

TECHNOLOGY: AN ENABLING FACTOR

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Abstract

During the pandemic it happened to everyone to feel isolated, limited in their freedom to move, to act, to meet, deprived of things we have always taken for granted. The relationship with our living environment (home, school, work, free time, sport) was what we had to completely rethink. In this great effort of adaptation, nobody misses the decisive contribution that technology has given: we all started doing many things online, not because it was more comfortable or more fun as for some it already happened before, but because simply, in that moment was the only way to do it. In short, we have collectively experienced what for many disabled people has already been a daily reality for some time. We have thus discovered and experienced first-hand one of the roles that digital has taken on in contemporary society, that of an “enabling factor”. But how does technology represent an enabling factor for people with disabilities?

Durante la pandemia è capitato a tutti di sentirsi isolati, limitati nella propria libertà di muoversi, di agire, di incontrarsi, privati di cose che abbiamo sempre dato per scontate. La relazione con il nostro ambiente di vita (la casa, la scuola, il lavoro, il tempo libero, lo sport) è stato ciò che abbiamo dovuto ripensare completamente. In questo grande sforzo di adattamento, non sfugge a nessuno il contributo determinante che ha dato la tecnologia: abbiamo tutti iniziato a fare moltissime cose online, non perché fosse più comodo o più divertente come per alcuni avveniva già prima, ma perché semplicemente, in quel momento era l'unico modo per poterle fare. Abbiamo insomma sperimentato collettivamente quella che per molte persone disabili è già da tempo una realtà quotidiana. Abbiamo così scoperto e toccato con mano uno dei ruoli che il digitale ha assunto nella società contemporanea, quello cioè di “fattore abilitante”. Ma in che modo la tecnologia rappresenta un fattore abilitante per le persone con disabilità?

Keywords

Technology; Inclusion; attention to diversity.
Tecnologia; Inclusione; attenzione alla diversità.

Introduction

“Disability is a health condition in an unfavourable environment”: this definition, perhaps a little “*tranchant*”, comes from the World Health Organization. It is contained in the Classification of Functioning, Disability and Health, better known as the “ICF model”, drawn up for the first time in 2001.

The definition is taken up and expanded in the 2006 UN Convention on the Rights of Persons with Disabilities in which, at point E of the preamble, disability is defined as “the result of the interaction between people with impairments and behavioural and environmental barriers, which prevent their full and effective participation in the company on an equal basis with others”.

According to this paradigm, now consolidated in the scientific and pedagogical field but perhaps not yet sufficiently from a social and cultural point of view, disability does not coincide with a person's health condition: as in a Copernican revolution, the focus is no longer on subject but its relationship with the environment that surrounds it. It is precisely this relationship between the subject and the context, and not the severity of his impairment, that determines the degree of disability.

During the pandemic it happened to everyone to feel isolated, limited in their freedom to move, to act, to meet, deprived of things we have always taken for granted. Those who have had the virus then happened to feel sick, worried about their health and that of their loved ones. But probably no one thought of feeling or defining themselves as “disabled”. Perhaps because in the common sense we still associate this word only with the physical condition of a person without taking into consideration, precisely, the importance of the relationship with the environment in which we live in defining disability, which was precisely the most important aspect. touched by this health emergency.

The relationship with our living environment (home, school, work, free time, sport) was what we had to completely re-think. And if we have not come to feel disabled, invalid, or even handicapped, it was because, fortunately, in many respects that relationship has not failed but has been adapted to the needs of the moment. In this great effort of adaptation, nobody misses the decisive contribution that technology has given: we all started doing many things online, not because it was more comfortable or more fun as for some it already happened before, but because simply, in that moment was the only way to do it.

Many of us have started shopping online, managing current accounts, completing paperwork, virtually visiting museums and cities, attending conferences and seminars, attending training courses, all of which many people with disabilities have been practicing for some time. Our children have experimented with distance learning, an extreme and perhaps dysfunctional form of what should be, and in some cases is already a reality, inclusive digital education. Some of us have practiced teleworking (smart working, by now we know, is another thing), a method that has already been foreseen for years for disabled people in special situations and already implemented for them by many companies.

In short, we have collectively experienced what for many disabled people has already been a daily reality for some time. We have thus discovered and experienced first-hand one of the roles that digital has taken on in contemporary society, that of an “enabling factor”.

It should therefore be clear by now that, in determining the degree of disability of a person with a physical or mental deficit, one cannot ignore the question of what role technology can play in his life and how it can support him in making the most of his residual capacities: if in fact I, able-bodied, in a situation in which I was prevented from carrying out many activities in a normal way, I could still carry them out in a different way thanks to technology, because it should not be the same for those who cannot carry out actions in a manner deemed “normal” due to an impairment?

But how does technology represent an enabling factor for people with disabilities? Commonly used digital products and services, such as those that many of us started using during the pandemic, are already enabling in themselves, insofar as they offer us an alternative to do online many of the actions we are used to doing in the past. physical world and that some people, due to various problems, cannot implement independently. To the examples we have already mentioned above we can add the strong growth trend of smart home devices. Also in this case home automation, for many people with motor disabilities, has been a reality for a long time, thanks to devices designed and built ad hoc to meet specific needs.

Assistive technologies, commonly used digital products and services

But in the presence of a sensory, motor, cognitive deficit, or a learning, behaviour or other disorder, rarely a digital device or service will be able to help as it is, without hardware devices and adaptations, and software. In order for a device or a digital service to be useful even for people with disabilities, it must be conceived, right from its design, according to a logic that in architecture takes the name of “design for all”. But even this, important as it is, may not be enough. For example, a blind person will not be able to use a PC or smartphone without the aid of screen reader software capable of vocalizing or translating the content shown on the screen into Braille.

Even if, as already mentioned, digital in itself can be considered enabling, and consequently “assistive”, these hardware and software tools designed to meet the specific needs of the disabled are commonly referred to as “assistive technologies”. The Association for Advancement of Assistive Technology in Europe defines them as “any technological product or service that can promote the autonomy of people who have limitations in the activities of daily life, in school, at work, in leisure activities”.

Assistive technologies can also replace, in whole or in part, commonly used products and services. The ideal, however, would be that they integrate with them to allow everyone to make the most of their potential. A virtuous example are the accessibility functions, fortunately more and more numerous and performing, present on smartphones to make them fully usable and usable even by people with disabilities.

The right mix of assistive technologies, products and digital services in common use represents that ideal solution effectively defined in 2012 by AAATE as a “set of tools including both technologies for general use and assistive technologies, whose composition and assembly varies in case by chance according to the individual characteristics of the person, the activities they are destined to carry out and the physical and human context in which they live”.

Assistive technologies and commonly used devices each have strengths and weaknesses that it is important to keep in mind when composing an assistive solution for oneself or for another person with disabilities. We quote them quickly, referring to the book “DigitAbili. Technological innovation as an opportunity to overcome handicap ”, FrancoAngeli, 2015:

1. Assistive technologies

Strengths:

- **Experience** - Many of the companies engaged in the production and distribution of assistive technologies for the disabled have gained decades of experience thanks to which they have learned to know closely the needs related to the various impairments and are able to adopt the most effective strategies to respond to them.
- **Quality** - The companies specializing in this sector do not have as their primary objective to reach large slices of the market (the disabled, fortunately, are a minority of the population), but to offer products of excellent quality, which are really able to solve problems of the people who use them, which increase their autonomy and improve the quality of life. We keep in mind that these companies cater to users whose needs are very evident as they are linked to the disability. It is not necessary, as happens in other product sectors, to "create the need" in the customer: what matters is to identify the technology capable of providing the best possible response to an already manifest need. Only in this way, in fact, will we build a good reputation and become a point of reference for trade associations and people with a certain handicap.
- **Customization** - Since these are very specific products, designed to meet particular needs, many companies offer the possibility of customizing, as far as possible, an aid based on customer requirements, for example making it versatile, adaptable or available in multiple versions.
- **Dialogue with the customer** - Since they do not have thousands of customers, these companies, and in particular the retailers of aids, are able to establish a very strong and lasting dialogue with the subjects who buy their products, offer specialized and individual assistance, they do training and literacy, they highly value user feedback in order to improve their behaviour in the future.

Weaknesses:

- **Lack of choice** - The number of companies producing aids for people with a certain handicap is limited, as is the choice between products.

- **Slowness** - Especially in recent years, many companies show some difficulty in keeping pace with technological evolution and in marketing innovative aids. We refer, for example, to the manufacturers of the software necessary to allow the use of personal computers and smartphones for the blind (the so-called screen readers), which do not guarantee immediate compatibility with new versions of operating systems, preventing exploit them immediately. Furthermore, the processing times for an order or response to a request for a service can be very long (2-3 months).
- **Poor compatibility** - Even if lately things are improving, in general the technological aids have a certain closure both from the hardware and software point of view, which make them not very compatible or integrable with other devices, since, for example, they use systems operational dedicated or have very specific physical characteristics.
- **Very high costs** - This is the best known and most opposed criticality. Due to the considerable investments required for research and development, the absence of economies of scale and a very small outlet market, some aids, especially those with a higher technological content, can cost several thousand euros. For their purchase, a contribution from the National Health Service is generally foreseen, but with limitations and bureaucratic practices that make the procedures often long and cumbersome. We will come back to this later.

2. Commonly used products and services

Strengths:

- **Availability** - A disabled person will be able to very easily find a device on the market made accessible or capable of offering them a solution to a problem. Just go to the nearest store, buy it via the internet or, if it is an app, download it or buy it from the App Store for a few euros. In the case of a service, it will be sufficient to register by entering your data and start using it.
- **Immediacy** - A digital product or service is generally much easier and more intuitive to use than a specific aid, which often requires ad hoc training and a few hours of practice to be used at its best.
- **Frequent updates** - Given the speed with which digital innovation is progressing today, it is common experience to see that the most used devices, operating systems, applications and services are updated very frequently, more than it could guarantee. any company producing assistive technologies.
- **Market prices** - A person with a handicap can buy a hardware or software product at market prices, comparing the conditions offered by different points of sale and taking advantage of any offers and promotions. Furthermore, for some products and services, users with disabilities can take advantage of ad hoc concessions.

Weaknesses:

- **Possible inaccessibility** - It is not at all obvious that a service or device that could prove particularly useful for a handicapped person is accessible and therefore usable. Even in cases where measures have been expressly adopted to promote accessibility and usability by people with disabilities, it cannot be taken for granted that these will prove to be effective. Some companies may have decided to make a product / service accessible simply for ethical or marketing reasons, aimed at strengthening the positive perception of their brand, but this motivation may not be strong enough and the result may show functional gaps.
- **Lack of attention to specific needs** - If a handicapped person in using a specific aid notices a defect, a lack or a dysfunction, it is very likely that his problem will be solved in the next version of the aid in question. The same cannot be said for a commonly used product / service, as the relationship between user and manufacturer is much more intermediate and disabled customers can constitute a small minority for the company. Furthermore, it frequently happens that what for a disabled user represents an obstacle, for an able-bodied customer, who is the main target for the company or organization in question, it may not be at all, or it may even be a pleasant element. If a supermarket website offers the opportunity to shop online by putting yourself in the shoes of an avatar and virtually walking among the shelves, thus using animations and dynamic graphic elements, it will be impossible for a blind user to identify the products and place them in the cart. , as screen readers only detect textual elements. But it will be very difficult, if not impossible, to convince the supermarket to give up this engaging way of shopping. It will already be a good compromise if it is possible to obtain a text search engine alongside the virtual visit of the supermarket.
- **Need for advanced IT skills** - While there are extremely easy to use assistive technologies on the market, also designed for those handicapped who do not have IT skills, generally a digital product / service requires a medium-high mastery of technological tools. This is due both to the very nature of the devices in question (it certainly cannot be said that the use of a smartphone or the exploration of an e-commerce site, however intuitive, are within everyone's reach), and for the fact that often, in order to fill that accessibility gap mentioned above, the user must implement "smart" strategies that require a certain familiarity with the tools.

Final considerations

But is it really enough to find the right mix of technologies, which is not at all easy as we have just seen, and everything is solved?

Not really. If digital is perhaps the most powerful enabling factor we have ever had, the inclusion of people with disabilities still seems far from being achieved. On the contrary, we have the impression that in some fields of our society we have even taken a few steps backwards compared to the recent past.

The reasons for this misalignment between expectations and reality are at least two: first of all, technology is a necessary and essential element, but certainly not sufficient to ensure that a person with disabilities can fully participate in social life in all its forms. The second reason is that technology, as we have written, empowers. To enable means to make something possible, not to make it happen.

There are many barriers that can stand between the enabling potential of the technology and its actual implementation. Some, such as the inaccessibility of websites and applications, may be intrinsic to the technology itself, others are of a cultural or bureaucratic nature. The good news is that, if taken into consideration, many of them can be cut down. In conclusion, we see some of them, referring also in this case for further information to the aforementioned "DigitAbili" text:

- 1) Ignorance: you do not adopt an aid or do not use a service for the simple reason that you do not know it. Without wishing to delve too deeply into the responsibilities of this lack of knowledge, we can summarize them by stating that it may be due either to a misinformation on the part of the interested party and the people closest to him or to a lack on the part of those who have among their prerogatives that of disseminate the news in this sector (associations, specialized operators, health personnel, rehabilitation centres etc. ...);
- 2) Non-acceptance of one's condition: a fundamental element to positively welcome help or to move to seek it is to recognize that you need it. A good degree of disability acceptance by the person concerned and his family members (especially if it is a child) is one of the basic conditions for fully enjoying the benefits offered by technologies;
- 3) Insufficient training: it is not enough to have an aid to offer support, but it is necessary to know how to use it to make the most of its potential. So that a device or software does not remain unused it is therefore necessary that the person who must use it and /or his assistants are adequately trained in the specific procedures to be followed for a correct and effective use of the tool. Often a manual is not enough: you need the assistance of a specialized person, demonstrations, simulations and a learning phase by trial and error. It should not be forgotten that in the case of digital aids, it is a necessary, but unfortunately not obvious, condition that the person first and foremost but also those who are called to help him overcome the reluctance that IT products can arouse ("It's too complicated", "I don't understand how to use it", "Technology is not for me" etc. ...);
- 4) Inadequacy of the technological support: even when it has been decided to use a particular aid, it is possible that the technological tool is not helpful simply because it is inadequate to meet the specific needs of the person who should use it. A preliminary phase is often necessary in the choice of a specific aid, in which to analyze the type of deficit, the residual abilities, the life context and the perspectives of the person, in order to make a decision that is as weighted as possible on the most appropriate tool. adequate to adopt. It is a path that, depending on the case, may involve the involvement of different subjects (the person, family members, specialized operators, assistants, medical specialists but also teachers if it is a question of aids to be used in the school context or employers if we refer to a professional environment). An incorrect assessment of one's needs, compared with the technologies available on the market, can result in the total or partial ineffectiveness of their use;
- 5) Inadequacy of the environment: so that a computer aid does not remain a "cathedral in the desert", the environment in which it is used must also be sufficiently technological. For example, if a disabled student uses the PC with specific assistive technologies in a traditional classroom, he will be able to study like his classmates but will not be in a position to derive the maximum possible benefit from the aids he uses as his peer could do in a classroom equipped with

an IWB and in which each pupil has a PC or tablet available. The same is true for work environments, but also for the home environment (if I use a very sophisticated aid such as a Braille computer but I live in the mountains and I do not have an Internet connection, I will not be able to take advantage of many of its functions). This consideration can also be extended to digital services of common use and their diffusion throughout the territory which, not being uniform, entails inequality of opportunities for the population and in particular for people with disabilities who could benefit from them;

- 6) Lack of attention to assistive technologies: if the responsibility of knowing assistive technologies and their benefits is primarily the prerogative of the disabled, their family members and all those who work in this sector for various reasons, it is undeniable that greater knowledge must be part of society in general, with particular reference to political decision-makers, administrators but also professional figures such as technicians, engineers and architects, would allow the benefits to be exploited more. Precisely as a tool and not an end, technology is able to help the person, not to change the context of reference. If it were the environment that was more "disabled friendly" and of assistive technology, the tools would be able to perform their function better.

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