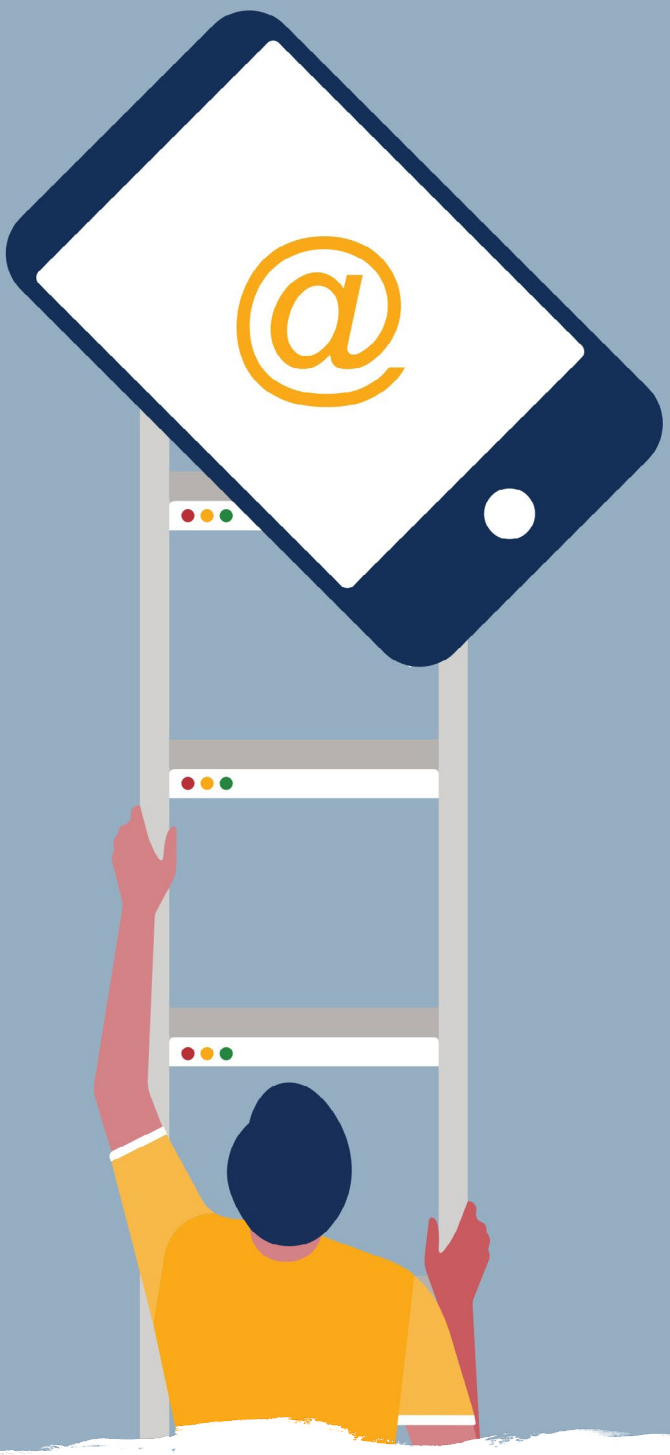
DIGITAL INCLUSION IN ADULT LEARNING

PRACTICES AND RECOMMENDATIONS



ITC ILO
International Training Centre

DIGITAL INCLUSION IN ADULT LEARNING

PRACTICES AND RECOMMENDATIONS

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EXECUTIVE SUMMARY

The digital revolution is having a twofold impact on adult learning systems: it is changing the world of work and therefore the competences that present and future workers should develop, and it is redesigning the way learning takes place. The international community is recognising that the application of digital technology within adult learning has potential to increase the access, the quality and the relevance of learning experiences, provided that some conditions are in place. By analysing recent literature on digital inclusion and by scanning the potential impact of technological trends on vocational education, this paper confirms that digital technologies, together with their much-studied potential for innovation, can also introduce new exclusion dynamics and exacerbate the problems of marginalised groups, especially in the present situation of social distancing and online learning brought by the COVID-19 pandemic. The paper presents 10 selected cases of digitally inclusive adult learning, that have managed to include specific groups at risk of exclusion, such as women, unemployed, offenders, displaced persons and migrants. On the basis of a brief analysis of these practices, the paper proposes some ideas that should be taken into account by those designing digitally-enabled interventions in the field of adult learning.

I. INTRODUCTION

The International Training Centre of the International Labour Organization mirrors the ILO's mandate on social justice onto the world of learning,making sure that no one is left behind. Digital inclusion is in the spotlight of the Centre's ongoing digital transformation, a process that aims to address the evolving needs of learners worldwide. This paper serves as a foundational building block to ultimately:

- Create an action-oriented framework that systematically integrates digital inclusion into our work in the world of learning and training
- Focus on learning inclusion challenges and finding inspiration from good, best and interesting global practices
- Build a community of practice in which the exchange of knowledge fosters learning opportunities for professionals who are interested in radical digital inclusion

We invite you to view digital transformation in a holistic way and to consider the complexity of digital inclusion in all its dimensions.

Digital transformation is not simply about hardware or software; it is about adopting a new mindset that fully embraces cognitive diversity, not as a siloed issue but as part of a larger digital ecosystem. Only by working together can we fully integrate radical inclusion and ensure that everyone has a voice in our collective digital future.

"We urgently need to address the growing digital gender gap and put digital technology to work for those who need it most: the vulnerable, the marginalized, those living in poverty, and people suffering from discrimination of all kinds."

UN Secretary-General António Guterres, message to the Internet Governance Forum

"Everyone should have an equal opportunity to become empowered through ICT."

UN General Assembly, May 2020

II. FRAMING DIGITAL INCLUSION IN ADULT LEARNING

DIGITAL INCLUSION: DEFINITIONS AND COMPONENTS

The unprecedented wave of digitalisation brought by the COVID-19 pandemic has shown that digital technologies, as any powerful innovation, bear the potential to both include and exclude people from educational processes, and have raised the priority of digital inclusion both locally and internationally. What is meant by digital inclusion? According to the US-based National Digital Inclusion Alliance, digital inclusion refers

to the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and use of Information and Communication Technologies (ICTs). This includes five elements: affordable and robust **broadband**, internet-enabled devices that meet the needs of the users; appropriate **digital literacy**; quality technical **support**; and **applications and content** designed to enable and encourage participation and collaboration. The European Commission defines digital inclusion as the way to ensure that everybody can contribute to and benefit from the digital economy and society" underlining three pillars: **connectivity** through broadband, wi-fi and mobile, **capability** to use digital devices efficiently and effectively, and **quality of use**, with digital services designed to meet the needs of user, including vulnerable people. Other national and international organisations define digital inclusion in similar terms: for the UK Digital Inclusion Strategy digital inclusion is about making sure that people have the **capability** to use the internet to do things that benefit them day to day, while the Digital Inclusion Map from New Zealand considers digital inclusion a way to ensure that individuals have access to, and skills to use, ICT and are therefore able to **participate in and benefit** from today's knowledge society.

Ultimately, these definitions agree that **digital inclusion is about using digital technology as a means to create social inclusion**. Convergence exists as well on the fact that that, in order to build digitally inclusive communities, three components are needed:

- **Access** to affordable broadband and devices;
- **Competences and confidence** to use digital technologies effectively and safely;
- **Digital services and contents** able to improve their quality of life through education, health care, public safety and economic development.

Nonetheless, digital inclusion requires more than access, capabilities and meaningful services and content: other factors such as a stable social and economic environment and the motivation for change are fundamental to include those marginalized communities that suffer most from the digital divide: women, the elderly, racial and ethnic minorities, people with disabilities, rural populations and those of low socio-economic status (Bure 2005 and Rashid 2006). Concerning the obstacles that prevent these groups from becoming digital citizens, research converges on four aspects: lack of the required digital skills, lack of confidence, lack of motivation, and poor design of online services and content.

DIGITAL INCLUSION IN ADULT LEARNING

Digital inclusion in adult learning sits at the crossroads of three concepts: digital technology, adult learning and social inclusion.

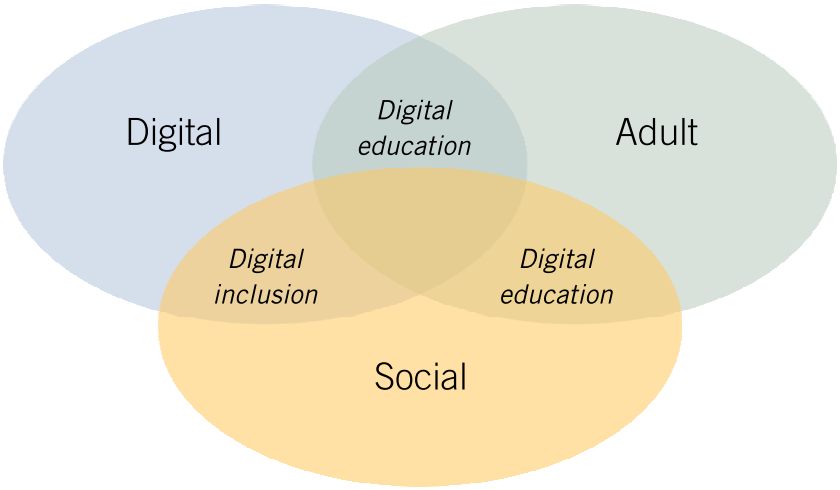


Figure 1. Framing digital inclusion within Adult learning

Literature abounds with conceptualisations about the use of digital technology within learning activities, under terms such as e-learning, Technology Enhanced Learning, open and distance learning, both in general education and as far adult learning is concerned. Thanks to the digital revolution and to the use of mobile devices, we are moving away from the idea of learning in specific places and moments to the notion of learning anywhere and at any time, and this is making learning more flexible, learner-centred, virtual and globalised. Also, the relation between education and social inclusion has been broadly studied, education being considered one of the main societal drivers against social exclusion. And finally, the contribution of digital technology to social inclusion (under terms such as digital inclusions or e-inclusion) is a rather established field of research and practice. Still, as noted by ILO (2020) among others, the issue of digital inclusion within adult learning is relatively under-researched.

Some attempts have been made to frame the issue of digital inclusion in (and through) education and training. In their literature review, Nguyen et al. distinguish a number of key aspects of educational digital inclusion: **motivational access**, linked to the personal attitudes toward technology; **material access**, reflecting the practical opportunity to access technology; and **usage access**, for which relevant skills are required. Based on this reasoning, the authors propose three critical dimensions of digital inclusion: **Digital Acceptance, Technology Accessibility** and **Digital Literacy** (Nguyen et al. 2020). By taking this approach, it appears that, while accessibility remains a primordial condition,

inequalities regarding skills and usage patterns do play a fundamental role (Marien & Prodnik 2014), marking the difference between who simply accesses the internet and who is able to turn access into an asset (Abah 2019). Similarly, Surman et al. claim that digital inclusion entails three major components that are particularly relevant for learning: exploring, building and participating (Surman et al. 2014).

An interesting concept, proposed by Mike Abbiatti, Executive Director of WCET, is the one of **radical inclusion**, taken from the philosophical principles of the Burning Man Festival. Within education, radical inclusion would mean that anyone can attend and enjoy a specific learning process without any of the common biases designed, often without intention, to exclude people.

Based on existing literature, the present paper proposes an updated definition and a conceptual framework for digital inclusion in adult learning.

Digital inclusion within adult learning is not about infrastructure or software, but is about how learners utilize digital technologies in a way that is meaningful to them to improve their lives and communities.

To guarantee this approach, **three principles** should be kept in mind:

- Digital inclusion is about leveraging "mindware", not hardware or software;
- Digital inclusion is one component of a larger development ecosystem;
- Digital Inclusion should be the overall goal of digital technological evolution.

Figure 2. Conceptual framework on the impact of digital technology on adult learning

As shown in Figure 2, digital technologies can have an impact on:

- **Access to learning**, by reaching potential learners that would have difficulties in taking part in traditional training experiences due to a number of barriers such as lack of time during working hours, disabilities or cultural issues that prevent certain categories from accessing training. Also, digitally rich courses can have a positive impact on learners' motivation, especially for younger generations.
- **Quality of learning**, connected to the higher levels of engagement and personalisation that digital technologies allow. ICT can in fact foster the engagement of learners' categories that would not normally interact in physical spaces, and at the same time can favour the creation of personalised learning paths based for example on the starting competencies of different groups of learners.
- **Relevance of learning**, thanks to the ICT-boosted possibility of recognising competencies by simulating work situations and especially of fostering digital literacy, that is a much needed transversal competence for 21st century jobs.

As any powerful technological innovation, the positive impact of digital technologies on adult learning depends on a number of conditions: a stable internet connection and appropriate equipment are needed to benefit from the potential wider accessibility; a starting level of digital literacy as well as the presence of competent e-teachers are needed to get a digital learning experience of good quality; an enabling environment where digitally intensive jobs are present is needed to make sure that the relevance of digitally-powered learning experience is high (European Commission 2017). Notably, when these conditions are not present, digital technologies can represent a further barrier to the inclusion of potentially excluded groups.

III. TRENDS AND CHALLENGES OF DIGITAL INCLUSION IN ADULT LEARNING

The pervasive presence of digital technologies in our societies is having an impact on the world of work and therefore on adult learning, both in formal settings such as Technical Vocational Education and Training (TVET) and in informal ones (Susskind and Susskind 2017). The majority of jobs of today and tomorrow require **basic digital competences**, such as the ability to communicate via digital means, create and edit digital content, search for information, and protect personal data online (Subrahmanyam 2020). Also, the spread of ICT throughout the economy is increasing the demand for **advanced digital competences**: workers need to be able to manipulate and interpret complex data, solve problems, and digitally interact with the world outside their workplace, and need to flexibly adjust to technological developments (Misra 2011). Finally, citizens and workers need to be able to actively engage with digital technologies in a collaborative and responsible way through **critical digital competences**. Competencies such as personal data management, the capacity to work in open online settings, critical media literacy, and the awareness of digital ethical issues must be considered as key components of contemporary digital literacy (Nascimbeni 2018).

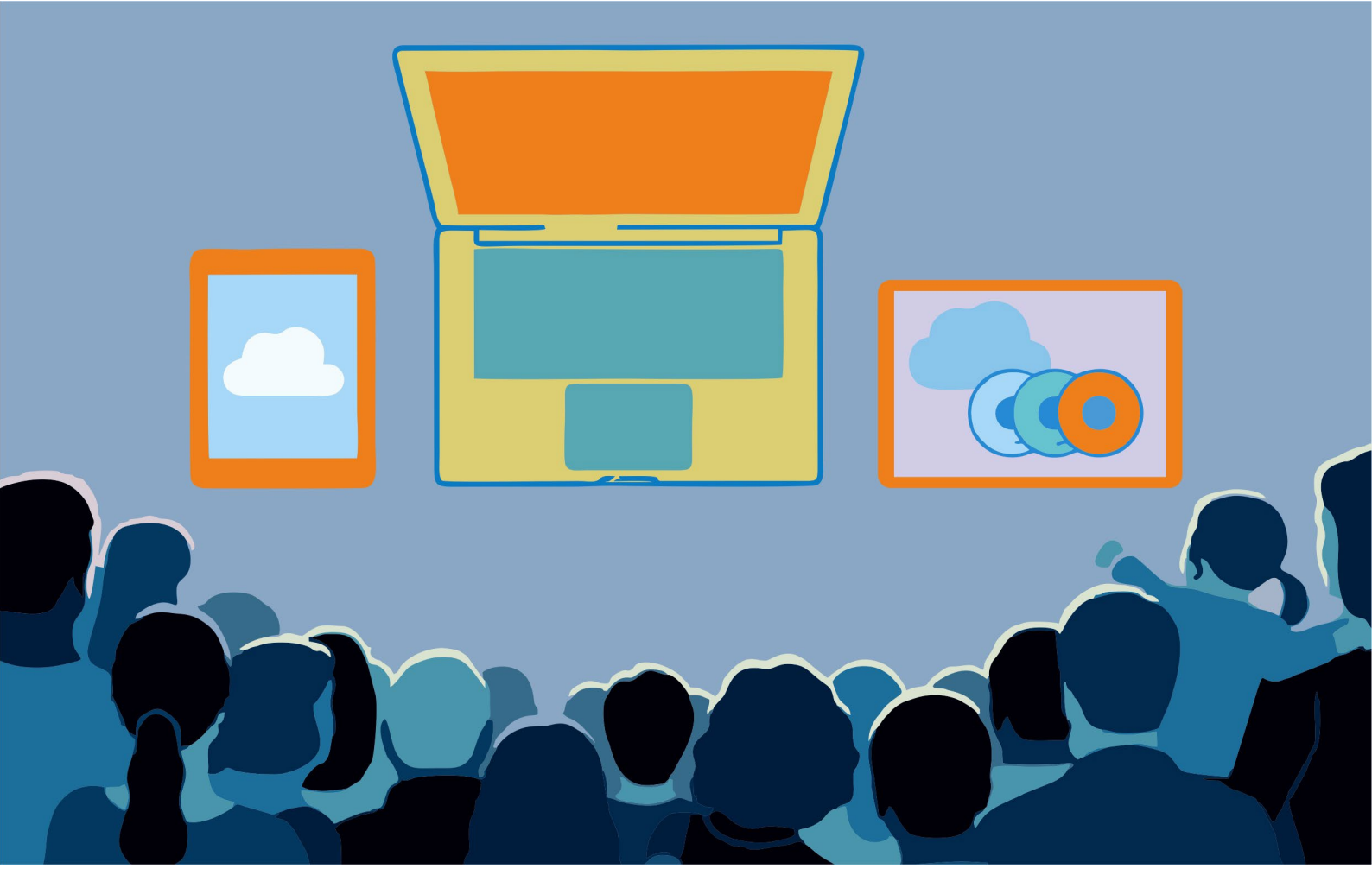
At the same time, **digital technologies are increasingly being used within adult learning settings**, both to innovate educational programmes and to explore new possibilities for on the job training, connected for example to the use of immersive technology such as virtual or augmented reality. Additionally, the use of ICT in adult learning can help learners to familiarize with digital technology being used in different jobs, as well as develop the necessary skills for contemporary development and implementation processes. As noted by the BILT project, VET organisations around the world are updating their curricula and training regulations to keep up with the digital revolution, strengthening cooperation with companies and schools, and upskilling their teaching staff with appropriate digital competences (UNESCO-UNEVOC 2019). From a pedagogical viewpoint, this shift towards digital pedagogies is supported by theories such as connectivism, that challenge traditional educational schemes, stressing the fact that educators are not the only ones entitled to produce and deliver knowledge and that learners should play a more active role in their educational journeys (Vuorikari 2018).

Table 1. Trends, innovations and challenges of digital adult learning (adapted from ETF 2020)

Trend	Practical innovations	Inclusion challenges
Ubiquitous computing	Mobile learning	Connectivity
	Flexible learning	Availability of appropriate equipment
Artificial Intelligence	Virtual tutoring	Effect on people's privacy
	Personalised curricula	Low digital literacy of learners/ trainers
Virtual and Augmented Reality	Simulations	Starting cost of infrastructure
	Immersive learning	Low digital literacy of learners/ trainers
New credentialing systems, including blockchain	Open Badges	Starting cost of infrastructure
	Microcredentials	Employers' acceptance
Open Educational Resources	MOOCs	Educators' acceptance
	Crowd learning	High drop-out rates
e-Mentoring and e-Tutoring	Virtual internships	Employers' acceptance
	Online job placements	Low digital literacy of tutors

Table 1 shows six technological trends (first column) that are boosting the implementation of innovations in adult learning settings (second column) and that, at the same time, are opening up inclusion challenges (third column). While technological trends will change over time, it is important to keep in mind that each trend is at the same time opening exciting innovation possibilities and creating potential exclusion dynamics, or augmenting the existing ones. Apart from the challenges connected to each trend, it should also be reminded that all these innovations should be approached with a critical eye, as most of them are led by commercial actors without extensive and critical feedback on their effect by learners and educators (ETF 2020).

The **COVID-19 emergency**, and the consequent unprecedented wave of forced online learning activities, is having an impact both in terms of innovation and potential exclusion dynamics. On the one hand, it is **catalysing the innovation capacity of adult learning providers** to keep up with their mission, stimulating them to transform their courses in blended or online activities, to develop new online courses and learning resources, to update the capacities of teachers and trainers and to adapt their educational offer through shorter courses, simulations, telework, etc. On the other, **the new dynamics related to the COVID-19 pandemic have increased the risk of exclusion of vulnerable groups**, both because they have impacted on their general socioeconomic situation and because they have widened existing divides (ILO, UNESCO and World Bank 2020). Also, COVID-19 has hit harder in low and middle-income countries: as noted by a recent UN Policy Brief, 40% of the poorest countries could not support learners at risk during the pandemic (UN 2020a).



IV: HIGH-IMPACT PRACTICES

In this section we present ten practices that, by using digital technologies within adult learning, have been able to have an impact on potentially excluded target groups. The practices have been selected following a review of existing databases that collect digital inclusion cases (EQUALS map, MEDICI database, Digital Welcome), as well as a scan of the recent literature (such as the work of the BILT project by UNESCO-UNEVOC and of the Creating New Learning project by ETF). The number of digital inclusion initiatives is so vast that a selection of ten practices cannot be representative of all the possible ways to use ICT to foster inclusive learning; keeping this in mind, the selected practices have been able to demonstrate a relevant impact and bear a high transferability potential, and they can serve as inspiration due to their specific I digital inclusion potential.

HIGH-IMPACT PRACTICES

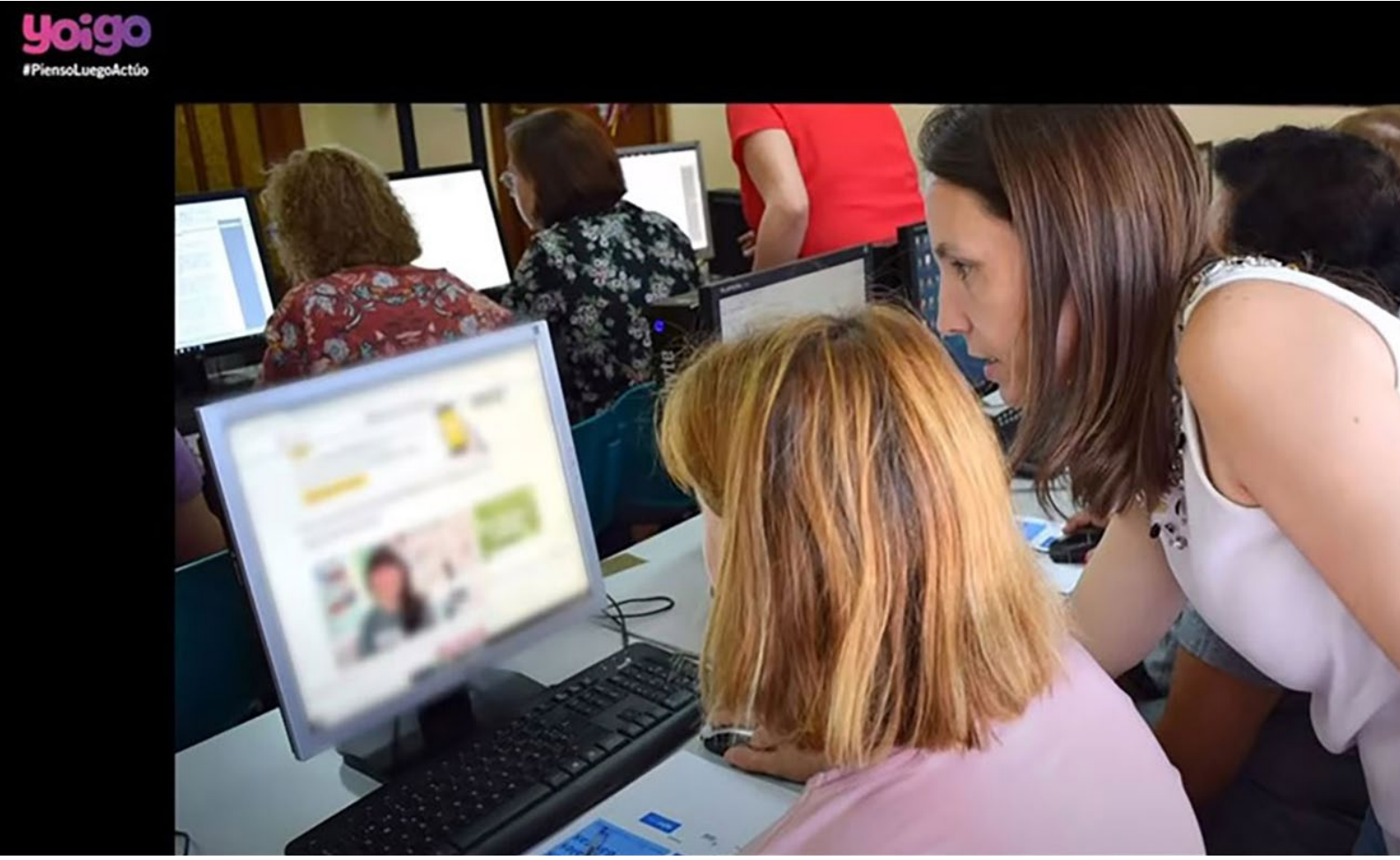
Each case is answering the following questions:

1: WHAT IS THE PROJECT ABOUT IN A NUTSHELL?

2: WHY IS IT INNOVATIVE?

3: WHAT IS THE DIGITAL INCLUSION IMPACT?

4: HOW CAN YOU ADAPT IT IN OTHER CONTEXTS?



DIGITALIZADAS: EMPOWER WOMEN THROUGH DIGITAL TRAINING

Promoter: the Spanish NGO Cibervoluntarios, in collaboration with Google and Fundación Mujeres

What is the project about in a nutshell?

The Digitalizadas initiative is working with grassroots organisations offering free training services to promote the participation and entrepreneurship of women in rural areas of Spain, connected to the acquisition of digital skills. The idea is that, by developing technological skills that can allow women to increase their personal and professional influence, it is possible to promote their social inclusion and employability, as well as protect their rights and security in digital environments. The initiative offers a basic training on digital society as well as workshops on entrepreneurship and employability online tools.

Main target group: women, especially from rural areas.

Why is it innovative?

The initiative, apart from providing targeted training, has created a mechanism aimed at keeping engaged the women who take its courses through a dedicated empowerment path. The participants who complete the training are in fact invited to join the network of "digitizers" supported by the initiative, composed by women with interest in the use of technology that can act as female digital business references within their community.

What is the digital inclusion impact ?

In three years of life, the initiative has trained more than 5000 women.

How could this be adapted to other contexts?

The initiative methodology is rather straightforward and can be replicated and adapted to other countries and regions. No specific technology is needed for the initiative to be replicated.

Link: https://www.digitalizadas.org/

TECH APPRENTICESHIP: CONNECT TRAINING SUPPLY AND DEMAND IN A CLICK

Promoter: FIT (Fastrack to Information Technology), an association of the technology companies from Ireland

What is the project about in a nutshell?

The initiative aims at increasing the employability in the digital technology sector through apprenticeship programmes, providing an additional "talent pipeline" for companies. The project, which is led by an Irish representative organisation of technology companies and therefore has a direct contact with enterprises, adopts a learning-by-doing approach to ICT skills development. Following a two year period that combines off-the-job skills training with on-the-job application, Tech Apprentices attain a valid Advanced Certificate. The areas of work of the initiative are network engineering, software development, cybersecurity and cloud computing.

Main target group: unemployed persons wishing to start a career in the digital sector.

Why is it innovative?

The initiative outreaches directly to the unemployed: through the website, potential apprenticeships are put in touch with companies, increasing their sense of responsibility and their motivation in finalizing the training and in pursuing a career in technology.

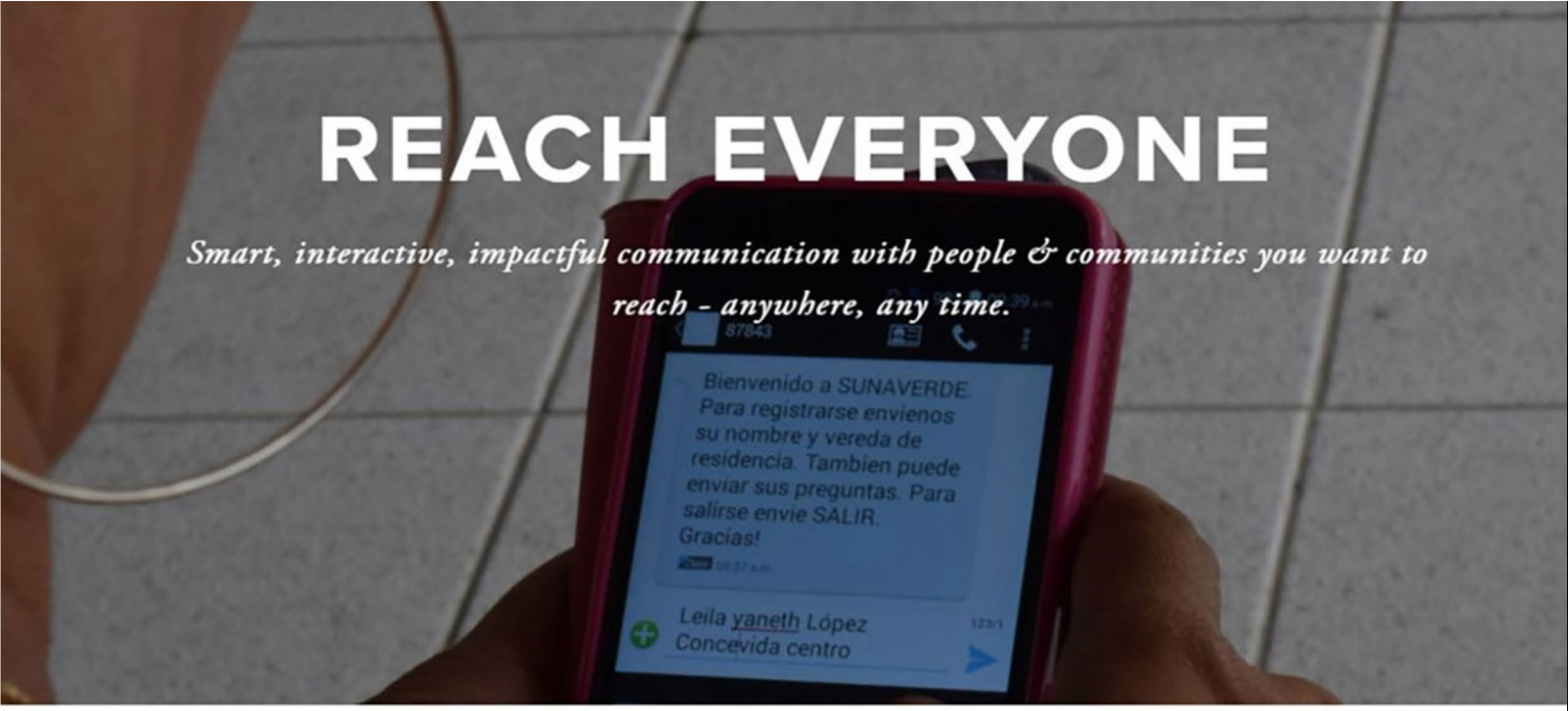
What is the digital inclusion impact ?

The adoption of the programme by industry has been very positive, with 400 Tech Apprentices certified in 2020, rising to 1000 by 2021.

How could this be adapted to other contexts?

The initiative has been recognized as a European good practice and its methodology is being tested in other European countries such as Greece, Spain, Portugal, Latvia and Lithuania.

Link: https://fit.ie/tech-apprenticeships/



FRONTLINESMS: OUTREACH LEARNERS WITH SIMPLE SMS TECHNOLOGY

Promoter: FrontlineEducation, a startup from the US

What is the project about in a nutshell?

Frontline started in 2005 in the US, around the idea of using one of the simplest technologies available, SMS, to support community development through better communication. In 2012 the method was applied to education, with the idea of facilitating outreach to isolated or displaced students as well as communication among stakeholders (teachers, trainers, students). Through this system, vocational schools can upgrade their communication activities and streamline their administrative processes: this can help both saving teachers and administrators time and reaching displaced students , such as informal workers for example, through an affordable and barrier-free technology.

Main target group: displaced people, informal workers.

Why is it innovative?

The strength of the idea stands in the simplicity and affordability of the SMS technology, that can be accessed through any mobile phone, and can facilitate automatic processes to make education and training more transparent and effective.

What is the digital inclusion impact ?

Internal evaluation of the initiative shows that by using Frontline within educational settings, teachers and education managers are saving time and making communication processes more effective and documented, and at the same time learning outcomes improve thanks to the better communication flows established.

How could this be adapted to other contexts?

Frontline is offering its platform and services as well as the possibility to tailor them to the needs of vocational schools.

Link: https://www.frontlinesms.com

LASTMILE: WORK FROM A PRISON FOR REAL CUSTOMERS

Promoter: TheLastMile, a social enterprise from the US

What is the project about in a nutshell?

LastMile is a programme that designs, develops and sustains web development workshops within prisons. In these workshops, prisoners are trained in the developments of websites and apps and deploy work for real customers, showing their ability and collecting their experiences in a demonstrable e-portfolio. The programme works through different connected phases: education, vocation, expansion and re-entry, accompanying participants in a journey able to offer them a second chance through employment in the digital technology sector.

Main target group: prisoners

Why is it innovative?

The uniqueness of LastMile is its capacity to connect prisoners with real customers from the outside world, increasing not only their employability but also their self-esteem and independence, accompanying them in the establishment of a professional career.

What is the digital inclusion impact ?

By working through 23 classrooms within prisons, the program has served 622 participants since 2010, counting 240 citizens who have rejoined society with a job connected to their work in the prison.

How could this be adapted to other contexts?

At the moment LastMile is working only in the US, still its replicability potential is quite high since no specific technology is needed.

Link: https://tlmworks.org/

About MYSKILLS

MYSKILLS: HOW MIGRANTS CAN DEMONSTRATE THEIR SKILLS BEYOND CERTIFICATION

Promoter: the Bertlesmann Foundation in collaboration with the German Federal Employment Agency

What is the project about in a nutshell?

The MySkill programme targets people with working experience but without a professional qualification, such as migrants and refugees. Launched by the Bertlesmann Foundation in collaboration with the Federal Employment Agency as a large national initiative for Germany, the programme is offering the possibility to demonstrate one's abilities by replying to multimedia questions about typical working situations. The programme is available in many job centres and employment agencies, where interested people can carry out the self-evaluation that takes around four hours. This makes it easier for job counsellors to find a job offer tailored to the participants skills or initiate a qualification process. By precisely identifying skills in different areas of activity, MYSKILLS also helps potential employers fill job openings with the right qualified applicants.

Main target group: refugees and migrants with a residence status and low-skilled workers without formal qualifications.

Why is it innovative?

The novelty of the program stands in its capillarity: in geographic terms (it works through job centers), linguistic terms (it is available in German, English, Arabic, Russian and Farsi) and in terms of job profiles (it works through 30 well-identified job descriptions).

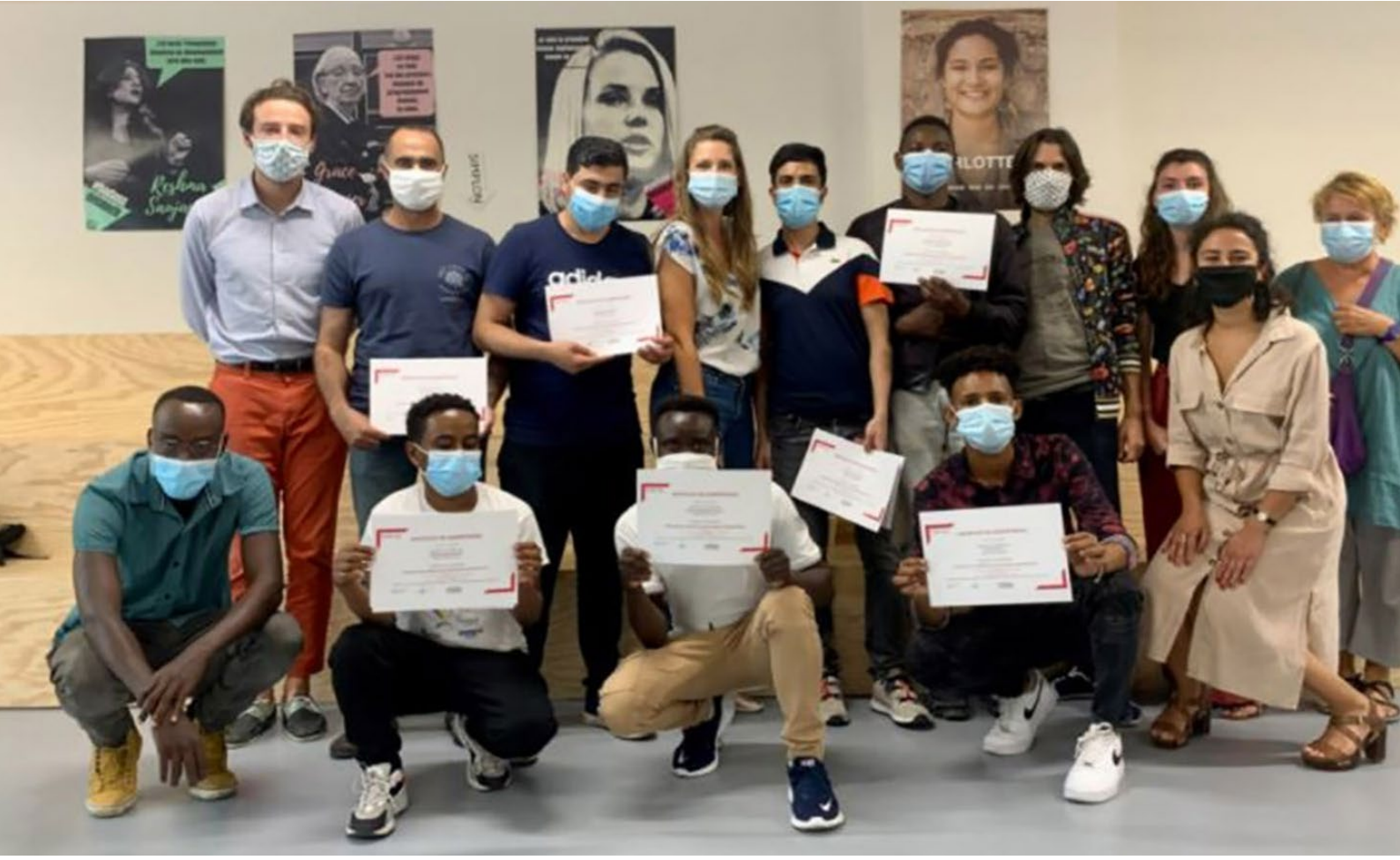
What is the digital inclusion impact ?

MySkills is used in 156 employment centres across Germany and is expected to serve 100.000 participants per year.

How could this be adapted to other contexts?

This is a rather "systemic" practice that could be implemented both at the national and at local levels. The replicability is facilitated by the fact that the content of the test is available in 5 languages.

Link: https://www.myskills.de/en/



REFUGEEKS: INTEGRATE REFUGEES THROUGH CODING AND INDIVIDUAL SUPPORT

Promoter: Simplon, a French job placement agency

What is the project about in a nutshell?

In order to contribute to the integration of refugees in France, the program Refugeeks was launched in 2016. Refugeeks provides a free intensive six-weeks training programme in web development which helps refugees to develop job-related skills as well as general digital literacy, increasing their autonomy within the country they live in. The training programme is complemented by a personalised assistance on different integration aspects, from housing, to language skills development, to community participation.

Main target group: vulnerable refugees who wish to enter the labour market, as well as early school leavers and people with disabilities such as visually impaired and hard of hearing.

Why is it innovative?

The Refugeeks approach, thanks to the impact it has demonstrated the local communities involved in France, has expanded to other countries by maintaining its grassroots nature, engaging NGOs from various backgrounds that share common objectives and ways of working.

What is the digital inclusion impact ?

The programme supported the professional integration of 280 refugees throughout France over a three-year period. 75% of participants successfully graduated from the programme in 2017, most pursuing further studies or working as entrepreneurs; others received permanent or temporary work contracts, for example eight graduates were hired by BNP Paribas.

How could this be adapted to other contexts?

The initiative has shown a great transferability potential: between 2017 and 2020, the Refugeeks programme was transferred to 30 sites across France and in other countries, including Austria, Belgium, France, Germany, Greece, Italy, Luxembourg, Poland, Spain, Switzerland and the United Kingdom.

Link: https://simplon.co/blog/actualites/refugeeks-accompagner-les-personnes-refugiees-vers-de-vrais-jobs-qualifies.html

THE AI TRUCK: BUILD ARTIFICIAL INTELLIGENCE CAPACITY AMONG SENIOR CITIZENS

Promoter: City of Espoo, Finland, in partnership with Lenovo, Microsoft and the adult learning centre Omnia

What is the project about in a nutshell?

To respond to the need of building awareness and knowledge about Artificial Intelligence among citizens, including senior citizens, the city of Espoo in Finland has fostered the collaboration between AI experts from Lenovo, Microsoft and Omnia, who have designed and developed a very special truck. By entering in the AI Truck, Finnish people from different local communities are offered practical experiences through which they can learn about the operating principles of AI and see what AI does in practice. They do so through an escape room game in which 4 to 6 participants together solve tasks reflecting on the roles of data and algorithms in AI. Also, motivated senior citizens are trained on AI issues to become mentors of others.

Main target group: Citizens, with particular attention to seniors.

Why is it innovative?

Through the AI Truck, citizens experience in person the power and the problems of AI. Further, the welcoming staff consists of volunteers, including elderly citizens, accompanied occasionally by experts from the companies involved in the initiatives.

What is the digital inclusion impact ?

So far, the AI Truck has reached more than 300 seniors in Finland's Espoo area. The plan is to expand the program nationwide, with an AI Truck that will tour around Finland.

How could this be adapted to other contexts?

This is a rather straightforward experience to be replicated: all the software that has been developed for the AI Truck can be translated and adapted to other contexts.

Link: https://tekoalyrekka.fi/

KUMOONTUN: PRESERVE MINORITY LANGUAGES IN A SOCIAL AND CREATIVE WAY

Promoter: Kumoontun, an ONG from Oaxaca, Mexico

What is the project about in a nutshell?

Starting from the initiative of four young persons worried for the possible disappearance of their local indigenous language, the ONG Kumoontun has produced an app to translate Ayöök, one of 364 indigenous Mexican languages, which is spoken by around 130,000 people, into Spanish and English, and viceversa. Thanks to the integration with social networks, the Kumoontun application is fostering the creation of digital content in Ayöök, contributing to preserve the linguistic diversity of the region, at the same time supporting literacy development in Ayöök, Spanish and English.

Main target group: indigenous people of the Slerra Norte of the Oaxaca region, but also Mexican people emigrated to other countries who speak Ayöök or want to learn the basics of the language.

Why is it innovative?

The app is the central component of the Kumoontun project, that counts with workshops aimed to engage local communities through mobile technology and to further develop the app content. Also, the case represents a fully grassroot practice, showing that it is possible to foster digital inclusion with no seed funding nor large initiatives.

What is the digital inclusion impact ?

SInce the launch in November 2018, the app has been downloaded more than 3,000 times, not only from Mexico but also from the US, France, Spain, Canada, Panama and Germany.

How could this be adapted to other contexts?

This case was born out of the initiative of four persons and is using open source software: because of this, it is easily adaptable to other contexts and languages.

Link: https://kumoontun.wixsite.com/kumoontun

MAGGIE MAMMIES: BUILDING WOMEN CONFIDENCE THROUGH DIGITAL LITERACY

Promoter: : UNESCO and Nestlé, with the support of the Ivorian Ministry of Education and Ministry of Women, Family and Children.

What is the project about in a nutshell?

The Maggi Mammies Digital Literacy Project targets illiterate women from Ivory Coast who sell products in markets, in order to build critical skills in reading, calculation and digital literacy. The initiative provides "mammies" with a smartphone that includes the basic-literacy Alphatic app, allowing them to access the training at their convenience and progress through numerous stages of literacy training. Individual progress is tracked on a dedicated platform and participants gather weekly for in-person meetings where they are supported by trained coaches.

Main target group: Functionally illiterate women who work by selling products in open markets, 85% of which never had the chance to attend school and only 10% of which have gone through primary education.

Why is it innovative?

This initiative contributes to women's empowerment and economic development through an approach that takes into account the local reality of a very specific target group, that is women working in open air markets. Also, the project combines a public-private partnership approach with the use of Alphatic, an adult literacy application which was developed by a young female Ivorian programmer.

What is the digital inclusion impact ?

This initiative has been underway since March 2017 and has reached 510 Mammies to date, 435 of which have been able to complete their training and now they can read, write and calculate. Also, 26 young literacy workers were trained, and the initiative encouraged the creation of an NGO focused on digital literacy.

How could this be adapted to other contexts?

The goal of the initiative is to be replicated in several countries of Central and West Africa and elsewhere, thanks to the outreach of its promoters Nestlè and UNESCO.

Link: https://www.nestle-cwa.com/en/media/newsandfeatures/partnership-to-improve-women-livelihood

HAND TALK: INCLUDE DISABLED PEOPLE WITH A CLICK

Promoter: Hand Talk, a Brazilian startup created in 2012

What is the project about in a nutshell?

Hand Talk is a Brazilian smartphone app developed to improve social interaction and independence of mobile users with hearing problems. The App works through Hugo, a virtual 3D interpreter that translates text and voice to Brazilian sign language, and is complemented with educational sessions that teach expressions and words in Brazilian sign language by using the same character.

Main target group: The App is targeting people with hearing problems, that are more than 360 million in the world, and close to 10 millions in Brazil, almost 5% of the whole population. Notably, 70% of these people are illiterate in Portuguese.

Why is it innovative?

The app, which has collected many awards, including the prize for Best Social App of the World in 2013 at the UN World Summit Mobile Award, is focussing on a very specific objective and is considering all its digital inclusion features:. For example, the Hugo avatar has been joined lately by some other avatars of different gender and origin, to facilitate self-identification of users.

What is the digital inclusion impact ?

With approximately 1 million downloads, the app it's on the first positions of the major brazilian app stores and, thanks to a partnership with the government, it's also in thousands of tablets throughout the country, helping deaf students across the Brazilian public education system.

How could this be adapted to other contexts?

While the app focuses on Libras, the sign languages used in Brazil, there are over 200 different sign languages in the world, so adaptation and replication would be very important. The project team is available for collaborations.

Link: https://www.handtalk.me/

V. RECOMMENDATIONS

The importance of digital inclusion in education has been widely acknowledged by governments and international organisations. If we take the UN Sustainable Development Goals (SDGs), even if none of them refers to digital inclusion directly, they all advocate for the three components of digital inclusion: marginalised groups and communities should be included in society, ICT can act as a general enabler, and quality education for all should be an imperative. As we have seen at the beginning of this paper, the connection between inclusion, digital technologies and education is strong and transversal.

The COVID-19 emergency has made it even more manifest that digital inclusion is one of the leverages to develop more equal and resilient societies, as recognised by the UN Road map for digital cooperation, which calls for greater global attention and investment in the field of digital inclusion (UN 2020b). Also, the Roadmap recognises that digital inclusion initiatives should be more coordinated and based on evidence-based recommendations and guidelines.

In line with these priorities, several efforts are being made to support the design and development of appropriate digital inclusion interventions.

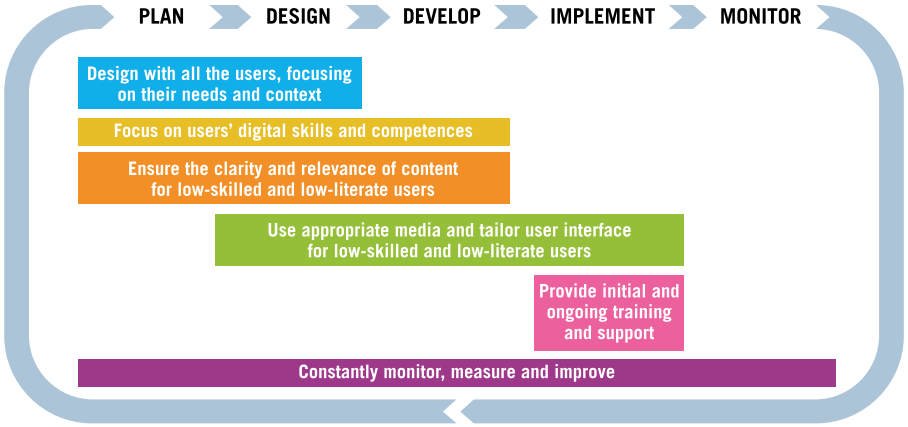
The **Principles for Digital Development** were developed in 2017, building on the UNICEF Innovation Principles, on the Greentree Principles and on the UK Design Principles, as an attempt to unify those previous principles and create a community of practice for those who work in digital development. The principles are designed to help integrate best practices into technology-enabled programs and are intended to be updated over time.

Figure 3 The nine Principles for Digital Development (Source: www.digital principles.org)

One year later, UNESCO has produced a set of guidelines aiming to provide orientation to developers, donors and other stakeholders who are working to help people unfamiliar with technology find and use digital tools for empowerment and enrichment.

Figure 4. UNESCO Guidelines for inclusive digital solutions and digital skills (Source: UNESCO 2018)

Adding to these principles and guidelines, an analysis of the cases collected in the present report helped identify a few key characteristics that can increase the inclusiveness capacity of digitally-powered interventions in the field of adult learning.



1. **Empowerment of learners** is as important as skills creation. As we have seen in the *Digitalizadas* case, offering a developing path after the training can be an important factor to motivate participants to keep on using digital technologies to stay included in society.
2. **Users-based design** is fundamental, since generalized digital services and solutions might not work well for excluded groups. As in the *Alphatic* case, successful hard and soft skills training must be designed starting from the specific needs of the target groups, making sure that participants feel included throughout the training process.
3. **Accessible technology** is key. All the cases presented earlier do rely on very simple technological solutions, and in some cases (such as Frontline) specifically build their offer on the simplest and most affordable technology. By doing so, potentially excluded participants perceive technology as an enabler and not as a barrier.
4. **Capillarity** is also important, especially when working with displaced target participants. Digital technology can shorten the distance between potential learners and the training environment, especially through the use of mobile devices.
5. **Personalization** can allow learners to be trained starting from their actual capacities, and in some cases (such as in the *MySkills*) can also help to recognize these capacities in a visible way, facilitating employment possibilities.
6. **Multistakeholder partnerships**, including private actors and actors representing vulnerable groups, can ensure commitment and mobilise human and financial resources.

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