Research Report on Best Technological and Functional Practices on Online ICT Competences Assessment Standards for NGOs

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1 INTRODUCTION

1.1 Context of the study

This report has been elaborated within the “ICT4NGO” project, co-financed by the European Union in the framework of the Erasmus+ Key Action 2: “Strategic partnerships in the field of education and training”. The project is implemented by five partners:

— Fundacja TechSoup (Poland – project leader);
— Haus des Stiftens (Germany);
— Les Ateliers du Bocage (France);
— SocialTechno (Italy);
— Fondacija Mozaik (Bosnia and Herzegovina).

The project aims at contributing to the development of digital skills amongst NGO staff (voluntary as well as non-voluntary) through the creation of an experimental training programme, supported by a specialised ICT-portal which diagnoses and recommends paths of digital competence development for individuals. To develop the abovementioned tools based on research evidence and real needs, the partners elaborated this report.

1.2 Definitions of ICT and NGO

In this chapter, the two terms most important to this report have been defined. As many differences exist between the partner countries, the partners agreed on the following definitions.

ICT - information and communication technology. The term “ICT” has many different meanings. As Colrain M.Zuppo states\(^1\), the term has been utilised within diverse contexts including economic development, skills, IT, business and personal usage. In the context of this report, ICT will be defined as hardware (e.g. computers, smartphones, tablets), software/systems (e.g. operating systems, office software) and online content (e.g. Internet incl. social media) allowing people and organisations to work and interact in the digital world.

NGO/NGOs – non-governmental organisation/s.

There is no agreed definition of non-governmental organisation on the level of the European Union. The definitions and terms used in the countries represented in the ICT4NGO project also vary (e.g. the Balkan countries frequently use the term “civil society organisation/CSO”). However, the project partners agreed that the term NGO can be defined using the following characteristics included in Regulation (EU, Euratom) No 966/2012 of the European Parliament and the Council:\(^2\):

— NGOs are not created to generate personal profit. They may have paid employees and engage in revenue-generating activities; however, they do not distribute profits or surpluses to members or management;
— NGOs are voluntary. This means they are formed voluntarily and that there is usually an element of voluntary participation in the organisation;
— NGOs are distinguished from informal or ad hoc groups by having some degree of formal or institutional existence. Typically, NGOs have formal statutes or other governing documents setting out their mission, objectives and scope. They are accountable to their members and donors;
— NGOs are independent. In particular of government and other public authorities and of political parties or commercial organisations;
— NGOs are not self-serving. In aims and


related values. Their aim is to act in the public arena at large on concerns and issues related to the well-being of people, specific groups of people or society as a whole. They are do not pursue commercial or professional interests of their members.

NGOs include (i.a.): foundations, associations, non-profit enterprises, charities (charitable organisations).

1.3 Purpose of the study

The main purpose of this study is to provide reliable data, conclusions and recommendations useful for developing the main products of the project: an online ICT competence self-assessment portal together with an ICT Competence Assessment European Standard Guidebook for NGOs and ICT4NGO training programme.

The study stresses the importance of ICT competence development of NGO stakeholders. To this end, the document examines the effectiveness of awareness-raising efforts for improvement in ICT.

It also aims at:

— strengthening the role of adult educators within NGOs, empowering them through a new technological approach;

— defining an ICT role, specifically in the field of educational practices related to the social sector, and a validation process of this new professional profile.

1.5 Study scheme – step by step

The main logical assumption of the report is the move from general and global issues to more specific and local issues.

The first step of the study was to analyse the most important worldwide trends in ICT over recent years. The analysis provides information on the latest trends that should be considered when measuring the NGO staff’s ICT skills and needs. The selection made by the partners include: digital transformation, cloud computing, 3D printing, Open Badges and Internet of Things. These trends have been described in chapter 2.1 and the conclusions in that chapter show which trends may be the most useful for NGOs in the future.

The subsequent chapters (2.2 and 2.3) are dedicated to an analysis of NGO competences and needs in the field of ICT. Each of the partner countries has prepared their own analysis and the conclusions from these chapters list the most prominent issues relating to each country.

Next is a description of the best practices in partnering countries as relating to ICT adult education as well as the existing tools of ICT skill assessment (chapter 2.4). A summary of the chapters' analyses discusses which of the previously mentioned solutions could be most useful in the preparation of a skill assessment tool and the development of a training programme for NGO staff. Also, conclusions from the evaluation of a training programme similar to the one developed within the ICT4NGO project have been included (chapter 2.5).

In chapter 2.6, good practices of ICT skill validation are presented, which can serve as a framework for the diagnosis of ICT competence as well as for evaluating learning outcomes of the developed training programme.

Finally, in chapter 3, a summary of recommendations has been presented, as well as an Executive Report in chapter 4.
1.6 Methodological approach

The research task was conducted between January and May 2017 and followed research methodologies guaranteeing high scientific standards of the product. This document is based on two research methods:

1. Desk research of statistical data, reports, analyses, websites and good practice examples;
2. Semi-structured interviews with selected experts and NGO staff (a total of 15 interviews have been carried out).

The intellectual output of this report is dependent on the completion of the following tasks:

1. Defining a competence model for adult learners;
2. Conceptualizing and defining ICT competences for NGOs;
3. Desk research in the European Union (and world) on ICT trends;
4. Use of the Delphi method (expert forecasting, unstructured interviews with experts and academics on ICT trends);
5. Preparation of a draft of the research report;
6. Peer-review of the draft of the research report (5 experts in the field, 1 in each country, produce opinions on the report);

The research has chiefly been conducted in the five partner countries: Bosnia and Herzegovina, Germany, France, Italy and Poland. The Bosnian partner also provided data for other countries in the Balkan region (Albania, Montenegro, Croatia, Serbia, Macedonia, Kosovo). Questions arise if the geographical scope of research allows the recommendations to be extrapolated to all EU/candidate/neighbouring countries. The project partnership is composed of organisations from different countries – there is a balance between the relatively new Eastern Bloc member countries of the EU (Poland, Bosnia) as well as the economically, technologically and socially strongest countries (Germany, France, Italy). The recommendations and summary (see Executive Report) also include notable differences between the countries.

It is important to note, that every partner has contributed to the report by elaborating parts describing state-of-the-art in their countries. The partners worked on different scopes of data, according to the available studies (as there is no comprehensive study regarding the report topics for the whole of Europe or EU). Therefore, individual parts and findings may vary (e.g. in some partner countries no research on NGO ICT skill and potential is carried out on a regular basis and therefore the query of reports has been supplemented with data from newer articles and short reports).
2 RESEARCH FINDINGS

2.1 Global trends in ICT

This chapter is dedicated to global trends in ICT which were selected by the partners as the most significant at the time of report elaboration. The analysis of global trends allows us to shape the training programme developed within the ICT4NGO project, allowing the participating NGOs to gain skills connected with these trends.

2.1.1 Digital transformation: Connected Non-profit

Stolterman and Croon Fors define digital transformation as “the change associated with the application of digital technology in all aspects of human society”\(^3\). Digital transformation is the current stage of development of digital technologies. The first stage was digitisation – the conversion of analogue data into digital data. During this stage, digital competences were necessary, i.e. ICT tool usage skills. The second stage, digitalisation, relates to the process of technological change (e.g. Industry 4.0, Big Data). This stage requires more developed technological skills. The final stage, which the world is entering currently, is digital transformation – a total change in which digital technologies are no longer merely support for traditional work but are themselves the basis for this work, enabling the development of new and innovative products, services and processes. This current trend is also very important for the NGOs.

The digital transformation trend in the NGO sector is commonly called “Connected Non-profit”. The term is well explained by the experts from Salesforce:

In the past, non-profits used an array of siloed technologies to store, manage and analyse data across departments, resulting in complex, fragmented, and oftentimes unmanageable sets of solutions. With the adoption of cloud technologies and centralised systems we are now seeing non-profits that work cross-functionally, that communicate better and are working towards a common goal. This new ‘Connected Non-profit’ is fast becoming the industry norm.

As we can see, cloud computing is a fundament of NGO digital transformation but it is not its essence, only one of its important tools. Digital transformation is rather a new way of thinking supported by many tools. The main point of digital transformation is that not only are the services provided in digital form, but the whole service model (and thus the operation model of the organisation) is digitally-based. In his presentation on digital transformation in NGOs, Alan Chan, the Public Sector Director of Microsoft Hong Kong, explains that there are two main questions:

— How are your services being digitally transformed?
— How is your service model being digitally transformed?

According to Jacinth Moses, “Digital Transformation and digitisation is a revolution which requires a major culture change across the organisation. The concept essentially forces the midlevel and frontline employees to change their way of working and decision making. It changes the way customer interaction happens, how the supply chain works and how the organisations innovate, design and manufacture”.

The start-ups have a developed sense of strategic thinking about their products/services as digital, and thus their project management is more digital than that of the NGOs. This may be a weak point because some of the NGOs are not convinced of a business way of thinking and want to “separate” themselves from the business sector. Due to the specific individual characteristics of the NGOs, it is debatable whether they should transform their way of thinking towards being more business oriented. It is possible, however, that the future will bring new ways of digital transformation which is strictly related to each charities’ way of thinking.

The key areas of digital transformation in the NGOs are:

— Internal digital management of the organisation, staff and volunteers – this relates to using cloud-based tools for communication and task management (e.g. tools like Trello, Office 365), but also using project management methods developed for

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the ICT sector (e.g. agile contracts, scrum management);
— Digital optimisation of the processes within NGOs (including automation of processes thanks to machine learning – finding similar behaviours and replacing them with algorithms);
— Using cloud-based and digital tools for engaging beneficiaries and partners;
— Digital crowdfunding such as gamification (e.g. an online game incorporating donations or support of non-profit activities in other ways – vide The Sea Quest);
— User experience and communication management (when the beneficiaries of the NGOs are regarded as “users” and “customers” a new field arises – to provide beneficiaries with the best possible experience, fast “omnichannel” communication, personalisation of services, evidence-based CRM – analysis of the user experience and user path etc. (e.g. Microsoft Dynamics CRM online);
— From promotion to digital storytelling (the ability of an NGO to tell their story in fewer words and more images, possibly interactive – e.g. Canva, Infogram, Datawrapper, Tableau Public).

2.1.2 Cloud computing

By definition, “cloud computing is a type of Internet-based computing that provides shared computer processing resources and data to computers and other devices on demand. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources (e.g., computer networks, servers, storage, applications and services), which can be rapidly provisioned and released with minimal management effort. Cloud computing

Monitoring, evaluating and learning from communications is not going anywhere soon. The great news is that measuring the impact of our digital communications is becoming easier thanks, in part, to a growing number of readily-available digital tools. For instance, HTML publications (rather than traditional pdfs) now mean we can see which specific sections of a publication are most read by users. This could help us to better tailor publications for different audience groups or show just how much the executive summary gets read. Tools have their limitations, but they can help us to adapt our strategies, something we need to be doing regularly to ensure that our communications have an impact⁵.

and storage solutions provide users and enterprises with various capabilities to store and process their data in either privately owned, or third-party data centres that may be located far from the user – ranging in distance from across a city to across the world. Cloud computing relies on the sharing of resources to achieve coherence and economy of scale, similar to a utility (like the electricity grid) over an electricity network⁶. These type of technologies allow maximum mobility for users, as well as easy management for IT administrators. It is also important to mention the affordability of such products, as they decrease the high cost of hardware and software that allow server infrastructure. Many NGOs are working outside of an office environment, which makes cloud computing one of the best solutions for daily work and communication, as well as data sharing. Some of the major advantages of cloud computing are as follows:

**Low-cost Computing**
To set up the necessary infrastructure, NGOs and religious organisations need to make sure they have enough finances in their budget. Cloud computing enables them to utilise a low-cost option, avoiding expensive initial investment. One exceptional possibility that the cloud offers is the pay-per-use model, allowing NGOs to quickly set up world-class technologies, paying only for the services used.

**Seamless Integration of Tools**
NGOs are able to seamlessly integrate every IT tool in an infrastructure through the cloud. This integration allows the organisation to effectively cooperate with and engage everyone within the organisation, resulting in effective internal and external communication. This way, it is possible to process and easily manage data collected from multiple devices, people and teams.

**Scalable Resources**
In cases of natural calamity, it is often an NGOs’ and/or religious organisations’ responsibility to provide services and support for thousands of affected people. The cloud easily facilitates scaling of resources during these times. With vertical and horizontal scalability, NGOs can scale up resources to meet changes in organisational needs.

**World-class Technologies at the Desk**
The cloud brings world-class technologies at cost-effective prices. NGOs enjoy the luxury of laying their hands on cutting-edge analytical software to track and analyse large volumes of data, enabling them to provide customised services to their audience. This will help them to identify, and also reach, the unreached.

TechSoup Global conducted research in 2012, which showed that the NGOs are interested in migrating to the cloud but need more resources for the implementation of new technologies. Key results of the 2012 Global Cloud Computing Survey prove that:

— 90% of respondents worldwide are using at least one cloud computing application.
— 53% report plans to move a “sizeable portion” of their IT to the cloud within three years.
— 60% say lack of knowledge is the greatest barrier to greater use of the cloud.
— 79% say the greatest advantage is easier software or hardware administration.
— 47% say cost-related changes and ease of setup would be the greatest motivators for moving their IT to the cloud.
— NGOs in Egypt, Mexico, India, and South Africa have the most accelerated timetables for moving their IT to the cloud⁷.

This survey alludes to Non-Governmental Organisations requiring more knowledge regarding cloud computing and that this

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obstacle is one of the main challenges for the organisations.

Our interviews with experts also provided some valuable information regarding cloud computing and its usage in the NGO sector.

Amongst the experts consulted was Sadik Crnovrsanin, an international IT expert with 15 years’ experience in IT consultancy. His experience in IT infrastructure ranges from banking and government tax system development to projects throughout the NGO community as a consultant in the development of online platforms.

According to our interviews regarding trends in cloud technologies, Mr. Crnovrsanin responded that automatisation and process management systems strive to be easier to understand and implement. In doing so they provide a more user-friendly method of monitoring processes and project management.

The increasing trend towards cloud computing is also important as it allows for greater levels of transparency of NGOs, due to data being easily shared in real-time. This is particularly applicable in the Balkan region where some NGOs, according to public opinion, are reputed to be less than 100% transparent with their funds.

In this expert’s opinion, the main challenge in further mobilisation of cloud computing tends to be a lack of knowledge within smaller NGOs, as well as a poorly developed infrastructure in rural and remote areas.

In interviews conducted with Mr. Amel Lulic, a senior IT consultant for several NGOs in Bosnia and Herzegovina, we are provided an insight into new trends both regionally and globally.

In his opinion, products and software are increasingly trending towards cloud computing. Users are relying more on cloud applications and web browsers for access rather than the traditional locally installed software and infrastructure.

In terms of the benefits for NGOs, he states that this trend facilitates the use of more advanced infrastructure and services without incurring high implementation costs and costly hardware funding. For NGOs with limited funding for IT equipment and services requiring large scale IT implementations this has very positive ramifications.

Another advantage of Cloud based infrastructure and software, according to Mr. Lulic, is the possible development of semi-ready and customisable tools and templates, the availability of which would enable NGOs to tailor these according to their individual needs.

In conclusion, cloud computing is a growing trend in ICT. It allows flexibility, lowered costs, scalability and more accessible resources. Furthermore, it could provide many solutions in the NGO sector, particularly in day to day processing, and enhance functionality while minimising financial investment from the organisations. It is important to note, however, that mistrust towards cloud computing is profound amongst NGO staff, in particular relating to data security and privacy protection. These are both issues of importance that must be addressed.

2.1.3 3D printing

The technology behind 3D printing has roots that go back decades. For many years it has appeared to be more of a novelty than a practical tool in the
The main innovation will be the massive introduction of bio-printing, which is the use of 3D printing to realise organic tissues and cells that are used to create organs, human limbs and “spare parts” for the human body. At the same time, there will be a significant increment in the usage of 3D printing within “traditional production systems”, such as the metal industry, where almost every CNC system will be replaced by an additive production system based on 3D printing.

Today, many components in the automotive industry, like airplane wings and engines, are already made through a 3D printing process. In the near future, this technique will be implemented to create almost every component in these industries.

Last, the supply chains will be completely revolutionized by the introduction of 3D printing on the production line. 3D printing will be used to add “on the fly” customised details to pre-made components in order to reach a real mass-customised production.

3D printing is an additive manufacturing technological process based on the “layer by layer” production of polymeric materials, metal alloys, biological materials, etc.

Today, 3D printing plays a fundamental role in pushing the transition of global industrial systems towards smart manufacturing by introducing on-demand production which can be realised with a distributed and dislocated perspective.

Whereas earlier 3D printers created one-off trinkets, souvenirs and little else, current 3D printing presents compelling business opportunities and companies that wait too long to explore the potential could be missing out.

According to the Wohlers Report 2015, researchers estimate that the 3D printing market will reach $13 billion in 2018. The primary market – which includes 3D printing systems, materials, supplies and service – has grown at least 30% each year from 2012 to 2014. The rest of the growth comes from the secondary market, including tooling, moulding and casings.

Western countries (North America and Europe) account for more than two-thirds (68%) of the 3D printing market revenue while Asia Pacific accounts for 27%.

Because of these “megatrends”, it is feasible that a new faction of NGOs will arise. These organisations will be involved in pushing the diffusion of 3D printing as an affordable way to sustain auto-production, especially in new developing countries. From this perspective, 3D printing will help many humanitarian NGOs to achieve their mission by, for example, enabling the production of prosthetics for those who cannot afford the purchase of titanium implants.

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* Emilio Antinori, lecturer of production methods and processes at Università degli Studi della Repubblica di San Marino. Interviewed by Authors on March 21st, 2017
This trend will influence the ICT competences of NGO personnel in several ways. Most importantly, people involved in such organisations will require competence in 2d and 3d modeling software. Remote working will be standard operational procedure as 3d printing allows the separation, both spatially and temporally, of the engineering step from the production one. In turn, this will mean a requirement of capability and proficiency in the use of cloud work environments which rely on web-based software for knowledge sharing and project management, since impromptu tasks such as “connecting to a cloud workspace”, “sharing files or data with colleagues” or “following a project advancement” will be a standard.

In addition to affordability, this diffusion of 3d printing would also facilitate an important exchange of knowledge and technology. Engineers in developing countries would be able to design spare parts or whole mechanical systems which could be integrated and improved by engineers the world over then printed locally. Such a process would serve to minimise logistical costs and make globally available the most current and advanced engineering practices.

2.1.4 Open Badges: a digital tool for skill recognition

Recognition of formal and non-formal learning is a key aspect of lifelong learning; however, the assessment and recognition of such competences remains marginal and unequal. Thanks to ICT there are existing and developing solutions allowing more global and widespread recognition of these concepts. In order to ensure ICT is an asset for people involved in non-profit organisations we need to look beyond competence assessment as a stand-alone evaluation tool. Hence it stands to reason to focus on recognition tools such as Open Badges.

Open Badges’ definition

Open Badge is a standard based on the Digital Badge concept created by the Mozilla Foundation in 2011. Digital Badges are connected and verifiable credentials of accomplishment, skill, quality or interest that can be earned across various learning environments. “Some say that digital badges have been originally inspired by scout badges or military medals. Before
the creation of Open Badges, there was no existing tool able to provide a universal proof of recognition for formal and informal learning. Certificates or diplomas are always related to the learning process itself and to the organisation providing that learning, and so their recognition cannot be considered as universal”.

An Open Badge is “a digital object expressed by a pictogram and embedded metadata. Four main types of information have to be included:

- The recipient: the individual who is awarded
- The issuer: the organisation or person issuing the badge
- The criteria: the accomplishment recognised by the badge
- The proof: what the recipient has provided to meet the criteria”

Issuing a badge is very simple, “it takes about 2 minutes” when you have access to a dedicated portal. “The key point is to design the badge in a proper way. You have to spend valuable time to answer the questions: Who will receive the badge and what audience is targeted? For which purpose? What is the concerned ecosystem?”.

If the badge design is not relevant, it is nothing but an empty shell even if it remains “a means of recognition”.

Another critical issue is the recognition of the badge itself: “The badge recognises achievements, but it must be verified and accepted to become valid”. The digital object linked to this validity is called the “Badge Class”. A badge by itself does not guarantee that the achievement or metadata is recognised as a credible marker of success outside of the individual learning communities.

There are many ways of validation: “An Open Badge can be recognised by an organisation such as a university or a research institute, but it is also possible for an individual to get endorsement from colleagues, customers, teachers, or from anyone already accredited. That is why we can speak about a living certification included in an ecosystem”. Individuals and organisations who accept badges and offer opportunities in exchange play a critical role in the ecosystem. Through this process Open Badges can be turned into new collaborations, jobs, internships, and richer connections between lifelong learners.
“Eventually, a badge can be simply awarded (top down process) or requested (bottom up process) by providing evidence. You can realise that requesting is much better to ensure a better appropriation.”

Open Badge use cases today and beyond

Open Badges are designed to serve a broad range of uses, both academic and non-academic. Thousands of organisations across the world issue Open Badges, from non-profit to major employers to educational institutions at every level. The Open Badge movement is indeed driven by a community of contributors. Through these efforts badges have gained widespread interest and adoption by policy, technology, and education stakeholders.

Here are a few examples showing the variety of possible applications:

— The international NGO MSF (Médecins Sans Frontières) uses Open Badges to recognise skills acquired by staff. These professional skills are often developed outside the classroom while the people acquiring them are solving complex problems and/or saving lives. There was a lack of effective methodology in assessing and recognising these skills for the purposes of professional learning, navigating career pathways, workforce planning and knowledge management. MSF now uses technologies including PLE (Personal Learning Environments), ePortfolios and competence credentials using Open Badges. For more details: https://www.slideshare.net/dpressant/personal-learning-environments-powered-by-open-badge-enabledpl-ev21epicforupload

— IBM is convinced that “Open Badges is emerging as the IT industry standard to recognise achievements and nurture and progress talent”. The company has been employing this method for a number of years to recognise professional skills and knowledge and have found several areas where Open Badges provide significant benefits: increased verified talent for their clients, skill progression driven towards advocacy, increased crowdsourcing of innovation, motivated employees, the possibility of mapping available skills and specific gaps. Employee badges are claimed on LinkedIn. For more details: https://www.slideshare.net/DavidLeaser/open-badges-at-ibm-overview-for-external-audiences

As a disruptive innovation, Open Badges are reimagining ways to recognise learning beyond formal credentialing systems. Today Open Badges are still considered as an emergent technology and require further development for widespread market development and adoption. To further this work, IMS Global Learning Consortium will manage the evolution of the Open Badges Specification within an open-governance strategy. The aim is to create a global skills currency based on the Open Badges Specification, under the leadership of IMS members with the support of the Open Badges community.

One of the most exciting ideas under research and development being the possibility to build “a personal ledger to track individual levels of achievement, and utilise digital credentials in assessment”. Indeed, there are possible bridges between Open Badges, Digital Portfolio and BlockChain. Serge Ravet talks about “BadgeChain based on ‘Bit(s) of trust’ instead of bitcoins”.
“A badge can be considered as evidence of confidence due to the recognition by others. In that way the badging system is a chain of confidence, and so we could imagine the personal ledger as an online space – like a digital portfolio – where you manage your social capital made of ‘bit(s) of trust’.

As a conclusion for the ICT4NGO project, Serge Ravet is convinced that “an Open Badge solution could make sense to ease ICT skills recognition in non-profits after an assessment process is defined”.

2.1.5 Internet of Things

Recent times and technologies have seen an increase in devices connected to and through the internet (e.g. the smart light bulb, Bluetooth devices, smartphone operated heating systems). Internet of Things (IoT) refers to the series of sensors and network connections which allow these objects to monitor their environment, report their status, receive instructions and consequently act upon these instructions remotely.

According to the latest EITO report, the European market for IoT devices has increased by 34 percent within the last year, reaching a market value of 111 billion EUR. Projections have this figure doubling by the end of 2019.

In the coming years, IoT technology will globally affect every aspect of society and economy; however, it is important to note that the success of this technology is dependent on its broad acceptance in society and economy alike.

Interview: Global trends – Internet of Things
Olaf Kehrer, Managing Director, O&O Software GmbH, Germany

Can you briefly explain what the Internet of Things is about?
In a nutshell, Internet of Things means that computers communicate with each other and exchange information. A lot of computers talk to larger computers in order to exchange information, make decisions, and take actions. The human being is no longer involved in this.

What could you say about the Internet of Things at the present time?
Today people are using smartwatches or have already installed the Amazon dash button that lets them, for example, order new detergents for their washing machine. The order is, however, not being placed by a human but is sent from small electronic devices that are connected to the Amazon account. The US is far ahead of Germany in this regard, and that goes for both the personal as well as the industrial sector.

German industry is not that well advanced when it comes to the Internet of Things. Industry managers have recognised, however, where things are going and there are various new projects underway in certain sectors.

What will be the status quo of the IoT in ten years’ time?
Autonomous or self-driving cars are one example. Even German car manufacturers, such as BMW, are manufacturing cars with a self-parking system that takes over the parking manoeuvre from the driver. In addition, priority rules or traffic flow regulations will no longer exist because the self-driving flow of traffic will, for example, intelligently and autonomously interact with traffic lights. As of today, there are 15 billion connected devices – in 2020 the number of devices that are connected with the Internet and with each other will amount to approximately 500 billion.

What are the benefits of the IoT?
The boundaries between mankind and computers will become fluid and even disappear. There may no longer be any computers as such because they’ll be such a part of our everyday lives we won’t know they’re there.

What are the benefits of the IoT with regard to the non-governmental sector?
Above all, geriatric and child care can be improved and optimised with the use of computers. I am thinking, for example, about Carebots. These are robots that are specifically designed to assist elderly people. In addition, non-profit organisations working in crisis areas can, for example, use robots for mine clearance operations.

2.1.6 Conclusions

The main conclusions from this chapter:
1. The digital transformation trend, based mainly in cloud computing, is a revolution in the business sector. While still not wholly applicable to the NGOs, as their model of working differs from business, it is possible that the future will bring new ways of digital transformation which is more strictly related to the charities’ way of thinking. Some solutions (digital management of voluntary and non-voluntary staff, using cloud-based and digital tools for engaging beneficiaries and partners, digital crowdfunding) are very important and should be considered when creating tools for assessment and enhancement of ICT skills in NGOs;
2. Open Badges are a solution which can be very useful in the elaboration of ICT skill assessment and also in learning portals. They are a low-cost, attractive tool of recognition of skill levels;
3. Cloud computing is a growing trend allowing for flexibility, lowered costs, scalability and easy access to resources. It could provide many solutions in the NGO sector while minimising financial investment. There is currently profound mistrust towards cloud computing regarding the safety of data and privacy protection; these challenges must be addressed.
4. The remaining described trends - 3D printing and Internet of Things - are less important
for the present and near-future NGOs. 3D printing is very innovative and there are prognoses that it will revolutionise the supply chain of production, as well as some larger humanitarian NGOs. However, it will not be used commonly and a large amount of time is needed to popularise this trend among the organisations. The Internet of Things also concerns only a small portion of the organisations (e.g. those working in geriatrics and child care).

2.2 Competences within NGOs and usage of ICT

This chapter describes various aspects of using ICT in NGOs in the countries represented in the project, including computer usage skills, internet and social media use, etc. The chapter presents the strengths and weaknesses of ICT usage.

2.2.1 World context – usage of online solutions

ICT use is one of the key aspects in any modern work environment and a very important element in NGOs. Properly engaged, it is a powerful tool for raising awareness of critical issues as well as for the promotion of activities of NGOs. It greatly improves and strengthens the capacity of organisations, as well as their reach within society. ICT provides an opportunity to achieve better, more visible results in any ongoing project, regardless of the location or size of the organisation involved.

A separate yet important aspect of ICT concerns staff and volunteers, who play an essential role in the design and implementation of activities. These people depend on substantial levels of collaboration and coordination in their daily work and ICT solutions are able to provide immense help in the entire process.

Below we present some of the data on the usage of prominent online tools – especially internet and social media as well as NGO-specific tools. The state-of-the-art in the field of ICT is presented based on selected online tools because they are the most used, most important and fastest developing solutions in ICT.

<table>
<thead>
<tr>
<th>Country</th>
<th>Population (2015, est.)</th>
<th>Internet users 30.11.2015</th>
<th>Internet users as % of the population</th>
<th>Facebook users 15.11.2015</th>
<th>Facebook users as % of the population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>2 893 005</td>
<td>1 815 146</td>
<td>62.7%</td>
<td>1 300 000</td>
<td>44.9%</td>
</tr>
<tr>
<td>Bosnia-Herzegovina</td>
<td>3 825 334</td>
<td>2 628 846</td>
<td>68.7%</td>
<td>1 500 000</td>
<td>39.2%</td>
</tr>
<tr>
<td>Croatia</td>
<td>4 225 316</td>
<td>3 167 838</td>
<td>75.0%</td>
<td>1 800 000</td>
<td>42.6%</td>
</tr>
<tr>
<td>Germany</td>
<td>80 636 124</td>
<td>71 727 551</td>
<td>89.0%</td>
<td>31 000 000</td>
<td>38.4%</td>
</tr>
<tr>
<td>Italy</td>
<td>59 797 978</td>
<td>51 836 798</td>
<td>86.7%</td>
<td>30 000 000</td>
<td>50.2%</td>
</tr>
<tr>
<td>France</td>
<td>64 938 716</td>
<td>55 860 330</td>
<td>86.0%</td>
<td>33 000 000</td>
<td>50.8%</td>
</tr>
<tr>
<td>Kosovo</td>
<td>1 804 944</td>
<td>1 523 373</td>
<td>84.4%</td>
<td>560 000</td>
<td>31.0%</td>
</tr>
<tr>
<td>Macedonia</td>
<td>2 069 172</td>
<td>1 408 278</td>
<td>68.1%</td>
<td>1 000 000</td>
<td>48.3%</td>
</tr>
<tr>
<td>Montenegro</td>
<td>622 099</td>
<td>379 480</td>
<td>61.0%</td>
<td>320 000</td>
<td>51.4%</td>
</tr>
<tr>
<td>Serbia</td>
<td>7 111 973</td>
<td>4 705 141</td>
<td>66.2%</td>
<td>3 600 000</td>
<td>50.6%</td>
</tr>
<tr>
<td>Poland</td>
<td>38 005 614</td>
<td>25 666 238</td>
<td>67.5%</td>
<td>14 000 000</td>
<td>36.8%</td>
</tr>
</tbody>
</table>

Table 1. Internet and Facebook users in the partner countries and selected Balkan countries


13 The number of Facebook users have been rounded up due to being an estimation from sample-based research.
The chart below presents the main differences in NGO social media and online tool use in Europe, North America and Africa. One of the main differences between Europe and its benchmarks is that a relatively low percentage of European organisations accept online donations – they also hold differing views on whether social media is effective for online fundraising. The other significant difference is the popularity of Instagram – while in Northern America more than half of the NGOs use Instagram, in Europe it is less than one third.

2.2.2 Balkan NGOs ICT competences and usage

In the Western Balkans (countries including Bosnia and Herzegovina, Croatia, Serbia, Montenegro, Kosovo, Macedonia and Albania) the estimated number of registered NGOs is over 100,000.

There has been a constant increase in internet and technology usage between 2007 and 2012 in the West, this trend translates also to Central and Eastern Europe, the Balkans included. Data from 2015 from Internet World Statistics (Miniwatts marketing group) showing internet usage in Balkan countries support that research on matters technological is of great import to the area. Internet is widely used in the entire region and leads to the assumption that the use of technology is prevalent in, if not necessary for, all NGOs as well as for the project participants and its users. Another significant fact to be mentioned is that internet use exceeds 60% of the population in each of the Balkan countries, locally peaking at 84.4% of the population in Kosovo being internet users.

As for ICT competences of NGOs and the population in the Balkans, accessible information and research is basic. Relatively few studies have been performed in the evaluation of current ICT competences as pertaining to NGO employees, as well as the importance of ICT in strategy development.

Research from 2013 carried out on a sample of 1907 organizations by the National Foundation for Civil Society Development14 (leading

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14 [http://zaklada.civilnodrustvo.hr/upload/File/hr/vijesti_i_priopcenja/priopcenja/2012/Procjena.pdf](http://zaklada.civilnodrustvo.hr/upload/File/hr/vijesti_i_priopcenja/priopcenja/2012/Procjena.pdf)
ICT4NGO - ICT Competency Assessment Standard for European NGOs

A public institution for cooperation, linking and financing of NGOs in Croatia) states that 76.8% of organisations in the Balkan Countries use computers and 69.7% have an internet connection. More than 75% of staff use computers daily and speak at least one foreign language. The report marks the NGO staff skills to be satisfactory.

The report highlights that smaller organisations in rural areas are poorly equipped in comparison to their more substantial counterparts in urban areas. Also, the size of the organisation, its presence in the NGO field and number of employees are significant factors affecting the quality and quantity of equipment available as well as the frequency of usage of IT technology. Larger organisations, more established in the NGO field, are more satisfied with the quality of their equipment.

Additional research on NGO needs has been conducted by TACSO in seven countries (Bosnia and Herzegovina, Croatia, Albania, Macedonia, Kosovo, Montenegro and Serbia) within the EU funded project: Technical Assistance for Civil Society Organizations (TACSO) in IPA Countries (EuropeAid/127427/C/SER/Multi/5) and implemented by SIPU International. This research focused on needs in a civil society capacity.

The aim of the study was to provide a comprehensive assessment of civil society in Serbia and the environment it operates in. This includes its strengths, weaknesses, impacts, challenges and development up until now.

The study shows that human resources in NGOs in every country depend mostly on volunteers and that there is a constant flow of personnel through these organisations. Furthermore, the necessary skills of many of the newly recruited staff members are not advanced. According to these studies, there is a lack of basic technical knowledge in organisations in semi-rural and rural communities.

Research conducted by the Croatian Law University of Zagreb, Legal and sociological aspects, VOLUNTEERING IN THE CIVIL SECTOR, mentions that volunteer activities can contribute to their acquisition and development of various skills (i.e. technical, practical, etc.) and teach them to react to different social settings, but does not explain these specific skills in detail.

One of the latest trends in the NGO sector is the use of social media in advertising and civic activism. Research by the TACSO regional support center (Social media for social good - research on the use of social media in civil society organisations in Croatia) shows that most organisations do not have clearly defined roles for social media management and communications personnel and that these positions are often staffed via convenience and availability rather than suitability. These positions are often filled not only by the employees of the organisation and project leaders but also volunteers and administrative staff. Only 10% of organisations employ a person specific to public relations who also maintains the public profile on social networks.

NGOs do not define their media strategies clearly so when it comes to social media they mostly follow the principle of trial and error, or they observe and copy the practices of others. Statistically, less than 2% of organisations employ the services of experts/activists for this new media field whilst a slightly higher percentage educate themselves through self-learning or attending (in)formal education programmes.

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35 TACSO is part of the Civil Society Facility (CSF) which is a European Union (EU) mechanism that provides support to civil society organisations in the countries which are not members of the EU.


37 http://www.vcz.hr/userfiles/Pravni%20i%20socioloski%20aspekti%20volontiranja%20u%20socijalnom%20sektoru_Galogic_2011.pdf

One of the issues faced by the Balkan countries is a lack of materials and guidebooks on ICT competences within civil society. This is reflected by the level of knowledge of employees and volunteers in this sector being below satisfactory.

Most of the adult education programmes are short-term and project based, with the most widely implemented projects offering certificates upon completion. In such cases, participants do not have a subsequent opportunity to expand their knowledge. Part of the problem is the lack of online material available for further study which would be very useful for further skill development.

All projects and programmes operate independently and there is no regional, or even national, coordinating organisation which could assess educational needs in the NGO sector and provide a tailored curriculum for NGO employees and volunteers. A crucial factor in the success of adult learning projects is the development of specific competences which are required in today’s work environment.

In Bosnia and Herzegovina, of the NGOs participating in the HTSPE/Kronauer study in 2009, 25.1% had never provided training for their staff. This sends a clear signal that this is an area where modern technology and software solutions for online learning and online training could be highly useful.

The study in Montenegro shows that the literacy rate in information technology is low in many organisations, affecting work related to internet usage and online information searching. An increase in the IT literacy rate could potentially help organisations connect with new sources of financing. Many organisations invest poorly or not at all in the education of their employees, mainly due to the lack of funding for this section of development.

TACSO’s study in Serbia recommends the current approach to capacity building be revised. It also suggests that it is necessary to upgrade and adapt adult learning, especially in relation to the use of social media. A survey conducted by IPSOS shows that 77% of NGOs engaged volunteers in 2015, while the rest of the sector believes that 53% of the NGOs engage volunteers on a regular basis. This leads us to the previous conclusion that many staff members require training in order to successfully complete their assignments.

One study in Albania concludes that even though organisations are offered many training opportunities through different programmes and projects, there is still a problem with the comprehension of training lectures, as well as with follow-up and individualised technical assistance. Furthermore, the trainings are not offered systematically. One of the main challenges for the NGOs, amongst others, is to further develop human capacities.

As per the local TACSO study, Macedonian NGOs are also engaging volunteers and part-time employees (35% of employees), the tendency being to increase the percentage of volunteers (in 2015, 32% of NGOs in Macedonia engaged volunteers). Education was mentioned as one of the most important areas in which local citizens would like to advance in the future.

The study shows that Croatian civil society depends on volunteers and NGOs; however, part of the problem is the lack of structural employment processes in system procedure. The majority of employees work on a temporary basis and their contracts are valid only while the project is being implemented. According to the Target study from 2010, NGOs employ middle-aged women with secondary school education or higher.
education, while men above the age of 36 (58.7 percent) rather than women (41.3 percent) are at the head of NGOs. Two thirds of them possess higher education degrees, while the remaining one third possess high school diplomas. We may conclude from the information above that previous education systems did not offer quality information technology skills as a field of study to the mentioned group of employees, hence they might be lacking basic ICT knowledge. The same research shows a disparity between the high proficiency of computer use, as well as foreign language proficiency, in urban areas as opposed to rural and remote areas.

Overall, we may conclude that most of the regional organisations have a large flow of personnel on a temporary basis that largely consist of volunteers. As this type of employee requires constant education and a systematic approach to education, online education solutions could potentially provide the most effective solution. This approach could also prove beneficial where there is a need for individualised and constant assistance within organisations, especially those in rural and remote areas, and a cost effective method of training staff where there is a lack of funding for the development of human capacities and employee education.

In November 2016, TechSoup Balkans conducted a survey among local NGOs regarding their ICT needs. Over 100 organisations participated in the survey and provided feedback regarding the status of technology needs and solutions within their organisations.

As for the number of computers within the organisations themselves: 32% of organisations possess 3-5 computers, 26% have 0–3 computers, 35% 6-10 computers, 9% 10-20 computers and 8% of them possess more than 20 computers.

51% of organisations responded that they do not have an IT person engaged as an external associate and 49% of organisations have employed an additional external IT person, in case of unavailability of the internal IT technician.
2.2.3 French NGOs ICT competences and usage

In France there has been widespread adoption of digital technology, including noteworthy developments since 2013. Presently, non-profit organisations increasingly make use of digital technology to meet many needs: managing their activities, monitoring and evaluating their actions, communicating internally, giving visibility to their organisations, training their volunteers and employees, developing projects for their beneficiaries, members etc. Among the predominant uses 73% of non-profit organisations have their own websites while 62% of them use social media; it has been the most important advancement in terms of digital use since 2013 (+26 points). The study “The role of digital technology in the non-profit organisations in 2016” also outlines a marked breakthrough in the use of collaborative tools between 2013 (22%) and 2016 (43%), representing +21 points. The latter are particularly adapted to the non-profit model whose teams of volunteers, employees and directors are often fragmented, with different working rhythms. Therefore they enable non-profit organisations to communicate, exchange documents or make decisions in a participatory manner, more efficiently.

New uses with a promising future

Online education is at the forefront of user-driven projects (a projected 42% in the future vs 8% today). This gap highlights the present interest of non-profit organisations in acquiring new skills, despite restricted budgets, and in disseminating these skills to increase the efficiency of their work. Online donations are at present limited to 13% of non-profit organisations while 41% of them could make use of these tools in the future. Likewise, 39% of non-profit organisations express interest in smartphone applications (9% currently make use of them). Finally, we can expect a bright future for open-source software, currently used by 41% of non-profit organisations, with an additional 35% predicted to also take advantage of such technology.

Your non-profit association currently has or use

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedicated website</td>
<td>73%</td>
</tr>
<tr>
<td>Accounting tools</td>
<td>66%</td>
</tr>
<tr>
<td>Social networks (Facebook, Twitter...)</td>
<td>62%</td>
</tr>
<tr>
<td>Management tools (membership, donors, beneficiaries, contacts...)</td>
<td>51%</td>
</tr>
<tr>
<td>Graphic design tools (for posters, flayers...)</td>
<td>46%</td>
</tr>
<tr>
<td>Collaborative tools (exchange of documents, conference call...)</td>
<td>43%</td>
</tr>
<tr>
<td>Presence in an online directory of non-profit associations</td>
<td>43%</td>
</tr>
<tr>
<td>Open-source software, regardless of the users</td>
<td>41%</td>
</tr>
<tr>
<td>Newsletter</td>
<td>37%</td>
</tr>
<tr>
<td>Online file storage service (Cloud)</td>
<td>31%</td>
</tr>
<tr>
<td>Video</td>
<td>30%</td>
</tr>
<tr>
<td>Dedicated blog</td>
<td>25%</td>
</tr>
<tr>
<td>Online donation on your website and/or via a platform</td>
<td>13%</td>
</tr>
<tr>
<td>Smartphones applications</td>
<td>9%</td>
</tr>
<tr>
<td>Distance education (tutorials, MOOC...)</td>
<td>8%</td>
</tr>
</tbody>
</table>

Chart 3. The digital tools used by non-profit organisations in France in 2016

Source: 2016 Opinion Survey among Directors of non-profit organisations in France

Varied digital practices among “connected” non-profit organisations

In a dedicated survey, the beneficiaries of the Solidatech programme were asked to identify their goals regarding their use of digital technology. Their answers are a good illustration of the multiplicity of uses of digital technology and of the priority given to the management of activities over external communication. Indeed, several years ago – and still today in some non-profit organisations – the use of digital technology focused on the creation of a website, deemed essential to make one’s NGO visible. With time and some awareness of the issue, the expectations regarding digital technology have diversified and various management tools have been given prominence.

On average, the directors of “connected” non-profit organisations interviewed in this survey chose four answers out of the six feasible options. Multiple objectives are therefore pursued. The management of the non-profit’s activities comes first (94%), ten points in front of external communication (84%), which in turn is ten points ahead of internal communication (74%). Further behind, yet still significantly, approximately one out of two non-profit organisations showing interest in digital tools use them to evaluate its actions, train its members, or develop projects with its members or beneficiaries.

This particularly interesting aspect is developed in the next section dedicated to the use of digital tools in the interest of beneficiaries and social causes. When it comes to connected non-profit organisations, they exemplify how digital technology can be shared within their NGOs, between volunteers, with employees when possible and with their members, beneficiaries, and users, according to the nature of the non-profit organisation and its needs. Beyond this general pattern and chart 4, connected non-profit organisations more frequently make use of digital tools for training when they only rely on a team of volunteers (49% compared to the average of 43%): they are used as teaching aids, or even as topics of the training. As for non-profit organisations with employees, they may have access to external training and therefore do not need to use their own digital tools.
Digital technology serving beneficiaries and social causes

The answers to the previous question have shown that 56% of the directors of connected non-profit organisations report using digital technology to develop projects in collaboration with their beneficiaries and users. 35% go further and use digital technology to serve their beneficiaries or social causes. The question has been asked in a broad sense, and some of those surveyed have legitimately considered that the mere creation of a website or a Facebook page, when they are intended to inform, raise awareness, follow or stay in touch with users, can be considered instances in which digital tools are (partially) serving them. Competences

An ICT competence is not exclusively a technical one. The French Agency for Digital Transition provides the following definition:

Digital skills represent an individual’s ability to employ and combine knowledge (his/her knowledge), skills (know-how) and attitudes (social-skills) with respect to three spheres of competences: technological, social and cognitive.

In order to use new or existing information and communication:

— to analyse, select and evaluate in a critical manner digital information
— to solve problems
— to develop a collaborative knowledge base while being engaged in organisational practices

Consequently, we could also talk about «digital culture». On this basis, three digital competence families can be defined:

— technical competences: the ability to efficiently use technologies
— collaborative competences: the ability to collaborate and to solve problems in a technological environment
— cognitive competences: the capacity to select, interpret and evaluate digital information

In France, there is no recent study on non-profit organisations targeting competence issues. This matter, however, is closely linked to the uses. Each use logically corresponds to one or more competences, this is why the studies we cited are the same as work package no. 1.

It is important to note that most of the competences linked to the uses that we will look at here are not specific to the NGOs. We can find them in other kind of organisations, e.g. standard companies or media. Furthermore, the French NGO landscape is diversified in terms of both organisation size (from a few volunteers to several thousand employees) and activity (international solidarity, sport, social business, and medical/social). This diversity is very similar to that of the classical business world, from SME (Small and Medium Enterprises) to multinationals, each with a high variability of uses – and therefore competences – according to their parameters. Simplified, a small association of seniors with no digital skills cannot be compared to an international NGO organised as a company with its own IT department and its “connected” employees.

The study “The role of technology in non-profit organisations in 2016” confirms that ICT use is at the heart of NGO activities (vide Chart 2 in the previous part of the report). Most of the NGOs possess internal competences enabling them to manage a website (that could be a basic or evolved one), use accountability software and communicate through social networks. Obviously, these competences are not typical of the NGO sector and can typically be found in other types of organisations.
Beyond this data we can identify (without metrics) digital uses more specific to NGOs, with associated competences:

- citizen mobilisation and empowerment, through online petitions and social networks;
- action enhancement through the creation of video/visual supports;
- collection of online donations, micro-donations and donations via SMS;
- crowdfunding projects;
- collaborative work in third places.

This study shows that the capacity to use digital tools remains an important concern for NGO managers, increasing through tool knowledge education (49%), improving member knowledge with little or no digital knowledge (48%) and technical training (27%). More commonly, around one third of NGO managers understood that digital tools must be part of a global digital culture approach among their organisations. Collectively acquiring a digital culture is a prerequisite for the choosing of tools and associated technical skills. It is based on a communal willingness to rely on ICT (36%) and by an internal period of exchanges and reflections (28%).

The study points out that NGOs have become aware of the need to seek funding for developing skills in the digital sector either by training (33%) or by consulting digital experts (22%). To cope with the lack of resources NGOs often must resort to volunteerism/skill-based sponsorship.

### 2.2.4 German NGOs ICT competences and usage

Digitalisation in Germany is generally on the rise. On average, the German internet population possesses three IT devices: laptop (64%), desktop computer (59%) and mobile phone (59%). In industry, decision-makers predict the budget for IT growing significantly in the next few years.²⁸

Although digitalisation is rapidly increasing there are few learning measures taken by employees. Most people learn new systems and programmes by the principles of trial and error and self-taught training. Only 38% are offered training at their workplace by their employer²⁹.

Collaboration tools are not common. Only 14 per cent of the German population use these tools regularly with the age group of 20-29 years being the heaviest users³⁰. Cloud technology is still not widespread in Germany – currently only 25% of the population use the cloud for private or business purposes. In most cases, it is still an archival or storage platform for photos, videos and data. Nevertheless, the importance of the cloud as a sharing platform is increasing in the industrial and business sector and recent surveys predict that its usage in this area will triple³¹.

According to the 2010 survey “LIFE 2” the importance of decentralised work will grow. Experts expect flexibility, mobility and cooperation to become the most important issues in the coming years. To this end it is imperative to ensure that appropriate IT security measures are being installed³².

In Germany, there are more than 600,000 organisations in the civil sector. These include public charities, foundations, non-profit limited companies as well as charitable public companies³³.

The data in the following chapter is mainly based on two different reports: “IT-Report für Non-Profits 2015” and “IT-Report für die Sozialwirtschaft 2016”. The “IT-Report für Non-
Profits 2015” provides a comprehensive overview of how information technologies are used in the non-profit sector in Germany and Austria. More than 3,400 public charities, charitable foundations, non-profit limited companies and other non-profit organisations answered questions regarding market data, use of hardware, software, internet-based services as well as social media. Its focus lies on small non-profit organisations and therefore 63 percent of the answers are from non-profits with less than five full-time employees or 71 percent from non-profits with only one location. The survey “IT-Report für die Sozialwirtschaft 2016”, however, focuses on non-profit organisations in the social sector who use information technology, as well as suppliers of software solutions for this sector. Contrary to the survey, the focus of this report lies on organisations with over 100 employees.

As a key finding both reports state that the non-profit sector in Germany uses technology actively. 34 percent of the organisations possess more than 10 terminals and a quarter of them still own between three and five computers.

![Chart 5. Number of in-house IT terminals in Germany](source: IT-Report für Non-Profits 2015, Haus des Stiftens gGmbH, p. 17)
Use of software

61% of the surveyed non-profit organisations use software for finance and accounting, and 47% use software for fundraising and membership administration. These numbers correspond with the findings in the social sector; here, 64% of organisations use industry software.

The bigger the organisation, the further developed its IT is. This typically shows over all areas of IT deployment – from basic technologies to the type of software used to the way IT is organised. Larger organisations with more than 20 full-time employees use significantly more thin/zero-clients, servers, smartphones, tablets, or are more concerned about IT security. This comes as no surprise since larger organisations are more likely to employ a full-time IT-specialist34.

Mobile devices

The number of mobile devices being used in the non-profit sector is increasing: 25% of small non-profits use company smartphones and 16% use tablets. In the social sector the trend for mobile computing has doubled since the last survey in 2013. Nevertheless, in comparison with the general use of mobile devices in other areas the use is still relatively low. 9% of employees in the social sector use a company smartphone and tablets are only being used by 1.5%35.

Importance of volunteers

Nothing works without volunteers: How much non-profits benefit from their volunteers becomes clear when you look at the number of devices owned by the non-profits themselves or which are privately owned by their employees or volunteers. With 68,600 in total, the number of privately owned devices outstripped even the 66,700 devices owned by non-profits. Additionally, over 50 percent of the participating non-profits in the “IT-Report für Non-Profits 2015” stated that a volunteer takes care of all issues relating to IT. In a nutshell: without volunteers, their PCs, laptops and their commitment as IT people things would look very bleak indeed.

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34 IT-Report für die Sozialwirtschaft 2016, Katholische Universität Eichstätt-Ingolstadt
35 IT-Report für die Sozialwirtschaft 2016, P. 17
Budget for IT

When it comes to IT expenses, the “IT-Report für Non-Profits 2015” provides the following data: the median for IT expenses is 1,000 EUR per year. This corresponds to a median of 2.5 percent of annual IT expenses as a share of the total cost for material and personnel in Germany. This confirms the result mentioned earlier that non-profits do use IT actively; however, they do so within the limits of their financial and personnel possibilities.

The “IT-Report für die Sozialwirtschaft 2016” also arrived at the same conclusion; for larger non-profit organizations the median is 1.5 per cent of annual IT expenses.²⁶

Notably, only 10% of the non-profits want to invest in IT personnel in the near future.

Regarding non-profits in the social sector, it can be stated that they invest more money in software systems for core tasks such as client management and administration than in hardware.²⁷

Web coverage and IT security

96% of non-profits that took part in the survey “IT-Report für Non-Profits” confirmed ownership of their own website. “Website abstinence” is more prevalent in smaller non-profits: 13 percent of the smallest interviewed organisations, with an annual budget of up to 2,500 EUR, do not have a website. This is significantly more than the four percent across all interviewed non-profits. This corresponds with the latest survey “2017 Global NGO Online Technology Report”; here 98% of the interviewed non-profits have their own website.²⁸

When it comes to operating systems it can be stated that the non-profits in Germany lag behind in technological development: both reports state that the majority still use Microsoft versions of 2010 or older.²⁹ The “IT-Report für die Sozialwirtschaft 2016” comes to the conclusion that this is mainly owing to the lack of know-how, strategic planning as well as inadequate time resources.³⁰

Furthermore, the issue of data security has reached the non-profits: 90% of the non-profits stated that they presently use antivirus software.
This difference between high use and no use at all again depends on the size of the organisation. When it comes to IT security, small non-profits tend to be more careless. Almost every eighth non-profit organisation with less than one full-time employee does not use antivirus software. The “IT-Report für die Sozialwirtschaft” also shows that the non-profits in the social sector do not spend a lot of time and money on training their staff in ICT issues. According to their data, their staff is being trained 3.4 days per year – and this number has not increased since the last survey in 2013\(^4\). This is astonishing considering the fact that technology is getting more complex every year.

**Social media and cloud services**

In Germany, 57 percent of the participating non-profits use social media. The market is clearly dominated by Facebook, which is used by almost all social media users. WhatsApp is used by a third of the social media users. It is worth noting that a third of the non-profits, who state that they use social media, are never or rarely active.

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\(^4\) IT-Report für die Sozialwirtschaft 2016, P. 29
Interestingly, small organisations are more likely to use cloud services. Cloud services, especially Webmail and storage services, are used predominantly by small non-profits with less than five full-time employees. Large non-profits tend to use these services significantly less because they usually have, for example, their own mail server, network and other servers to store their data.

**Competencies and skill gaps**

In Germany, the social sector is very heterogeneous. It ranges from small associations with only voluntary staff to large-scale organisations with more than one million members and thousands of volunteers. The same applies to their purposes: the focus ranges from sports, recreation and cultural programmes to charitable and professional services.\(^{42}\)

On the one hand there are a few large social non-profits that dispose of comparably big financial and personal resources due to public funds and high market revenues. On the other, there is a multitude of small associations that are self-organised and that receive funds via membership fees and donations. Their work is primarily based on volunteers.

Half of the organisations in the non-profit sector have a budget of up to 10,000 EUR per year. On average 100 members and 20 volunteers work for these organisations. There are also financially strong organisations with revenues over one million EUR per year, but they are the exception (4%).\(^{43}\)

Thus it does not come as a surprise that due to the diversity of the non-profit sector it is difficult to describe the ICT competences within NGOs, but as a general rule it can be stated that the size of the organisation is decisive: the larger the NGO, the more developed its level of ICT knowledge is.

According to the “IT-Report für die Sozialwirtschaft”, the number of NGOs that employ dedicated IT staff has increased over the past few years. Apparently the NGOs are becoming aware that growing digitalisation cannot be managed half-heartedly. Nevertheless the number of NGOs that believe IT can run by itself is unchanged since 2011: 22 -24% of NGOs belong to this group.\(^{44}\) It is evident, though, that the bigger the organisation the more likely they have their own IT staff or even an IT manager.

The report also concludes that there is a growing trend towards professionalisation amongst the NGOs. This conclusion is based on the fact that server based computing has become more popular and that an increasing number of NGOs employ a person solely responsible for IT issues. Additionally, more and more NGOs are using so-called ticket systems. They help to systematically gather and evaluate error messages as well as IT queries. 55% of the NGOs that took part in the survey currently use this tool – in 2013 only 41% relied on such a system. Here again there is a clear correlation between ICT use and size of the NGO: 85% of non-profits that have more than 1,500 employees use this kind of system, whereas only 18% of NGOs with less than 100 employees rely on it.\(^{45}\)

Consequently, the smaller the NGO in size, the less professional its IT is. Only 19% of the NGOs that were interviewed in the “IT-Report für Non-Profits 2015” have their own IT staff; 20% outsource their IT issues and 53% of NGOs rely on the IT skills of their volunteers.\(^{46}\)

\(^{44}\) IT-Report für die Sozialwirtschaft, P. 27
\(^{45}\) IT-Report für die Sozialwirtschaft, P. 29
\(^{46}\) IT-Report für Non-Profits 2015, P. 31
Non-profits using service providers do so mainly in system support and, at a significantly lower percentage, for consulting services. Again, the use of IT service providers significantly increases with the size of the organisation (as measured by the number of full-time employees).

2.2.5 Italian NGOs ICT competences and usage

The most accurate and detailed analysis of the Italian non-profit ecosystem was made on 31 December 2011 by ISTAT (official Italian statistics institute). According to this body, the total number of active non-profit organisations operating in Italy is 301,191 (+28% compared to 2001). These organisations employ over 4.7 million volunteers, 681,000 full-time employees, 271,000 external workers and 5,000 temporary employees. Four out of five NGOs utilise volunteer workers, while 13.9% of non-profit organisations employ salaried staff and a further 11.9% contract external workers (with per-collaboration contracts).

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2001</th>
<th>% var. 2011/2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-profit organisations</td>
<td>301,191</td>
<td>235,232</td>
<td>28.0</td>
</tr>
<tr>
<td>Organisations with volunteers</td>
<td>243,482</td>
<td>220,084</td>
<td>10.6</td>
</tr>
<tr>
<td>Volunteers</td>
<td>4,756,622</td>
<td>3,315,327</td>
<td>43.5</td>
</tr>
<tr>
<td>Organisations with employees (salaried staff)</td>
<td>41,744</td>
<td>38,121</td>
<td>9.5</td>
</tr>
<tr>
<td>Employers (salaried staff)</td>
<td>680,811</td>
<td>488,523</td>
<td>39.4</td>
</tr>
<tr>
<td>Organisations with external workers</td>
<td>35,977</td>
<td>17,394</td>
<td>106.8</td>
</tr>
<tr>
<td>External workers</td>
<td>270,796</td>
<td>100,525</td>
<td>1694</td>
</tr>
<tr>
<td>Institutions with temporary workers</td>
<td>1,796</td>
<td>781</td>
<td>130.0</td>
</tr>
<tr>
<td>Temporary workers</td>
<td>5,544</td>
<td>3,743</td>
<td>48.1</td>
</tr>
</tbody>
</table>

Table 2. Total number of active Italian NGOs and people involved
Source: ISTAT, 2011

The most relevant sectors (in terms of active NGOs) are culture, sport and recreation. These sectors account for more than 195,000 organisations, translating to 65% of total NGOs operating within the country. Beyond these organisations, the most relevant sectors are social care (25,000 organisations), labour unions and public interest representatives (5.4%), research and instruction (5.2%), religion (2.3%), philanthropy (1.6%) and international cooperation (1.2%).
Despite the broad range of organisational forms, the main legal form used by NGOs in Italy is "Association" (89%). Most of these organisations are without legal status and constituted by private deed (66.7%), while 22.7% are generated by a public act that is legally acknowledged by the state and with patrimonial autonomy.
Aside from this large amount of organisations there are 11,000 social cooperatives, 6,000 foundations and 14,000 NGOs with “other” juridical forms (mainly religious entities, committees, mutual aid societies and health or educational organisations).

In many sectors Italian non-profit organisations lag behind in ICT usage when compared with other developed countries. Nevertheless, there is a clear and constant effort to reduce the digital divide and consolidate web-presence in order to raise resources and funding imperative to reaching each organisation’s mission.

According to the most systematic and recent survey conducted (over 190 organizations in 2013) by the Think! Foundation, NGOs in Italy are using ICT for reaching two main objectives:

- To create general awareness of the organisation’s mission and its projects.
- To connect with and generate resources such as funding and volunteers.

Most Italian NGOs (89.7%) are oriented in using web technologies to reach their audience and communicate their organisation’s values, mission and activities. A smaller part of these organisations is also practically engaged in using web technologies to recruit volunteers (39.3%) or to raise funds (33.6%).

What your organisation’s web presence goals are? (max 4 answers)

<table>
<thead>
<tr>
<th>Answer options</th>
<th>answers %</th>
<th>numbers of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness about your activities</td>
<td>89.7</td>
<td>192</td>
</tr>
<tr>
<td>Awareness about your values</td>
<td>60.7</td>
<td>130</td>
</tr>
<tr>
<td>Awareness about your organisation’s name</td>
<td>52.8</td>
<td>113</td>
</tr>
<tr>
<td>Volunteer or employee recruiting</td>
<td>39.3</td>
<td>84</td>
</tr>
<tr>
<td>Building a community of people who can identify them-</td>
<td>33.6</td>
<td>72</td>
</tr>
<tr>
<td>selves with our values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raising funds</td>
<td>33.6</td>
<td>72</td>
</tr>
<tr>
<td>Mobilising people to concrete non-profit actions</td>
<td>29.0</td>
<td>62</td>
</tr>
<tr>
<td>Picking up ideas and suggestions</td>
<td>22.4</td>
<td>48</td>
</tr>
<tr>
<td>Other</td>
<td>5.6</td>
<td>12</td>
</tr>
<tr>
<td>I don’t know</td>
<td>0.9</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 3. Web presence goals according to non-profit Italian organisations


A significant part of Italian NGOs engages three main tools to reach their strategic goals on the web: institutional websites, several social media channels and direct links with the stakeholder (e.g. digital newsletters).
To understand the foremost digital needs of NGOs we need to understand how they are currently managing their online presence.

Chart 12. Presence on social network and usefulness if not present (multiple choices)

Chart 13. Website presence as a source of funds (multiple choices)
**Ict usage, competences and skill gaps**

With the development of the so called “web 2.0” most of the ICT competences that are required within an organisation concern the proper management of web-related digital assets.

Italian NGOs have a clear understanding of the importance of a stable on-line presence. Digital assets such as social media profiles and a corporate website are considered as “very important” or “really important” by almost two thirds of the Italian NGOs.

Consequently 23% of organisations think that their online presence “must be improved” and that the current gap in digitalisation reflects a lack of both internal competences and time for proper asset management.

![Diagram](image.png)

**Chart 14. Analysis on Italian organisations’ web presence**


A shortfall in internal competences and dedicated human resources is clearly visible when analysing Italian NGO digital asset characteristics; the majority invest in “static” assets (e.g. corporate websites) which don’t require operational expenditures such as time, labour and money.
A survey conducted in 2015 by ONG 2.0\textsuperscript{47} states that 100% of non-profit organisations in Italy operate a website. Only 28.1% of these websites have a “comment” feature and 9.4% have a forum, even if it is well-known\textsuperscript{48} that when a website is provided with discussion features (like comments or forums) chances of establishing a profound connection with stakeholders increase. Furthermore, 81.3% of websites have a section dedicated to online fundraising (through credit cards, PayPal, bank transfer or other payment services).

Statistically 24.7% of NGOs operate a blog while 16.4% of them operate multiple. Of these, 38.5% update the blog weekly and generally the “marketing and communication unit” is in charge of this activity (70% of respondents).

Most Italian NGOs (92.6%) have at least one social media profile (mainly Facebook, YouTube and Twitter). Updates of these social media are performed on a plan-base or schedule (they are not spontaneous and/or real time in 61.3% cases). Only a few organisations employ a social media manager, typically a volunteer.

The Italian scenario is similar to that of other European NGOs. According to the Global NGO Online Technology Report\textsuperscript{49} (provided in 2017 by NonProfit Tech for Good) 38% of NGOs in Europe assign the responsibility of social media management to a communications staff person, 3% to a fundraising staff person, 9% to an executive staff person, 19% depend solely upon volunteers and only 11% have a full-time or part-time social media manager. The remaining 20% assign the responsibility to programmers, administration and other staff.

\textsuperscript{47}http://www.ong2zero.org/
\textsuperscript{48}https://www.fastcompany.com/3005619/10-reasons-business-should-blog
\textsuperscript{49}http://www.techreport.ngo/english/2017report.pdf
2.2.6 Polish NGOs ICT competences and usage

General information

There is a paradox in the Polish NGO self-assessment of competences. The report “Basic Facts on the NGOs” (Klon/Jawor, Warsaw 2012, later referred to as BFN) states that the organisations are superficially self-critical and assess their competences as very high; however, other research shows that most of the NGOs do not carry out regular self-evaluation.

On a five point grading system Polish NGOs rate themselves highly: the quality of their services 4.2, the competences of workers and co-workers 4.0 and financial management 4.0. Polish NGOs regard access to funds as the most important factor influencing their effectiveness, the development of skills and competences seems less important to them. Only 49% of the organisations train their staff and voluntary workers. The most popular training topics are:

- The main field of the organisation’s activities.
- Fundraising (in most cases – obtaining grants and donations from state and EU donors), incl. writing applications for funds.
- Financial issues.
- Legal issues.
- Promotion and marketing of the NGOs.

Training and counselling regarding the functioning and management of the NGOs (teambuilding, etc.) are the least popular. The authors of the BFN report state that the material resources are “too easily” regarded by NGOs as the main success/failure factor, while team competences are generally underestimated.

One of the most significant problems regarding NGO skills and competences is a vaguely defined task scope. Work in Polish NGOs requires carrying out very diverse tasks and consequently requires very diverse skills. This work model was valid in almost half of the Polish organisations in 2015.

Research proves that regardless of high self-assessment there is a huge skill gap in Polish NGOs in the fields of staff management, motivational systems and work organisation. Many of the organisations that were surveyed were not aware of this gap and many of them underestimate this problem. There is also a mental barrier: many of the NGOs, especially charitable organisations, regard their work as a mission and therefore are afraid of professionalisation (this attitude has great influence over the technological thinking of the NGO staff). The management skill gap is also strictly related to planning, especially in the long term. Even the biggest organisations based in Warsaw, in many cases, could not predict the organisation’s activity five years from now. Management staff often believes that current activities are more important than long-term strategies or even raising management or communication skills (BWAW report).

ICT usage, competencies and skill gaps in Poland

Most of the reports and analyses show that the level of ICT skills among Polish NGO personnel varies according to significant social and economic indicators. There are two groups of NGOs which can be distinguished by their ICT skills:

<table>
<thead>
<tr>
<th>Group A: high ICT skills</th>
<th>Group B: low ICT skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION: big cities</td>
<td>LOCATION: small towns and rural areas</td>
</tr>
<tr>
<td>BUDGET: high</td>
<td>BUDGET: low</td>
</tr>
<tr>
<td>STAFF: employed</td>
<td>STAFF: members/ non-profit</td>
</tr>
<tr>
<td>AVG. AGE OF STAFF/ MEMBERS: below 50</td>
<td>AVG. AGE OF STAFF/ MEMBERS: above 50</td>
</tr>
</tbody>
</table>

E.g. BFN, p. 191
The first group consists of NGOs located in big cities, with higher budgets and younger employees – this group of NGOs has at its disposal a higher level of ICT skills. The second, lower-skilled group consists of NGOs with lower budgets, generally located in small towns and rural areas and rarely employing staff (mostly older and voluntary-based).

Experts interviewed expand this distinction into three groups:

GROUP 1: Large central organisations (mainly Warsaw-based). Mostly charities (e.g. WOŚP - Great Orchestra of Christmas Charity – the biggest charitable organisation in Poland, supporting the health system by purchase of medical equipment or Rak’n’Roll – a large charitable organisation working to improve the quality of life for people with cancer) with the highest level of ICT skills and implementation – the Great Orchestra of Christmas Charity, for example, maintains their own television and radio broadcast systems.

These organisations use the best available technologies, tailored solutions and tools (e.g. in the management of voluntary workers). They cannot, however, act as a benchmark for or comparison to other organisations as there are very few NGOs of a similar scale in Poland.

GROUP 2: Medium organisations. Significantly smaller than the NGOs mentioned in the first group yet disposing enough technical competences to use ICT tools, social media, visual and audio solutions.

GROUP 3: Small organisations with low technological competences or no competences at all. Often they are convinced that new technologies are of no use to them. Experts state that this is the largest of the three groups. Their basic set of competences include use of office applications (without advanced functions) as well as e-mail communication, webpage browsing and searching for information. The BFN report concludes that most NGOs in Poland have this set of skills and use ICT daily but the usage is rarely advanced. This is mainly due to a general lack of knowledge regarding existing solutions. As an expert observes:

[The NGOs pointed at] lack of knowledge on existing tools, from the basic things like MS Office training for staff to tailored solutions (...)\(^52\).

(Agnieszka Świątecka, Chairman of the Ad Hoc Foundation)

According to the experts many basic ICT gaps have been filled; however, Polish NGO staff have yet to catch up with the latest solutions (e.g. mobile technologies):

Now, a website is considered a standard, but the mobile technologies are in the infancy stage. Only big corporations and finance sector can use them fully.

(Agnieszka Świątecka, Chairman of the Ad Hoc Foundation)

A significant technological gap has developed concerning skills in the areas of joint planning and organisation of events (e.g. Google Calendar); in 2012 only 8% of organisations used such technologies and ICT support for project/organisation management (6%). The main conclusion to be drawn from the BWAW report is that even Warsaw-based NGOs rarely use solutions supporting the organisation and coordination of their activities (both specialised applications such as MS Project and also other, relatively simple, tools).

\(^51\) BFN, pp. 192-194.
Data from the Klon/Jawor Research Team and UIPN report\textsuperscript{53} suggests that more than half of Polish NGOs regularly publish information on their webpages, nearly one fourth maintain a social media profile (Facebook, Twitter, Google+), 12% send a newsletter and 6% run their own blog\textsuperscript{54} (see chart below).


The question arises: do Polish NGOs know how to use web tools? Experts respond that NGOs often outsource the design and maintenance of their websites, resulting in ICT gaps during funding shortfalls or cessation of IT staff contracts (or cooperation).

The Sotrender research shows that Polish NGO staff lack social media management skills, especially in the field of interactivity and contact with users. In the NGO/social sector, only 8% of sent messages (e.g. on Facebook Messenger) generate response from social media profile administrators. The average response time on average is 24 hours and 3 minutes\textsuperscript{55}, a very ineffective result in comparison to business social media profiles.

While Facebook is used by an increasing number of NGOs in Poland other social media remains largely untouched. Most experts agree that the fastest developing social media in 2016 and 2017 are Instagram and Snapchat which are seldom used by the NGOs.

The UIPN report shows a gap in webpage positioning skills; more than half of respondents have never used positioning services and rarely take positioning into account at any stage of content development\textsuperscript{56}.

Recent reports (e.g. UIPN) also show a lack of proficiency in ICT tools for event organisation and delivering webinars.

Predictably it is the organisations active in the field of technology which have the highest ICT skill level. The lowest level of ICT skills, according to experts, belongs to small NGOs, which are more active in the field of local problems and tradition (hence many of them do not actually need advanced ICT skills).

\textsuperscript{53}http://technologie.ngo.pl/wiadomosc/1283016.html, based on Sotrender Fanpage Trends.
\textsuperscript{54}UIPN, p. 80.
\textsuperscript{55}http://technologie.ngo.pl/wiadomosc/1283016.html, based on Sotrender Fanpage Trends.
\textsuperscript{56}UIPN, p. 80.
The experts also agreed that the use of cloud computing in the third sector in Poland is restricted mainly due to lack of trust and safety issues:

We failed to convince many organisations to have a shared cloud. They didn’t trust it. The technologies have entered our lives, but the lack of confidence and trust in these organisations makes them stay on a lower level, because they do not have the courage. They are afraid of things because they do not understand them, and this is because they do not have staff who understand them. (expert interview)

One expert interviewed pointed out another very important skill gap – visual presentation of an organisation’s activities in a user-friendly and aesthetic way, i.e. creating infographics, simple banners and even flyers or posters (supported, for example, by simple online graphic tools like Canva or Infogr.am).

Another notable skill gap is the use of internet technologies as tools for social participation. The POPC analysis highlights that people using the internet engage in civic society more often than those who do not use the internet. They are much more likely to participate in public meetings and often speak out at and organise these meetings. Internet users are members of NGOs more often than non-users.

Research postulates that the use of ICT tools for supporting deliberative democracy in Poland is in its initial phase. The first platforms for exchanging opinions and gathering comments have been launched as well as the first crowdsourcing platforms; however, only a small amount of NGOs use them.
2.2.7 Conclusions

1. The report shows that ICT usage in NGOs throughout Europe is constantly increasing. The use of websites and social media is crucial to many organisations; however, there are differences which must be considered before developing a tool which can be useful for different countries.

2. There is still a significant difference between the Eastern bloc (Balkan countries and Poland) and Western (France, Italy, Germany). The Eastern bloc NGOs lack basic stability, the staff turnover rate is high. Many of them do not invest in ICT skill leverage so in many NGOs the ICT competences are on a basic level. There are also problems with equipment (Poland, Bosnia) and with technical English (Poland). Most of the NGOs in the Eastern bloc countries do not employ ICT staff.

3. In France, Italy and Germany the situation is much better. Collaborative methods and online education are used. In France it can even be stated that „use of ICT is at the heart of NGO activities“. However, in Germany predominantly volunteers take care of issues related to IT and IT training is not considered.

4. Even in the most developed countries NGOs can be divided into two groups: “connected” and “non-connected”. The first group mostly consists of larger organisations from cities. The second, mainly smaller organisations from rural areas (in Poland the age of staff is also an important factor).

2.3 Technological needs of the NGOs

The first chapter discussed NGO ICT usage and competence in five separate environments (regions). The second chapter addresses gaps and needs in the ICT field. Obstacles hindering ICT usage within the organisations will also be presented. This data will be useful in creating a tool system suitable for overcoming the gaps and providing solutions to the diagnosed needs.

2.3.1 The Balkans

**Barriers preventing NGOs from more advanced use of ICT tools and solutions**

The studies, research and surveys that have been conducted in the Balkan region regarding the needs of NGOs provided information which can be summarized in several points stated below.

Firstly, there is a lack of permanently employed staff and most organizations are experiencing a large volume of staff turnover as many of their employees work on a temporary basis (i.e. only during project implementation). Collaterally, there is constant reliance on volunteer workers. Many volunteers need at least a basic introduction to specific work processes and tools before the commencement of any project.

Secondly, there is a lack of funds in human resource development and capacity building in some organisations.

Thirdly, organisations are also facing problems when it comes to understanding IT terminology and its processes. Additionally, they are lacking basic ICT knowledge, especially in semi-rural and rural areas.

**Particular needs of NGOs**

Regarding the needs for IT support, 63% of organisations confirmed a necessity to engage an IT person 1-3 times per month for a particular...
task or regular system maintenance. A further 18% said 3-10 times a month, 12% more than 10 times a month and 7% regularly require IT services more than 40 times a month.

The type of support that organisations need most is:
- Software maintenance and support (69%),
- Hardware maintenance (45%),
- Network maintenance (50%),
- Software solutions (42%),
- Consultancy services (23%),
- Other (13%).

As for their satisfaction with existing IT support, the average of positive feedback is 6.57 (on a scale from 1 to 10). Other organisations rely on volunteers to assist them with these issues.
39% of organisations wish they had more adequate consultancy in the IT field when it comes to improving their existing IT support. The second issue on their priority list is improving the response time of servicing (34%). Importantly, another top priority is having more understanding and better communication between IT staff and organisation staff (32%). Some mentioned not having an IT service at all and relying on volunteers. They confirmed having a lack of finances for education in new technologies.

As for websites: 65% of organisations are satisfied with their current website, 26% are dissatisfied while 9% of organisations do not have a website at all.

In a large portion of NGOs employee education is undertaken once per year (45%). In some organisations staff are trained 3 times per year (9%) and some more than 3 times a year (25%). Fields of education that NGOs would be interested in are as follows:
- Office packages (Excel, Word, Power Point etc.) – 58%,
- Website maintenance and updating - 58%,
- Design and visual communications - 51%,
- Communication and social media – 48%,
- Database creation – 48%.

Some organisations expressed a desire for more information regarding the automatisation of processes, photo editing, energy efficiency as well as communication and collaboration tools through IT. Several organisations accentuated that they would prefer the ability to create and update their own websites, as well as having more freeware products and solutions for NGOs.

NGOs in the Balkans expressed an interest in technology and new software solutions as the number of internet and technology users is constantly increasing. They are aware of the potential of social media and visual communication and the possibility of using such tools in implementing their projects more successfully. Of great value also is gathering information on new project opportunities, different types of funding and possible cooperation with other organisations.

Overall, technology is an indispensable tool for NGOs and it should be available to as many organisations as possible.

2.3.2 France

Barriers preventing NGOs from more advanced use of ICT tools and solutions

In a 2013 survey, time constraints were identified as the primary difficulty experienced by directors of non-profit organisations in implementing and using digital tools. Defining objectives, choosing the best suited tools, identifying the expected results, training to use the selected tools, etc; there are a myriad of time intensive subjects that required and still require NGO consideration. The main difficulties concerned mastery of the tools (i.e. lack of know-how as well as the necessity of both initial training and an adaptation period that may be required). The complexity of choosing tools that were truly tailored to the needs of non-profit organisations was also highlighted.

These subjects require a technical know-how that must constantly be reacquired in light of technical advances often seen as “too fast-paced”. For instance, websites, blogs, newsletters (or even social media), updates and the drafting of web content always require a person to be available and possess technical and often editorial know-how. Once the digital tools have found their place
in the NGO they are mastered by one or a few people and whilst their use has been proven, it is still necessary to ensure their sustainability over time and compensate the possible departure of confirmed users. This concern is especially noticeable in non-profit organisations where there is a regular volunteer turnover, such as in student non-profit organisations. However, it is in the best interest of any NGO to anticipate potential departures or the lack of availability of digital users among volunteers or employees.

Beyond the objective difficulties relating to the lack of means and tools themselves, the difficulty that was often cited was that of the necessity of adaptability:

— At the individual level, accepting changes related to the use of new tools and being able to adapt to them, possibly treading into uncharted territory.
— At the collective level, reviewing operational methods of the non-profit organisation, integrating changes and possibly redefining some of the missions.

These various kinds of obstacles, identified in 2013, put forward a need to support non-profit organisations. The questions asked in 2016 to the representatives of the NGOs which were beneficiaries of the Solidatech program clearly illustrate the lack of development in this field. In such organisations people have a vested interest in digital technology. They are prepared to rely on digital tools and some of them have already mastered these subjects. However, in most non-profit organisations the difficulties are diverse, as will soon be demonstrated.

![Chart 19. Difficulties with ICT use among French NGOs](chart)

Source: Solidatech 2016 survey with ‘connected’ non-profit organisations
With less uncertainty (6% who have no opinion) than for the other possible answers, 88% of interviewed directors find the lack of financial and material means the main obstacle in implementing digital technology (it is certainly one of the reasons for which they enrolled in the Solidatech program). Time constraints is the next most important factor according to almost three-quarters of respondents, while the lack of know-how affects nearly two-thirds of NGOs to some degree. The rapid evolution of digital tools is also cited, requiring constant work to stay up to date with new features and innovative solutions as well as a learning period for individuals (and possibly training for other members of the team). All these steps require having time and acquiring certain skills. The regular emergence of new digital tools is also a source of difficulty by way of having to choose those which will be best adapted to the needs of the NGO. This step also requires time; however, according to the survey it is an issue that seems to be easily resolved (57% of the non-profit organisations surveyed have difficulties choosing the digital tool best suited to their needs and approximately one third does not face this difficulty).

The statistics are similar concerning the reluctance of some team members to engage ICT. It is surprising to discover that within a panel of “connected” non-profit organisations, more than half of their representatives consider this a difficulty. Regular emergence of new digital tools is also a source of difficulties when choosing those best adapted to the needs of non-profit organisations. The legitimacy of reluctance in some individuals notwithstanding, the consideration of digital technology in the NGO sector still remains a topic of debate (or at least discussion).

Regarding Chart 19, it is mentionable that cultural non-profit organisations are those who face the greatest time constraints (76% with an average of 73%). They are also more likely to lack material and financial means (92% with an average of 88%). This is also the case in the “leisure, youth, popular education” sector (92%) where the non-profit organisations seem to have more difficulties keeping up with the evolution of digital tools (72% with an average of 68%) and as a consequence have a harder time choosing from a multiplicity of digital tools (61% with an average of 57%). Health and social non-profit organisations appear to face the same dilemmas. They must also more frequently confront the reluctance of some members of their teams, a similar challenge faced in the sports sector (57% while the cultural or leisure and popular education sectors are at 50%).

**Particular needs of NGOs**

In response to these present difficulties – reflected in the results of the survey – the 2016 national survey of the directors of non-profit organisations aims to identify precise drivers of digital development. It directly addresses their expectations in the matter.
Mastery of digital tools remains the main concern for the directors of non-profit organisations. It is individually achieved through knowledge of digital tools (49%), initiation into digital technology for members with little or no know-how (48%) and by technical training (27%). More broadly, approximately one third of directors have stated that digital tools must adhere to a comprehensive approach of digital acculturation within their non-profit organisations. Collectively acquiring a digital culture takes priority over choice of digital tools and the associated technical skills. It is based on a shared commitment to rely on digital technology (36%) and a period dedicated to internal discussion and reflection (28%). To this end, almost 30% of directors would count on personalised support to define a digital strategy. Financial means are, naturally, first and foremost needed to acquire digital equipment (42%). However, non-profit organisations have also become aware of the need to seek funding with the aim of increasing digital skills through training (33%) or through expert advice (22%). To cope with this lack of resources, non-profit organisations must often make use of assets acquired on a voluntary basis or through patronage. The directors equally rely on the pooling of resources with other organisations as they do on training. On the one hand 35% deem that the exchange of experiences between NGOs is useful, sometimes “feeling abandoned” within their own structure, and on the other 27% can see themselves sharing digital tools among several organisations. It seems that digital technology is no longer only understood through a technical aspect, that the subject more than ever is approached from a collective, global and cross-sectional angle and that it increasingly covers a strategic dimension.

In practice, only a few non-profit organisations consider that a real “digital strategy” has been implemented in their NGO or include digital technology in their development plans. However, this situation has slightly changed. Examples include preliminary discussions before the implementation of certain digital tools in a specific field (communication, teaching tools, etc.) which could be extended to all uses and serve as a starting point for a comprehensive approach. Also noteworthy, awareness is increasing and intentions are clearly asserted.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A better knowledge of available digital tools</td>
<td>40%</td>
</tr>
<tr>
<td>An initiation to digital technology for members with little or no know-how</td>
<td>48%</td>
</tr>
<tr>
<td>Financial means to acquire equipment</td>
<td>42%</td>
</tr>
<tr>
<td>A shared will to rely on digital technology</td>
<td>36%</td>
</tr>
<tr>
<td>Exchange of experiences with other non-profit organizations</td>
<td>35%</td>
</tr>
<tr>
<td>Financial means to provide training</td>
<td>33%</td>
</tr>
<tr>
<td>Personalized support to define a digital “strategy”</td>
<td>24%</td>
</tr>
<tr>
<td>A period dedicated to internal discussion and reflection</td>
<td>28%</td>
</tr>
<tr>
<td>Shared digital tools in order to split cost</td>
<td>27%</td>
</tr>
<tr>
<td>Technical training for each use or tool</td>
<td>27%</td>
</tr>
<tr>
<td>The financial means to take advantage of services of experts</td>
<td>22%</td>
</tr>
</tbody>
</table>

Chart 20. Preferable support for French NGOs in ICT field
Source: 2016 Opinion Survey among Directors of non-profit organisations in France
within certain non-profit organisations, which may imply a commitment to action as soon as they allocate the necessary time and energy. There may be triggers. For instance, an NGO wants to revise its internal organisation to function in a more collaborative way and undertakes a discussion on the topic of digital tools to facilitate this goal.

**Connected NGOs requesting tailored support**

Beyond global support, “connected” non-profit organisations have expressed the need for tailored support by answering the question: “Would your NGO require personalised support corresponding to the options below?”

![Chart 21. French NGOs’ need for personalised support](chart21.png)

Source: Solidatech 2016 survey with “connected” non-profit organisations

Non-profit organisations sometimes want to benefit from personalised support (i.e. designed and tailored to their specific needs). This is the case among more than 60% of the “connected” organisations. Although they voice specific personal requirements (they usually cite an average of 1.5 needs in terms of support of the 8 possible ones), those actual needs are quite diversified (they vary between 12% and 22%). The areas which seem to be of the most concern are the creation of a website and their presence on social media (22%) as well as guidance in terms of web strategy (20%). Advice for crowdfunding is also frequently cited, confirming expectations that such funding is a viable option for non-profit organisations, who are increasingly subject to financial constraints and are seeking to compensate a decline in public funding with private resources (including individuals).

A digital needs diagnostic tool, despite its broad scope and its usual necessity as a useful preliminary tool before any discussion concerning an organisation’s operations and perspectives, represented less of a priority according to the survey (17%). It receives the same attention as
more specific and technical themes such as: training on how to conduct a digital workshop, advice on the creation of web and mobile applications or even IT audits (a specific requirement of midsized or larger non-profit organisations who sometimes already possess in-house skills).

**Specific needs for digital projects serving beneficiaries**

The survey conducted by Solidatech had previously sought to ascertain whether connected non-profit organisations were developing digital projects at the behest of beneficiaries or rather due to social causes. It was found that 35% had implemented digital projects oriented towards their beneficiaries and 17% were considering doing so. But how can project leaders be assisted in implementing them? Chart 22 presents the responses of these non-profit organisations.

The implementation of digital projects oriented towards beneficiaries above all requires active mobilisation of potential partners; either to fund them, technically set them up or make them known and encourage their use. This explains why over half of the surveyed directors of connected non-profit organisations expressed a need for support. This collective or shared perspective, predominantly asserted for this type of project, also needs support in order to communicate with associative participants: in order to raise awareness about the project among the target audience so that they make use of it and/or so that they take part in the project (24%) and help coordinate with non-profit participants (14%). Advice on choosing the adapted digital solution(s) for the project is also expected by 44% of respondents, underlining that knowledge and mastery of digital tools deserve to be continuously enriched and updated (including in non-profit organisations who are in some way informed on the subject).
2.3.3 Germany

Barriers preventing NGOs from more advanced use of ICT tools

According to “LIFE 2 Report”, published in 2010, only 13% of decision-makers in NGOs play a pioneering role in the use of ICT. Thus it is not surprising that almost half of the NGOs in Germany (45%) use new ICT tools and solutions cautiously. This could be due to the lack of awareness of digital education and programmes aimed at keeping up with general ICT development. It could be worthwhile to use social media or tools for virtual collaboration specifically in order to reduce costs and raise efficiency, especially when budgets are tight.

As mentioned previously, a limiting factor in using new ICT tools is the tight financial resources of non-profit organisations. Almost half of the interviewed organisations in the “IT-Report für Non-Profits” state that their IT budget will remain unchanged in the following year, one quarter says it will increase and one eighth of the non-profits say it will decline.

Another key factor to consider is the limited human resources of non-profit organisations, above all small ones. A recent study from Bertelsmann Stiftung in 2015 regarding the financing of the social sector draws the conclusion that the number of members in non-profit-organisations is decreasing and that NGOs are having increasing difficulties in recruiting volunteers for their work, particularly in filling honorary positions.

Not only do NGOs face a problem regarding the shortage of money and staff, there is also the fact that NGOs lack information when it comes to ongoing training in ICT tools and solutions.

NGOs that are not able to use social media and tools for virtual collaboration cannot participate in the digitalisation of society. There is the risk of a widening gap between social institutions and individuals that are well educated regarding ICT. Therefore, the digital inclusion of the non-profit sector is vital.

Particular needs of NGOs

In general, it can be stated that the ICT needs in NGOs differ widely. This is certainly due to the large heterogeneity of activity, type and size of organisations in Germany and is therefore strictly related to the structure of this sector.

Nevertheless there is some general data worth noting. According to the “IT-Report für Non-Profits 2015”: information needs are greatest for the selection of software, issues regarding data and IT security. Moreover, almost half of the non-profit sector (41%) is interested in social media. 39% would like to be better informed on cloud computing as well as programmes for virtual collaboration. NGOs need to continue this trend - the biggest advantage for them being the cost-effectiveness and flexibility of cloud systems.

A challenge for small non-profits

In Germany it is small organisations who particularly need to catch up. Small non-profits with one location and less than a 40,000 EUR annual budget are more likely to use Windows 7 and Office versions 2007 or older. Almost 80 percent of non-profits with less than one full-time employee do not have their own server. The small non-profits also lag behind when it comes to online fundraising. According to a recent fundraising study by Altruja: 74% of NGOs with a donation volume of more than 1 million EUR are already collecting funds via the web but only 32 per cent of small NGOs capitalise on this opportunity. Nevertheless, 37% of all NGOs that were interviewed believe that online fundraising will be the number one fundraising tool in the years to come.59

More IT support offerings are necessary: to do justice to the ever advancing IT penetration in the non-profit sector, more support offerings in the fields of products, services and know-how are necessary so that non-profits can better exploit the opportunities of modern IT and thus fulfill their mission more effectively.

60 IT-Report für Non-Profits 2015
2.3.4 Italy

Barriers preventing NGOs from more advanced use of ICT tools and solutions

While the majority of Italian NGOs are aware of the importance of being on the web, by owning several contact points (such as an institutional website, different social media networks and a direct communication channel with present and future donors e.g. newsletters), it is not uncommon that NGOs themselves are not satisfied with the execution of their web-presence. According to Think! Foundation, 23% of non-profit organisations think that their web-presence is "absolutely to be improved".

The same report states that too many organisations think that the web is not a reliable channel to increase fundraising or to build a strong community of mission-committed followers.

This mistrust lies on a generalised internal lack of IT competences that act as barriers to the introduction of ICT within Italian NGOs. Among others, the lack of technical skills and the availability of one stable human resource involved in ICT management are primary reasons why non-profit organisations are underdeveloped and underexposed on the web. Cost of ICT purchasing or access is the subsequent reason for organisations choosing not to digitise their processes and increasing their web presence.

During several informal talks with key informants, held at Techsoup Italy during periodic public meetings with relevant non-profit experts (http://www.techsoup.it/techsoup-incontra-un-aperitivo-con), we had the chance to empirically confirm that lack of skills is one of the major constraints for the digital transformation of NGOs.

During these meetings several NGO managers explained that in many cases the management team’s vision of digitalisation is clouded and because of this their organisation has not been able to take

Chart 24. Restraining factors of technology use
(multiple choices)

a significant step forward into ICT adoption and digital transformation. Setting a clear and achievable vision for ICT is crucial to obtaining meaningful results: our key informants stated that in probably 90% of cases organisations do not possess the necessary technology for digitalising their processes and improving their efficiency.

Another significant barrier preventing ICT adoption is the widespread belief that technology “plasters” processes and restricts personal operation methods. NGOs are not capable of ensuring that they are fostering innovation and making people more effective (not just efficient) without alienating them in the process. Volunteering is often seen in Italy as an activity that differs from “standard work”. In other words, volunteering is categorised separately from working in an organisation as an employee. Because of this (incorrect) belief, the majority of people are not willing to accept the digital transformation effort since it requires (or assumes) a “standardisation” of work processes. Technology is seen as a reduction of the perceived value that each volunteer has of themselves.

Finally, there are the data-related issues. NGO managers understand the power of data in driving strategic decisions. At the same time, however, they tend to believe that the kind of processes that are commonly managed by a non-profit organisation are not suitable for analytical description, unless involving a huge effort in data entry. Moreover, managers hesitate to select a few key project indicators that are suitable to synthesise the effectiveness of their organisation. The common belief here is that the environments in which they operate and the kind of services provided are too complex and variable to describe with one (or a few) dataset(s). Data is then seen as a “scarce resource” and management control is not seen as a priority within the organisation.

**Particular needs in NGOs**

In February 2017, Techsoup Italy handled a quick survey of 400 Italian NGOs on their relationship with digital fundraising (http://www.techsoup.it/workshop-Digital-Fundraising-TECHSOUP-ITALIA-digitale-cambia-Non-Profit). The results were presented during a one-morning summit where a deep peer-to-peer discussion on this theme (and ICT in general) was held. Some of the evidence that emerged from this session is briefly presented below as “particular needs in NGOs”.

NGOs desire to embed key digital capabilities within their staff (they understand the potential and relevance of digital transformation) but have small budgets to reach this goal. With the inclusion of new generations within NGO staff this lack of competences will be reduced, but there is still evidence that “digital natives” are not capable of promoting a concrete, reliable and strategy-oriented plan for the introduction of ICT. To deliver on stakeholder needs through digital means, an NGO needs to have key capabilities in place through a systematic pool of low cost (or free) and effective training sources.

The ICT infrastructure should be not only as interoperable as possible (since NGOs tend to frequently acquire new volunteers with their own digital devices and mind-sets) but also easy to implement, train and integrate. For this reason several NGOs rely on consultants who advise them on which technologies are most suitably implemented in each context. The assumption can be made that NGOs do not want to rely on an exclusive product or supplier.

When talking about specific marketing and fund-raising, NGOs need to find innovative ways to expand their audience and build more engaging stories to encourage donations. Starting from this
understanding, and with budgeting in mind, Italian organisations need to explore effective and low-cost ways of producing engaging and sufficient content to share amongst a variety of channels. Lastly, NGOs need to prove ROI (Return on Investment) internally by implementing simple yet effective ways of aggregating data and demonstrating the relationship between new investments in ICT and increases in donations (fund raising) or – at least – in management efficiency (cost-saving). With regards to the latter, several organisations during the summit emphasised the need for “ready to use” templates (that can provide them with valuable insights) with low configuration efforts.

2.3.5 Poland

Barriers preventing NGOs from more advanced use of ICT tools and solutions

The UIPN report shows five main barriers preventing Polish NGOs from more advanced use of ICT tools and solutions:

1. High cost of ICT tool usage (60.1% of the respondents experienced this barrier);
2. Lack of knowledge on which tools and solutions would be suited to each organisation (58.1%);
3. Lack of knowledge on existing tools and solutions in general (57.4%);
4. Difficulties in implementing tools throughout the entire team (53.3%);
5. Necessity of training the staff and co-workers of the organisation (45.0%).

The main barrier preventing NGOs from more advanced usage of ICT tools and solutions in Poland is the financial barrier. Most of the Polish NGOs have relatively small and unstable budgets and are in fact dependent on the state or local government funds. They are also often unaware of existing programmes, such as those supporting NGOs by obtaining (or purchasing) hardware or using open-source solutions (e.g. “New Technologies Locally”, a programme implemented by the Polish-American Freedom Foundation).

The OFIP analysis also states that Polish NGOs are rarely aware of the amount of money that can be saved through the usage of ICT tools (e.g. organising a video conference instead of travelling, delivering or participating in a webinar instead of “direct” training, promotion through social media instead of advertising in press/radio/TV or even communicating by e-mail instead of traditional mail). Thanks to the Internet and modern smartphones, one doesn’t have to drive many kilometres with a briefcase of documents. It is very important that today’s society is more mobile, the organisation’s members live in many different places, and often just the Internet binds them together. Sending everything by e-mail or instant messaging saves a lot of time that can be spent on other activities.

The financial barrier also results in an insufficient number of staff with applicable skills and knowledge. Many Polish NGOs do not employ permanent staff (sometimes no official staff at all), instead they opt for workers in a volunteer capacity. One expert states:

“It’s usual that [in an NGO] there’s only one person who knows everything about printing leaflets, preparing files as well as about PHP and HTML.”

When such a key member of staff leaves the NGO, or is absent for any reason, all the organisation’s ICT skill and knowledge resources...
ICT4NGO – ICT Competency Assessment Standard for European NGOs

are also suddenly gone. The UIPN report shows that 91.2% of NGOs which do not have their own websites also do not employ their own staff. Even in organisations that have websites, they are often created and updated by members of the organisations working non-profit, which contributes to the low quality of the webpages.

The second factor influencing the intensity and sophistication of ICT usage in the NGOs in Poland is the age of the NGO members/management staff. Authors of the OFIP analysis explain that for young personnel new technologies are something obvious, while the older ones prefer face-to-face contact, meetings and traditional means of communication.64

This is particularly prominent in Poland where many NGO managers were educated during the communist period, when contact with Western technologies had been largely restricted. The data shows that 52% of members of Polish NGO boards are aged 50 or more65, whereas 78% of Poles of this age do not use the internet at all66.

The authors of the OFIP analysis even state that for the older and low-skilled NGO members ICT can become an “enemy” because the image and reception of their organisation is significantly poorer. Such NGOs are regarded as less professional and less open to new partnerships and initiatives as currently the internet (especially social media) is the main ground on which such initiatives are launched.

Many Polish NGOs do not even have websites, or have websites based on the 90s standard (mainly NGOs in small towns and rural areas). The third factor on which the usage of ICT depends is the location of NGOs – organisations from small towns and rural areas have more problems with sophisticated ICT usage.

Some studies show that a barrier significantly hampering NGO usage of ICT is the scientific profile of their staff, which is mostly humanity rather than science/technology oriented. People with highly developed ICT skills will rarely work in NGOs because of the significantly lower salaries in comparison to the business sector.

The OFIP analysis authors emphasize, however, that even the more developed organisations who use ICT in everyday work do not know all of the possibilities these technologies offer. Most of them have social media profiles, but many do not know how to manage them efficiently67.

According to experts the main reason for poor results in interactivity of NGOs is a lack of benefit awareness. Most NGOs are not aware of how efficient multi-channel communication and interactivity could improve their position. A set of good practice examples could be useful to raise this awareness.

As mentioned in the previous chapter, there is also a very important mental barrier in Poland. This mainly refers to lack of trust due to alleged safety problems. Many of the new technologies require signing up using personal data and e-mail, which discourages many people. One expert explains a possible solution to this problem:

I think a very good option for NGOs is to get a “junk e-mail address”, which would be used to register for all applications, and thereby the main mailbox of the organisation will not be littered with unnecessary messages, advertisements and spam.

(Natalia Ciosmak, Mobile ICT Counsellor68)

The next important mental barrier is reluctance to learn coupled with a low digital imagination level. Experts interviewed, who have contact with

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64 OFIP analysis, p. 1
66 DFP report, p. 27.
67 The ambiguous role..., Warsaw 2014, p. 5.
local organisations, even called it “fear of ICT” and “magical thinking”:

Many people working in local organisations feel an absurd fear of the technologies, they are afraid that it will be too difficult for them, perhaps it doesn’t make any sense even to start. This is a sort of magical thinking - that e.g. coding is something that only the “talented”, “privileged ones” can understand. This emphasises the important notion of insufficient thinking in terms of technology. Many organisations have developed tool skills use (Google tools, Skype, Dropbox etc.) but still lack technological thinking and hence are constantly depleted of their resources by ICT subcontractors while there are many tasks which they could perform themselves. This is mainly due to the lack of “technologically thinking” staff and co-workers, especially in the management of NGOs.

The last important barrier is lack of English language skills. Many online resources (open-source tools, plugin installations etc.) are not translated into Polish and therefore at least intermediate English skills are required to use them. While English skills in Polish society have significantly improved over the last ten years, most Poles still use only basic-level communication so lack of language skills constitutes a significant obstacle in their use of ICT.

**Particular needs of NGOs**

An analysis of overall NGO needs in Poland is important in this report as many can be satisfied with proper use of ICT tools.

The BFN report shows that self-evaluation of NGO activities is consistent with declared needs, which mainly relate to financial and material resources, whereas skill competences seem less significant.

The respondents of the BFN survey were asked about a hypothetical situation in which organizations could allocate additional funds for any purpose. Their responses were indicative of the basic deficits and problems encountered by organizations. Chiefly, the representatives would like to extend their activities. They saw the means to this end as purchasing equipment, gaining funds in the way of financial contributions as well as promotion and advertising, while acquisition of new members and employment of new workers was rarely important for them.

The BFN report authors discovered an apparent contradiction – while organisations do not regard acquisition of new members and staff as a priority, they often single out the problem of lack of active personnel, as well as the difficulty of maintaining skilled staff. This contradiction proves that the human factor is underrated, which is also confirmed by the data on training needs - one fifth of Polish organisations believe they do not require any training.

Almost all (i.e. 93.5%) NGO respondents in the UIPN report stated that they needed to participate in informational and educational activities concerning modern technology. However, such activities are not always locally accessible for organisations, especially in rural areas. Therefore, the TTS report emphasized the need for “local technology guides” – people who use ICT in an advanced way who could train local NGOs in this field.

The TTS report also mentions another important need of NGOs in the area of ICT competences:

1. Competences in the scope of applying for
funds, budgeting and financial reporting with
the aid of ICT;
2. Use of more advanced IT tools for
organisation management;
3. Cooperation using cloud technology;
4. Interactive cooperation with other
participants – local governments,
beneficiaries, other NGOs, business;
5. Online education competences;
6. Using online data for local need analysis;
7. Using ICT for NGO promotion (newsletter,
mailing, social media).46

The insufficiency of technological thinking
mentioned before leads to the conclusion
that management of IT projects is an area of
education which would prove useful for NGOs
and could support them in developing digital
services and products. While several large Polish
organizations (Foundation for Development of
Information Society, Polish-American Freedom
Foundation) have been helping NGOs build their
institutional potential, their programmes still
do not teach NGOs to develop digital services/
products themselves.

The OFIP analysis ascertains that international
activity of NGOs is still not well developed in
Poland. Many NGO members identify international
cooperation with expensive journeys, while even
in Poland there are many portals (e.g. NGO.pl
or Eurodesk.pl) which can be used for finding
suitable partners, contacting them and initiating
a cooperation which can be – in many cases –
long-lasting.47

Experts interviewed stated that many basic needs
have been satisfied throughout the last ten years;
however, it is time to move to the upper levels
of the Maslow needs pyramid. An advancement
in ICT imagination is necessary to allow staff of
NGOs to negotiate as partners with their ICT
subcontractors/service providers.

2.3.6 Conclusions

Main conclusions from the chapter’s analyses:
1. NGO needs in the field of ICT vary greatly
according to location, budget and size of
organisation.
2. Small NGOs, especially those located in rural
areas, require basic ICT knowledge i.e. basic
office software (Excel, Word, Power Point).
3. Many NGOs, especially in the Eastern bloc,
need more skills in the field of website
maintenance and updating in order to not
outsource these services;
4. The larger (connected) NGOs, especially
in the Western countries, need more
personalised (or even tailored) support
including knowledge of available digital
tools, crowdfunding online and ICT strategy
guidance;
5. NGOs need to develop their digital culture
and imagination as well as knowledge
of tools, allowing them to promote their
activities and expand their audience and
beneficiary numbers.

46 TTS report, pp. 46-68.
47 The ambiguous role..., Warsaw 2014, p. 4.
2.4 Best practices in ICT competence education for adult learners and skills assessment

This chapter presents good practices from partner countries in areas related to the ICT4NGO project. Good practices have been divided into four fields: ICT competence education for adult learners (useful for elaboration of training programmes), skills assessment, needs diagnosis and analysis (useful for development of self-assessment tools) as well as other good practice examples.

2.4.1 ICT competence education for adult learners

Coursera (worldwide)

Coursera provides universal access to the world’s best education, partnering with top universities and organisations to offer courses online. Coursera envisions “a world where anyone, anywhere can transform their life by accessing the world’s best learning experience”. Coursera has three diverse types of online education tools, namely “courses”, “specialisations” and “online degrees”.

Photo 2. Coursera main page screenshot
Source: www.coursera.org
Of these, specialisations are the most interesting Coursera tools. In fact, they are conceived to help people master a specific career skill. Each specialisation has a total 4–6 month duration and includes a series of rigorous courses and projects based on real business challenges. Attendants who complete a specialisation earn an electronic Course Certificate to share with their professional network and potential employers.

Coursera offers a lot of different specialisations: arts and humanities, business computer, science data, science life, science math and logic, personal development, physical science and engineering, social sciences and language learning.

At the time of creation of this report, Coursera had 24 million learners, 149 university partners, 2,000 courses, more than 160 specialisations and 2 degrees.

**Akademia PARP (online education, Poland)**

Keywords: [business/ SMEs/ e-learning/ m-learning/ marketing/ social media/ edutainment/ European Union]

Target: business/SMEs

Website: http://www.akademiaparp.gov.pl

Details:

Akademia PARP is a large European project, co-financed by Structural Funds and managed by the Polish Agency for Enterprise Development (a government agency). It is described as the largest e-learning project in Poland.

Akademia PARP is an educational portal for SMEs and for users planning to start their own companies. Its main aim is to create free universal access to business knowledge through methods of e-learning and m-learning. The portal launched in 2006. Currently 84 courses are available, i.a.:

- E-commerce and Internet marketing in SMEs
- E-business
- Blended learning
- Social media in business
- Online store

Source: akademiaparp.gov.pl, access: 28.02.2017
An infrastructure with powerful capabilities is used for the project: a modern data centre with server farm, an extensive e-learning platform with numerous support tools such as chats, video chats, discussion forums and wiki pages and a digital call-centre hotline (801).

**OpenHPI (Germany)**

Keywords: e-learning/ MOOCs/ social media/ information technology

**Target:** General public, students, employees interested in new digital trends

**Website:** https://open.hpi.de/

**Details:**

One supplier who focuses specifically on ICT issues is e-learning platform "openHPI". Since 2012 the Hasso-Plattner-Institut offers via this platform interactive online courses which are free of charge. These focus primarily on ICT issues. The only shareholder of this German platform is the charitable foundation “Hasso-Plattner Stiftung für Softwaresystemtechnik” which was established by Hasso Plattner. Hasso Plattner is a German entrepreneur, philanthropist and donator who founded the software company SAP in 1972.

The courses have different target groups. There are courses for the general public with an introduction into the basics of information technology and digital solutions, e.g. how does the internet and world wide web work, how to implement a database or how to install security tools. Other courses are directed at specialists who want to be up to date on the development of new technologies, e.g. In-Memory data management or cloud computing. Additionally, participants can learn coding languages such as Java or Python. As the programme aims to be open to as many learners as possible, the course languages are German, English and Chinese.
On average, participants spend 3 to 6 hours per week training – this includes video tutorials, reading material, self-assessment tools, and active participation in discussion platforms. After a successful final online test they receive a certificate from the Hasso-Plattner-Institute. To date there have been 300,000 participants. After the completion of a course video tutorials are available in an online archive for further use; however, it is not possible to receive a certificate when only learning via the archived files.

**Ninja Academy (Italy)**

Keywords: [NGOs/ SMEs/ e-learning/ marketing/ social media/]

Target: marketing and communication specialists

Website: http://ninjaacademy.it

Details:
The Ninja Academy is the “Sacred School of Non-Conventional Marketing” which aims to train new professionals in digital communication. Started as a spin-off of the popular digital marketing website http://www.ninjamarketing.it/ (online since 2004, this magazine has 133,487 followers on Facebook and more than 50,000 newsletter subscribers), Ninja Academy has a wide portfolio of highly specialised courses on theory and practices of marketing and communication (especially digital marketing). In the last few years Ninja Academy has trained more than 15,000 professionals, chasing the mission of “helping organisations face social and economic transformation by transferring new marketing and communication models, tools and techniques”.

At the time of creation of this report, Ninja Academy offered over 30 different courses including digital marketing, social media marketing, e-commerce management, content management and search engine marketing.
2.4.2 Skills assessment

**TANu (France)**

Keywords: [digital culture / knowledge / company / recruitment / evaluation / passport / indicators]

Target: companies / HR / job seekers / students

Website: https://www.tanu.io/

Abstract: TANu is an HR digital skills test designed to quickly and easily evaluate a candidate or employee's digital culture. It is a multiple-choice quiz lasting 30 minutes, made up of 90 questions and resulting in a score, a passport, and some advice. Visually it is very well polished (and the questions become quite high level). It is the first digital evaluation tool on the French market. Over 75,000 people from 400 companies have already been assessed since December 2015.

Details:

TANu is designed as a tool for the use of evaluators, HR directors, etc. The latter are provided with a comprehensive dashboard which enables them to schedule tests, register participants and, particularly, to check results in a clear and appealing manner.

For this purpose, the evaluator must create a company account and purchase credits on TANu's online platform. 1 credit = 1 test and costs range from 5 to 10€ depending on the volume that has been ordered.

![TANu website landing page](Image)
Among other things TANu evaluates:

- The candidate’s ability to use digital tools to improve productivity;
- Their ability to switch between different communication channels with coworkers, partners, or customers;
- Their understanding of profound changes, brought about by the digital age, to the way companies function and do business.
- To this end the test comprises a wide variety of questions from 5 categories: IT / Internet / Social Media / Technology / Digital Economy.

Here is how it works:

- During the recruiting process, the evaluator can either have the candidate take the test on a set date on company premises or at home before the interview.
- Candidates are registered by the evaluator using email address
- On the established date they connect using email address to take the test. Once the test has begun they have 30 minutes to answer all of the questions. The questions are asked in random order, not by subject or difficulty.
Once they have completed their test, candidates receive a score and passport. The overall score is made up of 5 scores, one for each subject. It matches a level (1 to 8) which helps candidates know where they stand and understand their results. Explanations and visuals are designed to lighten the mood thanks to their laid-back tone.

The evaluator also has access to these results and can compare them to those of other candidates by the use of charts. The evaluator can download results for each category, as well as answers given by candidates should there be such a need.

If the test is taken by an entire staff (or volunteers) of a company or organisation, the digital skills of that organisation can be mapped out. This helps bring up the issue of digital transition with employees in a laid-back manner.
In addition to the standard test, the company offers complementary options centered on specific subjects or professional fields such as banking or insurance. This enables them to create tests tailored to companies’ needs. Please note: this evaluation tool can also be useful to candidates, as it can provide them with digital skill indicators to add to their résumé. In addition, it can help them identify progress areas and be equipped to tackle digital-related issues in their professional environments.

Finally, a public resource portal will soon be launched in addendum to the test. Everyone will have access to a selection of resources as a reference to TANu’s five categories: videos, tutorials, online courses, podcasts, as well as face-to-face training courses. People who take the test will be provided with resources, depending on what could help them make progress. Employees will be able to suggest more in-depth training courses to their employers, and companies will be able to set up group trainings to minimize costs. TANu is becoming more than a simple test, it is evolving into a LAAS (Learning As A Service) solution for training and e-learning.

**ENI Digital Test (France)**

Keywords: [professional digital environment / diagnostics / skill mapping / digital transition / workstation]

Target: Companies / HR / employees

Website: [http://www.eni-elearning.com/fr/test-numerique-eni.htm](http://www.eni-elearning.com/fr/test-numerique-eni.htm)

Abstract: This test, which exclusively targets companies, is incorporated into a digital training platform managed by ENI e-learning brand. The latter comprises several formal and informal tools, including a resource center called EUREKA. The significance of this test lies in its aim to provide a diagnostic of digital skills of employees in order to set up a multi-platform training programme (e-learning, on-site training, individual classes etc.). It is a multiple-choice quiz. About 1000 people have already been assessed since the launch in July 2016.

Details:

The ENI test is designed for all domains. It is adaptable: the difficulty level of questions depends on the answers given to previous questions. It consists of a maximum of 160 questions, separated into 2 main topics comprising 11 key points.
— **Using ICT**: Technical Monitoring and E-reputation / Social Media / High-tech / Messaging and Communication / Collaborative Work / Mobility

Questions are based on new tools and services designed for the company’s digital transition: social media, cloud computing, collaborative tools, smartphones and tablets and online meetings. The goal is to assess everyone’s ability to accept, understand and master this innovative technology.

— **Workstation** applications: Workstation Security / Internet / Office Software / Workstation Use / Other Workstation-related Subjects

Questions are based on the daily use of computers in the workplace and on standard office software: Windows, Office Suite, Internet, etc. The goal is to assess skills associated with the current standard use of computers.

Once the test is complete employees receive their score (highest score: 100 points) and corresponding level. They cannot see the details of their score by category; however, the global analysis can help them identify their level, profile, and abilities. It highlights their strengths and weaknesses.
The evaluator has access to a dashboard: knowledge can be mapped and digital profiles can be generated for each individual or group. The objective is to identify, for example, leaders or reference employees who could help the company reach its digital transition goals. Please note: in the office applications section, most questions focus on Microsoft solutions (Office suite, Office 365, OneNote, Skype, etc.). Thus, it does not account for every possibility in this field.

**PIX (France)**

Keywords: [public service / national certification / skills / scalable assessment / free / open source]
Target: students / high school / secondary school / all-industry professionals / citizens
Website: https://pix.beta.gouv.fr/ (beta version)

Abstract: PIX is a public project led by the French Ministry of National Education that is developing an online platform for the assessment and certification of digital abilities. This public service will be available for free and will be open to all French speakers. It is based on an 8-level European frame of reference. The service will replace existing certifications, although only on a national scale. It is an ambitious and comprehensive project which aims to be an adequate response to global issues with regard to the public’s grasping of digital tools, especially because it is a free and open source platform. The launch date scheduled is September 2017.

Details: The objective of PIX is to help foster the improvement of general digital knowledge and skills, and to prepare for the digital transition of our society as a whole. To reach this goal, PIX will provide tools to:

---

**Evaluate digital skills**

PIX will provide a skill profile based on a global score over 1024 pix.

In compliance with the European DIGCOMP framework, PIX will evaluate digital skills on 8 levels and it will cover 5 main topics: Information and Data, Communication and Collaboration, Content Generation, Protection and Security, Digital Environment.

Tests will assess knowledge and also know-how, as well as the ability to identify the stakes of digital transition. Tests will include innovative evaluation techniques which go beyond the usual multiple-choice quizzes, favouring real-life skill assessment through activities carried out within the daily digital environment of users. Activities include interactions, file handling, problem solving, creative production and peer evaluation.

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Source: https://pix.beta.gouv.fr/ (beta version)
Develop digital competencies

Everyone can develop their skills thanks to the multiple advantages of PIX:

- PIX will be an opportunity to learn through tests. A significant part of PIX tests are designed as challenges to be overcome while developing skills.
- PIX will also provide targeted individual training advice based on test results.
- And finally, the service will offer a dedicated access for teachers (middle school, high school, higher education) and trainers. They will be able to monitor their students’ progress and design tailor-made training programmes.

In order to continually keep track of their progress, users will have a secure personal account which will make it possible for them to share and promote their newly-obtained knowledge at their own pace and for a lifetime.

Display digital skills

As an option, PIX will offer a “certification” mode which will provide a reliable and official certification endorsed by the Ministry of National Education and the professional sphere.

A cooperative and evolving project:

PIX will comply with the neutrality requirements of public services and will be fully compatible with every digital environment: operating system and online service, proprietary software and open-source solution, etc. It will be an open-source platform.

PIX is being developed using a flexible method within a partnership involving personnel from the French Ministry of National Education and Higher Education and Research. It is the subject of a collaborative approach with players from the professional sphere.

Test panels are set up weekly in schools, universities and companies to assess new features as they are developed and to calibrate tests.

PIX is designed for all potential users. Any individual, school, or company who wishes to do so can join the remote beta-testing user community.
2.4.3 Needs diagnosis and analysis

Google Internet Revolutions (Internetowe Rewolucje Google) – needs diagnosis (Poland and worldwide)

Keywords: [digital skills / training/ diagnosis/ knowledge / e-marketing / analytics/ social media/ mobile apps/ internet sale]
Target: job seekers / students
Website: https://rewolucje.withgoogle.com/
Details:
Google Internet Revolutions is a free online tool for education in the field of online marketing. It is based on 23 modules regarding internet marketing, including i.a.: e-mail contact, browser using, basics of SEO, AdWords, analytics, social media use, mobile design, display advertisements, international development, use of films, developing online shopping tools and increasing sales in the internet. The knowledge can be used to develop one’s own enterprise.

A solution which is very important for TechSoup is online needs diagnosis. The Revolutions allow every user to have an individual education plan. In order to do so, the user has to participate in a short needs diagnosis in the form of a graphically attractive test (see screenshot below) consisting of only two questions – the first one on the main goal of education, and the second one on the topics which are interesting to them.

Photo 16. Diagnosis of needs in Google Revolutions (question: “Tell us about yourselves: I’d like to develop my company/ I’d like to develop my internet skills/ I’d just like to learn something about the Internet”)
Source: https://rewolucje.withgoogle.com/create-your-plan/persona, access: 28.02.2017
Based on the diagnosis, a learning plan (consisting of several selected modules) is created for each user, containing topics most suitable for them according to test results (the user can also create their own learning plan). The learning process consists of watching short films (with short talks by experts). After each module, a short test of knowledge is carried out. Also, external links are presented to enable the user to deepen their knowledge. A transcript of the film text is also available.

There is also a motivational system based on badges. A badge is a digital sign which announces the successful completion of a module (the badges come from openbadges.com). When the user successfully completes all of the designated modules, a Google certificate in PDF format is issued (it can also be downloaded into the user panel). Such a certificate can be useful, for instance during job interviews.

**Alidade - ICT tools selection online (online assessment, worldwide)**

This tool is based on research. In 2015-16, The Engine Room, Pawa254 and the Network Society Lab conducted 18-month research with Kenyan and South African organisations. The main topic was selection of tools for work. Research showed that organisations do not prepare for tool selection – almost half decided which tool they would use before knowing how they wanted to use it. A significant portion also did very little research on potential users of the tools. As a result, less than 25% of organisations were happy with chosen tools.

Alidade guides the user through a four-step process that helps them think through their tool selection. It is a self-reflection tool – it does not choose a tool, but supports the reflection and selection process, making it more rational. Each step is divided into smaller tasks:

1. **In the first step**, the user describes project objectives of the organisation, briefly outlining what they want the technology tool to do, explaining why it will make them more likely to meet their objectives. They then choose who will use the tool (describing the target audience, their reason to use the tool, the technology tools the audience already uses).

2. **In the second step**, the user completes three activities: they write down everything the tool needs to do, lists tools that do what they need and include projects that have used similar tools (resources shown allow for a comparison of different tools, e.g. mobile data collection, visualization tools, online survey tools, blogging platforms etc.).

**Keywords:** [tool selection/ NGOs/ transparency/ accountability]

**Target:** NGOs

**Website:** www.alidade.tech

**Details:**

Alidade is a Tool Selection Assistant – an online guide which supports organisations in choosing the right technology tools for use in transparency and accountability projects, i.e. software (e.g. for data collection, content management) and hardware (computers, tablets, smartphones etc.). The system does not actually choose a tool for the user, but instead guides them and supports research by asking questions and giving examples.
In the third step, the user lists things that could threaten their project’s success and decides on the best option (using an existing tool, adapting an existing tool, or building a new tool).

In the fourth step, the user creates a “user story”:

A ‘user story’ describes three things:
- the person using the tool: As a... [who is the user?]
- what the person needs the tool to do: I need/want/expect to... [what does the user want to do?]
- why the user needs it: So that... [why does the user want to do this?]

(https://alidade.tech)

Finally, the user plans a trial and assesses their first test experiences with a tool (in most cases – a demo version). Each question is accompanied by additional supporting questions, real-life examples, case studies and external links. After answering all of the questions, they can be downloaded into a document detailing all of the steps.

2.4.4 Other good practice examples

Cisco Networking Academy for Refugees – skills assessment (Germany)

The Networking Academy team of Cisco in Germany has started a project under the title “NetAcad for Refugees” in May 2016.

The commitment is to improve the skills and employability of 35,000 refugees over a project period of three years, as the ability to prove IT competencies with industry certifications is a significant plus in the labour market. Before the start of their IT-courses on the NetAcad platform, refugees use an online assessment tool in order to evaluate their existing skills. This tool is optimized for Android phones and browsers. The test takes 20 to 30 minutes and it evaluates four skill levels:

1. Interest but almost no competences
2. Basic competences
3. Advanced basic competences
4. IT competences plus maybe work experience

The tool is available in five languages: German, English, French, Arabic and Farsi – everyone who takes the test receives an invitation to take further courses on the NetAcad platform of Cisco determined by their test results.
Starting April 6th 2016, a new European technical standard defines the way in which digital competencies of ICT professionals are categorized in EU countries.

This norm, called “e-Competence Framework (e-CF) – A common European Framework for ICT Professionals in all industry sectors – Part 1: Framework”, is the most accurate and refined reference for 23 different professional profiles in the ICT economy. It uses a unique language that can be used to assess competences, skills and the quality of professional profiles. In Italy, the e-CF framework is implemented through the official quality certification “UNI 11506”.

A new model has been developed in order to create an ICT competence assessment for non-professionals. This model, called DIGCOMP (DiGital COMpetence), is currently the most accurate framework defining basic digital competences for all workers, not only ICT professionals.

DIGCOMP defines 21 specific ICT competences under 5 different areas: information, communication, content creation, security and problem solving.

### Table 4. DIGCOMP: A Framework for Developing and Understanding Digital Competency in Europe


<table>
<thead>
<tr>
<th>Competence areas</th>
<th>Competences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Information</td>
<td>1.1 Browsing, searching and filtering information</td>
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<td></td>
<td>1.2 Evaluating information</td>
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<tr>
<td></td>
<td>1.3 Storing and retrieving information</td>
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<tr>
<td>2. Communication</td>
<td>2.1 Interacting through technologies</td>
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<td></td>
<td>2.2 Sharing information and content</td>
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<td></td>
<td>2.3 Engaging in online citizenship</td>
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<td></td>
<td>2.4 Collaborating through digital channels</td>
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<td></td>
<td>2.5 Netiquette</td>
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<tr>
<td></td>
<td>2.6 Managing digital identity</td>
</tr>
<tr>
<td>3. Content creation</td>
<td>3.1 Developing content</td>
</tr>
<tr>
<td></td>
<td>3.2 Integrating and re-elaborating</td>
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<td></td>
<td>3.3 Copyright and licences</td>
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<tr>
<td></td>
<td>3.4 Programming</td>
</tr>
<tr>
<td>4. Safety</td>
<td>4.1 Protecting devices</td>
</tr>
<tr>
<td></td>
<td>4.2 Protecting personal data</td>
</tr>
<tr>
<td></td>
<td>4.3 Protecting health</td>
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<td></td>
<td>4.4 Protecting the environment</td>
</tr>
<tr>
<td>5. Problem solving</td>
<td>5.1 Solving technical problems</td>
</tr>
<tr>
<td></td>
<td>5.2 Identifying needs and technological responses</td>
</tr>
<tr>
<td></td>
<td>5.3 Innovating and creatively using technology</td>
</tr>
<tr>
<td></td>
<td>5.4 Identifying digital competence gaps</td>
</tr>
</tbody>
</table>

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71 [https://goo.gl/YOJoXJ](https://goo.gl/YOJoXJ)
73 [https://goo.gl/6c5x4g](https://goo.gl/6c5x4g)
Skillage

The DIGCOMP framework is the basis for Skillage, an online tool that helps users evaluate different technologies in information and communication within a work environment.

Skillage is provided by Telecentre Europe, a European non-profit organisation (NGO) and member based association, with its central office in Brussels, Belgium.

Telecentre Europe represents publicly funded telecentres/telecentre networks, ICT learning centres, adult education centres and libraries across Europe where children and adults can access the internet, learn the latest digital skills and keep up to date with technology and community developments.

Skillage is a self-assessment tool made of 15 different multi-choice questions. Every question is aimed to test one specific competence provided in the DIGCOMP framework. The test is created to make users aware of their competences and increase their understanding of how effective they are in one specific task.

Once the test is completed, users receive a Skillage report that can be attached to one's resume (it is not an official certification, but still a recommended and widely accepted tool).

At the time of creation of this report 57,078 people had already tested their ICT competences through Skillage.
The ICT Boot camp

The ICT Boot camp is organised by BIT ALLIANCE, a network of the most successful local IT companies in Bosnia and Herzegovina. Its aim is to involve future IT experts in programmes which combine crucial ICT skills and practical training, preparing them for future jobs and employer requirements. It has been implemented by INTERA Technology park Mostar, a non-governmental organisation established with the aim of encouraging and supporting development of economic processes in the region of Herzegovina. It is supported by EBRD\(^6\) (European Bank for Reconstruction and Development).

E-Skills Week

E-Skills Week is an educational activity presented by the European Commission which aims to reach a range of citizens and inform them about the possible free acquisition of European qualifications\(^7\). It includes a series of different events across Europe, including Croatia\(^8\). As part of the project, an online module questionnaire was developed in order to test IT skills of the general public.

Attractive project developed as part of Erasmus+ project

Erasmus+ Project Generation 0101\(^7\) is a strategic partnership comprising six countries: Croatia, Cyprus, Italy, Latvia, Lithuania and Turkey. The main objective of the project is to develop skills which encourage policy changes in the digital agenda. Furthermore, its goal is to develop a curriculum for the development of skills needed in the digital industry and also for skills in the use of digital tools necessary for social inclusion and important for local communities.

Trans eScouts

Objectives of the Trans eScouts\(^9\) project (Spain, Croatia, Lithuania, Latvia) are to: contribute to professionalisation of eFacilitators, extend use of intergenerational learning and digital competence training, better promote and integrate blended and web 2.0 learning opportunities, encourage improvement of e-facilitators’ skills and to increase participation in adult education.

This project consists of a knowledge sharing circle, which involves both youth and elders.

The idea of the project is to facilitate the socio-digital inclusion of elderly and youth, while simultaneously improving quality of life in a local community by intergenerational dialogue and mutual support. Project implementers intend to build a learning circle in which youth will support senior people in the use of ICT and, in return, seniors would mentor youth in their efforts to access the labour market and face the challenges of adult life. In this way, they will complete a circle of learning, exchange of experiences and conviviality.

An interesting point worth mentioning is the principle of knowledge sharing and its inherent ability to reach the overall population of different age groups.

2.4.5 Conclusions

Various solutions in adult ICT education and ICT tools assessment have been presented. There are some solutions which can be an inspiration for tools to be developed, including:

1. The Coursera platform (created in partnership with top universities and organisations),

\(^7\) http://eskills-week.ec.europa.eu
\(^8\) http://eskills4jobs.ec.europa.eu/croatia
\(^9\) http://www.generation0101.eu/hr
\(^9\) http://www.escouts2.eu/content/about-project
learning and self-developing according to the data entered;
2. The Open HPI and Ninja Academy platforms, similar to Coursera;
3. The TANu assessment tool, with its interesting visual representation of results;
4. The Alidade platform, aiding NGO staff in self-reflection.

2.5 Evaluation of education programmes

This chapter presents examples of the evaluation of ICT education and online learning programmes. It is designed to provide data on possible advantages and disadvantages of such solutions, useful in the elaboration of training programmes within the ICT4NGO project.

Evaluation of the Google Internet Revolutions program for students

In 2016, Google’s Internet Revolutions (described above) launched a new stationary program: a series of one-day student trainings held at twelve universities around Poland in the three following blocks:
1. E-commerce and export campaigns;
2. Web presence and online marketing;
3. More than multiscreen - how the world around us is changing.

The trainings were delivered by experts in online marketing, AdWords certified trainers and experts from ICT sector enterprises. The program was evaluated by a team of sociologists from the Digital Economy Lab of Warsaw University. Of the 1,300 students attending the trainings, more than 960 filled out the survey questionnaires.

The evaluation proved that the training program was a success. More than 95% of the participants were satisfied with the content, 91% regarded the training as useful in their jobs, and 86% stated that thanks to the training they learned how to solve online problems. What is important is that the group of participants, who defined themselves as “humanists”, felt more secure in the world of digital technology after the training (even though most of the participants declared that they were “digital natives”, i.e. people who use digital technology every day).

The possibility of extending practical skills and knowledge in the scope of applications and online tools was the most crucial factor for attendees. 75% of respondents also emphasized the significance of the opportunity of obtaining a certificate, which formally confirms gaining ICT skills. They were motivated by their conviction that employers are expecting ICT skills from job seekers (it was especially important for the students of humanitarian and social studies, who also assessed their ICT skills lower than other students).

Evaluation of Akademia PARP e-learning programmes

Akademia PARP (described before) was evaluated eleven times using the CAWI online survey (sample size: from 149 to 859 attendees). The main reasons for participating in the trainings were quite different to the reasoning of Google Revolution attendees, i.e. the majority of participants (84%) wanted to improve the functioning of their enterprises while 75% wanted to experience how the e-learning trainings work. A formal certificate confirming their skills was important to only 53% of participants.
Most attendees assessed the trainings as good (52%) or very good (43%). They allowed them to deepen or expand their knowledge (73%) rather than gain totally new skills. The second most important gain for them was the certificate issued by PARP (only 12%). Other important advantages of the trainings were:
- An experience with e-learning;
- Possibility of training at home;
- New qualifications.

However, disadvantages were also pointed out by 71% of the participants. They mainly included:
- Lack of PDF materials summing up the trainings;
- Insufficient amount of practical skills (too much theory);
- Technical problems;
- Lack of teamwork.

2.5.1 Conclusions

1. There should be a specific attitude in assessing and improving ICT skills of “humanitarian/social” NGO staff. Many Polish NGOs work in a humanitarian/social field (welfare, labour market, culture, education) and their staff often regard themselves as “humanitarians”, which leads to a lack of “ICT self-esteem”. The product of ICT4NGO should help them understand that online technologies are suitable for everyone and not only for those with “scientific minds”;

2. A certification may be less important for NGO staff (similarly to SMEs staff) as opposed to practical skills and knowledge, as well as an easy and user-friendly summary of assessment or trainings in PDF format.

2.6 Validation of learning outcomes for NGO educators

The good practices of ICT skill validation presented in this chapter provide a template for the self-assessment tool and questions. They can also be used in validating the learning outcomes of the training programme which is being developed within the ICT4NGO programme.

2.6.1 European Computer Driving Licence

The most popular method of ICT skill certification in Poland is the European Computer Driving Licence (ECDL). It is a standard developed by the ECDL Foundation based in Dublin, Ireland. The idea was presented in 1995 by the Council of European Professional Informatics Societies and was supported by the European Commission. It was later introduced in other parts of the world under the name “International Computer Driving Licence” (ICDL).

The ECDL programme is divided into three kinds of modules:

1. **BASE MODULES:**
   - Computer Essentials including use of devices, file creation and management, networks, and data security;
   - Online Essentials including web browsing, effective information search, online communication and email;
   - Word Processing including creating, formatting, and finishing small-sized word processing documents;
   - Spreadsheets.

2. **INTERMEDIATE MODULES:**
   - Presentation including creating, formatting, modifying and preparing
presentations using different slide layouts for display and printed distribution;
- Using databases including creating and modifying tables, queries, forms and reports, and preparing outputs ready for distribution, relating tables, retrieving and manipulating information from a database by using query and sort tools;
- IT security;
- Online collaboration including collaborative tools, calendars, social media, web meetings, mobile technology and cloud computing;
- Image editing
- Web editing (a static website)
- Project planning
- 2D computer Aided Design
- Health Information Systems Usage;
- ICT in education;
- Digital Marketing
- Computing (coding, creating simple programmes)

3. ADVANCED MODULES:
- Advanced Word Processing
- Advanced Spreadsheets
- Advanced Database
- Advanced Presentation.

2.6.2 Eurostat Digital Skills Index/ Digital Competence Framework

The Eurostat Digital Skills Index is not a validation tool in a strict sense of the word, but uses such a tool and allows the comparison of digital skills of the inhabitants of different countries and regions. It is based on the Digital Competence Framework (developed by the Joint Research Centre of the European Commission and Directorate General for Education and Culture). The Digital Competence Framework is available for self-assessment on the Europass website. The assessment is based on questions regarding specific skills in five competence domains: information, communication, content creation, safety and problem solving.

The Eurostat ICT survey on the Digital Skills Index collects information on activities within four of the five domains (without the safety domain). The table below presents the skills of which the Digital Skills Index consists.

<table>
<thead>
<tr>
<th>Competence domain</th>
<th>Skills</th>
<th>Level of skills</th>
</tr>
</thead>
</table>
| Information skills| - Copying or moving files or folders  
- Saving files on Internet storage space  
- Obtaining information from public authorities/services websites  
- Finding information about goods or services  
- Seeking health-related information | Basic: one item  
Above basic: more than one item |
2. Communication skills

| Basic: one item
| Above basic: more than one item |
|---|---|
| Sending/receiving emails |
| Participating in social networks |
| Telephoning/video calls over the internet |
| Uploading self-created content to any website to be shared |

3. Problem solving skills

| Basic: one or more items only from A or only from B |
| Above basic: at least one item from A and B |
|---|---|
| Transferring files between computers or other devices |
| Installing software and applications (apps) |
| Changing settings of any software, including operational system or security programmes |

B – Familiarity with online services

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Online purchases (in the last 12m)</td>
<td></td>
</tr>
<tr>
<td>Selling online</td>
<td></td>
</tr>
<tr>
<td>Using online learning resources</td>
<td></td>
</tr>
<tr>
<td>Internet banking</td>
<td></td>
</tr>
</tbody>
</table>

4. Software skills for content manipulation

| Basic: none of the “above basic” from B |
| Above basic: at least one “above basic” from B |
|---|---|
| Using word processing software |
| Using spreadsheet software |
| Using software to edit photos, video or audio files |

B – Above basic

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating presentations or documents integrating text, pictures, tables or charts</td>
<td></td>
</tr>
<tr>
<td>Using advanced functions of spreadsheet to organise and analyse data (sorting, filtering, using formulas, creating charts)</td>
<td></td>
</tr>
<tr>
<td>Writing a code in a programming language</td>
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</tr>
</tbody>
</table>

OVERALL DIGITAL SKILLS ASSESSMENT:

**Individuals with “above basic” level of skills:**

- "above basic" in all 4 domains

**Individuals with a “basic” level of skills:**

- at least “basic” in all 4 domains

**Individuals with “low” level of skills (missing some type of basic skill):**

- One or more “none” in one to three domains

**Individuals with “no skills”:**

- Four “none” (no items ticked in all four domains, despite declaring having used the internet at least once during last 3 months),
- and those persons who used the internet more than 3 months ago, or who never used it.

Table 5. European Digital Skills Index methodology

Source: Digital Skills Indicator – derived from Eurostat survey on ICT usage by Individuals.
Methodological note - 2015
The graph below – as an example – shows the position of Poland in a ranking of 28 EU countries according to different competence domains. The position is very low, especially in the competence domains of information and communication.

Chart 26. Position of Poland in a ranking 28 EU countries - digital skills and ICT-related indicators

Source: Eurostat
The world Internet infrastructure continues to improve. The number of Internet users is gradually increasing. However, in Europe the figures still vary greatly – in more developed countries in the West more than 80% of the population use the Internet, while the situation of Eastern Europe together with the Balkans (excluding Kosovo which has a large number of Internet users) is significantly worse: the gap between the “old” and “new” EU countries in ICT still remains unfilled.

ICT usage is rising in all of the partner countries, as well as their NGOs. The main challenges in the field of ICT use are similar in Eastern and Central Europe. Small organisations, often situated in rural areas and run by ageing staff, have less skills and competences, and use worse software and hardware in comparison to bigger organisations, situated in the cities.

The NGOs in Eastern and Central Europe depend mainly on volunteer staff, therefore they miss ongoing ICT maintenance and services. In most cases, the organisations can also not afford to cooperate with experts or long-term ICT employees.

Western Europe (Germany, France, Italy), although their NGO budgets are also limited, is more often involved (or at least interested in) an advanced use of ICT (e.g. for organisation management, online education, online donations, mobile applications). There is a large group of “connected” non-profit organisations who aim at using and developing digital tools to service beneficiaries and social causes. In comparison, in Eastern and Central Europe (Balkans, Poland), NGOs still rarely think of transforming their services into digital products. There is even a lack of trust in innovative technologies (stemming from, for example, safety issues and a mistrust of business methods). The management staff of NGOs in Eastern and Central Europe also lack social media management skills, webpage positioning skills etc.

The main barriers preventing NGOs from more advanced use of ICT tools and solutions, as well as their main ICT needs are presented in the table below.
<table>
<thead>
<tr>
<th>Country</th>
<th>Barriers</th>
<th>Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Balkans</td>
<td>— Lack of permanently employed staff/flow of staff</td>
<td>— Engagement of staff for IT services (software and hardware maintenance);</td>
</tr>
<tr>
<td></td>
<td>— Constant reliance on volunteer work</td>
<td>— Financial resources;</td>
</tr>
<tr>
<td></td>
<td>— Lack of funds for capacity building</td>
<td>— Education in:</td>
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<tr>
<td></td>
<td>— Lack of knowledge of basic ICT terminology (especially in rural areas)</td>
<td>— Office package</td>
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<tr>
<td></td>
<td></td>
<td>— Website maintenance and updating</td>
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<tr>
<td></td>
<td></td>
<td>— Design and visual communications</td>
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<tr>
<td></td>
<td></td>
<td>— Communication and social media</td>
</tr>
<tr>
<td></td>
<td>— Engagement of staff for IT services (software and hardware maintenance)</td>
<td></td>
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<tr>
<td></td>
<td>— Financial resources;</td>
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<td></td>
<td>— Education in:</td>
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<td></td>
<td>— Office package</td>
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<td>— Website maintenance and updating</td>
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<td>— Design and visual communications</td>
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<td>— Engagement of staff for IT services (software and hardware maintenance)</td>
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<td>— Website maintenance and updating</td>
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<td>— Design and visual communications</td>
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<tr>
<td></td>
<td>— Communication and social media</td>
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<tr>
<td>France</td>
<td>— Lack of finances and time;</td>
<td>— Database creation</td>
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<td></td>
<td>— Insufficient mastery of advanced digital tools;</td>
<td>— Better knowledge of available digital tools</td>
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<td></td>
<td>— Lack of know-how in choosing tailored tools</td>
<td>— Initiation to digital technology for members with little or no know-how;</td>
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<td></td>
<td>— Reluctance to learn ICT among staff</td>
<td>— A shared will to rely on ICT;</td>
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<td></td>
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<td>— Personalized support to create a digital strategy;</td>
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<td></td>
<td></td>
<td>— Tailored support for “connected NGOs”</td>
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<td></td>
<td></td>
<td>— Support in developing digital projects serving beneficiaries</td>
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<td></td>
<td>— Decision-makers in NGOs rarely play a pioneering role in ICT</td>
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<tr>
<td></td>
<td>— Tight financial resources</td>
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<td></td>
<td>— Limited human resources, especially in small NGOs</td>
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<tr>
<td>Germany</td>
<td>— Web presence not satisfactory</td>
<td>— Support in software selection</td>
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<td></td>
<td>— Mistrust in web channels to increase fundraising/build community</td>
<td>— Support in issues regarding data and IT security</td>
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<td></td>
<td>— Lack of technical skills and stable human resources</td>
<td>— Social media skills leverage</td>
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<td></td>
<td>— No sharp vision of ICT use in management</td>
<td>— Information on cloud computing and virtual collaboration</td>
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<td></td>
<td>— Additional support for small organizations</td>
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<tr>
<td>Italy</td>
<td>— High costs of ICT tool usage</td>
<td>— Embedding key digital capabilities within NGO staff</td>
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<td></td>
<td>— Insufficient English language skills</td>
<td>— Elaboration of a concrete and reliable digital strategy</td>
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<td>— Insufficient “digital imagination”</td>
<td>— Interoperable infrastructure</td>
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<td></td>
<td>— Lack of knowledge on tools and solutions</td>
<td>— Finding innovative ways for expanding audiences, building stories that drive donation</td>
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<td>— Difficulties in implementing tools in the whole team</td>
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<td></td>
<td>— Necessity of training staff and co-workers of the organisation</td>
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<td></td>
<td>— Mistrust due to safety issues and “non-business” way of thinking</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>— High costs of ICT tool usage</td>
<td>— Developing NGO services as digital products</td>
</tr>
<tr>
<td></td>
<td>— Insufficient English language skills</td>
<td>— Competences in the scope of applying for funds, budgeting and financial reporting with use of ICT</td>
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<tr>
<td></td>
<td>— Insufficient “digital imagination”</td>
<td>— Use of more advanced IT tools for organization management</td>
</tr>
<tr>
<td></td>
<td>— Lack of knowledge on tools and solutions</td>
<td>— Cooperation using cloud technology</td>
</tr>
<tr>
<td></td>
<td>— Difficulties in implementing tools in the whole team</td>
<td>— Interactive cooperation with other parties — local governments, beneficiaries, other NGOs, business</td>
</tr>
<tr>
<td></td>
<td>— Necessity of training staff and co-workers of the organisation</td>
<td>— Online education competences</td>
</tr>
<tr>
<td></td>
<td>— Mistrust due to safety issues and “non-business” way of thinking</td>
<td>— Using online data for local needs analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>— Using ICT for NGO promotion (newsletter, mailing, social media)</td>
</tr>
</tbody>
</table>

To satisfy these needs and overcome barriers, the best practices in ICT competence education and skill assessment, as well as in the validation of learning outcomes for NGO educators, have been reviewed. The research shows that many features from good practices can be used, including:

— Solutions from online education tools like Coursera, Ninja Academy and OpenHPI (diversity of courses, tailored courses according to test results, video tutorials, webinars etc);
— Online assessment solutions – e.g.:
  — TANu (checking results in a clear and transparent manner, clear and objective assessment rules, comparing scores);
  — Google Internet Revolutions (needs diagnosis allowing users to have individual education plans prepared);
  — Alidade – an efficient tool supporting self-reflection and thus guiding the user to select correct technology tools for NGO projects.

The existing systems of ICT competence validation (Digicomp Framework, ECDL) provide broad descriptions of skill levels and various competences. They can be also used in the elaboration of ICT4NGO self-assessment tools. The Open Badge system can be useful in communicating assessed skills.

Finally, the developed product of the project should include global trends in ICT. The overall framework should be connected to the trend of Digital Transformation/Connected Non-profit, which allows organisations to transform their analogue services into digital products and develop new levels of digital imagination. The key areas of digital transformation in NGOs are:
  — Internal digital management of the organisation, staff and volunteers;
  — Digital optimisation of processes within NGOs;
  — Using cloud-based and digital tools for engaging beneficiaries and partners;
  — Digital crowdfunding;
  — User experience and communication management;
  — Digital security and privacy protection.
  — The other important trends, not generally addressed by NGOs, are 3D printing and the Internet of Things.

Based on the findings of the report we propose a few recommendations to further project outputs:
  — The developed tool should assess skills on all levels, basic as well as more advanced, to cover all types of users. A short preliminary test (including self-assessment) can be considered, according to which the users of the tool will be redirected to suitable expanded parts of the test.
  — The tool should also allow gathering and analysis of anonymised data on users in order to develop better tailored training possibilities for different user profiles. The questionnaire should also include questions on personal user data (gender, age, area, type of NGO etc.).
  — The assessment/learning tool should discreetly address trust issues, not only allowing the evaluation of skill levels, but also defining the causes of not using some solutions (e.g. cloud computing), showing the possible advantages of using these tools together with providing opportunities to learn them. Internet security solutions and knowledge should also be provided within training opportunities.
  — The tool and training opportunities should also include solutions on time management and human resources.
  — The developed tool should put emphasis on skills like:
    — joint planning and organisation of events;
    — ICT support for project and organisation management;
    — mobile technologies and design;
    — cooperation using cloud technology;
    — delivering webinars and organising online meetings;
    — webpage positioning.
  — The solutions from good practices should be an inspiration – in particular the tools:
The developed tool (assessment + training portal) should have an open formula, i.e. it should be possible to constantly update the tool according to gathered data; new training opportunities should be added; a cooperation of organisations from the ICT field (universities, training centres, software and hardware developers) should be able to update the tool.

Some of the chosen best practices (Coursera Open HPI, Coursera, Ninja Academy) should be linked to the portal and used as training opportunities for test participants;

The visual concept of the TANu tool should be an inspiration for test result presentation (dashboard as a presentation of results, opportunity of comparing yourself to other people and even some kind of gamification).

Web/social media skill enhancement should be oriented on interactivity and multichannel communication.

A specialised approach to 50+ (of age) tool users/training participants should be applied based on their specific needs.

The tool should include the promotion of other programmes and tools allowing NGO staff to gain free access to ICT tools and hardware.
Context, objectives and methodology of the study

The report has been elaborated within the “ICT4NGO” project, co-financed by the European Union in the framework of the Erasmus+ Key Action 2: “Strategic partnerships in the field of education and training”.

The project is implemented by five partners:
— Fundacja TechSoup (FTS) (Poland – project leader);
— Haus des Stiftens (HdS) (Germany);
— Les Ateliers du Bocage (ADB) (France);
— SocialTechno (Italy);
— Fondacija Mozaik (Bosnia and Herzegovina).

The project aims to contribute to the development of digital skills amongst staff (voluntary as well as non-voluntary) of non-governmental organisations through the creation of experimental training programmes supported by the specialised ICT-portal which diagnoses and recommends paths of digital competence development for individuals.

The main purpose of the study is to provide reliable data, conclusions and recommendations useful in the development of the main products of the project: an online ICT competence self-assessment portal together with an ICT Competence Assessment European Standard Guidebook for NGOs and the ICT4NGO training programme.

The document is based on two research methods:
1) Desk research of statistical data, reports, analyses, websites and good practice examples;
2) Semi-structured interviews with selected experts and NGO staff (a total of 15 interviews have been carried out).

The following topics have been described in the document:
— Global trends in ICT;
— Competences and ICT usage within NGOs;
— Technological needs of NGOs;
— Best practices in ICT competence education for adult learners and skill assessment;
— Evaluation of education programmes;
— Validation of learning outcomes for NGO educators.

It is important to note that every participating organization has contributed to the report by elaborating parts describing state-of-the-art in their countries. The partners worked on different scopes of data, according to the available studies (as there is no comprehensive study regarding the report topics for all of Europe or the EU). Therefore, the parts of the different partners may vary.
Main conclusions

Global trends in ICT

Five global trends have been described: digital transformation, cloud computing, Open Badges, 3D printing and Internet of Things.

The digital transformation trend, based mainly on cloud computing, is a revolution in the business sector. However, it is still not wholly applicable for NGOs as their model of working differs from business. It is possible that the future will bring new ways of digital transformation which is strictly related to the charities’ way of thinking. However, some solutions (digital management of voluntary and non-voluntary staff, using cloud-based and digital tools for engaging beneficiaries and partners, digital crowdfunding) are very important and should be considered when creating tools for the assessment and enhancement of ICT skills in NGOs.

Cloud computing is a growing trend allowing for flexibility, low cost, scalability and easy access to resources. It could provide many solutions in the NGO sector without a large financial investment. However, there is a great deal of mistrust towards cloud computing with regards to the safety of data as well as privacy protection and these challenges must also be addressed.

Open Badges are a solution which can be very useful in the elaboration of ICT skill assessment and learning portals. They are a low-cost, attractive tool of recognition of skill levels.

The remaining trends - 3D printing and Internet of Things - are less important for present and near-future NGOs.

3D printing is very innovative and there are prognoses that it will revolutionise the supply chain of production, as well as larger, humanitarian NGOs; however, it will not be used commonly and a large amount of time is needed to popularise this trend among the organisations. The Internet of Things also concerns only a small group of organisations (e.g. those working in geriatrics and child care).

Competences and ICT usage within NGOs

ICT usage is increasing in all of the partner countries as well as in their NGOs. The main challenges in the field of ICT use are similar in both Eastern and Central Europe. Small organisations, often situated in rural areas and run by ageing staff, have less ICT skills and competences, and use worse software and hardware in comparison to the bigger, city-based organisations.

NGOs in Eastern and Central Europe depend mainly on volunteer staff, therefore they lack ongoing ICT maintenance and services. In most cases the organisations can also not afford to cooperate with experts or long-term ICT employees. In Western Europe (Germany, France, Italy), even though NGO budgets are also limited, there is more involvement (or at least interest) in an advanced use of ICT (e.g. for organisation management, online education, online donations, mobile applications). Collaborative methods and online education are used. In France it can even be stated that „use of ICT is at the heart of an NGO’s activities”; however, in Germany mostly volunteers take care of issues related to IT and IT training is not considered. There is a large group of “connected” non-profit organisations which aim at using and developing digital tools serving beneficiaries and social causes.
In comparison, in Eastern and Central Europe (Balkans, Poland) the NGOs still rarely consider transforming their services into digital products. There is even a lack of trust in innovative technologies (stemming from not only safety issues but also a mistrust of business methods). Management staff of NGOs in Eastern and Central Europe also lack social media management skills, webpage positioning skills etc.

Even in the most developed countries, NGOs can be divided into two groups: “connected” and “non-connected”. The first group mostly consists of larger organisations from cities, the second of small organisations from rural areas (in Poland the age of staff is also an important factor here).

**Technological needs of the NGOs**

The NGOs’ needs in the field of ICT vary greatly according to location, budget and size of the organisation. Small NGOs, especially those located in rural areas, need basic ICT knowledge (e.g. basic office software such as Excel, Word, PowerPoint). The larger (connected) NGOs, especially in Western countries, need more personalised or even tailored support including knowledge of available digital tools such as online crowdfunding and ICT strategy guidance.

Many NGOs, especially in the Eastern bloc, need more skills in the field of website maintenance and updating in order to not outsource these services. Overall, NGOs need to develop their digital culture and imagination as well as knowledge of tools, allowing them to promote their activities and expand their audience and beneficiary numbers.

**Best practices in ICT competence education for adult learners and skill assessment**

Best practices in ICT competence education and skill assessment, as well as validation of learning outcomes, for NGO educators have been reviewed. The research proves that many features of good practices can be used, including:

1. Solutions from online education tools like Coursera, Ninja Academy and OpenHPI (diversity of courses, tailored courses according to test results, video tutorials, webinars, self-learning platforms etc);
2. Online assessment solutions – e.g.:
   - TANu (checking results in a clear and transparent manner, clear and objective assessment rules, comparing scores);
   - Google Internet Revolutions (needs diagnosis allowing users to have individual education plans prepared);
   - Alidade – an efficient tool supporting self-reflection and thus guiding the user to select the right technology tools for NGO projects.

The existing systems of ICT competence validation (DIGCOMP Framework, ECDL) provide broad descriptions of skill levels and various competences. They can also be used in the elaboration of the ICT4NGO self-assessment tool. The Open Badge system can be useful in communicating assessed skills.

**Polish examples from the evaluation of education programmes**

There should be a specific attitude in assessing and improving the ICT skills of “humanitarian/social” NGO staff. Many Polish NGOs work in a humanitarian/social field (welfare, labour market, culture, education) and their staff often regard
themselves as “humanitarians”, which leads to a lack of “ICT self-esteem”. The product of ICT-4NGO should help them understand that online technologies are suitable for everyone and not only for those with "scientific minds". A certification may be less important for NGO staff (similarly to SME staff), whereas they are looking for practical skills and knowledge as well as an easy and user-friendly summary of assessment or training in PDF format.

**Recommendations**

Based on the findings of the report, it is possible to propose some recommendations for further project outputs:

1) The developed tool should assess skills on all levels, basic as well as more advanced, to cover all types of users. A short preliminary test (including self-assessment) can be considered, according to which users of the tool will be directed to suitable expanded parts of the test.

2) The tool should also allow the gathering and analysis of anonymised data on users in order to develop further tailored training possibilities for different user profiles, so the questionnaire should also include questions on some personal data (gender, age, area, type of NGO etc.).

3) The assessment tool should discreetly address trust issues, not only allowing the evaluation of skill levels but also defining the causes of not using some solutions (e.g. cloud computing), showing the possible advantages of using these tools together with opportunities to learn them. Internet security solutions and knowledge should also be provided amongst the training opportunities.

4) The tool and training opportunities should also include solutions for time management and human resources.

5) The developed tool should put emphasis on skills like:
   a) joint planning and organisation of events;
   b) ICT support for project and organisation management;
   c) mobile technologies and design;
   d) cooperation using cloud technology;
   e) delivering webinars and organising online meetings;
   f) webpage positioning.

6) The solutions from good practices should be an inspiration – in particular the tools:
   a) Coursera
   b) TANu
   c) Alidade

7) The developed tool should have an open formula, i.e. it should be possible to constantly update the tool according to gathered data; new training opportunities should be added; a cooperation of organisations active in the ICT field (universities, training centres, software and hardware developers) should be able to update the tool;

8) Some of the chosen best practices (Coursera Open HPI, Coursera, Ninja Academy) should be linked to the portal and used as training opportunities for test participants;

9) The visual concept of the TANu tool should be an inspiration for test result presentation (dashboard as a presentation of results, opportunity of comparing yourself to other people and even some kind of gamification).

10) The web/social media skill enhancement should be oriented on interactivity and multi-channel communication;

11) Specialised approach to 50+ (of age) tool users/training participants based on their specific needs should be applied;

12) The tool should include the promotion of other programmes and tools allowing NGO staff to gain free access to ICT tools and hardware.