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How to Empower Digitally Vulnerable People? Co-Designing Policies and Services With End-Users

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ABSTRACT

The aim of this paper is to analyze impactful methods to address citizens who are excluded from digital transformation. These are citizens whose digital engagement in political decision-making and e-services is hindered by their lack of access to technological benefits, a lack of awareness of digital issues, and/or a lack of digital literacy and skills. With the unprecedented speed of digital developments in many countries around the world, digital vulnerability affects not only specific demographics or what we may have traditionally considered vulnerable (e.g., older people) but anybody who could be digitally vulnerable due to their circumstances. The more deeply affected are those societies that are extra vulnerable and already damaged, such as economically, in terms of security, or due to war. Therefore, the case studies of this paper focus on Ukraine and Georgia, where digital development has been relatively rapid and there has been a lot of emphasis on e-services; however, less attention has been paid to addressing the digital divide and social aspects of these countries. Applying the theory of change, design thinking, and service and process design is not a new or revelatory approach; however, these concepts have, so far, been applied primarily in the business sector. This study argues that this approach could be successfully implemented in other sectors of society and by various stakeholders to tackle arduous challenges and problems. The current extraordinary circumstances occurring in Ukraine, but also the context of Georgia, increase the need for a novel approach to tackle digital vulnerability. Thus, this paper analyzes how a business-like approach, which is a new concept in the countries included in this study, helps to impactfully identify the most vulnerable citizens, and how to design processes, services, and policies to empower and engage with these citizens.

Keywords: Empowerment, Digitally vulnerable citizens, Theory of change, Service and process design

INTRODUCTION

With the unprecedented speed of digital developments in many countries around the world, a new type of vulnerability has emerged. This new vulnerability affects not only the specific demographics we may have traditionally considered to be vulnerable (e.g., older people) but also those who, for whatever circumstances or at any moment, are digitally vulnerable (e.g., due to war, natural catastrophe, or temporary disability). In this paper,

we define digitally vulnerable citizens as those whose digital engagement in political decision-making and e-services is hindered by their lack of awareness of digital issues, lack of access to technological benefits, and/or lack of digital media literacy and skills. We argue that digital vulnerability has gained too little attention in societies compared to its importance in a digital transformation.

There are many groups still for whom the digital creates gaps rather than eliminating them. These gaps not only exclude citizens from (e-)services or social and political life but impact society as a whole. Low awareness and poor cyber hygiene habits, a lack of media literacy, and the inability to cope with mis-, dis-, and malinformation (Horowitz, 2022) make societies vulnerable to a plethora of new threats. Digital vulnerability, as we define it in this paper, can affect absolutely any society; however, the more deeply affected are societies that are already damaged or wounded in different ways, such as economically or in terms of security, like war, such as in the case of Ukraine. Therefore, in our case studies, we focus on two countries, Ukraine and Georgia, where digital development has been relatively rapid and with a significant emphasis on e-services, but where equal attention has not been given to addressing the digital divide. In Ukraine, we aimed to address digital vulnerability during times of war, which makes it even more relevant to address citizens' digital information literacy skills, cyber hygiene, and other skills and abilities to protect themselves and survive. In Georgia, we focused on how to tackle digital vulnerability through service or engagement design. Our case studies demonstrate the digital empowerment of very different citizen groups. These include providing digital skills to rural female entrepreneurs and increasing digital literacy among parents in three rural cities.

The application of the theory of change, design thinking, service and process design is not a new or revelatory approach. However, these concepts are currently applied primarily in the business sector, although they might be successfully implemented in other sectors of society and by various stakeholders to tackle arduous challenges and problems. The current extraordinary circumstances in Ukraine, but also the context of Georgia, increase the necessity of using a novel approach to tackle the matter of digital vulnerability. Thus, this paper analyzes how a business-like approach, which is a new concept in the countries included in this study, helps to impactfully identify the most vulnerable citizens and how to design processes, services, and policies to empower and engage with these citizens.

The paper is structured as follows. In the first section, definitions are explained, and the framework of digital vulnerability is presented. In the second section, we investigate process and service design theories and how they apply to digitally vulnerable citizens. In the third section, we showcase how we set the aims, identified the most vulnerable groups in both countries, designed activities for them, and created policies. Finally, we analyze and discuss the value and impact of our approach on the end-user.

THEORETICAL STANDPOINTS

Different Faces of Vulnerability

The paper is based on the project DRIVE: Digital Research and Impact for Vulnerable E-citizens[1] and is a follow-up to the research paper "Shedding light on digital vulnerability – challenges and solutions", presented at AHFE2022.[2] The research carried out in both countries aimed to investigate digital vulnerability and to understand in which groups and activities digital transformation could bring about the biggest change in quality of life and empowerment, and the main challenges citizens face. We collected and analyzed semi-structured interviews and data from public sources in Ukraine and Georgia, such as reports and strategy and policy documents (Reinsalu, 2022).

Our research revealed that, in both countries, there are two key groups that correspond to our definition of digital vulnerability.[3] These are: (a) children and young people; and (b) older people. In addition, the research found that there are three main digital vulnerability challenges related to these groups: a geographical challenge; a skills, access and awareness challenge; and a media literacy challenge (Reinsalu, 2022). The vulnerability of these groups is not surprising; however, the study revealed the multifaceted and complicated nature of digital vulnerability, which public institutions are not able to address alone. In Georgia, for example, the research showed many concrete digital gaps that must be addressed further:

(a) young people in general whose digital vulnerability is concerned first and foremost with privacy issues.
(b) younger children, whose digital vulnerability is connected to access to education, especially in rural areas and digital literacy in general.

Moreover, we have identified the duplicating or even triplicating effect of one digital vulnerability challenge on the others. Being a schoolchild in a rural area of Georgia incidentally created a condition of double vulnerability in the summer of 2020, where an estimated 35,000 schoolchildren had never used the internet and/or did not have access to distance-learning tools. Thus, it can be argued that the pandemic expanded the vulnerable group – not all rural children and young people should traditionally be defined as vulnerable. However, the pandemic deepened and changed the face of digital vulnerability by adding another layer of digital challenges.

There are also many risks associated with the digital vulnerability of older people, among them the risk of becoming a victim of cybercrime, or

[1]The DRIVE project is implemented by e-Governance Academy, Estonia, and funded by the organization Luminate.

[2]Reinsalu, K. (2022). Shedding Light on the Digital Vulnerability: Challenges and Solutions. In: Christine Leitner, Walter Ganz, Clara Bassano, Clara Bassano and Debra Satterfield (eds) The Human Side of Service Engineering. AHFE (2022) International Conference. AHFE Open Access, vol. 62. AHFE International, USA. http://doi.org/10.54941/ahfe1002576

[3]Digitally vulnerable citizens are those whose digital engagement in political decision-making and e-services is hindered by their lack of awareness of digital issues, of access to technological benefits, and/or of digital literacy and skills.

a victim of cyberattacks. This includes in manipulations by a hostile neighboring country, which may pose a threat to the security of society as a whole.

Each of the vulnerabilities identified were the basis for the activities planned for civil society organizations in the two countries. An elaboration of our selection criteria for the proposals designed and submitted in Georgia is provided in next chapter.

Solutions Can Be Found Only With the Involvement of End-Users

As described above, digital vulnerability is multifaceted and complicated. Take, for example, the digital vulnerability of young people – one of the most critical digital vulnerabilities for children and youth is a lack of digital information literacy or poor levels of such. Digital information literacy can be defined as a citizen's ability to access, manage, understand, integrate, communicate, evaluate, create, and disseminate information safely and appropriately using digital technologies. It includes competences that are referred to as information and media literacy, computer, and ICT literacy, but also an ability to understand the functioning of the digital information landscape at large (Kivinen, 2022). As Kivinen (2022) notes and argues, it is a common misinterpretation that students are digital natives immersed in digital technology, and that young people pick up the skills necessary to use today's technology in a skilled way. These young people may be technically skilled (meaning that they know how digital tools work but do not use them as purposefully as they could), but evidence shows that they struggle with gauging the accuracy of online information.

It is clear that such a complex issue cannot be solved by teachers or schools only. Our previous research carried out in the DRIVE project had identified all stakeholders (both public authorities and civil society organizations) with some experience and/or projects with young people (the target groups) in addressing digital literacy and other digital vulnerabilities. Our aim was to use this previous research as a foundation to offer a novel approach to address problems with building capacities. As Scupola et al. (2021) highlight, despite a long tradition of collaboration between public sector actors and civil society in Denmark, projects and initiatives are still somehow fragmented, and no systematized knowledge is obtained and developed. However, it is especially important that civil society actors be supported, and that such support for management conditions as well as the capacity development of those actors matters. This is, I believe, also the biggest value of this paper, to show how civil society actors can play an important role in defining the key problems, target groups and designing and offering services and policies to address the biggest problems concerning the digitally vulnerable. Thus, our aim is to encourage the development of processes, policies, and new services in a situation where essentially all resources are scarce. Where the country is in a difficult economic and political situation (Georgia) or even at full-scale war, as is the case in Ukraine.

The questions of how we can make better use of our knowledge and experience in implementing policy and policymaking, and how one can achieve

optimum societal impact with relatively limited public resources, are key challenges we face today (Mager et al. 2016). It is important to convince governments that engaging in and empowering meaningful civil society organizations to address problems is not taking away governmental power. The shared responsibility and outsourcing of solutions make solving problems more efficient and, in the long run, also increases trust and makes the entire governance process more transparent and inclusive. By encouraging experimentation, prototyping and testing, these will contribute to improving public services, carrying out innovation to achieve and resolve more together, more efficiently. According to Mager et al. (2016), understanding the way a target group behaves, perceives services, how they use them, and how we would love to use them is a driver for change. How much the end-user accepts what we provide and how easy it is to use – these are crucial success factors (Mager et al. 2016).

Sometimes, it is just a small barrier that stands between the public sector and the creative service design industries. Lowering this barrier will positively impact the number of collaborations (Mager et al. 2016), and this was the starting point for us to co-design policies and services with end-users, and to tackle digital vulnerability with civil society organizations in Georgia. We aimed to use the same approach in Ukraine, unfortunately, the war forced us to postpone our activities. However, at the time of writing this article, we have already begun the continuation of activities in Ukraine.

SHOWCASE: CO-DESIGNING POLICIES AND SERVICES TO DIGITALLY VULNERABLE CITIZENS IN GEORGIA

We wanted to solve a problem – people who lack an awareness of digital issues, access, or skills are digitally vulnerable. This digital vulnerability may have a negative impact on their rights, interests, and everyday life. Moreover, as mentioned earlier, digital vulnerability could also pose a security threat to society, especially during turbulent times. In the research phase, which is described in the previous section, we identified the main parties (state institutions and non-governmental organizations) who have experience with our focus topic and main target groups in Georgia.

Along with our local partner, we organized a design masterclass for these parties to collaborate in teams and create proposals to prevent the digital divide. From October 4, 2022 to October 7, 2022, we carried out two onsite masterclasses for 14 Georgian teams of civil society organizations and public authorities with 38 participants on idea design and action proposal planning, with the help of a service design trainer as an external expert. During the one-and-a-half-day masterclasses, the participants put themselves in the shoes and minds of different stakeholders, identifying the main user groups and end-users, and identifying potential root-causes of their challenges. Thereafter, all teams could receive coaching on the idea/service design, digital engagement, and vulnerability. As an output, ten teams did online pitching and submitted their action proposals for evaluation.

The proposals addressed the different aspects of digital vulnerability for different target groups within our identified key target groups. For instance,

one civil society organization designed a project to raise the awareness and ability of ethnic minority girls and women in the Samtskhe-Javakheti and Kvemo Kartli regions to identify online sexual violence, protect themselves from such instances, and seek legal remedy (when required). There were also proposals to address digital inclusion for older people, with the aim of attracting the older people in Georgia to the internet and to make their digital inclusion comfortable and meaningful via the efficient use of smartphones, specifically for those living in rural areas.

- A jury of five people (eGA, local partner IDFI, and the key expert) chose one proposal to receive 20,000 euros. The winner was "DIGITAL EDUCATION AND AWARENESS FOR PARENTS" – a pilot in three areas of Georgia to increase digital literacy among parents to develop their resourcefulness in supporting their kids and engaging them in effective decision-making. The proposal stood out for corresponding to all the evaluation criteria, which included meets the project DRIVE aims;
- identifies one or several digitally vulnerable groups (we even propose focusing on smaller, measurable segments within the specific vulnerable groups);
- engages public authorities; and/or
- collaborates with other partners, such as CSOs or universities;
- has a plan that is feasible, desirable, and viable; gives value for money.

The project aims to increase digital literacy among parents in three rural areas, Ozurgeti, (Northern Guria region), Gori (located at the border of Samachablo, a region occupied by the Russian Federation since 2008) and Bolnisi (a region populated with ethnic minorities, such as Azerbaijanians), develop their resourcefulness, and engage them more effectively in decision-making at the local level and more widely.

The main beneficiaries of the project are:

- parents (schools and kindergartens);
- grandparents;
- indirect beneficiaries, including children and wider local communities.

The activities will be implemented both online and onsite, and they include the following:

- *Preparing a basic digital literacy manual for parents*
  Material on digital literacy in Georgian, especially targeting parents, is still very scarce. The experts will develop a manual containing basic skills for navigating through the internet safely and effectively.

- *Short, animated videos*
  At least three animated videos, based on the developed manual focusing on the most important and crucial subjects of media literacy.

- *Online campaign on digital awareness*
  Using online platforms aiming to reach 100,000 users and engage 10,000 users. The campaign will be based on and derived from the abovementioned manual. It will include cards with useful tips posted with the regular frequency of a couple of times a week, quizzes, tests, and small

competitions. This will also allow the project team to measure the progress of parent' awareness throughout the project.

- *Onsite meetings and training for parents*
  Twelve educational institutions: two schools and two kindergartens in the three regions, with 15 parents from each institution. For a total of 180 parents overall. Delivered by at least two experts and the P4E team. Three visits/training per region by P4E team and respective experts (media literacy, cybersecurity). Visits will be held at the premises of local ERCs (Education Resource Centers of the Ministry of Education and Science of Georgia) and/or local municipalities.
- *Digital Ambassadors Camp*
  Two-day training camp for up to 20 active parents from three regions, who will come up with action plans on how to spread digital awareness among the respective communities engaging other actors such as local municipalities and school communities. Implementation of the plans will be supervised and supported by the P4E team beyond the DEAP implementation period.

The pilot will be implemented by July 31, 2023. Furthermore, all teams will receive additional coaching and help in submitting their proposals for funding for other sources, as well as training, together with the Ukrainian participants, on cyber hygiene, cybersecurity, digital rights, etc. and options to work with universities. Although the masterclass itself is limited in time, the tools and methods can be immediately applied in real-world contexts and used as a foundation for developing and delivering solutions to real people. These new skills, tools, and methods can be used for any other service, project, initiative, policy idea or task the citizens are dealing with in the future.

Based on the feedback we received, this approach was novel to the participants. The participants of the first masterclass said that the most valuable learning takeaway was "understanding the design thinking system and internal connections". It is important to be creative and "try and see the world from your beneficiary's perspective", which, although logical, is easy to forget. "Doing observation and research and thinking more of what a problem is before actually seeking solutions" was the key takeaway for many teams from the masterclasses.

CONCLUSION AND DISCUSSION

Digital vulnerability does not always overlap with traditional vulnerability. Additionally, vulnerability can also be duplicated or even triplicated by one's immediate circumstances, such as being a schoolchild in a rural area during a pandemic, which makes this even more complicated to tackle. All of this means that the digital literacy of children is so complex an issue that it cannot be dealt by teachers or schools alone.

Our study demonstrates that a process and service design approach that is novel for the public authorities and CSOs, at least in our target countries,

brings good results. Such an approach helps to deepen the understanding of all public authorities and civil society organizations on digitally vulnerable groups, including unmet needs and salient issues in reaping the benefits of an increasingly digital economy and society. When planning new policies, services and projects, public authorities, civil society organizations, donors and businesses should scan and scrutinize the policies, services, and projects envisioned. Secondly, the approach also proves to be good in finding solutions for other marginalized or vulnerable groups in society and finding solutions to any arduous problem or challenge in society. For instance, some of the action proposals were about how to empower minority women. It is also evident from literature that women's political empowerment enhances technological change (Dahlum et al. 2022). These are exactly the kind of small wins or small projects that can give a taste of what can be achieved. One should start with small wins, small-scale projects that can convey the impact more easily, take a holistic end-to-end design approach to it, and build trust from both the public servants directly impacted and higher management levels of the organizations, as the service design theorists believe (Mager et al. 2016).

To conclude, our study creates what we hope to be a positive example of how to address problems in society and co-create solutions and policies. We also hope that governments do not overlook digital vulnerability, in all its diversity, when going through digital transformation, as was discussed in our paper.

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