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Technology for Employment in Work Integration Social Enterprises (WISEs)

The European Association of Service providers for Persons with Disabilities

Executive summary

Digitalisation is changing the labour market, including the way people work and are being trained. In this light, this research is investigating the penetration of digital technologies into the sector of Work Integration Social Enterprises (WISE) in Europe, the digital skills required by employers and employees and the digital skills currently available in workplaces.

The main challenge of this research was that the WISE sector in Europe is very heterogeneous. WISEs have different historical legacies as well as organisational, fiscal and legal frameworks. This fragmentation and heterogeneity make it difficult to create a common set of digital skills needs and gaps for the entire sector in Europe. While the WISEs are similar in their attempt to provide training, jobs and opportunities to groups at risk of exclusion, their concrete opportunities for achieving this target are different. Where WISEs are poorly recognised and do not have a longstanding history (e.g. in the case of Central and Eastern Europe), they face difficulties mostly because they are not adequately valued by public policies and the public and private sectors do not fully understand the social impact that WISEs could bring. At the same time, the skills challenges appeared dispersed because of the differences across domains in skills demands, the level of digitalisation (e.g. the manufacturing sector), and the balance of supply and demand across Member States and sectors.

Since WISEs aim to develop the professional skills of their members and to organise vocational training, digital skills are an important part of VET provision. Technology has an impact upon all these levels and actors: workers at risk of exclusion/ workers with disabilities, supporters and enablers. First, technology helps persons with disabilities to get support from social workers, job coaches and psychotherapists as well as to live with their disability, become more productive, employable and autonomous. In particular, assistive technology can enable them to do jobs that would otherwise be impossible, to be more mobile and to participate more fully in social and professional life. In many cases, being digitally literate is an empowering process. Second, technology helps supporters communicate with their target groups and provide online job coaching, personalised counselling and training in an interactive and personalised way. Technology enhanced learning provides greater flexibility, access, collaboration, innovation and more effective communication and participation. Lastly, technology helps enablers by increasing the overall efficiency, productivity and innovation of the WISEs and their capacities to trade on the free market. Effective development of digital capabilities is essential not only for the wellbeing and professional development of employees, but also for their participation and decision-making in the WISEs, for the delivery of employment support, and for the development of the WISEs sector in the broader sense.

PERSONS WITH DISABILITIES

Technology helps them to get support from social workers, job coaches and psychotherapists as well as to live with their disability, become more productive, employable and autonomous.

SUPPORTERS

Technology helps supporters communicate with their target groups and provide online job coaching, personalised counselling and training in an interactive and personalised way.

ENABLERS

Technology helps enablers by increasing the overall efficiency, productivity and innovation of the WISEs and their capacities to trade on the free market.

Digital technologies are widely used by WISEs in Europe. Our interviewees agreed that most of the learning, communication and management processes is based on digital technologies. Workplaces use desktop computers, laptops, broadband technology to access the internet, portable computers and other portable devices (e.g. smartphones, Personal Digital Assistants, GPS navigator), intranet platform, CNC machine or robots (manufacturing sectors), programmable robots. Assistive technology is used to support workers with disabilities in their daily tasks such as screen readers, learning technologies in sign-language, Braille notetakers, wheelchairs, voice-controlled operators (Alexa, Dot), and adapted machinery. Special software is used to help in training (in training monitoring) and management aspects. According to our interviewees, despite the increasing penetration of digital technologies in the WISEs workplaces, digital skills gaps exist in the WISE sector in a similar way as they exist in the regular economy sectors[2].

> This shows that digitalisation has resulted in an increased demand for digital skills and that, in many cases, the speed at which workers are acquiring digital skills is sometimes slower than the speed at which digital technologies are evolving and are penetrating the workforces.

Therefore, digital skills are often subject to obsolescence. An age-related pattern can be identified in the WISE sector, as older workers are less likely to be equipped with digital skills, compared to younger workers.

Digital skills gaps, defined as a misalignment or the future possible misalignment between the skills required to do the job in the best possible way and the skills of workers[3], are different across three categories: workers with disabilities or at risk of exclusion, supporters and enablers. Since digital skill gaps refer to digital underskilling, this can have an impact on the performance of the organisation[4], slowing down productivity, innovation and adaptation of new technologies[5]. Most WISEs consider that digital skills gaps have an impact on workplace performance.

Workers with disabilities and workers coming from groups at risk of exclusion sometimes have difficulties in performing basic operations on a computer, tablet or mobile device for email, including navigation features to travel to job sites, and calendar and scheduling tools, internet browsing, Word and Excel programs. This prevent them from accessing information and services concerning employment and e-learning. Older workers in low-skilled occupations are the most affected by these gaps. For people with intellectual disabilities, dealing with new media is sometimes rather difficult. In the case of the supporters, this broad category lacks knowledge and skills in the use of mainstream technology for supporting persons with disabilities. Some of them face difficulties in using certain software on Apple, Windows and Android smartphones, especially multimedia features, accountancy software, augmented reality and (in the case of older supporters) in using social media for communication with their target groups. They also have limited knowledge on how to use electronic dashboard features that could allow them to monitor workers progress and provide feedback and support. Managers have gaps in their e-business skills (or e-leadership skills), which can be used to exploit business opportunities provided by digitalisation, exploring possibilities for new ways of conducting business and organisational processes. Difficulties sometimes emerge in using programs for administration of programmes (such as Free cloud, Google drive), but also in using e-commerce platforms, HRM tools, digital marketing tools.

The main barriers to technology use and to digital skills development in the WISE context include:

A High costs and insufficient funding;

B Lack of information of the existing digital technologies;

C Lack of knowledge and skills on how to use digital devices in the WISE environment:

D Insufficient training adapted to the needs of the WISE sector.

First, excessive cost seems to be the main barrier encountered when undertaking actions to deal with digital skills gaps. Smaller-sized WISEs and WISEs in Central and Eastern Europe are the most likely to report the excessive cost of most of the available options. This was also stressed in relation to the regular economy sector[6]. Second, digital skills needs should be connected to the access to technology and access to training. Workers employed in small and medium enterprises are also considered less likely to access training to develop digital skills because of the lack of resources to establish training programmes and because of the difficulties to develop training content specific to the needs of the WISEs. A training participation gap exists in most countries between workers employed in lower-qualification positions[7] and those employed in higher-qualification positions, younger age and older workers, those in large and in smaller WISEs[8]. Third, the main skills gaps in the WISE sector are connected to the fact that potential users of technology lack information about what is available. In particular, disabled workers have limited opportunities to learn about and use of assistive technology outside the WISEs. A particular disparity in technology access can be found between WISEs in Central and Eastern Europe on the one hand and between small and bigger WISEs on the other.

Our research comes in line with other researches that have also shown that enterprises are not maximising the potential of new digital technologies and are not investing enough in creating new digital skills to cope with the advances in technology[9]. Since digitalisation is likely to increase over time the demand for high-skilled individuals, equipped with cognitive skills and technical knowledge to deal with tasks and procedures required by the new technologies, WISEs should think of strategies to bridge the existing digital skills gaps and to prevent the emergence of new ones.

Digitalisation can bring opportunities for the employment of persons with disabilities and of the groups at risk of exclusion, but if accessibility and the "design for all approach" are unequally divided, these opportunities can be missed.

Digitalisation can only be effective if:

A Technology is sufficiently accessible;

B Training is offered in order to keep the pace with the technological development;

C Framework conditions for gaining new skills and optimal processes and organisational structures are provided within the WISEs.

Methodological framework

1

This report provides an in-depth analysis of the technology and digital skills required by the WISEs sector, assesses the skill needs and potential gaps between the skills available in the workforce and those demanded by the sector, taking into account the diversity of the stakeholders involved and leading to relevant recommendations for updating the VET provision.

The main target group is the 'supporting staff' (job coaches, trainers, etc.) since they facilitate the inclusion of the groups at risk of exclusion in the WISE work environment. Secondly, the challenges of digitalisation and the specificity of support via technology make it necessary to define the skills needs of two other types of staff: the WISE employees themselves (people at risk of exclusion and persons with disabilities), and those that act as 'enablers' in the uptake of technology (management of different levels, system developers, engineers). In spite of the difference between them, managers of different levels, developers and engineers enter in the same category of 'enablers' because of their role in updating technology and making it accessible at the level of the workforce.

Two methods were used for collecting data for this research. On the one hand, conducting desk research permitted us to have a broad picture of the different topics that were directly or indirectly covered in this research: the digital skills needs in Europe, the development of the WISEs sector in Europe and the role of digitalisation in the employment of persons with disabilities and groups at risk of exclusion. On the other hand, 21 semi-structured interviews were conducted with enablers (managers, engineers) and supporting staff (trainers, job coaches, ergo therapists) within different WISEs in Europe (see Annex 1). For the purpose of this research, we have also interviewed a small number of experts and expert organisations that could provide an overview of digital skill needs of the targeted groups and of the available VET provision within employment agencies, charities and NGOs.

Although this report is focusing on the WISE sector, the existing digital skills gaps in the sector are connected to the shortages in the education and employment national system. For this reason, the connections between WISEs, other education and training providers, software houses and regular enterprises were also be taken into account.

The majority of the qualitative interviews were conducted on Skype. This can raise some methodological concerns regarding the digital literacy of our interviewees. Some studies show that those who participate in Web-based surveys and Web-based interviews may be more experienced, more intense Internet users, and have stronger digital skill sets than those who do not participate in surveys[10]. Nevertheless, in order to avoid this risk, we have also confronted the
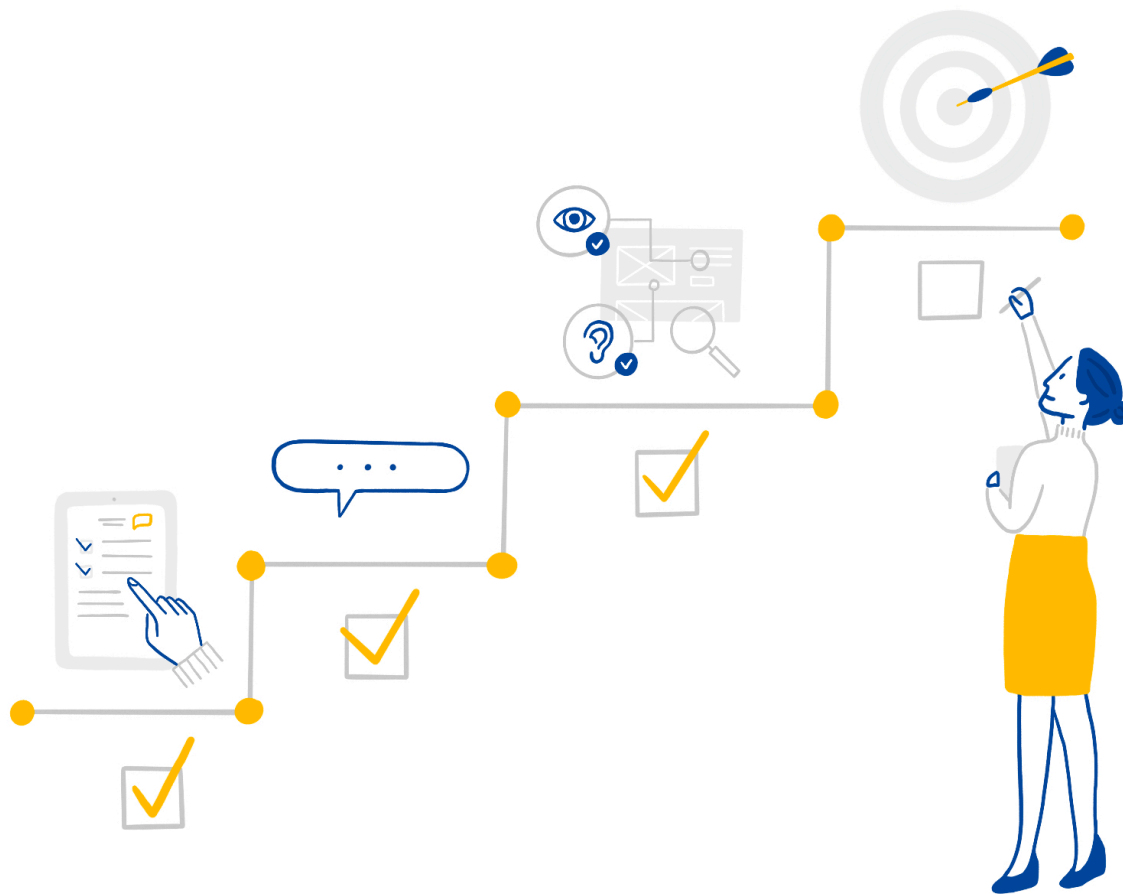
data obtained during our interviews with the reports of activities of the concerned WISEs and national surveys and legislation.

The interviewees were asked to estimate their digital needs and gaps[11], the most used technology tools and skills in their professional activities, and the importance of the skill needs in the next few years. We took into account not only the present digital skills needs, but also weather the importance of these competence areas changes over time. We asked the same questions about skills needs and training needs both to employers/social entrepreneurs and to employees themselves not only in order have answers from both sides, but also in order to have a broader picture on the digital needs in the WISEs sector. Taking into account the differences in the digital needs

of the enablers and supporting staff was interesting both from a methodological point of view and from a policy point of view.

In order to take into account the geographical balance and the diversity of the historical and socio-economic developments and of the welfare states, we focused on the case of Romania, Lithuania, Poland, Belgium, Italy, Finland and UK. The WISEs were chosen to cover a range of size, age (years of existence) and commercial activities. The main activities covered by the WISEs are recycling and upcycling, manufacture, crafting, maintenance, document archiving and storage. Some WISEs are self-supporting from the earned income, while others depend on subsides. Many WISEs have adapted to the current social and environmental challenges and to the digitalisation

process and aim to build sustainable development and circular economy models (e.g. Ateliere fara frontiere, CAUTO Network, Groupe Terre). Considering the high diversity taken by the forms taken by the WISEs in Europe, in order to give a relevant and broader picture of digital skills needs and shortages in the WISE sector, we have chosen both WISEs that use technology in an innovative way and WISEs that are less digitally savvy. The selected WISEs target people with physical or mental disabilities (e.g: ADV, Regseda), groups at risk of exclusion such as migrants, NEETs (persons Not in Education, Employment or Training), ex-prisoners, ex-drug addicts (e.g. CAUTO Network, Groupe Terre). Some WISEs target both persons with disabilities and groups at risk of exclusion (Ateliere fără frontiere, OPIMM, Barka Foundation).

The political and economic conditions of the countries where the WISEs function, but also socio-anthropological factors such as the culture of support of the family are very important to understand how they support people with disabilities. More exactly, in some countries, the persons with disabilities and groups at risk of exclusion are not supported by their families and their environment in their work integration and in gaining new skills. There is a formal and informal support that should be taken into account when tackling the existing digital skills gaps of persons with disabilities and groups at risk of exclusion and the available VET delivery.

The problem that appeared during the data collection for this research consisted in the fact that, for most of the countries, there are not any surveys on identification of skill needs on the national level[12]. Some surveys were conducted at the EU level for identification of different sectoral needs in the regular economy, as is the case of the catering industry[13], but there are few available data on the skills needs in the social economy sector[14]. In most of the countries and organisations, surveys are not done on regular basis and training and skill needs analysis and policy measures for identification of skill needs are still not introduced in a systematic way. Nevertheless, since the existing research has shown that digitalisation is affecting the business and the economic world as a whole by creating new opportunities and challenges, this research connects data from the existing research on the regular business sector to data collected during interviews with members of the WISE sector and other organisations.

The concept of 'digitisation' and of 'technology' covers a wide range of different digital technologies and digital devices, from computers, mobile devices, internet and the 'Internet of Things', to robotics and artificial intelligence, which have different implications in terms of their impacts on work and on WISEs. The concept of 'digital skills' also involves a plurality of operations and capacities and applies in different manners to the three studied categories. OECD distinguishes between basic users of ICT (users of generic tools such as office software, e-mailing), advanced users (competent users of advanced, and often sector-specific, software tools) and ICT specialists (that develop, operate and maintain ICT systems)[15]. In 2016, OECD introduced the concept of ICT complementary skills that are "skills that are not related to the capability to use the technology effectively but to carry out the work within the new environment shaped by ICTs (e.g. communicate on social networks, brand products on e-commerce platforms or analyse big data)"[16]. In connection to this broad framework established by OECD, in this research we will refer to basic, advanced and specialist digital skills.

Digital skill needs in the WISEs sector

2

In order to identify the digital skills needs and gaps in the field of WISEs, we first need to briefly define the WISEs sector, its size and its constraints in Europe. Then, we need to tackle the impact of digitalisation on the employment of persons with disabilities and groups at risk of exclusion on the one hand, and the impact of digitalisation on the WISEs sector on the other hand.

Both aspects are important in order to tackle the way in which the WISEs can use technology for promoting the work integration of groups at risk of exclusion and persons with disabilities. The digital skills needs of the three actors involved in this research depend on the advances of digitalisation in the world of work. Increasing digitalisation is not only changing the world of work, but also changing the skills needs of the three studied categories.

In what concerns the digital skills needs and gaps of the three categories, we will start by naming the impact of technology upon the employment of persons with disabilities and groups at risk of exclusion and their digital skills needs and shortages. This is because the digital skills of the professionals working with persons at risk of exclusion and persons with disabilities (supporting staff) and to a smaller extent, the digital skills of the enablers adapt to the needs of workers with disabilities or at risk of exclusion. At the same time, in order to frame strategies and policy recommendations on how to use technologies from an employee centred perspective, we also need to start from the digital skill needs of the workers with disabilities and workers at risk of exclusion within WISEs.

The supporting staff needs skills to do their jobs, to use devices (like electronic help recording systems), but they also need to understand the needs of persons with disabilities. There are two levels: the skills to do my job and if you have to help somebody to achieve something, you need to know the skill needs and gaps of your target groups, to understand the range of opportunities around the group that you are supporting[17].

We have focused both on the digital skills gaps of the three actors and at the same time on their access to VET provision tackling the acquisition of digital skills. Considering the fact that insufficient training and technological advances are the central factors responsible for digital skills shortages and gaps[18], we have started from the assumption that the digital needs of the targeted groups should be connected to their access to VET provision within and outside the WISE sector.

2.1. WHAT IS A WORK INTEGRATION SOCIAL ENTERPRISE (WISE)? SIZE AND CONSTRAINTS OF THE WISE SECTOR IN EUROPE

The definition of a Work Integration Social Enterprise falls under the broad definition of a Social Enterprise. The definition of a social enterprise included in the Social Business Initiative (2011) of the European Commission mention three central aspects that distinguish the WISEs from other socio-economic entities:

1

The objective to achieve social impact rather than generating profit for owners and shareholders;

3

Accountable, transparent and innovative management, in particular by involving workers, customers and stakeholders affected by its business activity[19].

2

The need to use its surpluses mainly to achieve social goals;

In connection to this broad definition of what constitutes a social enterprise, a work integration social enterprise can be defined as "an autonomous economic entity whose main objective is the professional integration – within the WISEs itself or within regular companies- of people experiencing serious difficulties in the labour market"[20].

In practical terms, there are different WISE models in Europe with different legal, fiscal, organisational frameworks and having different target groups. Some WISEs are registered as NGOs (Poland), charities (UK), cooperatives (Italy). The development of the WISEs is connected to the evolution of charities and cooperatives, as is the case of Lithuania. Also, the status of the workers in integration within WISEs can take different forms: formal work contract, trainee status, occupational status[21].

Belgium

The WISEs are divided between Wallonia and Flanders. The main forms taken by WISEs[22] are :

› Customized work companies ("entreprises de travail adapté" (ETA), formerly "Ateliers protégés" (Beschutte werkplaatsen), that focus on the work integration of persons with disabilities);

› Companies for job training (entreprises de formation par le travail (EFT) that group the on-the-job training enterprises aiming to train low-skilled workers through a specific job;

› Insertion enterprises (entreprises d'insertion (EI), Invoegbedrijven Maatwerkafdelingen, that focus on the work integration of people in difficulty on the labour market). In Wallonia there is a strong social economy movement and a strong partnership with the state, the predominant model being that of creating permanent jobs for the groups at risk of exclusion.

Italy

The cooperative movements have a strong tradition. The Law 381 recognizes two types of social cooperative, according to whether they manage social-welfare or educational services (A-type social cooperatives) or undertake other agricultural, manufacturing or commercial activities or deliver services for the work integration of persons at risk of exclusion (B-type social cooperatives)[23]. While both types are entrepreneurial in nature and trade on the free market, the second category of social cooperative fall under the definition of a WISE.

Finland

The work integration social enterprises (sosiaalinen yritys) are regulated by law (Act 1351/2003 revised 924/2012), which offers employment opportunities to persons with disabilities and long-term unemployed. Traditionally, WISEs in Finland include labour co-operatives and work centers owned by social organisations supporting persons with disabilities. At the beginning of the 2000, there were approximatively 200 labour co-operatives[24]. These cooperatives were hiring immigrants and persons that were unemployed for a longer period of time and developing the professional skills of their members by organizing vocational training.

UK

There is an important diversity of the existing WISEs. Six types of social enterprises have a substantial area of activity concerned with work integration: worker co-operatives (including social co-ops), community businesses, social firms, intermediate labour market organisations (ILM), quasi-state social enterprises, voluntary organisations with employment initiatives[25]. The WISEs in UK can offer permanent or temporary contracts, formal or informal training. For instance, ILMs are specialised in transitional employment and formal training, while worker cooperatives only provide permanent jobs with informal training.

It is more difficult to find data on WISEs in Central and Eastern Europe since the creation of social enterprises in the post-communist and post-soviet region remain a recent phenomenon at an incipient stage of development[26].

Romania

The category of "social enterprise" was created only by the Law 219/2015, even if not all the de facto and ex lege organisations, including sheltered workshops, comply with the formal definition. WISEs in Romania have to face heavy bureaucratic mechanism, unsupportive governments, limited understanding of the concept of WISEs and in general, of the concept of social economy[27]. The main funding comes from the European Union programs, while other financial schemes remain unavailable and national public funding does not privilege social enterprises over mainstream companies. The development of the WISE sector in Romania was dramatically affected by OUG 60/2017 that has lead to the closing of over 700 sheltered workshops when thousands of people with disabilities have lost their jobs.

Lithuania

WISEs were established in 2004 with the adoption of Law on Social Enterprises and they benefited from a financial aid system and tax exemptions. The law created a legal framework for the preservation of workplaces for persons with disabilities created during the soviet system[28]. The category of WISEs in Lithuania include both WISEs for persons with disabilities and WISEs targeting groups at risk of exclusion such as ex-prisoners or drug addicts. In Lithuania the sector of social enterprises include overall 186 WISEs that operate in rather the low-skilled job areas: cleaning, construction, crafting, food production[29]. The sector remains marked by low level of awareness about the potential of WISEs, conceptual ambiguity and some policy tensions. Experts explain the size of the sector by the fact that Lithuania does not have an investment strategy towards such enterprises.

We do have some good proven cases of WISEs, but there are not many. On the one hand, these organisations could expand if they were able to get proper publicity, funding or investments, on the other hand, the government has not done any proper calculations that WISEs are actually a way to save public money for work integration or employment on the long term[30].

Poland

The WISE sector is still in a process of development, institutionalisation and legal recognition, even if the significance of the sector has been steadily increasing. As in Romania, most of the financial assistance for social enterprises in Poland is supported by different European funds. The WISEs sector includes a 'constellation' of four separate legal entities: professional Activity Establishments (Zakład Aktywności Zawodowej – ZAZ), that play an important role in the social and vocational (re) integration of people with disabilities, social cooperatives, entrepreneurial non-profit organisations, non-profit companies[31]. After the Polish entry to the EU some entities were recognised as social enterprises, even if the confusion of what constitutes a WISE still exists in the country.

There are important national differences. In some countries, there is a big selection of WISEs covering different sectors and activities, with access to different funding mechanisms and in collaboration with public authorities, while in other countries the sector remains fragile and in an incipient phase of development. This very brief presentation of the development of the WISEs sector in different countries shows that the ecosystem for work integration social enterprises in Central and Eastern Europe is still very fragile compared to the one in Western Europe. All the mentioned factors constraint the development of the sector in the post-communist region and the development of digital innovative solution to social and employment problems. Particularly, WISEs face difficulties in being recognised in the existing organisational environment and are marked by conceptual ambiguities and lack of policy alignment[32].

2.2. THE USE OF TECHNOLOGY IN THE WISE SECTOR IN EUROPE

Digital innovations are changing work environments, the way people work, train and manage their careers, the work duties and qualifications required to perform jobs. Digital tools, the fact that more data has become available and artificial intelligence are changing the way career development support is delivered and are changing the lifelong learning sector. The progressive mechanisation of the work environment leads to an increasing flexibility of work organisation and employment relationships[33]. Studies have shown that in the regular enterprises environments, the adoption of Information and Communication Technology (ICT) has led to new working and management practices enabling communication, innovation and supporting the development of new and innovative products and services[34].

In what concerns the impact of technology on the employment of persons with disabilities and groups at risk of exclusion, the existing research presents two contrasting points of view.

> On the one hand, the access to the Internet and mobile communication technologies is creating new opportunities for disabled and groups at risk of exclusion enabling their access to information and services concerning employment[35], but also to e-learning[36], helping them to better integrate in their communities.

Social networks contribute to getting access to the world of work. As disabled people and groups at risk of exclusion are often poorly networked, digital (job) networks provide greater connectivity with potential employers. ICT tools can reduce employment barriers and implement supportive measures for older people, migrants and NEETs[37]. More precisely, the previous research has shown a positive relation between ICT and employability, since the access and skills to use technology affect employability and working conditions, ICT having the potential to support the socio-economic inclusion of social groups at verge of exclusion such as migrants[38]. At the same time, modern technologies have made it easier for people with disabilities to work and increased their efficiency, especially for people with physical disabilities. For people who have mobility difficulties due to their illness or disability, the Internet is setting a path out of isolation and offers the opportunity to participate in the labour market[39]. Existing research has shown that assistive technology is helping persons with disabilities in becoming autonomous and enables some categories to work. Most of these existing analyses have focused on the technical objects and equipment for assistive technology (wheelchairs, hearing aids, adjustable screens, screen readers, supporting software etc.), workplace design, environment design (accessible public transport)[40] and to a smaller extent to the necessary skills to use this technology efficiently.

> On the other hand, research has also shown that the software development can be an opportunity for highly qualified people, while groups at risk of exclusion and people with physical and mental disabilities, that are less likely to have gained any qualifications compared with non-disabled people[41] will rather face new barriers and risks of social exclusion.

In the course of digitalisation, the skills requirements increase, and simple activities are either dismantled or tend to become digital. Even for high-qualified people with disabilities, considerable difficulties still exist in accessing the labour market[42]. This can make job placement more difficult. Some experts expect that the process of digitalisation, due to the increasing complexity of work processes, will reduce the employment opportunities of disabled people and groups at risk of exclusion. More exactly, the advances in technology will create jobs for the over-qualified and up-skilled people[43] and workers' adaptability to change will be the most sought skill by the European employers[44]. These changing work processes can create barriers to entry especially for people with learning difficulties and intellectual disabilities that are less adaptable to changes. Assistive technologies can help to partially compensate for body and sensory impairments, provided that the environmental conditions are adapted to them and the software used in a work area has an interface to disability-compensating programs. Therefore, technological progress presents new possibilities in the area of inclusive workplaces and reasonable accommodation, but at the same time this progress creates barriers not only for workers with disabilities and workers at risk of exclusion, but also for regular employers and employees, as we will see in what follows in the case of the supporting staff and of the enablers.

In what concerns the impact of digitalisation upon the lifelong education and VET delivery, technological advances such as the computer, the Internet, certain software, apps, and cell phones are facilitating access to areas of lifelong education and developing new skills for different professions and social groups, indirectly facilitating the access to the world of work. In the case of persons with disabilities, reading applications, speech recognition, video communication, real-time voice and text services facilitate their participation in training programs, including the online educational services. Even if technology-based life-long education, trainings delivered online or via tablet-based applications, screening, technology-based assessment and intervention, treatment, and recovery support tools that permit the access of a broader audience[45] are slowly growing in importance, apart from our research, we have little evidence on the use of these tools in the WISEs sector and on weather disabled and persons at risk of exclusion use this tools to access career and training information. Our research has shown that ICT was integrated in the career information and guidance system not only in the job centres, organisations and regular enterprises, but also in some WISEs.

Many WISEs (e.g. the case of ADV in Romania) provide online services were persons with disabilities get online support and advice on job opportunities and trainings and can have access to online job coaching.

ICT was integrated in the career information and guidance system not only in the job centres, organisations and regular enterprises, but also in some WISEs.

ICT has enabled new ways of working, including flexible working arrangements and teleworking. A recent research shows that while new technologies open possibilities for persons with disabilities, the increase in complexity in the work environment and the need to adapt fast and be autonomous show that teleworking is not as helpful for persons with disabilities as expected[46]. Teleworking is a phenomenon that is currently affecting the WISE sector, even if employees and employers are affected to different extent. All the interviewed "enablers" sometimes do telework. Things are different in the case of the professionals supporting persons with disabilities who stated that physical contact is important in
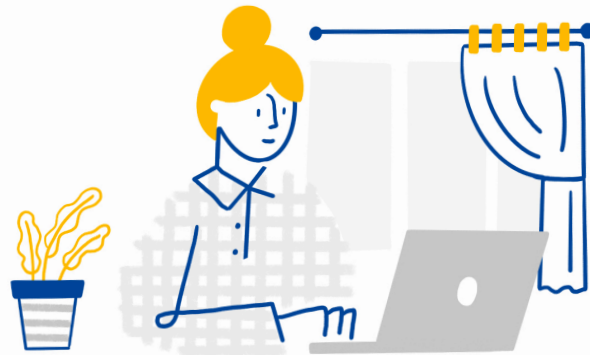
their profession and that they cannot telework on a regular basis. Supporters of groups at risk of exclusion are more likely to telework on a regular basis than supporters of persons with disabilities. Considering the fact that, in the case of workers with disabilities, many of them work in lower-qualified positions, in many cases, there are few possibilities of teleworking. In particular, our interviews show that teleworking is not a common solution for workers with disabilities that require to a greater extent physical surveillance and contact.

WISEs targeting persons with disabilities have a different focus on the use of technology than WISEs tackling groups at risk of exclusion. The main reason is that WISEs working with persons with disabilities are aware of the need of "assistive technologies" in the employment of their target group and are more sensitive towards the opportunities of technologies in improving the work placement of persons with disabilities. We have evidence from Italy, Belgium, UK, Lithuania and Finland[47] that workers with disabilities use assistive technology in their work activities within the WISEs and that this increases their productivity within the WISEs and their employability on a long term. Workers with disabilities in insertion within WISEs have access to ICT learning technologies and software (examples given by WISEs in Italy), screen readers, learning

technologies in sign-language, Braille notetakers, wheelchairs (examples given by WISEs in Lithuania and Finland). For instance, OPIMM adopts some specific arrangements and tools to allow workers to do their productive activities; sometimes OPIMM asks the consulting of Centro Regionale Ausili, that is specialized in producing devices, tools and solutions to improve the autonomy of persons with disabilities in the daily life as in the work place, but often their technicians think, project and build some specific tools, not only IT tools, but also mechanical ones. If assistive technology was previously associated with highly specialized equipment, it has became increasingly integrated in computers and phones and we are seeing the adaptation of mainstream technologies like Apps and voice-controlled operators such as Alexa, Dot and Tap – so called "Accessible

By Accident" technologies - into the WISEs settings[48]. For instance, the Apple iPhone alone contains a host of assistive technology features as standard and VoiceOver reads out text from the screen on command, aiding visually impaired people.

Nevertheless, several difficulties concerning the use of assistive technology and of technology in the broad sense within the WISEs settings can arise. On the first hand, there is strong international inequality in access to these technologies[49]. This unequal access to technology does not only concern specialized technology, robotics, AI software, but also basic access to computers and phones (see part 2). In Finland there are several programs and assistive devices which can really improve the situation of those with learning and reading disabilities and visual

impairment that are easy to use and accessible[50]. At the same time, persons with disabilities in Romania, Poland and Lithuania face difficulties in having access to assistive technology – screen readers are relatively expensive and not all the software is available in the national language (this problem was particularly raised by managers in Poland, Romania, Lithuania). Other research confirm the greatest availability of technology is in the higher income English–speaking countries and the richer European countries[51]. On the second hand, although our interviewees agreed that assistive technology can be useful, there are no broad strategies at the level of some WISEs on how to use assistive technology to improve the employability and the work integration of persons with disabilities. At the same time, the access to technology is connected to broader governmental and funding mechanism, on how supportive are the national governments.

WISEs working with groups at risk of exclusion also use digital technologies in the work placement of persons that are far away from the labour market. For instance, the use of applications for learning certain languages and language technology are considered useful tools by the WISEs that work with migrants and refugees.

There are a few WISEs that use technology in an innovative way in order to promote work and social integration and to make technology easier and accessible to the use of both the employees and the employers. Interdisciplinary teams are being formed in this purpose. We can give the example of the CAUTO network of cooperatives in Italy that invests in the human centred process technological innovation.

In cooperation with the CAUTO network of cooperatives, there was created a software house (ITA-CA) that focus on immediate and intuitive installations, accessible interfaces that anyone can use regardless of their ability to generate „a more conscious relationship with technology". Various software are designed by ITA-CA that are useful in the training and management aspects. HR Human resources is a software that deals with the personal data profiling, contract management, training monitoring. The RU app allows the operator to fill in the attendance card of each employee with the relative justifications for presence and absence, reporting their activities with analytical accounting dimensions easily configurable. RU is designed to allow the management of multiple organisations or companies, and allows even remote operations. The TR system is able to better manage every relationship with the outside and within the company.

In the case of the Group Maatwerk (see Annex 1) in Flanders, Belgium, some customized-companies such as WAAK develop product-supporting technologies. Technology and technological innovations are used by some social enterprises in order to train the lower-skilled workers, to help them in their daily activities and in the production process. For instance, in connection with a technology company and a technical school, Bewel use customized cognitive aid tools and software in order to help workers to perform multiple actions and overcome complex assignments, despite their limitations. This functions as a training instrument because employees learn – adapted to their current level – skills that they subsequently apply in practice and this gives a boost to their self–confidence, because they

can successfully complete complex assignments. They can read on the screen simple work instructions with each step, accompanied by a photo or video. In addition, the software with color areas highlights the material (e.g. cables) that is required in each step. The system visually checks whether workers have performed a certain operation correctly, after which they automatically proceed to the next step.

Also in the case of Belgium, the 4-werk cluster is grouping 24 WISEs that aim to apply and develop technology in order to assist their employees (people with cognitive, physical disability or psycho-social difficulties) and deliver adapted machinery, adapted instructions (augmented reality, speech technology), cobots (third arms) and design 3D printers, simplified computer-aid design (CAD) software. Multidisciplinary teams are formed in order to develop the technology (ergo therapists, psychologists, HR, engineers, ICT staff, process engineers). The cluster shares knowledge between social enterprises, but also between the social and regular economy. The main focus is to adapt the existing technology to new and specific context of the WISEs and of the target group and an engineer facilitates these processes with staff of the enterprises and shares the know-how.

Unfortunately, these are examples that you can hardly find in Central and Eastern Europe. Smaller WISEs tend to be less competitive and they lack access to digital technologies and digital skills to a greater extent than bigger and established WISEs.

2.3. DIGITAL SKILLS IN THE WISE SECTOR

Even if the digital skills needs and gaps of the enablers, supporting staff and persons with disabilities within the WISE sector have their particularities, these should be placed in the broader context of the digital skills requirements and gaps in Europe. In this perspective, a recent survey shows that more than 7 in 10 employees in the EU need at least fundamental ICT level to perform their duties, but about one in three of these employees is at risk of digital skills gaps[52]. Interestingly, the same survey conducted by CEDEFOP shows that almost half of the employees in low-skilled occupations do not need ICT skills to do their work[53]. At the same time, it has been shown that there is a positive correlation between the jobs that will be created in the next decade and digital skills and that ICT skills requirements in the work tasks tackle also the occupations that were less penetrated by ICT investments, such as VET teaching[54]. In spite of the widespread idea and awareness of the need of digital skills in the world of employment, there has been little research on the type of ICT skills required in different sectors and occupations and on how employers and employees adapt and cope with these skills requirements. Even though there is little data on the digital skills needs and shortages in the social economy sector, we can use the general data that we have on digital skills needs in Europe with data gathered for this particular research that show that digital skill srequirements are affecting the WISE sector.

The differences in the digital skills needs and gaps within the WISE sector in the analysed countries reflect the different social, economic and legal national differences, on the one hand, and the difference in access to VET and in access to technology, on the other hand. The proportion of workers with digital skill gaps varies between the studied countries. Economics, age and ethnicity constitute important variables in recognizing those that have access to technology and digital skills. Although all ages and ethnic groups are now online, the younger generation in higher-income regions have an increased access to technology and better digital skills[55]. It is important to take into account the fact that, while the three studied actors (enablers, supports, persons with disabilities/groups at risk of exclusion) have different digital needs and gaps, our research shows, in line with previous research, that mismatch of skills is the most relevant in the case of groups at risk of exclusion (older people, NEETs, ethnic minorities) and persons with disabilities[56]. While taking into account these general trends in digital skills needs and gaps, in what follows, we will show that we can identify some patterns in the digital skill needs and gaps in the WISEs sector.

Digital skills of the disabled workers/ workers at risk of exclusion within WISEs

It is important to acknowledge that groups at risk of exclusion are heterogeneous. This heterogeneity implies that they have different digital skills and digital skill needs. Nevertheless, in general terms, our interviewees (enablers and supporters) agree that digital skills help in the work integration of persons from groups at risk of exclusion and persons with disabilities. All the interviewed actors have agreed that the work placement of persons from groups at risk of exclusion and persons with disabilities is eased if these categories have basic ICT level (e.g. using a PC, tablet or mobile device for emailing or internet browsing) and that digital skills improve their employability. Nevertheless, digital

skills requirements are stronger in some fields, like in the archiving or administration jobs, while in other lower-skilled jobs persons from groups at risk of exclusion and persons with disabilities (cleaning, construction) use digital skills to a lower extent. In some cases, disabled people and workers at risk of exclusion are more exposed to the use of technology (e.g. textile sorting, IT equipment recycling). For instance, within AFF in Romania, that works on the refurbished IT equipment recycles, workers are exposed to technology and are supposed to know how to handle different parts of computers and digital devices. Within

the CAUTO Network in Italy, digital skills enabled the work placement of persons coming from groups at risk of exclusion. The ICT and technology skills have allowed people who are in a job placement project to be employed in the most diverse tasks and positions: programmers, system engineers and persons in charge of telephony. Employees coming from groups at risk of exclusion with good computer skills are employed in activities that implies the use of computer for example performing data entry in the management system or other activities, even at the level of analysis and planning.

Nevertheless, even if the case of workers with disabilities within the sectors of activities that are less affected by the digitalisation, such as crafting, our interviews confirm that basic digital skills permit workers with disabilities to communicate with their supervisors and come to work (because they use google maps). Beyond the sector of activity, both managers and professionals supporting persons with disabilities confirm that particular digital skills can help persons with disabilities not only to become more employable and productive, but also to become more autonomous and participate in their society:

ICT needs have increased during the recent years with the increased digitalisation of economy. Beyond employment, persons with disabilities need basic computer skills to be autonomous. The companies with whom we work sometimes particularly ask for persons that have ICT skills. There still exists a scepticism of employers in Romania to hire persons with disabilities. They think that they will not be productive and they cannot trust them. They ask for deaf or blind people, not for persons with mental disabilities. If the persons with disabilities have digital skills, regular enterprises trust them more because they think they could be more productive.[57]

Digital and technological skills can be a plus to the training of persons with disabilities that are in work placement and can help them in their autonomy within the customized work companies (ETAs). For example, in some customized work companies, they have to encode on the computer to tell at which workstation they are at. When they work at the reception, they must be able to master basic computer tools. It is also useful for teaching them the route from their home to their workplace and to use google maps and STIB applications. There are also applications like Video Shop or My Picture book that allow the supporters to create procedural files on any topic. This can be possible in the work customized companies if workers with disabilities were proficient in the use of a computer or tablet.[58]

Our interviews conducted with members of the "supporting staff" in the analysed countries agree that the digital skills needs of the workers with disabilities and groups at risk of exclusion implies the basic knowledge on how to use a computer and a smartphone, search the internet, write an email and SMS, use google maps in order to get to work. Disabled

people and groups at risk of exclusion would find useful to know how to use smartphones that can assist them in the process of looking for work, including navigation features to travel to job sites, calendar and scheduling tools with reminder prompts to organise appointments and working tasks. Technology help persons with disabilities to get support

from social workers, job coaching, psychotherapists since many WISEs provide online services were persons with disabilities get online support and advice on job opportunities and trainings and have the possibility of following online job coaching. Since many WISEs offer online services for enhancing access to a range of careers information advice and

guidance, employees with disabilities need to have basic internet skills in order to have access to these services. In the same way, in the Groupe Terre, a Belgian WISE ("entreprise d'insertion") tackling the professional integration of rather low-educated persons at risk of exclusion, the persons in work placement ("travailleurs en insertion") must send their CV by email. In order to do this, the workers in insertions must have basic knowledge on how to send an email[59].

Finding a permanent job is something you can do first of all on-line. You have to write a CV and you must be able to use word processing programs; you have to know how searching job offers on the principal search engines; you must have an e-mail account and register on platforms and portals that allow you to have access to services and vocational training programs or to upload your CV to apply to permanent job offers.[60]

Apart from the need of basic digital skills, in the case of persons with disabilities, we should note the need of a different set of digital skills related to the use of the assistive technology that is helping them. The dependence of some people with disabilities on certain software (blind, deaf people), of wheelchairs (people with physical disabilities) imposed on them a different set of technical skills that other categories of groups at risk of exclusion do not need.

In what concerns the digital skills needs of workers with disabilities and groups at risk of exclusion, we should acknowledge that they are not a homogeneous group. There is a distinction between children and adults and a distinction in the level of need, because there are workers with physical and mental disabilities, or workers that have difficulties with the national language of the country where they work (e.g. migrants, refugees) or with using certain applications in English. The digital needs and gaps vary according to the type and level of disability, the level of education, but also according to the age.

There are still a lot of persons with disabilities with whom we work who personalised use basic IT tools, who do not have a smartphone or/and a personal computer or tablet, above all the persons who are over 40 years old. They are "digital illiterates" and this is a great disadvantage that, combined with their age, makes it very difficult for them to enter the world of work.[61] The main problem is the elderly generation – the most of them with whom we work are not able use Excel and Word programs at all.[62]

The access of persons with disabilities and other groups at risk of exclusion to ICT trainings within WISEs is country and region-specific. Many WISEs offer computer and ICT training programs for persons with disabilities and persons at risk of exclusion. For instance, in Italy, OPIMM offers computer training for people at risk of exclusion (digital literacy). They are free because they are financed by European Social Fund and from public resources coming from local institutions and national funds. The target groups are being trained on how to use word processing programs, spreadsheets, mail programs so they can acquire skills that can be useful in getting and doing a job. OPIMM organises sessions to show how searching for a job through internet looks like and how to send a CV or fill in an online form or how to respond to a job offer. In Poland, the Barka Foundation also "runs computer courses from time to time, but this is not a priority"[63]. In Lithuania, LNF is implementing a project dedicated to persons with severe disabilities with the focus to develop dedicated social services and to help persons with severe disabilities to get a job in long term. One of the activities is computer

basic skill training. In UK, the Royal British Legion Industries provides training in basic skills, including basic computer skills, for persons with disabilities that are in work placement.

The lack of stable and long-term funding, the project-based status, the reliance on EU funding, the conflicting relations with the public authorities and the adoption of a legal framework that is hostile to the development of the WISE sector (e.g. the adoption of OUG 60/2017 in Romania) prevents the continuation of some program trainings. For instance, this has happened in the case of ADV in Romania, where the end of the funding

from the European Social Fund interrupted the computer trainings[64] that were offered for unemployed persons and for the workers of ADV, including for persons with disabilities. It is important to take into account the access of disabled and groups at risk of exclusion to ICT training within other entities that deliver education and VET services (schools, job centers, ONGs). The experiences are very diverse. In Lithuania, there are no existing national schemes for acquiring computer skills. There are only a few programs provided by rehabilitation centers but only for unemployed persons with disabilities and these programs are suitable

only for 10 – 20 people per year[65]. A problem that raises is that disabled/persons at risk of exclusion get training only for particular professional activities developed during their job placement. In many cases, the workers with disabilities/workers at risk of exclusion will receive training on how to use certain aspects of digital technologies only if a particular job requires digital skills. Many interviews support the idea that in most of the WISEs there is a lack of the general and mandatory vocational education and training in the area of Information and Communication Technology.

In Belgium, the persons with disabilities do not have access to digital training in the customized work companies. They are trained directly at their workplaces, but these are not recognised trainings. For those who were trained in office work in a specialized school, this is an advantage, but it is not an advanced training in digital technologies[66].

Persons with disabilities are trained in organisations for particular jobs, but general training is lacking, but not only for persons with disabilities. People make assumptions that everybody knows how to use computers. Persons with disabilities are the last people that get access to computer training even if they could really use technologies.[67]

We have no general training in digital technologies for our disadvantaged and low-educated workers. If the job requires it, we will train our workers in digital skills. We have had cases when we needed to train some of our workers that did not have basic knowledge on how to use a smartphone and when they needed to know this in order to do their job. If the job does not require it, we will not train them in how to use digital technologies.[68]

The managers, mostly from Central and Eastern Europe, emphasized the lack of motivation of persons with disabilities and of groups at risk of exclusion (that are often low-educated) in gaining new skills and in participating to additional trainings:

The biggest challenge for groups at risk of exclusion in Poland is the lack of the motivation to change their life and lack of basic skills that would help to maintain the job. They lack the habit of work, so mainly what they need is time and places to practice good habits, which could help them not to lose job. The digital skills are something additional to these basic shortages, but we do believe that when we build the fundaments based on "good employee's skills", the next step is to develop their digital skills and so on[69].

In Romania, there is the mentality that it is easier to get the social aid from the state than to train in order to gain new skills and get a job. The persons with disabilities are influenced by their families and peers that consider that they are not capable to adapt to employment and skills requirements. Persons with disabilities in Romania do not trust themselves and they are sceptical towards participating to trainings. We have connections also in the periphery and countryside, but it is difficult to activate these persons[70].

The levels of digital skills of persons with disabilities and persons at risk of exclusion are different in each country, also because the access to technology is different. Even in higher-income countries the access to technology is not universal. There is also a big amount of people who need a lot of support with ICT and do not have their own computers or cell phones that they could use and learn by using them.[71]


Digital skills of the supporting staff (professionals working with the persons with disabilities and persons at risk of exclusion)

Traditionally, WISEs offer personalised counselling, training and job placement programs. The supporting staff provide coaching and support during the transition to the regular job market (in some cases). In many countries and WISEs, the members of the "supporting staff" have a training and background in social care or education. This aspect raises some problems because previous research has shown that digital literacy is low in the education and social care sector and that these sectors has been slow in adapting new technologies and tools[72]. Our interviews confirm the data presented by previous research. Professionals supporting persons with disabilities and persons at risk of exclusion within the WISEs sector are, in many cases, not aware of the role played by technology neither in the employment of persons with disabilities and persons at risk of exclusion, neither in the role played by digital skills and tools in their own professional activities in supporting disabled workers. Many supporters consider that social skills are the most important in the training and job coaching of disabled and groups at risk of exclusion and that technology cannot replace the human interaction that is a basic task for service providers. Some interviewed members of the "supporting staff" raised concerns about the fact that the advances of digital technologies might replace or change completely the support services traditionally provided by trainers, coaches, pedagogics, community workers and they see digitalisation as a threat imposed at the core of their profession instead as seeing it as an opportunity.
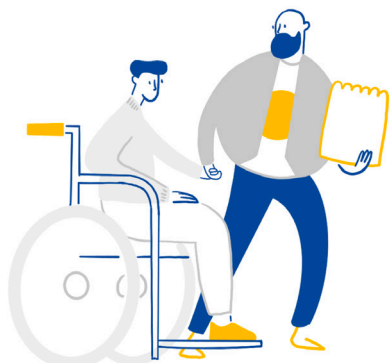
Barka's model of help is based on face-to-face meetings, on friendly/brotherly relationships based on common trust, common work and common living. During the interactions with persons at risk of exclusion we use as little of technology as possible to show people that we are all about direct relations and not about "providing services to clients". 30 years of our experience show that the most important for human change and development is to build direct relations and brotherhood in direct contact with people in need who come to Barka for help (homeless, addicted, after prisons, long-term unemployed). Digital skills are not something very necessary for our trainers. In our field in Poland it is more important to have social skills, empathy, patience, time, love and faith in other people, rather than digital skills.[73]

We noticed that more and more trainers use technology, we lose the sense of human interaction. They serve customers which are vulnerable people who very often fill like products, items, tables, indicators...[74]

Although the perception and awareness of digital skills needs of the professionals supporting disabled/groups at risk of exclusion is low, it is important to take into account the fact that the occupation skills level is different in every country and that these impacts upon the digital skills needs. Nevertheless, a contradiction appears in the difference between the acknowledged digital skills needs and the concrete use of technology by supporters. In spite of the perception that digital skills are not very important in the support of the disabled and groups at risk of exclusion, when asked if they use digital technologies, the answers of the supporting staff show that technology is useful in their everyday professional activities. In practical terms, the supporting staff use digital technologies to connect and network, develop collaborative partnerships with other members of the team, support workers at risk of exclusion through counselling, training, job coaching in a flexible, innovative, more efficient and more formative ways. Professionals supporting persons at risk of exclusion and persons with disabilities agree that the use of multimedia features (i.e., audio, video, presentations) during training sessions, job coaching and personalised support can accommodate different learning styles and cognitive capacities. They use web information, images and videos in order to communicate, train or support their trainees, colleagues and prospective employees. Particularly, all the members of „the supporting staff" use social media to communicate with the target groups. The main digital skills they use concern basic skills, like using computer, tablet and programs for writing, calculating, doing presentations, but also skills related to information and contents search on the internet, skills to access online services and job offers. They also use, for some training programs, specific software, for example accountancy software. Even if the interviewed "supporting staff" mentioned the use of "assistive technology" as a part of their provision, they did not consider it as a central part of their service provision. There is a low understanding of what means an effective use of ICT and of technology in the broad sense in the support of their target group and in many cases, a lack of motivation of using technology at the workplace.

I do not think a lot about this because technology is not a priority in the support services that we offer. The goal is to train our workers with disabilities directly at their workstation and we personalised always take them apart outside the work chain in order to think at their general ICT training. We should also be trained more in the use of applications on Apple or Android so that we can in turn train people with disabilities[75].

The digital skills gaps of these actors include the use of certain applications on Android and Apple. Additional skills are needed in order to deliver cognitive support (use of software in order to project images and detect motions) because workers with learning disabilities tend to forget or skip steps. Among the existing digital skill gaps we could also name the use of PowerPoint in interactive ways because our interviewees also expressed their interest on how to make job trainings and job couching more interactive and participative, but also the use of mobile and cloud technologies for collaboration and support of their target groups.

They can support students and learners in their online learning, both synchronously and asynchronously, using both formal and informal vehicles, including social media. For many members of the supporting staff the biggest challenge is the use of English language, because many digital tools are not available in their national language.

We should take into account the fact that the category of "supporting staff" includes a plurality of particular professionals with different ages, genres, economic status and with different digital skills needs. A special category of supporters are the ergo therapists that use new technologies in their interaction with persons with disabilities, that tends to be more digitally savvy and that can be considered a mixed category between the enablers and the supporters. In the case of the supporting staff working with persons with disabilities, many supporters lack knowledge on the difference between mainstream technology and specialized technology, adapted machinery, adapted instructions (Augmented reality, speech technology), cobots (third arms) and are not aware of the digital devices that the target group that they support can use.

> Sometimes it is difficult to understand the disability differences, and the different opportunities to be trained (for example – blind and deaf, or wheelchair user). And, of course, there is a lack of knowledge about the special equipment for special disability to use computers, robotics and other ICT equipment.[76]

Supporters sometimes lack access to information on what technologies are available on the market, how to use technology, what applications could encourage connection with workers. In some cases, they lack information and knowledge on how to use technology in training, communication, self-management support, to track workers progress and outcomes, on how to use electronic dashboard features that could allow them to monitor workers progress and provide feedback and support.

Generally speaking, the supporting staff has access to VET in order to gain or improve their digital skills within the WISE or within other VET providers. The interviewed members of the supporting staff have occasionally participated in training programs on how to use new technologies, social media in their job environment. For instance, CAUTO in Italy implemented a training program that includes several courses on ICT and it is available to all workers. Nevertheless, the participation of the supporting staff in ICT training programs in many cases is optional and trainings are being offered on a short-term and project basis, depending on the willingness and strategies of the managers to provide access to training and to motivate supporters to participate to these digital skills trainings. Second, even in the cases in which training programs are offered, they are not always adapted to the needs and current challenges of the supporters.

Digital skills of the "enablers" (medium level management of different levels)

....

"Enablers" have an important position within the WISEs environment because they are the ones that guide WISEs in their strategic decisions. Existing research has shown that technology has the potential to boost productivity and employment of persons with disabilities but only if managers acknowledge this potential. Our study shows an important difference between the level of awareness of digital skills needs of the "enablers" and the one of the "supporters". Managers are more aware of the need of digital tools and digital skills in the WISEs environment than the supporting staff. The digital skills of the social entrepreneurs are often associated to their entrepreneurial spirit and to the market performance because if "WISEs want to exist and trade on the free market, they need to use digitalisation"[77]. Our interviewees talked about the need of "e-Business skills". Nevertheless, there is also a strong difference in the acknowledgment of the digital skills needs that depends on the type of WISE. "Enablers" within social enterprises that directly run economical activities what means that they have contact with clients and they have to reach them and sell the products or services are more aware of the need of improving digital skills than managers from WISEs which are having employment initiatives, but remain closer to the social care sector (as is the case of the Barka Foundation in Poland)[78].

> Our association is somewhere between the NGO's sector and regular enterprises. We need to be productive in our daily activities in order to sell our projects. We need to trade on the market and our production and selling methods are exactly like the ones in regular enterprises. Our clients do not care too much that we are a social enterprise and think more at the quality of our products. We use new technology in the marketing and business activities as do the other regular enterprises. We are aware that technology is making us more productive and that we should use digital tools in order to be able to continue to exist, but everything is changing so fast that strategic decisions should be adopted on the spot.[79]

Although all the "enablers" in principle associate technology with increased productivity, innovative processes and products, in practical terms, many of them are not aware of the existing digital technologies and how to exploit these tools and how to make technologies more accessible and inclusive. Particularly, technological innovations (concerning assistive technology) are associated by managers with additional costs and unavailable funding. A low awareness exist within WISEs in Central and Eastern Europe on the Internet of Things (IoT) and on the ways in which it can be used to promote social inclusion at the workplace. More importantly, low awareness exists about the possibilities of using management practices and workplace innovations such as job carving[80] and job crafting[81] for better matching the skills of the employees. A strategy and reflection on how to use assistive technology and virtual reality in order to increase the productivity and inclusion of the employees are lacking in many countries and WISEs.

One of the problems that was raised during the interviews is the fact that the available trainings tend to focus of complicated software, even if many employees in management positions need updated basic digital skills.
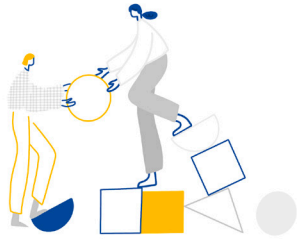
First of all, - we need basic knowledge on how to use a computer.

The second - we need to be trained on how to use free programs for the administration of organisations. Free cloud, Google drive, Google docs, some special easy programs for administration of projects, like project accounting. It would be great to have practical trainings about social media as well[82].

The digital skill needs at the level of management of WISEs can be divided in function of the impact of digitalisation and digital skills upon two broad fields: management of human resources and marketing, communications and e-commerce.

In what concerns the first field, the interviewed managers confirm that digitalisation has an impact upon the organisational and technical flexibilisation of work. For instance, in the case of Regseda in Lithuania, most of the company's production is based on pre-orders from customers, so the company has a policy of flexible work organisation and distribution. New technologies have an impact not only upon the selection and recruiting process, but also upon the decentralization of the decision-taking within the WISEs. Nevertheless, a gap exists in what concerns the skills and knowledge of HRM tools adapted to the WISEs context. In some WISEs that have a greater interest in the horizontal participation of the workers to the daily activities and decision-making of the enterprise (as is the case of Groupe Terre in Belgium), social media is helping to make activities and decisions more participative. Nevertheless, we should emphasize that, even if this is formally included in the definition of a social enterprises, only few of the WISEs aim to create a participative and decentralized management structure where workers equally participate to the decisions of the enterprise. Even if most interviewed managers are willing to invest in employees' skills development and to participate themselves in additional ICT training, some managers/social entrepreneurs remain sceptical towards co-production approaches, co-design of technological processes and their involvement in the implementation of different technologies.

Our association works with IT specialists that help us with the technical parts. I do not think that we need additional training in ICT for the employees working in management or to get involved more in the technological aspects because for this we already have IT specialists. We do not need advanced training for JAVA applications and AI. We can hire ICT specialists for doing this.[83]

In what concerns the second field, the use of social media has opened up new opportunities for social enterprises to engage with supporters of their cause and provide funding. As we have already stressed, "enablers"/managers of WISEs need digital skills that could help them use social media in a business environment.

ICT allows us to more easily communicate among colleagues but also with the beneficiaries. Besides, we can more easily reach companies, stay in touch with social services, employment offices... And least, but not last, we can more easily make people know our activities and ask them for support, help and economic donations.[84]

Many WISEs have online shops and online catalogues where they present and promote their products (e.g. AFF) and they use the digital marketing tools in a business purpose. Nevertheless, knowing what digital marketing tools to use in the context of the WISEs was emphasized in our interviews as one of the main difficulties. Many managers declared that they are willing to learn how to use digital tools in their marketing activities from the sector of the regular enterprises. There is a need of adaptation of digital skills to the context of the WISEs.

Digitalisation has an impact upon the composition of the staff that is present in the WISEs. IT professional staff exists in all the WISEs (even in those smaller and less competitive ones). This IT staff has highly specialised digital skills. These highly skilled and professionalised IT positions remain the hardest to fill in[85]. Some managers working within WISEs that are more centred on technological innovation confirm that the adoption of innovative technologies lead to hiring and management difficulties that are linked to job complexity. In short, the higher level of skill demand and greater expertise required by IT and engineering positions can lead in time to skill gaps if adapted training opportunities are not provided to all the different categories of employees within a WISE. On the other hand, many WISEs (particularly in Central and Eastern Europe) do not collaborate with engineers, ergo therapists and R&D experts.

Strategies to tackle skill gaps in the WISE sector

3

Framing strategies to tackle digital skill gaps in the WISE sector is a complex issue, involving adopting new measures at the European, national and local level, but also at the level of management of the WISEs.

Digital skills gaps in the WISEs sector are often connected to the gaps in provision of assistive technology and of software in local languages, the lack of availability of information about assistive technologies for disabled people that was already stated by previous research[86], the lack of educational and training programmes tailored to the needs of social enterprises[86]. In order to frame strategies to address digital skill gaps in the WISEs sector we should take into account and address additional issues such as the need to increase the access to learning and assistive technologies by persons with disabilities and to encourage social entrepreneurship from the European, the national and the local level. Supporting social entrepreneurship involves different topics: facilitating access to finance, wider recognition

on the part of national governments, public procurement strategies. Even if the objective of this research is not to frame strategies on how to support and develop social entrepreneurship in Europe, these aspects should be taken into account and a broader perspective should be adopted in order to tackle digital skill gaps in the sector. If some strategies should be adapted at the level of the management of the WISEs, as we will see in what follows, policy-makers also play an important role in providing the adequate incentives and institutional frameworks for strengthening the involvement of employers/social entrepreneurs in developing and implementing VET policies. For instance, the provision of financing and of public consultancy support (such as exchange of best practices in workplace reorganisation) can be

beneficial for smaller sized WISEs. Nevertheless, to tackle current skill gaps in the WISE sector, the incentives of both individuals and enterprises in the process of skill development need to be closely aligned. In what follows, we will formulate six main policy recommendations that resulted from this research. In the last part, we will enter in detail in what concerns the specificities of each of the three studied groups in what concerns addressing digital skill gaps and defining training strategies for the WISE sector.

1

In the first place, promoting and building multi-stakeholder partnerships can create the conditions for a better collaboration between the WISEs and other VET providers, including regular companies and can increase the availability of digital skills in the WISE sector, but also in other sectors.

……………

A systemic approach should be adopted that tries to create multiple partnerships between different shareholders and to encourage the information sharing between different VET providers. In the broad sense, different shareholders can learn from each other. For instance, the way WISEs use technology to integrate persons with disabilities in work placement and the adapted training provision for the groups at risk of exclusion could be used in the traditional company sector. Since the use of assistive technology should already be practiced in schools, the stronger cooperation between WISEs and education providers would permit to update the programmes at all levels and sectors of education in order to include digital skills among the core skills required and in order to adapt the education and training offer to meet the changing needs. Previous research has already shown that the closer stakeholder collaboration between the worlds of education and of work could address the issue of skill gaps and skill obsolescence[88]. However, in our interviews, few WISEs answered that they cooperate frequently with education institutions in designing their training curricula and study programmes. Small-sized WISEs are less likely to cooperate with education institutions, while bigger WISEs such as the CAUTO tend to cooperate more frequently. This raises concerns because employers who rarely cooperate with education institutions to discuss curriculum design and study programmes are significantly more likely to be dissatisfied with the skills of their employees. Ensuring wider participation of employers in study programmes that involve sector-specific work placements or the acquisition of practical experience by individuals could result in a lower incidence of digital skill gaps. Therefore, WISEs should cooperate more frequently with education institutions in designing their curricula and study programmes (particularly in relation to state-of-the-art sector skill needed in the relevant industry). A broad collaboration between WISEs and higher education institutions exist in some countries. For instance, in Belgium and Italy, several universities have included courses and programmes on social enterprise, including practitioner-oriented training modules and social enterprise are also developed through courses and activities in higher education schools.

2

Campaigns should be established with the support of the European institutions and funding in order to raise awareness within and outside the WISE sector on the importance of the use of digital technologies to support persons with disabilities and groups at risk of exclusion in work placement and to improve business performance, productivity and transparent management, and on the need for new digital skills in the workplaces in relation to new digital technologies.

These awareness-raising campaigns should also sum up the available technologies and promote the use of learning technologies in training and job couching provision. It is important that the persons with disabilities in work placement are fully aware of and able to benefit from all that

technology and, in particular, assistive technology, has to offer. Since most of the enablers within WISEs have limited knowledge on technological innovations such as Internet of Things (IoT), these awareness-raising campaigns could benefit them.

3

Easing the access to funding for accessing digital technologies and framing new training for acquiring digital skills is an important challenge that should be addressed by decision-makers.

Our research has shown that, in most of the cases, WISEs do not have the financial capacity to invest in digital technologies. The cost of AT (especially of specialist AT, that helps to overcome a specific impairment, but also of mainstream equipment such as basic smartphones) is a barrier to improving the work insertion of persons with disabilities. Financial mechanisms such as loans and grants should be used to enhance their access to digital technologies, especially for small-sized WISEs.

Facilitating access to funds (including EU funds) to support more investment in digital technologies and the development of new training programs would permit to cover the digital skill gaps in the WISE sector. Providing simple funding mechanisms and funds to support technology provision in poorer countries and offering financial incentives to support entrepreneurship are also important aspects that should be taken into account by decision makers.

4

Assuring a design-for all approach in what concerns technology and a human centred process technological innovation should be part of the strategy to overcome digital skill gaps in the WISE sector.

This implies adapting digital technologies to the needs of the individual. For instance, WISEs can collaborate with some companies such as the Apple company, whose products (smartphones, tablets, notebooks, desktop computers and other devices such as watches and TV adapters) are provided from the beginning with assistive technology. As a general rule, the planning of the accessibility of software and hardware by IT staff, developers and engineers must be considered and implemented. Such a "design for all" should be common but is still forming the exception. Enablers should be aware of the fact that very simple technology and mainstream technology can be helpful with reduced costs, even if; in many cases, they tend to focus on specialized technology. Encouragement for

developers to produce free of charge (minority language) technologies, research on more effective provision of technologies and personal assistance can also lead to a step forward towards the design for all technology and the human centred process technological innovation. WISEs can seek independent advice from specific charities, research centres and support organisations. Assuring a design-for-all approach does not concern only the decisions taken at the level of the WISEs because WISEs need support from national governments and international stakeholders. The rapid innovation and mass-marketisation of technology will only happen if the national governments will make concerted efforts to stimulate entrepreneurship and focus on driving forward advances in technology[89].

5

Providing training (both in the form of on-the-job training and development programmes and external training) appears to be the most common and effective action undertaken to tackle the digital skills gaps within and outside the WISE sector.

Providing a general access to training for acquiring digital skills to all the members of the WISEs would help tackle the current and future skill gaps and can cope with the rapid advances in digital technologies[90]. Training on how to use mainstream technology in the WISE environment should be mandatory and organised on a regular basis, not optional and project based as it is currently provided in most of the WISEs. Information about existing training initiatives within and outside the WISEs and procedures to access them should be made widely available. WISEs could collaborate with NGOs

and association (e.g. Hft in UK has an extensive training provision in digital literacy and the use of different applications) in order to broaden their training provision and overcome financial difficulties in providing adapted training. In particular, WISEs should pay attention to the needs of the older workers[91] that are in a more vulnerable position in what concerns their use of technology. Technological change, combined with the long period out of formal education, requires older workers in particular to update their digital skills.

6

Including digital skills in a wider skills strategy is important in a sector that focuses on the social inclusion and social good. Although it remains crucial to develop a range of specific digital skills, these digital skills should be embedded in a broader skills strategy in which other transversal skills such as social skills or management skills are also included.

Evidence shows that the most effective means of closing skills gaps are more generic measures aimed at improving the capacity of workers to acquire new skills[92]. Therefore, key digital competences should be embedded in all the work-related practical skills or competences. At the same time, a broader and comprehensive strategy on digital skill needs would permit to change the perception of some supporters that think that digital devices are replacing human contact and solidarity. In the case of persons with disabilities and groups at risk of exclusion, the combination between social and digital skills would help them to join online clubs and to escape social isolation. In the case of the enablers, digital skills should be connected to the managerial skills. In particular, soft skills development and a combination of technical background with practical experience are central to a successful training programme. At the same time,

considering the rapid advances in digital technologies, it is essential that developing digital literacy is not seen as a one-off initiative, but rather an ongoing process. One challenge that emerged during our fieldwork consist in the fact that digitalisation and digital skills appeared as ambiguous terms and our interviewees included different competences within them. One possible solution to this challenge is to refer at the European Union framework in order to have a common understanding of what constitutes digitalisation and digital capabilities. The Digital Competence Framework for Citizens, also known as DigComp, was first published in 2013 by the European Commission and it aimed to improve citizens' digital competence, to assist policy-makers to formulate policies that support digital competence building and to develop national digital education strategies for education.

Recommendations for strategies adopted at the level of management

The challenge of the digital skill gaps is internal to the WISEs because skill gaps tackle the underskilling of the already existing workers, not the hard to fill positions by external candidates which refer to skill shortages and rather to external factors. This is the main reason why the decisions taken

at the level of management of the WISEs are important for addressing digital skill gaps. The existing digital skill gaps are likely to increase in the future and it is likely that the overall balance of skill demand and supply will also change over time due to evolving technologies. Since both

employees and employers will need to embark on the development of new skills and since digitalisation is likely to increasingly affect digital needs in the WISE sector, effective leadership and change management are required in order to create strategic decisions regarding digital literacy.

At present, many WISEs do not have strategies concerning the use of technology. WISEs need, at both the macro and micro level, to demonstrate clear strategies with regard to improving the digital literacy of their workforce. At the same time, tackling the existing digital skill gaps involve reflecting on the organisation's business and innovation strategy because innovative business and market strategies would lead to better organisational performance outcomes and this can lower levels of digital skill gaps[93]. In order to formulate a strategy for addressing digital skill gaps, managers should start by identifying the existing digital capabilities within WISEs and the transferable skills that can be transitioned into a digital work context.

Identifying the existing digital capabilities within the WISEs appeared as a necessity during our fieldwork because many WISEs (especially the smaller-sized ones) do not organise frequent surveys to test the digital needs and gaps of their workforce. The next steps involve developing a capability framework (digital skills to be attained), which will cover all of those who work in the WISE sector. The digital capabilities need to be acknowledged and embedded within VET curricula and job design to ensure that the persons with disabilities and the groups at risk of exclusion enter the workforce with both the necessary skills and learning attitudes. The implementation of a suitable definition of accessibility of technology is important in all development, planning and procurement processes. Ensuring the accessibility of technology requires both a flexible system that is also up to the pace of innovation and a willingness to implement the inclusive approach. WISEs can also have a professional advisory to anchor the skill requirements in a practice-relevant manner through the new technologies.

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One of the problems that emerged during our research and fieldwork consists in the lack of motivation of some employees to use technology and to gain new digital skills. Employees need to have a positive attitude towards learning and to possess appropriate motivations that will enable them to be adaptable in response to skills development. Workers' learning depends on individual attitudes, but also on whether the organisational context is supportive of the learning process (through intercollegiate learning, supervisory support, informal learning). Since many of our interviewees have stressed that the persons with disabilities and those coming from groups at risk of exclusion lack the motivation for gaining new skills, it is fundamental to foster a general learning climate in the workplace, with emphasis on management provision of support for employee learning opportunities and via mutual learning. Therefore, managers/social entrepreneurs should aim towards the articulation between a learning climate and the appropriate access and learning opportunities provided, while also enabling a balance between work and life responsibilities since work-life conflicts may lead to increased skill gaps. Creating a learning climate where informal learning is also taken into account is eased by the horizontal participation of workers to the decision-making and activities of the WISEs. Nevertheless, even if the transparent and decentralized management is considered as one of the particularities of the WISEs, in many cases the participants in the work integration process seldom have an actual influence on the decision making, except for being regularly heard during meetings and discussions[94]. Managers, developers and IT staff will benefit themselves from the learning climate because this would help them improve their own digital skills and focus on a human centred process technological innovation where the need of every worker is taken into account.

Lastly, the attempt of strengthening the talent pipeline, both from outside (via the cooperation with employer associations and education and training institutions) and from the inside (through provision of vocational training to staff in lower-skilled posts; defined career progression paths, greater reliance on sourcing unexploited talent of groups at risk of exclusion) can also play a role in the strategy to address digital skill gaps in the sector. The focus on the talent management and workplace innovations, such as job carving and job crafting, can be used for better matching the skills of the employees and avoiding skill gaps.

Recommendations concerning the digital skills of persons with disabilities and groups at risk of exclusion

The different categories of groups at risk of exclusion have different digital skills needs and gaps. Some persons have limited opportunities. For instance, it is more difficult to activate and integrate in work placement programs the persons with disabilities and the groups at risk of exclusion situated in the rural areas. On the opposite, highly skilled groups at risk of exclusion will be given improved employment opportunities if they are capable of coping with highly complex work demands, of dealing with the newly developed techniques.

Furthermore, new employment opportunities can arise in the area of simple activities for instance in the fields of courier services, packaging and storage due to the growing internet mail order.

In order to address the challenges that come together with digitalisation, WISEs should think at their future paths. On the one hand, persons with disabilities need access to adapted training with the use of easy language, symbols and pictograms, small educational films that could

adapt technological advances to their level and needs. On the other hand, social entrepreneurs should consider in advance and frame strategies concerning the sectors of activity where they can extend their work since part of the occupations, such as simple office work in the field of booking and document storage, which could be done by persons with disabilities and by persons at risk of exclusion with lower education level, will disappear in the course of digitalisation.

Recommendations concerning the digital skills of the supporters

Apart from the need of receiving more training, awareness-raising campaigns within the WISEs can change some basic assumptions that supporters have on the use of technology. In some cases, supporters are afraid of job losses, being replaced by technology, empathy and social contact being

replaced by automatisation. Politicians and people in social care themselves should raise awareness on how technology can be used to support persons with disabilities and groups at risk of exclusion in an innovative, but also inclusive manner.

ANNEX 1

List of the consulted actors

Poland

BARKA FOUNDATION

A non-governmental organisation created in 1989. Its mission is to offer support for social development of excluded groups, build conditions to enable them to rebuild their lives by creating a system of mutual help, education and entrepreneurship. The objective is to create a system of support for the process of integration of excluded groups. This system includes about 5000 persons annually (gathering persons in life crises, informal groups of citizens, non-governmental organisations, representatives of the government at national and local levels).

The main areas of activity include promoting social entrepreneurship and vocational integration in social enterprises as well as the social and solidarity economy and supporting activities for immigrants.

Lithuania

LITUANIAN FORUM OF THE DISABLED (LNF)

A non-profit, voluntary, independent, and non-political association that unites Lithuanian non-governmental organisations, academic establishments, institutes and individuals acting in the area of social integration (including employment) of people with disabilities.

LITHUANIAN SOCIAL ENTREPRENEURSHIP ASSOCIATION

(Lietuvos socialinio verslo asociacija) is an organisation that contributes to creating a supportive environment for social enterprises in Lithuania.

REGSEDA UAB

A social enterprise established in 1959 that creates and maintains jobs for people with various disabilities in the field of packing, assembling etc. It aims to carry out activities that secure jobs for people with various disabilities, promote the reintegration into the labour market and social integration of economically inactive persons who personalised compete on equal terms in the open labour market.

Belgium

GROEP MAATWERK

The umbrella organisation that represents 48 "customized work companies", previously known as "sheltered workshops" that employ +/- 21.000 people, whereof 18.000 persons with disabilities. They also have a training centre for people with disabilities and for job coaches.

GROUPE TERRE

A group of associations and social enterprises with the mission to give everyone a place in society, in particular of people experiencing exclusion and poverty; to promote the social and solidarity economy; to develop local and international solidarity; to preserve the environment and encourage a responsible attitude. It develops economic activities based on a participative decision-making and management (direct democracy); implements capacity building actions (training, support, etc.), develops production chains that respect natural resources.

LA FÉDÉRATION BRUXELLOISE DES ENTREPRISES DE TRAVAIL ADAPTÉ (FEBRAP)

The representative organisation of 11 customized work companies (ETA) that was created in 1991. Its objectives are: to promote the work of people with disabilities, to defend the interests of customized work companies, improve well-being at work for people with disabilities through numerous actions carried out in terms of professional and psychosocial training, adaptation of work stations and prevention and protection at work, FEBRAP intends to improve the well-being at work of the target groups. FEBRAP is active in promoting customized work companies, both in terms of private partners and public administrations, in particular through raising awareness of social clauses. FEBRAP seeks to favour synergies, collaborations and exchanges between customized work companies.

Italy

OPIMM

A non-profit, private law entity, issued by the Church of Bologna. Since its establishment in 1845, it promotes the personal and professional development of people at risk of exclusion and persons with disabilities through training and work placements. Since 1967, it has made more than 500 job insertions.

CAUTO

an organisational model that brings together and aggregates the consortium of 3 social cooperatives born in Brescia in 1995. The cooperatives provide job placement, with the aim of generating social inclusion and greater well-being for all. The CAUTO cooperative offers activities and services in the ecological field and allows to promote people's working, social and economic life and at the same time to take care of the environment. Cantiere del Sole is a social cooperative for job placement which since 2003 has been designing innovative energy and construction solutions, developing technologies and know-how for saving and reducing waste. Medicus Mundi Equipment is a cooperative that carries out work placement projects for fragile people, through the recovery, review, testing and transport of health equipment from hospitals and health facilities to impoverished countries.

Finland

VATES FOUNDATION

An expert organisation established in 1993 by national associations, social enterprises and organisations for the equal employment of people with disabilities, long-term illnesses and people with partial work capacity. Their modes of activity are development, advocacy, training, dissemination of information and active networking. It aims to provide a holistic approach to support individual pathways through rehabilitation and vocational training, aiming at employment in mainstream workplaces, job coaching and supported employment.

THE SERVICE FOUNDATION FOR PEOPLE WITH AN INTELLECTUAL DISABILITY (KVPS)

Founded by Inclusion Finland KVTL which is a non–governmental organisation aiming to promote equal opportunities in society for people with intellectual disabilities and their families.

United Kingdom

ROYAL BRITISH LEGION INDUSTRIES

A social enterprise activating in the manufacturing sector that provides employment and career opportunities to Armed Forces Veterans and people with disabilities. The enterprise supports those struggling to adjust to civilian life, while also offering a range of accommodation and employment support and training to those out of work.

HFT

A national charity providing services for people with learning disabilities. The charity focuses on the concept of Person–Centred Active Support (PCAS) as a way of supporting people so that they exercise more control over their lives and experience greater levels of inclusion, independence and choice. Hft uses technology to support their target group and conduct detailed personal assessments of the people they support, working with them and their families and support staff to find creative ways for technology to improve their lives.

THE EUROPEAN NETWORK OF SOCIAL INTEGRATION ENTERPRISES (ENSIE)

The European Network of Social Integration Enterprises (ENSIE) has the objective to reinforce the power of the actors in economic social integration enterprises through the interchange between the member organisations, to stimulate co-operation and partnerships by promoting proper practices, research results, new applications, to organise the exchange of information on the legislative national and local policy levels between member organisations.

STEVE BARNARD (UK)

an independent consultant providing advice and support in all areas of social care and policy with a specific focus on the use of technology.

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61.   Interview conducted with OPIMM in Italy.

62.   Interview conducted with a manager of LNF in Lithuania.

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94.   This was stated also by previous research. For instance, see Pättiniemi P. (2004), Work Integration Social Enterprises in Finland, EMES, WP no. 04/07.