

WORKSHOP

Excellence in the Process of AT Provision

Johannes Kepler University, Linz, Austria

July 10, 2018

On 10 July 2018, AAATE brought together a group of experts in Linz, Austria, to discuss how excellence can be ensured in how we provide assistive technology (AT) to the people who can benefit the most. The objective was to draw parallels across education/employment, social and health contexts (well represented by the line-up of speakers) and to deduct what is needed for providing excellent AT services that are also effective for low- and middle-income countries.

Gaps as wide as the Grand Canyon

Luc de Witte¹, President of AAATE, kicked off with thoughts on the global challenges in AT service delivery. He shared experiences of people with severe disabilities in rural India – people who need to survive without any medical help or AT support, while in Europe we are privileged to be looking into social robots, IoT applications and top tech to support the elderly and people with disabilities (PWD).

However, even in Europe and other developed countries, these highly innovative tech solutions are miles away from the lives of the people they intend to serve. The gap between what “real people” would need to support them and the availability of affordable AT solutions is as immense as the Grand Canyon. Some estimate that only 10% of needs are met – and that is not only a problem of developing countries. In funding, it is easier to get 200,000€ for robotics or research in artificial intelligence (AI) than 2,000€ for ‘simple’ AT solutions.



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It is not enough to just provide #assistive #technology. It also needs appropriate service delivery, information, knowledge, funding mechanisms... we need to develop whole #AT delivery packages. @luc_witte at #AAATE2018 Workshop @CATCHshf

To bridge these gaps, we need to develop good delivery systems for assistive technology that are based on models suitable in the local context of low-resource settings. This means working with regional AT centres and training non-professionals in the community so that they can actively reach out to the people who need support. These non-professionals can themselves be supported by smart technology, such as decision support apps, remote advice, etc. It also means that we need to think about how to educate big corporations like

¹ Centre for Assistive Technology & Connected Healthcare, The University of Sheffield, UK

Apple, Google & Co to deploy functions like artificial intelligence in low-end, low-tech products and services.

This does not mean that we should abandon research and innovation into high-tech solutions, but opt for a two-track innovation strategy, which on the one hand pushes the development of new solutions, while at the same time also invests in the delivery of affordable solutions based on proven technologies. “What if it would be compulsory for every company or funding body in this field to spend at least the same amount on ‘low-end’ solutions?” Some resources must also go into studying how our wonderful AT solutions can best be put into the hands of those people whose lives can be transformed by them.

Luc closed his presentation with a call for action to all AAATE members and researchers active in the AT sector: “We have the necessary knowledge and it is us who write the research and development proposals. Why not just follow the above proposals? As researchers, we can influence policy makers and funding bodies positively by raising awareness about these issues and challenge them to put an emphasis on implementation strategies.” AAATE as an organization could develop basic guidelines, standards and tools that help people all over the world to develop successful AT delivery systems, adapted to local settings and conditions of diverse countries.

Service Delivery Systems for Assistive Technology in Europe

One of the workshop’s objectives was to sound out if there was a need to update AAATE’s 2012 Position Paper on Service Delivery Systems for Assistive Technology in Europe. To freshen up our memory, Renzo Andrich² outlined the main thoughts from the 2012 paper and the 8 research questions with which the paper ended, starting with a short summary of the state of play.



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Telecare, telehealth, smart homes, home adaptation, Internet of Things.....
#assistive #technology covers them all. Important to clarify what we understand under this term to understand and agree on a position paper and advance #AT.
Renzo Andrich at #AAATE2018 Workshop

Assistive technology delivery systems differ significantly across EU countries. There are big differences in who is eligible and for what. Different terms are used in different contexts. AT can only make sense if contextual factors are taken into account in addition to WHO’s International Classification of Functioning, Disability and Health (which serves as a basis for many AT delivery systems).

AAATE’s 2012 paper suggests a 4A approach: **Autonomy** can be achieved if an effective Assistive Solution is provided, resulting from an appropriate combination of **Assistive**

² IRCCS Fondazione Don Carlo Gnocchi, Italy & president of EASTIN

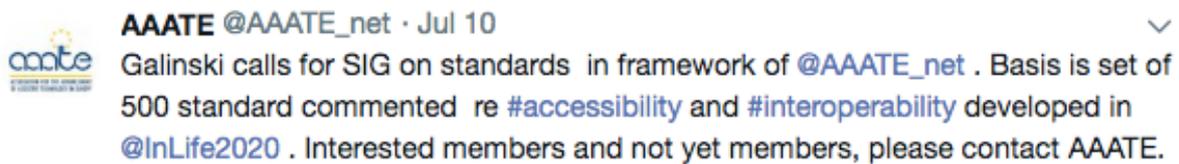
technologies + personal Assistance + Adaptations of the environment; in turn, assistive solutions are supported by the accessibility of products, services and infrastructure.

No interoperability without standards

A crucial element for making AT globally deployable is to have it rely on standards and be interoperable. Interestingly, many EU policies refer to accessibility in the sense of interoperability confined to assistive technology or ICT in general. Whereas in most other eApplications (such as eBusiness etc.) “content is king”, the content of communication in eAccessibility and eInclusion environments is very much underrepresented – even underestimated.

Christian Galinski³ underlined that interoperability can never be achieved without standards. Participants in the IN LIFE project encountered many interoperability issues, some of which could be overcome by standards, but some required local individualization. One delivery of the IN LIFE⁴ project was a database recording more than 500 standards pertinent to eAccessibility and eInclusion. However, due to the life cycle of standards, 10-20% of the database content changes every year resulting in the need for continuous updating.

Assistive technology specialists today increasingly need to have enough knowledge about pertinent legislation and standards, and it is in their interest to invest in continued education in order to contain liability risks and ensure competence in their field of activity.



Christian would be in favour of creating a Special Interest Group (SIG) within AAATE to build on the IN LIFE standards database and gather people not only to maintain and regularly update the database, but also provide evaluations of the respective standards from a real user point of view. Besides, standards organizations should be urged to include a reference to eAccessibility in all upcoming new standards and standards up for revision. This is the essence of the “Recommendation 2016 concerning standards on eAccessibility and eInclusion” adopted by AAATE in 2017 with a call for endorsement by institutions, organizations and individuals.

Meeting needs and demands

³ International Information Centre for Terminology, Austria

⁴ <http://www.inlife-project.eu/>

The first rule of assistive technology delivery is to meet needs and demands, but with changing demographics and advancements in technology, these needs and demands are changing, on top of the range of needs across different cultures and languages.... “A remarkable challenge”, admitted Dave Banes⁵. He shared some impressive numbers to underline his point:

- Results show that ageing of the population alone, with no alteration in the prevalence of diseases or the age-specific rates of becoming disabled or recovering, will result in a 67 per cent increase in the numbers with disability over the next 20 years.
- Numbers of the oldest old (those aged 85 years and over) with disability will have doubled.
- Numbers experiencing one of the key diseases considered will have increased by over 40 per cent by 2025.

With wide-scale access to technology, the behaviour of people with disabilities has changed. They can decide about their own needs, they no longer accept having to go through special channels to get their AT or long waiting times, they form communities of practice with their peers. all this is driven by our new relationship to technology.



This new attitude in turn impacts AT professionals whose role increasingly shifts from the AT professional deciding on what a person needs to rather mentoring and guiding the user in informed decision making.

Dave Banes carried out a survey in his network of AT users⁶, and while the sample size of 73 may be small, their answers gave some interesting insights. Out of the 73 AT users, 47 had received their assistive tech through public funding, 26 had bought it themselves or received it from a private source. The first group received one-on-one training at home or in an AT centre, while the second group learned the use of the AT by themselves or online. Both groups were satisfied with the training and reported successful use of AT. However, the money invested in the first group, who were publicly funded, was £1,500-1,800 per client, while for the second group, who had privately financed their purchase, it was up to £150 – a huge difference in investment for the same outcome.

This shows that AT service delivery in reality has already changed in many cases. Driven by the expectations of users, who want to be self-determined and share their stories and

⁵ *Access and Inclusion Services, UK*

⁶ The survey participants were predominantly users of digital AT, using mostly solutions on phones and tablets while about a third were using PCs. Their needs included solutions for vision loss, hand/arm movement, dyslexia and reading issues.

experiences with peers via social media and aggregate in this form valuable information for the community.

But there are also challenges to effective self-determination. First, the user must be clear on what he or she actually really needs (or what would best serve them in their daily lives). Then the information on possible solutions must be easy to find and retrieve, must come from an independent, trustworthy source and come in accessible formats. It must be clear what level of expertise is required to implement and use the AT, what it costs and if training is available online or on demand. Additionally, software and hardware solutions should be open source and content should be published under Creative Commons, so that they can be translated and shared throughout the community.

While this seems like a huge task, several sources of information helping users through the process of finding appropriate AT, are already available. One example is the GARI database, which provides information on the accessibility features in mobile phones, tablets, apps, Smart TVs and Wearables⁷. Increased capacity of artificial intelligence furthermore links user needs with preferred solutions and starts to provide greater ability to match people with technology, aids and devices that will best serve them. Atvisor⁸ for example is a machine learning solution that is entering the market based on this premise.

In summary, Dave concluded, we see today that traditional models of AT service delivery cannot keep up with growing demand and influences of demographics, economics as well legacy systems and technologies. Users are already addressing these issues by themselves by seeking to self-assess their needs and obtain the AT they need. AT professionals can and should play a vital role in supporting this shift by ensuring the validity of the decision making and by offering escalation to those in greatest need.

Expert to user led open AAC symbol service

Continuing on the theme of users in the driver's seat in the development of new services, E.A. Draffan⁹ presented a project to develop AAC¹⁰ symbols that are culturally acceptable in the Arabic world. E.A. and her team researched what kind of symbols fit to the local language, culture, social settings, education and health requirements, as well as religious and environmental settings by working with AAC users, their families and carers, alongside speech therapists, specialist teachers, a graphics designer, an Arabic linguistics specialist and a computer scientist. The results of the project provided participants with personalised symbol sets that could be adapted to suit their circumstances. It also gave the team a framework and a set of criteria for supporting the development of further open symbol sets using a Creative Commons licence and open source software.

⁷ www.gari.info

⁸ <https://www.atvisor.ai/>

⁹ *University of Southampton, UK*

¹⁰ Augmentative and Alternative Communication



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Small but critical factors can impact on acceptance of localised linguistically accurate core vocabularies and corresponding pictograms by enabling collaboration in both design and development. @EADraffan at #AAATE2018 Workshop

The use of social media and open communication systems taught the team how much easier it was to make changes and be responsive to comments and requests based on the opinion of the majority. It was also felt that the framework and the criteria could be the building blocks for future work, once funding for the project finished. Global Symbols has been set up to take the ideas forward, and two team members are mentoring an AAC cohort with UNICEF.

While the objective is that users can benefit from global AAC trends and resources while also allowing for individualisation to suit their personal needs, some form of control or governance of user engagement is essential as a safeguard. Furthermore, there needs to be a recognition of standardisation and harmonisation of open symbols sets.

Wheelchair provision strategy for Romania and the Philippines

Rosemary J. Gowran¹¹ circled back to the issues mentioned by Luc de Witte about effectively providing AT in low-income countries. She presented a Sustainable Community of Practice (SCOP) Model.



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What we are trying to do in #AT delivery is to help people flourish and achieve a sense of wellbeing. @GowranRosie at #AAATE2018 Workshop

In planning a strategy for providing assistive technology and AT service delivery, stakeholder and user engagement is again a key factor for success. Without meaningful stakeholder engagement, implementation of any strategy will get little support and implementation will be weak, with much of the potential positive impact of AT getting lost. The Sustainable Community of Practice (SCOP) model provides a framework for innovative ways to connect to users, AT providers and policy makers in partnerships to plan and implement sustainable AT provision.

Considering these concepts, the International Society of Wheelchair Professional (ISWP) engaged with in-country organizations, such as Motivation Romania and the Philippine Society of Wheelchair Professionals. The pilot sites were supported by a wheelchair sector consultant, to establish their country specific narratives, conducting organisational ethnographic studies (review of the literature and legislation, questionnaires, interviews and stakeholder-centred (wheelchair users, providers, policy makers), workshops). Results show

¹¹ University of Limerick, Ireland

the distinct nature of country specific contexts and an overall picture of the historical development of wheelchair provision in Romania and the Philippines drawing out the social, economic, environment and political pillars that impact on country specific provision systems.

The use of the SCOP model as a framework allows a whole-system approach to developing a localised strategy. However, the affiliate process with local organisations also demonstrated the complexity of facilitating such stakeholder-centred engagement, which requires continual planning and adaptation to provide safe spaces for communication, mutual respect and shared understanding. It will need skilled research personnel with a knowledge of the AT sector and the local specific contexts to successfully facilitate stakeholder-centred research such as this. The results of this work can strengthen in-country negotiations with governments towards creating more effective AT policies.

Often the laptop is the preferred assistive device

Abi James¹² then looked at similarities and differences in the approach to providing assistive technology through two UK government-funded schemes, one for providing support for disabled higher education students and the other for those in the workplace.

In the UK, disabled students studying at higher education and disabled employees can receive financial assistance towards support and adjustments including assistive technology and training. These schemes, the Disabled Student's Allowances (DSA) and Access to Work (AtW) respectively, both follow a similar process. Once an individual has declared a disability-related need that affects their ability to study or work, they undergo an assessment to identify what access needs and strategies are required before the support is funded and implemented. Both schemes require that the needs assessments are undertaken independently of their educator or employer and the support provided must meet criteria set by the funders. Each scheme has a budget of over £100 million (including non-technology support), supporting over 30 000 individuals every year.

One of the major differences between the two schemes is for example that the AtW scheme does not provide computer equipment, as this is the responsibility of the employer, whereas the DSA may provide a complete package including a computer (if required), insurance and technical support, and many users report that their laptop is actually their preferred assistive device.

Also problematic is that funding is mostly only available for technology from a pre-defined list, curated by government departments, with technology training limited to the funded AT packages. This can result in missed opportunities for the use of free or low-cost online applications and mainstream devices with built-in AT functionalities.

The experience with these two government funded schemes shows that large-scale AT schemes can have positive impacts on access to education and the workplace, but the

¹² *University of Southampton, UK*

definition of assistive technology can also result in a limited choice of AT solutions. “Assistive technology” should be seen as a holistic solution embedded in the individual’s environment, rather than some sort of specialised equipment or software. It was also found that the more procedures and steps involved in applying for funding, the less people arrive at the point where they actually receive assistive technology through these schemes.

A standardised procedure to evaluate the outcome of AT service delivery

Connecting the dots between Christian’s talk on the importance of standards or standardized procedures and the difficulties of proper assessment of needs shown in Abi’s presentation, Lorenzo Desideri¹³ outlined a standardised procedure to evaluate the outcome of assistive technology service delivery, starting from two assumptions:

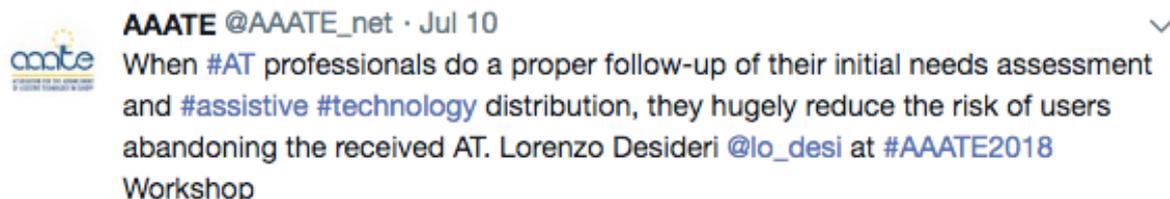
Assumption #1:

An AT service delivery process can be considered concluded only when there is evidence of a satisfactory match between the person and the provided solution. (2012 AAATE position paper)

Assumption #2.

The availability and quality of follow-up services is thought to reduce the risk of AT abandonment or non-use. (Federici et al., 2016b; Philips & Zhao, 1993)

The 2nd assumption seems particularly pertinent given that 30% of assistive technologies solutions are abandoned one year after delivery¹⁴. The reasons are manifold and range from social, personal, health aspects to economic factors and the physical environment. It underlines the need for introducing an assessment of the effectiveness of various AT service delivery (ATSD) systems.



In his talk, Lorenzo illustrated the development of an evidence-based procedure to evaluate the outcomes for the Center for Assistive Technology (CAT) in Bologna, Italy. Lorenzo and his team developed a framework for AT service delivery quality assurance by combining the healthcare quality evaluation framework developed by Donabedian with the quality criteria set by the AAATE. According to Donabedian, healthcare evaluation may be defined by distinguishing between structure, process and outcome. In brief, structure refers to organizational factors that define the health system under which care is provided (e.g.

¹³ Regional Center for Assistive Technology, Italy

¹⁴ Dijcks et al. (2006); Federici & Scherer (2017); and Lauer et al. (2006)

health facilities, staff characteristics). Process refers to interactions between users and the healthcare structure (e.g. diagnosis, treatment, referral, interpersonal communication). Outcome refers to the consequences of interaction between individuals and the healthcare system, related to structure and process.

In the case of the Center for Assistive Technology (CAT) in Bologna, which operates as a publicly funded AT provider, managed by a non-profit organization in collaboration with the Local Health Authority, the follow-up procedure followed a three-step approach. In each step, AT-specific tools were employed to assess: (a) perceived AT effectiveness, (b) satisfaction with AT service delivery process and services, and (c) social costs associated to the AT intervention. In addition, the outcome assessment had to be carried out on three levels: the user level, the AT service level and the AT process level.

It became clear in order to properly assess the outcome of AT service delivery, we first need to decide what 'types' of outcome-related standards we need.

For example, governments are interested in determining what percentage of abandonment of AT in their funding schemes is acceptable. For AT professionals on the other hand, it is more important to understand the reasons for the abandonment. Are perceived usefulness and user satisfaction pertinent criteria, or is it more important to determine to which extent tool 'X' is reliable and valid? For a proper assessment of AT delivery, we need to answer these questions first.

Reporting individual assistive technology interventions

In his second presentation, Renzo Andrich focused on how we can track the individual AT intervention in a way that we can measure the outcome in order to make sure that the investment carried out leads to successful results for the person's life. However, measuring the outcome of an AT intervention is complex. An AT solution brings about a "perturbation" in the system composed of the person (involving his/her clinical condition, personality and life goals), his or her environment (architectural, human, organizational) and his or her occupation (activities, life roles, lifestyle). The system needs time to absorb the perturbation and evolve towards a new balanced situation; the outcome is positive when this new situation is perceived by the person and by his or her primary network as beneficial to their lives. A variety of actors and factors are involved in this system, some of them being predictable and others unpredictable; thus, the actual outcomes can be detected only when the perturbation transient has expired: this means that the outcome measurement should be carried out not "in the clinic" but "in a real-life environment"; not "here and now" but "there and tomorrow".



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Renzo Andrich presents a method for reporting individual #assistive #technology interventions. One part of is to ask the users to describe 7 problems that they expected to solve with the #AT. #AAATE2018 Workshop

Various methods have been developed for this purpose; however, they are mainly focused on specific user groups or categories of assistive products. A recent study worked on the development of a standardized method to track individual AT interventions for any user. It was able to generate reports needed in clinical practice, measure the outcome and detect possible critical issues requiring adjustment. Based on this method, individual AT interventions were carried out with 120 participants scattered throughout the whole country, and the process was tracked by means of a purposely-developed template including five sections: 1) Contact Data, 2) Assessment Report, 3) Verification Report, 4) Follow-up Report, and 5) Statistical Data.

The template is publicly available and freely downloadable¹⁵ for those interested and provides a method and a tool to track the whole AT intervention, measuring its outcome in a standardized manner. It also allows us to easily detect possible critical issues that may compromise the effectiveness of the assistive solution and suggest corrective action.

Innovation roadmap to AT remote service delivery

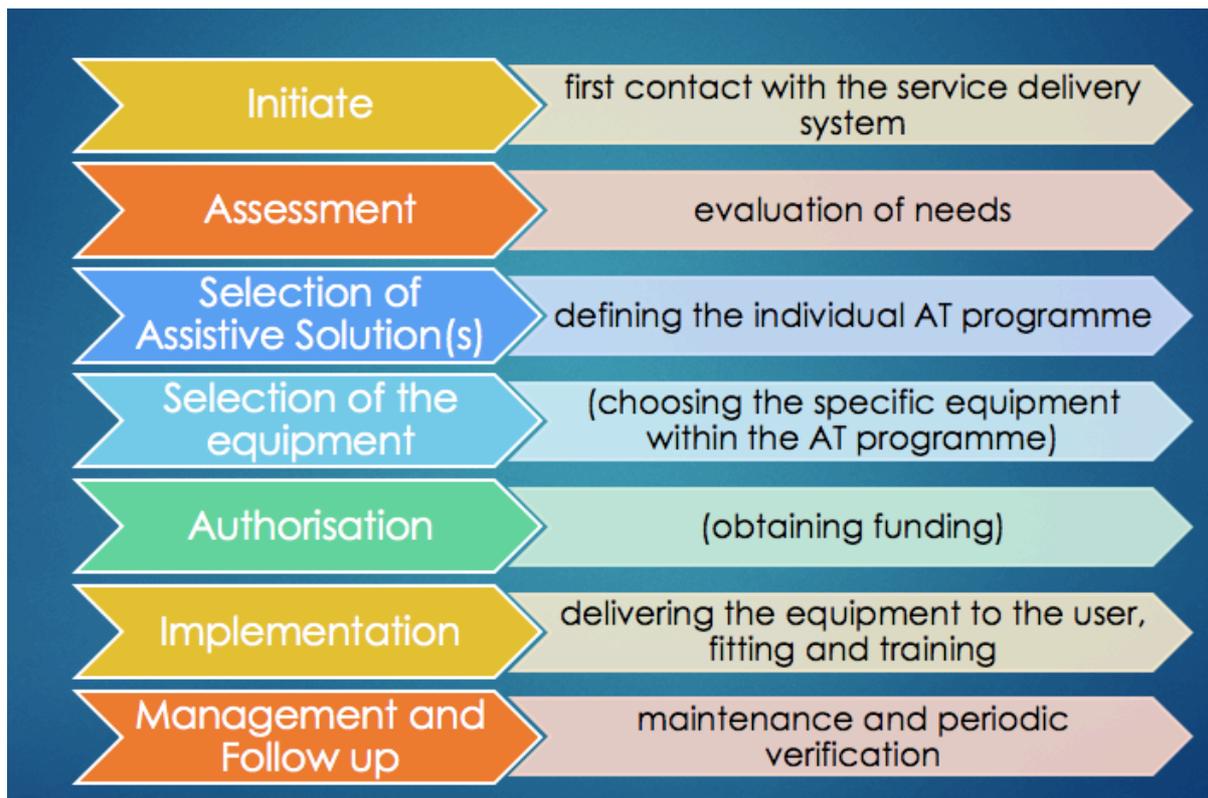
The need for standardised procedures was definitely a red thread through the workshop and again picked up by Peter Cudd¹⁶ who outlined an innovation road map to remote AT services.

Face to face consultations with AT professionals come with a set of issues, such as lost time for travel to user locations and lost time on the side of the user in waiting for support. If the AT comes in the form of a networked device, remote support might be faster, cheaper and maybe even more efficient. However, who would check if the remote AT assistance is done well? There is little published information on good practice in remote AT services, and experiences so far are often limited to specific AT solutions. (Telecare and tele-rehabilitation being exceptions as a lot of work has been done.)

Assistive technology services usually follow 7 common steps:

¹⁵ <http://www.eastin.eu/en/searches/associatedinfo/articles/detail/database-siva/id-306>

¹⁶ Centre for Assistive Technology & Connected Healthcare, The University of Sheffield, UK



However, these steps may change depending on the technology and the method of service delivery.

One example for remotely delivered AT is Teleophthalmology in India. A van equipped with medical and telemedicine facilities drives to rural areas where the team screens patients connecting via VSAT technology to the medical centre in Sankara Nethralaya. A diagnosis is made and if required spectacles are dispensed from the van.



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One concrete example mentioned by Peter Cudd is the AILISA project which promotes experimental platforms in France to evaluate #technologies for remote monitoring and assistance to #elderly people at home. #AAATE2018 Workshop @CATCHshf

From a new technology perspective, a priori two approaches suggest themselves, so that a person who would benefit from AT could obtain the right AT. The first, and perhaps currently more technically challenging, would be an Artificial Intelligent (AI) technological service (probably including a robot) that travels to the person who needs AT. It carries out the steps in the AT provision as established by guidelines or standards. Ongoing support would sometimes require further visits. The second approach, and perhaps currently seemingly more achievable would be to utilize digital networks to allow telepresence of a remote human expert to assess and support selection and use of AT.

It should be noted the AI based approach does not require digital infrastructure, while the telepresence does. Both require the person with the need to be identified and enabled to

communicate the need and in some cases try alternative devices during assessments. So implicitly there is a need for a local human agent to facilitate. That agent could have specific AT knowledge or be a general care practitioner – but at least have the capacity to identify a person who might benefit from AT.

Both approaches might be enhanced by a third technological field - that of self-correcting systems and/or ones that allow the user to correct problems. In all these approaches an important factor affecting remote AT provision is security of all the strands of data collected during an AT assessment, which could include video and sensitive healthcare records.

In order to build a roadmap for delivering remote AT services, Peter and his team suggest building on state of the art technology and learning about good remote practice and operation. AT solutions that lend themselves to be deployed via remote AT service should be prioritised and rely on robust and low-cost current technologies. In the medium to longer term then, more advanced technologies such as tele-presence, artificial intelligence, and robotics could be integrated.

Do-it-yourself assistive tech

Aejaz Zahid¹⁷ closed the circle of presentations by looking at how do-it-yourself (DIY) assistive technology user innovation can help address the gap in global AT provision. Aejaz started with taking the audience on a journey through products inspired by users out of their individual needs, starting from the ice cone, passing by the Tiffy template to identify Indian bank notes, to conclude on the CARR style adaptive clothing, inspired by a kid with Cerebral Palsy.



Assistive Technology provision has traditionally been seen as the preserve of professionals in the healthcare or education sectors. However, there will never be enough professionals and funds to satisfy the needs of over 90% of persons with disabilities around the world who have little or no access to AT today.

At the same time, do-it-yourself (DIY) design and prototyping with the help of cloud-based 3D design software and 3D laser printing has democratized design and fabrication to the point where we see a growing AT makers movement and an upwards trend in sharing AT designs online.

For example, the open prosthetics community e-Nable, which now boasts thousands of children successfully using adaptable prostheses designed uniquely for each individual's

¹⁷ Centre for Assistive Technology & Connected Healthcare, The University of Sheffield, UK

needs. We now live in a world of increasing connectivity with a proliferation of maker spaces that could allow any member of the public to use fabrication tools such as 3D printers, DIY electronics boards (e.g. Arduino or Raspberry Pi) etc. to create prototypes and solutions to address their own needs.

One organisation, the Fab Foundation, which helps create such maker spaces has, in less than a decade since its establishment, set up well over 1200 maker spaces (Fab Labs) in almost every country in the world. In addition, there are thousands more independent maker spaces proliferating across the globe in almost every region of the world. With the growth of online design sharing platforms such as Thingiverse, Instructables and the healthcare focused Patient Innovation, to name just a few, individuals with similar needs based anywhere on the planet can share and download instructions on how to build, hack together or modify a solution to address that need for their own context. Arguably, enabling far more personalised assistive technology that is more likely to be used and less likely to be abandoned, as is the fate of more than a third of AT provided globally.

A 2015 systematic study of over 100,000 user submitted designs on Thingiverse, revealed over 350 unique AT related submissions. A significant proportion of these solutions were developed by individuals with disabilities themselves or caregivers.

While these are encouraging numbers, it will need more accessible design and authoring tools to help foster more user-led innovation in the AT space.

It seems the time has come...

With these diverse presentations setting the scene, Evert-Jan Hoogerwerf¹⁸ and Peter Cudd chaired the audience discussion on whether AAATE's 2012 Position Paper on Service Delivery Systems for Assistive Technology in Europe should be updated. The workshop presentations provided a lot of evidence that it seems an appropriate moment to proceed with such an update, which was further confirmed through the feedback from the participants.

Technology has changed considerably over the past six years and more and more accessibility features are built into mainstream products. There is a power shift in the air, with users with disabilities becoming more independent of AT professionals. Interesting questions in this respect are whether this is just due to the technological developments, or if there is also a shift in perception with those who have disabilities becoming more tech savvy and confident. However, there is evidence that women and girls with disabilities remain under-represented in tech education.

It is also clear that the deployment of technology in different cultural contexts is not an automatic process and will probably require a bottom-up approach as well as bringing the technology to where it is needed rather than bringing the person to the technology.

¹⁸ *Head of Sector Projects and Innovation of AIAS Bologna; Secretary General of AAATE;*

Questions that we need to face are if the concept of AT still means the same thing as 10 years ago, how we can become more flexible in the delivery of AT services and how the role of AT professionals is changing.

To ensure a safe progression of our AT service delivery models, we will need updated policies, legislation, guidelines and standards and find better ways of making research applicable for communities and users. With regards to developing countries, it will be vital to build local skills and solutions. Moreover, for AT service delivery globally, it is necessary to create an independent assessment at a system level, which shows how changes to one aspect impact all other aspects.

Putting the audience to work in several rounds of discussions around the question of what the core elements of an assistive technology provision process are, which cuts across education, employment, social and health contexts, the participants' answers centred around the following points:

- the need to acknowledge AT features in mainstream devices
- the need for delivery and technology standards
- the need to harvest data from delivery models
- the fact that whole areas of life are missing in the AT discussion, namely social activities and education/work
- the need to decide whether we want to address policy makers or AT professionals
- the need to take into account transformations in the AT market and risks involved in moving towards a consumer model in AT delivery
- the need to break down silos and bring all related sectors to the table
- the need to consider ongoing technological transformations (inc. IoT, ICT, e-learning, do-it-yourself tech etc.) and interoperability with emerging technologies
- the need to redefine what we mean by AT and certain disability related terms
- the need to refine the "assistive solution" concept
- the recommendation to provide guidelines for successful AT delivery system
- the recommendation to include sustainability indicators for service delivery steps

Next steps

All of the above ideas, recommendations and thoughts will serve as a basis for updating AAATE's 2012 Position Paper on Service Delivery Systems for Assistive Technology in Europe, with a view of creating a handbook for policy makers, AT professionals and AT users alike.