized that for people with disabilities, the following 12 basic conditions must be met to ensure equality for all in our society.

- Full access to the Environment (cities, countryside and buildings)
- An accessible transport system
- Technical aids and equipment
- Accessible / customized environment
- Personal assistance and support for independent living
- Inclusive Education and Training
- An adequate income
- Equal opportunities for employment
- Appropriate and accessible information
- Advocacy (towards self-advocacy)
- Counselling
- Appropriate and affordable healthcare

More specifically, A.me.A. Due to their peculiarities they need:

- Be treated with respect and love. Everyone has special talents, which should be exploited
- To feel confident and secure both for the professionals who approach them and the technologies through which the services are provided.
- To be encouraged to apply new technologies and continue their daily lives seamlessly equipped with new tools.
- To be encouraged to move and move their minds through a variety of activities.
- To satisfy their need for learning and learning.
- Grow spiritually
- To cultivate their self-esteem through appreciation and respect and access to equal opportunities.
- To be encouraged for unhindered socialization both in the academic environment and in the general environment.

Taking into account the peculiarities of A.me.A. and especially people with mobility problems, where as a population group they need the provision of support and rehabilitation services "Lifelong", in order to be able to meet the daily requirements of their living, daily support services have been designed and implemented within the framework of the EKO Action, as well as electronic assistive technologies that are also the subject of study. The services and assistive technologies provided are upgraded based on the needs recognized by common assumptions and the experience recorded so far by the daily interaction with the beneficiaries of social care services.

More specifically, special needs are recognized for young people with disabilities studying in higher education due to the increased demands to be integrated into a demanding environment of socialization, education, and later integration into an even more demanding professional environment. Seven basic needs are identified, where if largely met, it would significantly help people with disabilities to have the same starting point in society and would be better able to realise their potential in employment, education and have a higher quality of life.

1. Information

In order to be able to make informed choices, there must be knowledge of the options. The information must be accessible, for example, available in audio format, Braille, Sign Language video, subtitles, in large print, in symbols, etc.

It is important that people with disabilities have access to information, otherwise they may end up isolated, uninformed and separated from both society and the opportunities to which they are entitled. By ensuring that information is produced in accessible formats, people with disabilities will be able to be informed and better able to make their own decisions.

2. Peer support and communication.

After information, the need arises to communicate with other people with special needs to share knowledge and experiences. This is usually supported through organizations, associations and informal groups of people with disabilities where issues with common concerns are communicated.

As people with disabilities face barriers in society, it is important to be able to support each other and meet to share information, knowledge and experiences. This allows both individual support (through the acquisition of support, advice and knowledge), but also collective support in overcoming and causing obstacles and obstacles they face, in the hope of improving living conditions.

Existing / Proposed HS P.P. "Addition of a subsystem "Step of Expression" to the website of the Action for presentation / publication / interaction of views between natural persons with disabilities and competent bodies – organization of webinars and other actions aimed at the collaborative information of users active participation of bodies / associations and associations"

3. Housing.

This is a basic need for everyone. For people with disabilities the house must be accessible to accommodate any special needs. For example, this could include areas such as access to the level and wider doors, or specially designed, specification-based, showers and bathrooms. Accessible housing is critical to enable people with disabilities to a) live in society and b) be able to live an inclusive life as part of their local/academic community.

Existing / Proposed HS P.P. "Configuration of special structures within the University area in streets, buildings with ramps, tubs, specially designed elevators, WC – Electronic application for Housing via internet and soon through applications – update, through applications, of the spaces that meet accessibility standards"

4. Equipment or aids and adaptations.

The supporting equipment (devices / constructions / hardware / software), aids and adjustments allow things to be done without help. Sometimes the obstacles/constraints faced by people with disabilities can be easily solved with minor adjustments and access. Having appropriate adjustments provides a greater sense of independence, greater self-esteem, easy access to both the home and the work/education environment, and inclusion in leisure activities. Some of these adaptations also make everyday life much safer for people with disabilities.

Existing / Proposed HV P.P. "Accessibility of Educational Material with the help of Workstations for access by Persons with Disabilities and the action AMELib, - Digital accessibility of websites "

5. Personal Assistance & Safety.

As equipment and technologies are not the only answer, many disabled people employ someone to help them. This enables people to control how and when help is provided. It also prevents reliance on informal support such as family and friends or even volunteers. It is important that people with disabilities have the choice and control of their own decisions and above all that they feel constantly safe, especially when they are alone.

Existing / Proposed HV P.P. "Audiovisual communication with modern tools in real time with the Social Care team – Immediate risk situation information service for a student who may need immediate help"

6. Accessible transfer.

Accessible transport includes: buses, trains, trams, taxis, planes and cars. While some improvements have been made (for example, most buses are now wheelchair accessible and many of the newer buses now have audio-visual elements to let users know when they are at their stop), public transport is still not accessible to many disabled people. Accessible transport is essential for people with disabilities so they can get out of their homes and live a full, inclusive life as part of their community and society as a whole. Without accessible transport, people with disabilities become isolated, separated and limited by the obstacles of society. Participation in education, leisure activities, living an independent life becomes extremely difficult, if not impossible, without an easily available and reliable form of transport.

Existing / Proposed HS P.P. "Transportation of students with disabilities to and from the University Community with a specially designed bus - service in the applications for monitoring and recording the bus route in real time - Configuration of special structures within the University area on roads, buildings with ramps, tubs, specially designed elevators, WC ."

7. Accessible environment.

An accessible environment includes the following: streets, trails, buildings, parks, theaters, schools, colleges, train stations, airports, shops, and workplaces. Virtually all sectors of society must be designed in such a way that people with disabilities can use them just as easily. For example, buildings must be constructed either with a flat entrance and/or with ramps, and all existing buildings must be modified accordingly. It is also important to note that an accessible environment is not limited to the physical, but also includes areas such as communication, sign language, braille, etc. Without having access to their environment, people with disabilities cannot live a full and inclusive life, while these people are separated from the general activities taken for granted by society as a whole. This is a form of discrimination and isolation, which results in disabled people being at a great disadvantage compared to fellow citizens without disabilities.

Existing / Proposed HV P.P.' "Configuration of special structures within the University area in streets, buildings with ramps, tubs, specially designed elevators, WC - Digital accessibility of websites - access to the internet environment with special software and equipment through library services and soon mobile applications"

Overcoming challenges and developing trust is vital. With sensitivity and responsibility, the Social Care of the P.P., sets as a priority the facilitation of the living and education of students with disabilities and difficulties. Among the services already provided (description in paragraph 3. 2) new ones are included and existing ones are substantially upgraded through assistive technologies, based on the described needs.

Transportation of the beneficiaries with specially designed buses, to and from the University, supportive occupational therapy programs, counseling of Trainees - Parent Counseling, Entertainment programs, are some of the services that will be strengthened.

4.2 Specifications and Guidelines for the Application of Assistive Technologies

A set of Adaptive Technologies Application specifications has been developed on the basis of international best practices, updated by the work of the European Assisted Technology Informatics Network (EASTIN) and the HEART report (1994).⁵⁶

1) Accessibility

People with disabilities and those suffering from long-term illnesses have the right to access assistive technology solutions that support them to live as part of their own communities, and to participate in education and employment in accordance with the principles of the UNCRPD.

- Access must be provided regardless of health status or age.
- Access must be consistent regardless of geographical location.
- Access must be consistent regardless of education, work or living conditions.
- Funding eligibility must be fair.
- Information and advice on options should be freely available

⁵ AAATE and EASTIN Service Delivery Systems for Assistive Technology in Europe Proceedings of the AAATE 2012, International Workshop (Copenhagen 21-22/05/2012).

⁶ HEART Final Report on Service Delivery, European Commission DGXIII/TIDE, 1994.

2) End-user focused

The provision of Assistive Technology should be based on a delivery model for end-users. This means putting the user at the centre, and being supported to make choices and formulate their needs as much as possible.

- The process of assessing HV should be supported and encouraged by the users themselves who are able to do so.
- HV users need to be supported to make active choices around solutions that suit their needs and aesthetics.
- Experienced HT users should be trained and have resources to guide other users.
- The technical specifications of the technical equipment must be precise, so that the user himself has the opportunity, when he so wishes, to upgrade the equipment with his own resources.
- HVs should provide autonomy to the user.

3) Progressiveness

A progressive service must have the flexibility to respond to rapidly changing technologies, and changes in user needs.

1. The investment is required to keep up to date with technological progress and to ensure that HV staff and users keep up with the latest developments.
2. Investing in innovation is also a prerequisite to ensure that the main developments are accessible.

4) Efficiency

An effective service must prove its worth and improve people's lives.

1. It must prove its value throughout the life of the person using the technology, in a way that covers the costs of opportunities as well as the financial costs.
2. It must provide a timely response.
3. It must have the flexibility to support new YT users, students and dedicated users.
4. It must provide a service as close as possible to where users live or work.
5. Funding for the purchase and implementation of HVs should be provided, depending on the needs of the user, and payment capacity should be taken into account.

5) Effectiveness

An efficient service must be integrated into wider service delivery systems and be sustainable, fair and responsive to the needs of the person using the technology.

1. Better use of existing resources, and utilization of support systems based on user needs.
2. Continuous monitoring of the effectiveness of the HV model.

5.1 Good Practice of Assistive Technologies

By conducting a bibliographic survey of practices and technologies supporting EKO individuals operating within educational institutions, technologies and services used in institutions mainly abroad with an emphasis on North America were identified. The research has shown a large gap and at the same time a great prospect of designing and implementing such support services for SEEs, as there is a proven need for support in both developing and developed countries. Student needs are heightened as the group of people in need of support due to growing social hardships expands. Countries where good practice is applied are the USA, Canada, Scotland, Egypt, etc.

In recent years, there has been a greater awareness of institutions and organizations (including educational institutions) regarding the support, adoption of regulations and implementation of actions that support the proper life and functioning of students within the academic community. Examples of institutions implementing EKO actions are Cornell University, Florida University, University of South Alabama, University of Edinburgh, University of Iowa, Brock University, Texas Tech University and many other universities mainly in the USA, with organized Disability Student Services (DSS) departments. Among the best organized structures to support EKO actions are the universities of Cornell, Alabama, and the American University in Cairo.

There was a very small presence of actions in universities outside the USA, where some services for AmeA are supported on the one hand, but there are no organized, distinct and specialized departments that implement practices of such services. In Europe, Eötvös Loránd University, University of Zagreb, focusing mainly on rehabilitation and support services for people with motor disabilities, but also institutions such as Charles University, University of Warsaw, University of Dundee, University of Bristol that focus on the education and socialization of students. In France, a common policy is followed with an organized helpdesk at each university, where they focus more on preventive health care (Service Universitaire de Médecine Préventive et de Promotion de la Santé) and staff assistant (CDAPH) for personalized assistance to each student with disabilities. Similarly, in Germany, the DAAD has been established, where it aims to support students mainly with motor disabilities and chronic diseases.

The services provided are increasingly supported by digital technologies to facilitate the beneficiaries but also more mass information and awareness. More specifically, the digital assistive technologies founding most academic institutes meet the needs of people with mobility, vision, hearing, psychological, as well as living problems with economic criteria. More specifically, technologies such as:

- Informative Links
- Online Applications for Accommodation / Food / Parking / Financial Support / Bus Transfer
- Application for membership / recognition of EKO
- Tele-support and psychological monitoring (real-time meetings)
- Online session appointments
- Digital Ascology Material
- Mapping of EKO locations / Route mapping
- Mapping / Special bus routes
- Library services with text conversion to Braille, and voice support (reading)

- Person's Emergency Mode Mode

SHORT ABSTRACT	Voice Input
DESCRIPTION	With the advancement in Artificial Intelligence and Natural Language processing, voice processing has become accessible in many applications. According to the reports from Google, 20 percent of the web searches were performed using voice commands in the year 2016. This is expected to grow up to 50 percent by the year 2020. Web page navigation using voice is still limited.
ORGANIZATIONAL INFORMATION	Siri from Google, Alexa from Amazon and Cortana from Microsoft are some of the voice recognition tools that are available in the market today to achieve some basic accessibility using voice commands.

2.1 WEB TOOLS / SOFTWARE

Web application technologies

Development – Operation of an integrated system with a mobile application of Support Services for beneficiaries of the Program.

Smart phones and mobile phones are becoming a necessity of our daily routine, and the use of these devices is also vital for people with disabilities. As people communicate more and more with each other, smart and inventive apps help expand communication, improve inclusion and enhance the participation of new activities. Also, the improved technical specifications of mobile phones allow the operation of high quality services such as:



- Speech to text
- Text to speech
- Image in text using sign language
- Text in picture using sign language
- Picture in voice using sign language
- Voice to picture using sign language
- Voice command / Key
- Type to command
- Image/sound processing

Today there are more than 30 basic mobile applications that aim to support one or more functions to support A.me.A. Some of the well-known mobile applications that have been designed and developed specifically responding to the needs of people with disabilities are:

1. ICE - In case of emergency. The ICE app is a great app that allows users to enter all their emergency contacts and information, which are then displayed on the phone's lock screen.
2. WheelMAP. With WheelMAP one can search for a location and locate that location on the map, and then all accessible places nearby will be presented.
3. Tap to Talk. Tap to Talk is an application that can "speak" words for someone who has a problem with their speech. The user simply clicks on words or symbols that are on the screen and the application "speaks" on his behalf.
4. Screen Reading (SR) technologies - JAWS, NVDA, and VoiceOver are common screen reading programs that operate on a platform level. They allow the user to interact with the system



regardless of what program is running. These programs also provide enhanced functionality for interaction with things like webpages. By using ARIA and best practices in HTML, web designers can facilitate and augment the user experience for users of these technologies.

5. Roger Voice. Roger Voice is an app that translates everything a person says on the phone into text on the user's screen, allowing phone calls to be made even if one or both parties can't hear.
6. Miracle Modus. Miracle Modus is an app designed by someone living with autism, who wanted a system that would help in times of crisis.
7. Be My Eyes. Be My Eyes brings together blind and visually impaired people with volunteers around the world who are eager to become their eyes .
8. Stepping Stones. For children and adults with learning disabilities, some daily tasks can be confusing and difficult to learn. Stepping Stones is an app that allows users to create visual guides or routes to remind them – or help them understand – regular activities, such as preparing breakfast or washing.

Mobile applications have a number of advantages and although it seems that they may have limited capabilities, nevertheless the ability to address and be accessible by a large number of end users, and to be installed on every "smart" mobile makes them a unique "weapon" of wide diffusion and use of high-value services for people with disabilities. Taking into account, also, that the targeted audience of the beneficiaries of the Social Care of the P.P. are young people, familiar with the technology of mobile applications, encourages even more the development of assistive technologies in the form of mobile apps.

2.2. GOOD PRACTICE OF WEB TOOLS

SHORT ABSTRACT	Telecentre and technology clubs in Syria
TARGET GROUP	Students with different impairments
DESCRIPTION	<p>58 community telecentres have been set up in Syria to train people to use ICT. Six of the training centres provide Arabic screen readers. They also provide audio libraries.</p> <p>The Damascus centre is designed to meet the needs of people with different impairments and has been used to train over 10,000 physically disabled people, including in the international computer driving licence, graphic design, web site design and typing to help them obtain employment. Mobile computer labs are used to bring ICT to and improve digital skills in remote rural areas</p>
ORGANIZATIONAL INFORMATION	(UNESCO, 2011; Eid, 2012).

3.1 ASSISTIVE EQUIPMENT

Equipment and software for people with mobility problems

- Trace sphere handling. The trackball simulates mouse movement and keys. The tracers, in addition to the standard activation keys, also have programmed keys for shortcuts actions, especially for handling in web browsers .
- Special type keyboard. Maltron's special type keyboard featured relaxed and fast text typing by people with hand problems, especially single-handers. It had all the keys concentrated in a layout that allows the correct positioning of the fingers, typing from a single hand, avoiding large movements, straining the wrist and avoiding diseases from RSI (Repetitive Strain Injury).
- Alternative interface manipulation. This system consists of an infrared camera that monitors a sticker on the user's head and converts head movements into mouse movements. The system comes with optical keyboard software and mouse key emulation software. It also includes a wireless transponder of the user's actions, as well as the Sip/Puff selection system.
- Pressure switch. It acts as a mouse button and activates the commands given by users. This switch rests on a special arm on the workstation and enables the adjustment of its position to better serve the user.



Equipment and software for the visually impaired

- Read and enlarge Screen. The screen reader provides the ability to display the PC screen on a Braille screen and can magnify the screen up to 32 times. The software is compatible with the voice synthesis program "Phonesthesia Simos-Anna Voice Composer Pro" that fully supports Greek.
- Braille display. 44 characters, three of which are also used to present specific information. It fully supports Greek.
- Braille printer. Printing texts in Braille. The printer supports English and Greek Braille, can be printed directly from the Internet and uses computerized paper, so as not to interrupt the reading of Braille. The printer is installed in a noise reduction cabin caused when printing the documents.
- Optical Character Reading (OCR) software. This software with the help of a scanner captures texts on the Braille screen or converts them with the help of the voice synthesizer into spoken word. The software fully supports Greek characters, has the ability to export documents to text files, html and pdf.
- Closed circuit magnifier (CCTV). The closed-circuit magnification device presents an enlarged image on the computer screen (simultaneous use of Magnifier and Computer) and enables magnification up to 30 times.



- Three-dimensional printer. Printing objects from digital three-dimensional models. FFF (Fused Filament Fabrication) 3D printing technology, dimensions 200 x 200 x 190 mm, PLA/ABS cartridges thread, 1.75mm, resolution: Fine 0.1 mm (100 microns)
- Voice synthesis and screen magnification software (with 1 license). Voice-sensitive screen reader software, with Braille display capability, with the ability to enlarge screen data up to 60 times, compatible with Windows 10.
- Voice synthesis and screen magnification software (1 additional license to upgrade an existing PC). Upgrade an existing license.
- Braille Converter. Braille text print conversion and preview software, compatible with the mentioned Braille printer, support for Greek, both common and polytonic, text, English text, texts in biblical languages; cutters, compatible with the Windows 10 operating system, with the ability to import text from Microsoft Word, RTF, Libre Office, HTML, DAISY/NISO/NIMAS, ASCII, etc., with the ability to insert mathematical characters and symbols via MathType 6 or equivalent and convert them to Braille, with the ability to manually import text Braille.
- Optical Character Reading (OCR) software. Advanced OCR software with Greek, common and polytonic language support, exportable to popular office application files (see DOC(X), XLS(X), PPTX, HTML, RTF, TXT, CSV, ODT) and into EPUB,[®] ability to import from a variety of file formats with PDF, TIFF, JPEG, JPEG 2000, PNG, BMP, PCX, GIF, DjVu, XPS
- Voice recognition software (speechwriter). Support for the introduction of the Greek language, the ability to convert pre-recorded speech from a wav or mp3 file, collaboration in simple text editors or in Windows and Libre Office office applications.
- Braille printer. Two-sided page printer, ability to print via Windows, voice announcement, Greek and English Braille, ability to convert texts to Braille through Windows Office or Libre Office.
- Noise reduction cab. A cab allowing noise reduction of less than 60 dB.
- Trace Ball Mouse. Durable construction, five-key for (a) left click, (b) right click, (c) double click/ AntiTremor, (d) drag&drop and (e) scroll. It has a cursor speed adjustment key and at least two connection inputs for external switches.
- Wireless headset. wireless control mouse, consistently adaptable to desktop or laptop displays, USB port connection, Windows 10 compatible software, Cursor Update Rate 100 FPS, 1280 x 480px resolution.
- Switch mounting bracket. it is securely attached and fixed to various surfaces; With a base clamp, it has a useful support weight of 2+ kg and a variable length.
- Switches. circular in shape, with a minimum actuating area of 13 cm in diameter. Two pieces of different color each.
- Mechanism for connecting switches. compatible input with the above types, two inputs, with connection via USB port.

3.2 GOOD PRACTICE OF ASSISTIVE EQUIPMENT

SHORT ABSTRACT	FM Systems
TARGET GROUP	The most common type of hearing loss for all ages, sensorineural hearing loss occurs when the inner ear (cochlea) or nerve pathways from the inner ear to the brain are damaged.
DESCRIPTION	<p>According to the American Speech-Language-Hearing Association (ASHA), FM systems are the best choice for children with sensorineural hearing loss.</p> <p>FM systems work using radio broadcast technology. With a transmitter microphone and a receiver, the teacher and student can maintain a consistent sound level regardless of distance and background noise. Additionally, ASHA notes that the hearing aid microphone can be turned off, so the student can concentrate on the teacher alone.</p>
ORGANIZATIONAL INFORMATION	American Speech-Language-Hearing Association (ASHA) - FM systems

4.1 WEB ACCESSIBILITY

The term e-accessibility to the use or operation of an electronic service, including its digital content, means the existence of at least one sequence of actions that the user can follow, regardless of his particular abilities or limitations due to disability, in order to use or operate that service successfully and comprehensively. The non-implementation of e-accessibility constitutes direct discrimination against persons with disabilities either as served or as employees and prospective employees on the basis of the requirements of article 10 "Reasonable Adjustments" of Law 3304/2005 (Government Gazette No. 16 / A' - 27/01/2005).

The social care team undertakes an initiative to study, analyze and adapt the websites of the University of Patras with the aim of their complete harmonization with the WCAG AA standard, with the prospect of moving to AAA. The role of Social Care will be both advisory and intrusive with substantial configuration and adaptation of the websites based on the guide.



Web Accesibility (WAI)

Aware of the limitations faced by people with disabilities in everyday life, especially with Internet-based applications, the World Wide Web Consortium (W3C) has implemented a key solution that promotes to people with disabilities access, use and interaction with the Web through the Web Accessibility Initiative (WAI). WAI develops strategies, guidelines and resources to make the Web accessible to people with disabilities (W3C Web Accessibility Initiative, 2013).⁷

WAI aims, among other things, to develop Web content through Web Content Accessibility Guidelines (WCAG) (Web Content Accessibility Guidelines, 2013), authoring tools through Authoring Tool Accessibility Guidelines (ATAG) (Authoring Tools Accessibility Guidelines, 2013), and User Accessibility Guidelines (UAAG) (User Accessibility Guidelines, 2013).

In the WAI model, the WCAG directive is complemented by accessibility guidelines for browsing and access technologies (UAAG) and tools that support web content creation (ATAG) (Sloan et al., 2006). These guidelines are mainly based on the following four criteria: ⁸

- Perception – interface elements must be clearly visible to users in ways they perceive;

⁷ Web Accessibility Initiative, W3C. Available at <http://www.w3.org/WAI>. (2013).

⁸ D. Sloan, A. Heath, F. Hamilton, B. Kelly, H. Petrie, and L. Phipps. 2006. Contextual web accessibility - maximizing the benefit of accessibility guidelines. In Proceedings of the 2006 international cross-disciplinary workshop on Web accessibility (W4A): Building the mobile web: rediscovering accessibility? (W4A '06). Association for Computing Machinery, New York, NY, USA, 121–131. DOI:<https://doi.org/10.1145/1133219.1133242>



- Functionality - interface elements and navigation must be functional,
- Understanding - the information and operation of the interfaces must be understandable,
- Expanded - content must be broad enough to be reliably interpreted by a wide variety of users, including assistive technologies⁹

WAI was widely developed in various web application areas with the aim of including the omitted user groups. In fact, this accession has become an acquired right for people suffering from disabilities in different countries. Since education is one of the major ICT concerns, the WAI initiative in this area is very promising.

In the context of the National Action Plan for the Rights of Persons with Disabilities published in September 2020, Digital Accessibility is a key priority. Its objectives are:

1. Redesign, simplification and digitalisation of administrative procedures
2. Implementation of the digital transformation of the thematic area for people with disabilities
3. Horizontal ensuring accessibility to ministry websites and mobile applications of public services
4. Ensuring accessibility to the websites of Municipalities

The basic guidelines for Digital Accessibility provide for:

1. All Information and Communication Technologies (ICT) actions and projects designed from the outset will respect the principle of universal design.
2. Targeting the integration of technical features in all websites and applications that operate or will be implemented within the framework of responsibilities of the Greek Public Administration.
3. Ensuring accessibility to all electronic services offered to citizens.
4. Creation of new and upgrading of existing websites utilizing the funding possibilities of the Special Development Program of local authorities of first and second degree 'Antonis Tritsis'.

Recording of existing information systems serving the Disability thematic area, in order to choose the best way to implement the digital transformation.

Creating Accessible Websites

Everyone that creates, edits or maintains UTA-related websites must follow UTA Web Accessibility Policy, [IT-PO4](#), and UTA Web Accessibility Procedure, [IT-PR4](#).

This policy and procedure include specific directions for a variety of topics related to websites. The topics range from how website domain names are registered to which links are required to appear in footers.

In regards to accessibility, all websites are required to meet all WCAG A and AA criteria.

UTA uses Siteimprove as a reporting tool to advise if we have any A/AA issues with our pages. Employees can log into Siteimprove through [myapps.uta.edu](#) and their UTA Single Sign On credentials. Visit the [Siteimprove section of this website](#) to learn more or

⁹ M. Laabidi and M. Jemni, "PBAE: New UML profile based formalism to model accessibility in e-learning systems", Int. J. Eng. Educ., vol. 25, no. 4, pp. 646-654, 2009

contact accessibility@uta.edu for assistance in gaining access to reports for the appropriate websites¹⁰.

Additional resources for web developers:

- Canvas Course, “[Accessibility In Your Course](#)” includes a section on web accessibility. This is offered by the Center for Distance Education.
- Ryerson University created [Accessibility Maze](#), an interactive game to learn about web accessibility.
- Visit [Understanding WCAG 2.0](#) – A Guide to understanding and implementing Web Content Accessibility Guidelines 2.0 to learn about WCAG criteria.
- The World Wide Web Consortium offers strategies, standards, and resources to help make the web accessible. Visit [W3C – Web Accessibility Initiative \(WAI\)](#) for more information.
- Utah State University hosts [WebAIM: Web Accessibility In Mind](#). This is an excellent resource to learn about web accessibility.
- It is helpful for web developers to understand [assistive technologies](#) and how they are used by those with disabilities.
- [What is accessibility?](#) from Mozilla for developers.
- Best practices for writing alternative text from [WebAIM](#).
- A “[decision tree](#)” for alternative text from W3C.

The Web Content Accessibility Guidelines (WCAG 2.0) is a W3C defined guideline that gives web developers to develop accessibility compliant web applications. As per the WCAG documentation the web content here would refer to the following information that is available on the internet:

1. Natural information such as text, images, and sounds
2. Code or markup that defines structure, presentation, etc.

The WCAG has 12 guidelines that are organized under the following four principles. If any web site does not meet any of the following principles then it cannot be used by disabled audience members. For each guideline a “Success Criteria” has been defined. The web content must be testable under the success criteria and be a pass to be acceptable as compliant to the respective guideline.

Perceivable:

The information that is available on the webpage must be perceivable (i.e. to become aware). The information cannot be hidden from all of the senses. For example if a blind user cannot see the text, the web page must be compliant for a voice reader to be able to perform an audio voice over. The guidelines under this principle are:

- [Guideline 1.1 – Text Alternatives.](#)
- [Guideline 1.2 – Time based media.](#)
- [Guideline 1.3 – Adaptable.](#)
- [Guideline 1.4 – Distinguishable.](#)

¹⁰ <https://www.uta.edu/accessibility/eir/best-practices/websites>



Operable:

The user must be able to operate the application and it cannot require a interaction that the user cannot perform at all. For example if a user is not able to use a mouse then he/she must be able to use a keyboard instead. The guidelines under this principle are:

- [Guideline 2.1 – Keyboard Accessible.](#)
- [Guideline 2.2 -Enough Time.](#)
- [Guideline 2.3 -Seizures.](#)
- [Guideline 2.4 – Navigable.](#)

Understandable:

The user must be able to understand the information that is presented in the website and also understand how to interact with the website. The guidelines under this principle are:

- [Guideline 3.1 – Readable.](#)
- [Guideline 3.2 – Predictable.](#)
- [Guideline 3.3 – Input Assistance.](#)

Robust:

The application must be robust enough to be well interpreted by assistive technologies. The guideline under this principle is:

[Guideline 4.1 – Compatible.](#)

The Web Content Accessibility Guidelines 2.0 are organized into three levels of conformance:

1. Level A – The most basic web accessibility features. They don't focus on one type of disability only. They will also have the lowest impact on the presentation logic and business logic of the site. Finally, implementation of these requirements will typically be the easiest.
2. Level AA – This success criteria deals with the biggest and most common barriers for disabled users and have a high impact for users. Sometimes only specific user populations will be impacted, but the impact is important.
3. Level AAA – The highest (and most complex) level of web accessibility.

Texas Administrative Code 206 requires all web content to meet A/AA criteria.

4.2 GOOD PRACTICE OF WEB ACCESSIBILITY

SHORT ABSTRACT	Tips for Accessible Web Design, using Universal Design Accessibility¹¹
TARGET GROUP	People with visual impairments
DESCRIPTION	<p>Universal design comes in, which removes obstacles and provides accessibility for all users. Of course, universal design requires building a website with UX accessibility from the start rather than going back and modifying it later. But it's well worth the effort to accommodate everyone and achieve ADA compliant web design.</p> <p>People with disabilities can use many different accessibility accommodations to understand your site. Text-to-speech is the most recognized assistive technology available. This beneficial tool reads your website content aloud to users who typically have a visual impairment or related disability. In addition, these users may need help interacting with your site's images. That's why including metadata like short descriptions of images, known as "alt attributes," can make a substantial difference.</p> <p>A great example of how to do this well is the American Foundation for the Blind's Facebook page. Developers place image descriptions at the end of each post. You don't need to include extensive details, but it's critical to remember that your users might be using accessibility tools. Good Universal Design means getting perspective on the various challenges your users might have and making it easier for anyone to use your site.</p>
ORGANIZATIONAL INFORMATION	American Foundation for the Blind's Facebook page

¹¹ <https://userway.org/blog/6-best-practices-in-accessibility-web-design/>

5.1 ASSISTIVE LEARNING EQUIPMENT

Suggestions for providing accessible material

- Mandatory availability of accessible educational material by teachers
 1. Development of an Institution's strategy for the production of accessible material by faculty members and researchers of the institution at a primary level (born digital content), i.e. notes and slides. Everything printed by the Printing Center must be submitted in accessible form (the instructions have already been prepared and are available from the website of Social Care)
 2. Gradual renewal and liquidation of the eclass platform from inaccessible material.
- Creation of departmental working groups by volunteers of the network to support the conversion of the material of the beneficiaries and teachers (in case they need support)

Benefit: Acquisition of know-how in accessibility issues on the objects of the department. For example, the way in which an equation or chemical compound is converted is not known and how it is worded correctly should be indicated, e.g. if an audiobook needs to be prepared.

- Textbooks
 1. Priority of the departmental groups is the editing of university textbooks by Eudoxus (indicatively 1-2 textbooks per department) in accessible epub and daisy formats by the departmental groups
 2. Books, for some sciences may be in audio form (in collaboration with "I read for others").
- Entertainment material
 1. Conversion of Library documents and the "Open Library" database that are out of copyright
 2. Anthologies of literary material from the digital collections of LIC Kosmopolis, Pleias and Danielis, their transformation and distribution to AMELIB.
 3. Possible future creation of paid jobs for the conversion of material through social care

THE ROLE OF THE LIBRARY:

- Training of beneficiaries and volunteers in the use of appropriate technologies for the use and conversion of the material.
- Coordination of departmental working groups.
- Support of the multimodal AMELIB library of HEAL-Link (<https://amelib.seab.gr/>). The aim is for commercial textbooks made accessible and legally cleared to be reusable by other users in the country and for the library to mutually benefit from the actions of other libraries.

- Editing of documents and selected material in accessible formats.
- Recording of new practices in material accessibility – selection of proposed technologies
- Disabled jobs (user support in fair use)
- Copyright clearance. Continue to communicate with publishing houses and the Intellectual Property Organization for the legal management of all subtle issues for reproduction rights for printed students.
- Forwarding requests for electronic records to publishing houses
- Information program to encourage students with visual impairments and mobility to take advantage of the Library's services. Representatives of the Departments should participate in the program, where they periodically inform about the project. A first point of reference could be the freshman update.
- Recruitment of volunteers to strengthen the network of Social Care
- Dissemination of information and publicity (University, local and national press).

Library & Information Center

In 2005, the Library & Information Centre set up two workstations for the access of people with disabilities to its printed and electronic information material. The project of creating these two workstations was included in the framework of the project "TELEFAESSA - Provision of electronic services of the Library & Information Service of the University of Patras to the academic community" and in particular in action 2.2. under the name "Information Service for People with Disabilities".

The aim of the creation of these two jobs was to support people with disabilities in their effort to search, retrieve and use the electronic resources available to LIC, as well as to gain access to freely circulated content on the Internet. These two stations were intended for use by visually impaired persons (partial or total blindness) and/or mobility impairments.

The two workstations, in addition to the special software, were equipped with the necessary peripheral equipment, such as a color scanner, a conventional printer and a Braille printer, headphones and speakers. They were placed in a specially designed area in the Library and Information Center.

The equipment was used for the needs of students for accessible material (more specifically conversion and printing in Braille of university material), for the printing in Braille of information leaflets of the then Prefecture of Achaia and the Lighthouse for the Blind, for printing material of the former TEI of Patras (the volume of material has not been recorded). Admittedly, the use was not the desired one, but it should be borne in mind that the conditions of communication and encouragement of the printed disabled students were not mature, the LIC was not framed by structures such as Social Care and the legal framework was not so strengthened that the library could freely process material without permission.

Over time, due to the increase in awareness on accessibility issues of printed disabled users (through updates and actions of the Library and Information Center), the aging of computers and the evolution of software and expiration of licenses, it was necessary to upgrade the existing equipment and purchase a new one in order to be able to meet the new needs that arose.

5.2 GOOD CASE OF ASSISTIVE LEARNING EQUIPMENT

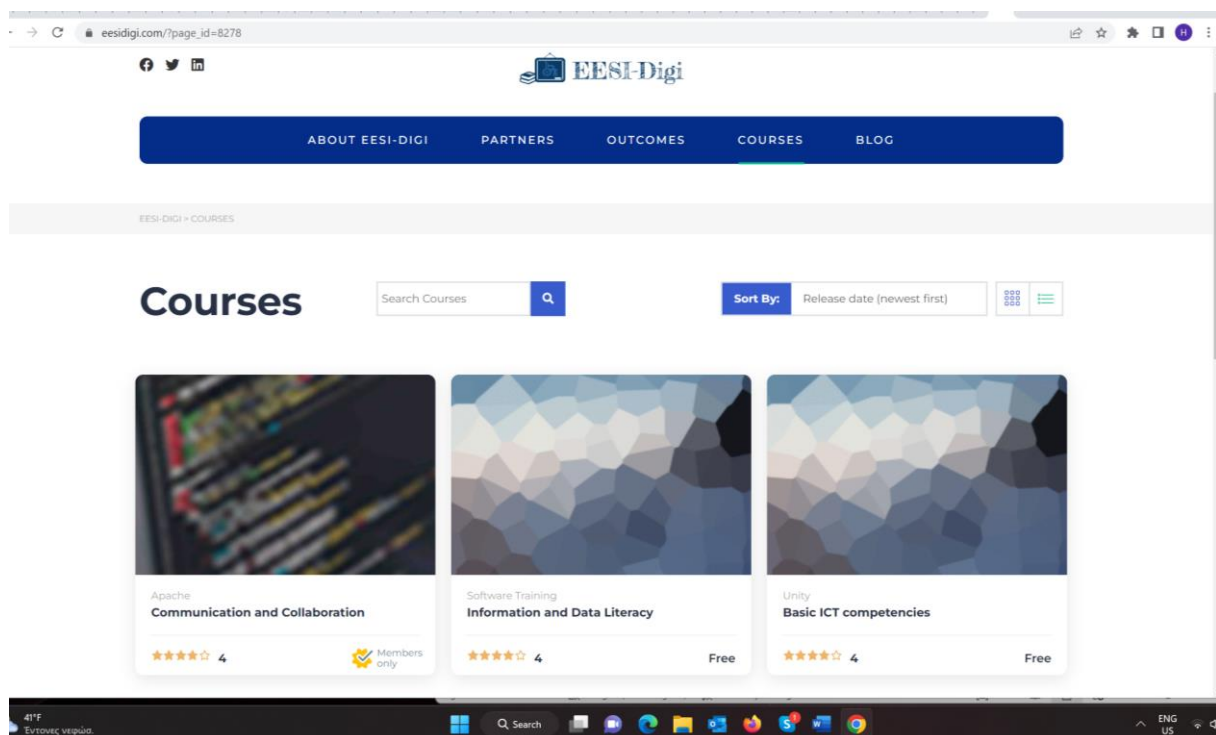
SHORT ABSTRACT	Podcasts are a great tool for use in education¹².
TARGET GROUP	self-paced learning, for reinforcing ideas taught in the classroom, for flipped classrooms, for multilingual students, for including guest speakers and for providing enhanced teaching and learning environments.
DESCRIPTION	<p>When creating podcasts, keep the following in mind: add transcripts of the podcasts and pick an accessible media player. WebAim's article on Captions, Transcripts, and Audio Descriptions provides a good definition and summary of each. Providing transcripts to your podcasts is the most important thing you can do to increase your podcast's accessibility. A transcript should capture all the spoken audio, plus background noise that wouldn't otherwise be accessible without hearing the audio. Many users benefit from the transcripts, not just those with a disability.</p> <h3>Displaying transcripts</h3> <p>There are a few ways to display transcripts:</p> <ul style="list-style-type: none"> • Directly on the page, right after your Podcast notes, in plain text or HTML. If you provide transcripts, always say so in the intro of your podcast episode. This allows people who access your podcast through apps rather than your site to know transcripts are available. This is, by far, the best way to provide a transcript. The information is right there for everyone to see and skim if they are looking for specific information. As it is part of your podcast's episode page, it is also available to search engines. This will ultimately increase your reach. <ul style="list-style-type: none"> ○ The A11y Rules Podcast is a good example of inline transcripts. ○ The Podcast Host is another example of inline transcripts. • Downloadable file or linked transcript. If you are receiving a document from a transcription service, it is easy to simply upload that document and provide a link to it. While it is easier for you, it is more difficult to get to the transcript for your audience. They have to download a document. It splits their attention between the transcript and the show's page. Downloadable documents are also rarely fully accessible, particularly if you are providing PDF files. <ul style="list-style-type: none"> ○ The Big Web show provides a good example of a linked transcript. • Synchronized. Synchronized transcripts are interesting because they allow someone to both follow the audio and

¹² <https://www.uta.edu/accessibility/eir/best-practices/podcasts>

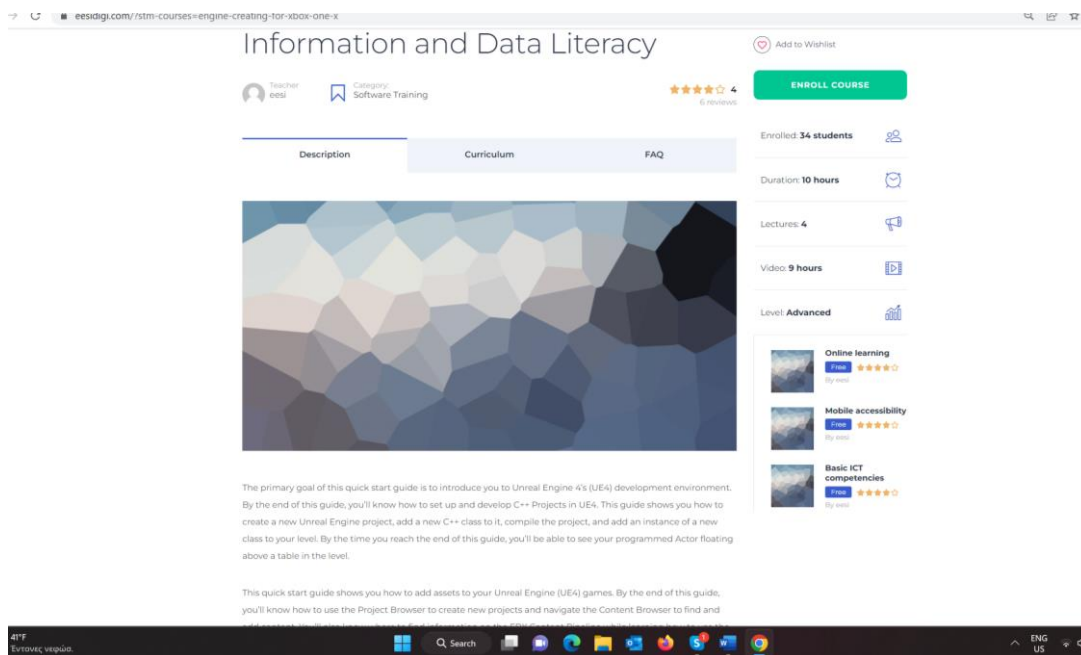
	the text at the same time. Of course, they can also just read through the transcript and then listen to the bits they find more interesting.
ORGANIZATIONAL INFORMATION	WebAim's article on Captions, Confluence: Podcasts

6.1 ACCESSIBLE LEARNING PLATFORMS AND APPS

EESI-Digi involves the development of an advanced web collaborative platform, with an integrated e-learning platform which supports synchronous and asynchronous distant learning. This tool is specifically designed on the special needs of SwD considering the specification of WCAG. Transferability potential lies in the fact that all material will be accessible via a web platform and will be prepared for e-modules offering a prospect of distance learning while it can also be used in the classroom.



A web-based platform provides accessibility to learning material and supports training activities beyond the walls of a physical training center or an academic institution. The last pandemic years, tele-training has become necessity and has posed more difficulties to students with disabilities who were challenged anyway. Advanced real-time and synchronous features enable live training, assisted with several inclusive digital tools that assist further trainees. Built in assessment tools enable the progress monitoring of the trainees which is vital for trainers to understand the comprehension level and re-engineer their material or assist trainees with difficulties. The web platform will be accessible in 5 languages (English, Lithuanian, Spanish, Greek and Italian). In the whole duration of development, continuous revisions are expected by partners and joint staff training will also provide inputs on usability.



Giving priorities to actions that promote inclusive methods and tools for teaching, training, learning and assessment as drivers of improvements in inclusive learning, we will deliver an innovative **Avatar** tool for user-friendly navigation, and a real-time communication tool. The platform will be also supported in mobile application version, extending the usability of it.

Mobile Apps will be designed to contain training material available even after the completion of the training. The apps will also provide useful assistive tools to enable students with disabilities in daily and academic activities.

Live Chat module will be added to both the platform and the apps providing guidance and assistance where needed.

A DataBank will be added to the platform, acting as an **e-Repository** for freely accessible material. There will be an Open Source and freely accessible e-Repository with training material, digital tools, analysis and surveys, available for download.