

E-Inclusion of Vulnerable Groups: Review of International Documents from 1990 until 2020

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The goal of the paper is to identify the top priorities of public policy of European Union institutions to gain progress in raising e-inclusion so much necessary for digital transformation. E-inclusion is considered a complex phenomenon that depends on constructs: “Access to ICT and the Internet”, “Usage of ICT and the Internet”, “Empowerment of users” and the “Impact on quality of life” as it

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follows from General Theoretical Conceptual Model of e-Inclusion (GTCM). The research has included 69 public policy documents, published in the period from 1990 to 2020, in order to examine the representation of constructs of GTCM for e-inclusion by content. The results show that “Usage” and “Impact on quality of life” were in the focus of the public policy documents for the most part. The contribution of this research is knowledge about the possibility of using a model approach to create public policies related to e-inclusion of vulnerable population groups. The results of the research could motivate public authorities in planning future activities to support raising the e-inclusion of vulnerable groups, taking into account all four key constructs of GTCM for e-inclusion.

Keywords: e-inclusion, digital divide, public policies, access, usage, empowerment, impact on quality of life

1. Introduction

Public policies are used to solve recognized social problems, which in terms of scope most often fall into the category of mass phenomena. The purpose of such an approach to problem solving is to act systematically on the causes of a certain problem, solve the consequences of the problem and prevent the future occurrence of risky situations that threaten other aspects important for society, its development, or the economy.

As social policies have become more sensitive for specific societal groups over time, the term of vulnerable social groups has emerged. According to the definition of the European Parliament, these “are groups of people considered to be at risk of poverty or social exclusion because of physical disabilities, age factors, ethnic origins, lack of housing, or substance abuse” (Kiss, 2016). The aging nations are a global issue that brings numerous consequences that society needs to deal with. Three decades ago, the United Nations (UN) have adopted the Resolution 45/106 on the Implementation of the International Plan of Action and on Ageing and related activities (UN, 1990). Special approach to inclusion of persons with disabilities has been promoted by Convention on the Rights of Persons with Disabilities and Optional Protocol (UNCPRD) (UN, 2006). In the previous decade, there was focus on sustainability as a paradigm that considers

human rights and UN adopted “Sustainable Development in an Ageing World: A call to UN Member States on the development agenda beyond 2015” (UN, 2015) and “Transforming our World: The 2030 Agenda for Sustainable Development” (UN, 2015a). As the sustainable policy was implemented, annual reporting has been established and UN has published “Population facts: Population ageing and sustainable development” (UN, 2017). In accordance with the expectations of the development of the digital society, the phenomenon of the digital divide has ceased to be taken seriously as an important obstacle to achieving a successful digital transformation. The United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP) in 2019 issued the “Measuring the Digital Divide in the Asia-Pacific Region for the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)” (UN, 2019) and “2018 Active Ageing Index: Analytical Report” (UNECE, 2019a). UN continually takes care of vulnerable population groups, especially of older people, so they issued the “Profile of Ageing 2019” (UN, 2020).

The lower share of e-inclusion in aging populations causes many difficulties in achieving the expected effects of the digital society and sustainable development policy goals. The rate of e-inclusion in this research was considered from the last decade of the 20th century to recent years. According to Eurostat, the share of respondents aged 55–74, who used the Internet in the last three months increased in 2012–2021 period (EU average in 2012 was 43%, in 2021 it was 76%). In half of European countries, the share of respondents aged 55–74 who used the Internet in the last three months are lower than the EU average. Also, during the whole observed period, north European countries (Finland, Sweden, Denmark, Norway, the Netherlands, Great Britain) had the share of respondents aged 55–74 who used the Internet in the last three months of 80% and over in 2012, and in 2021 the percentage was from 92% in the Netherlands to 98% in Norway (Eurostat, 2021).

Two other relevant EUROSTAT (2021) indicators are very indicative for this research. One of them is the “share of individuals who do not have digital skills at all” (I1) and another the “share of individuals who cannot assess digital skills because they have not used the Internet in the last three months” (I2). The values of I1 in 2021 are in the range from 1% (in the Netherlands, Finland, Norway) to 14% (Romania). The values of I2 in 2021 are in range from 2% (Norway, Iceland) to 50% (Bulgaria).

The goal of this research is to determine the orientation of public policies towards the constructs of GTCM of e-inclusion (Žajdela Hrustek, 2015) and the comprehensiveness of the approach to solving the issue of e-inclu-

sion in the period from 1990 to 2020. The GTCM of e-inclusion consists of four constructs: "Access to ICT and the Internet" (Access), "Usage of ICT and the Internet" (Usage), "Empowerment of users" (Empowerment) and the "Impact on quality of life". Each of the constructs depends on attributes. The identified attributes of the "Access" component are: affordability, point of access and material access and network. The category "Usage" comprises following attributes: intensity of use, skills, motivation attitudes, social support or coercion and digital engagement. The attributes e-learning, e-health, e-government, digital economy (e-employment and labour, e-commerce, e-banking, e-entertainment, e-communication), and e-culture are part of the category "Impact on quality of life". And in the last category, "Empowerment", one has identified the following attributes: e-democracy and e-participation and social computing, which includes user created content and networking.

This research examines the relevant general strategic plans for the development of the EU, sectoral strategies for the development of the digital society and economy, and horizontal development strategies that address specific issues related to e-inclusion issues. The issue of inclusion of vulnerable population groups in general, in which the elderly population should certainly be included, is contained in various public documents in the context of public policies. The issue of ageing nations is partly a matter of social policy, it also touches on economic and development policies, and more recently it has become an integral part of policies related to digitalization, so the authors of this research looked at public policies on a wider scale (general, sectoral, horizontal public policies).

The World Health Organization (WHO), UNESCO, United Nations and the OECD set initiatives for solving global issues, among which the care for vulnerable population groups. Since the issue of aging nations was raised, topics such as social policy, employment, population aging and the inclusion of vulnerable groups in society and the digital society have been intertwined for almost four decades. In accordance with global initiatives, European Union (EU) has developed policies and initiated continual solutions addressing the population that is near retirement or are retired, which are increasingly represented in the total population. The initiatives focus on older populations and other vulnerable groups to become and remain active and contribute to society, and this can only be done if the conditions are created for its members to acquire the necessary skills, have opportunities to use the Internet, and to see personal advantages in it.

The paper consists of five chapters and provides an overview of relevant public policies dealing with the e-inclusion issues of vulnerable groups,

with an emphasis on age. In general, public policies that can have impacts on e-inclusion of vulnerable population groups can be found in general policy documents that partly mention e-inclusion as a solution for solving some general social or economic problem, or in specific sectoral (e-government, e-banking, e-health) (EC, 2004; 2006a) policy documents that considers e-inclusion as an important opportunity to increase the usage of mentioned e-services. Finally, there were also horizontal policy documents that are focused on e-inclusion as the main issue, and increasing rates of e-inclusion of vulnerable groups can solve issues of social exclusion and digital economy progress by raising the number of users.

During the research, the authors focused on questions and problems related to the creation of the most inclusive information society, and the results are presented in chapter 3. This research aims to answer following research questions: 1. Which construct of the proposed theoretical model of e-inclusion has been mostly supported in relevant documents?¹ (RQ1); 2. To what extent do analysed public policies systematically support increasing e-inclusion of aged population? (RQ2); 3. Were the constructs of the proposed GTCM of e-inclusion continuously considered in the period from 1990 until 2020? (RQ3) and 4. Which public authority/organization supported which perspectives of e-inclusion, regarding the constructs of the proposed GTCM of e-inclusion and assured systematic approach on e-inclusion rate of vulnerable population groups? (RQ4)

Research goals and research questions were defined, from the identified research problem, as presented in the third chapter. The research methodology, which summarizes the main steps of the research design, is explained in the same chapter. The fourth chapter presents the results of the research together with the discussion. The final conclusions based on research results are presented in the last chapter.

2. People-Centred and Inclusive Digital Society

On the World Summit on the Information Society in 2003, a commitment was set to build a people-centred, inclusive and developing information society, where everyone can create, access, use and share information and knowledge, enabling individuals, communities and nations to realize their

¹ A full list of the analysed documents could not be enclosed within the paper due to space constraints, but it is available from the authors, upon request.

full potential in promoting sustainable development and improving quality of life (Olphert, Damodaran & May, 2005).

In the Ministerial Declaration from Riga on e-Inclusion, it has been identified that the European Commission (EC) uses the following to encourage social inclusion: e-accessibility (making ICT accessible to everyone), e-aging (empowering the elderly population so that they can fully participate independently in the economy and society), e-competencies (building citizens' knowledge and skills by lifelong learning), socio-cultural e-Inclusion (empowering minorities, migrants and marginalized members of the younger population), geographic e-Inclusion (increasing the social and economic well-being of citizens), strengthening economically backward areas with the help of ICT and inclusive e-administration (increasing public participation in democracy) (EC, 2006).

A constructive and objective assessment of the effectiveness of the digital inclusion policy and the possibilities for its application in EU member states is presented in the document "Digital Inclusion in Europe: Evaluation of Policy and Practice" (Helsper, 2014). The goal of the evaluation was to prepare for the Europe 2020 policy and the Social Investment Package. Helsper (2014, p. 2) suggested five key areas for digital inclusion: access/infrastructure, skills/literacy, motivation/awareness, content/engagement and physical (offline) results.

Governments of several industrialized countries have adopted active aging policies to reduce the social burden of aging population and to guarantee a better quality of life for older adults. The timely inclusion of citizens of the third age to be active participants in the digital society requires an institutional approach. To increase the level of digital literacy, some European countries have established universities for the third age and offered free courses aimed at strengthening the skills they need for everyday life, such as searching for useful information, using e-mail and contacting relatives. Education also promotes a model of social policy called "active aging" (Brenna, 2019).

In 2008, the working bodies of the EC created a document entitled "Towards an accessible information society. Status and challenges of e-accessibility in Europe" (EC, 2008). At that time, there was no legal framework at the EU level that would have defined the exact standard for accessibility. In 2016, the EC adopted a Directive (EU) 2016/2102 on the accessibility of websites and mobile applications of public sector bodies (EP, 2016a)². Lat-

² Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of websites and mobile applications of public sector bodies.

er, in 2019, with the intensive introduction of the need for data openness, the EC defined standards, which also include accessibility for the use of the content (EC, 2019b). Accessibility standards define how, in a technical sense, the difficulties experienced by people with impaired vision, the elderly, people who have difficulties in understanding digital content due to a language barrier, etc., are circumvented.

Moreno and Martinez (2019, p. 5) provide an overview of standards for the accessibility of digital content. The accessibility is a significant factor for the acceptance of digital content and digital services, especially related to the physical limitations of users (vision, cognitive abilities, etc.), so the fact that the EC has recognized the above and legally imposed the obligation of all those who distribute information important to the individual through their websites is of utmost importance.

2013 saw the adoption of a new action plan called “eHealth Action Plan 2012–2020 – Innovative healthcare for the 21st century” (EC, 2013), aimed at a comprehensive process of encouraging e-Involvement within institutions, between institutions, but also connecting with end users of healthcare services and institutions that co-finance the health care system. Looking at the benefits that end users have from such an e-health concept, it can be said that the quality of life of citizens is extremely emphasized and is certainly one of the motivating factors in encouraging e-inclusion of the population that needs health services to a significant extent. Similar research on the influence of social inclusion and health status on the quality of life in the third age was conducted by Raggi and colleagues (2016).

The authors Galdon Clavell, Zamorano and Zavala Pérez (2018) dealt with the topic of ICT and police service in the community, and they state that the social impact of technological development can be observed through four sub-dimensions: desirability (real need for a certain technology), acceptance (reach of acceptance, technological innovations), ethics (exchange of values and moral norms established in society) and data management (consequences of data protection and privacy systems).

Authors Atarodi, Berardi and Toniolo (2019) conducted research comparing strategies aimed at the 60+ population (as a vulnerable population group) in selected countries. Also, for the time being, a system that would enable social assistance to users at home to use ICT for the purpose of consuming e-health services has not been established in wider application. Research on a similar topic was conducted by Brenna (2019) (EC, 2004; 2010b). The author states that with increasing age, the probability

of exposure to chronic and degenerative diseases increases, which results in the limitation of individual autonomy and increases the need for care. The EC considers business entities to be important stakeholders for the development of the information society and the increase of e-inclusion. Thus, already in 2002, it adopted the so-called “Green paper on Promoting a European framework for corporate social responsibility” (EC, 2002), in which it appeals to the business community and business entities to use their social responsibility to encourage lifelong education, work organization, equal opportunities, social inclusion and sustainable development. In 2006, the European Parliament issued “Recommendation on key competences for lifelong learning” (EP, 2006). Competencies necessary for inclusion in modern society are communication, safe and critical use of information and communication technologies for work, recreation and communication, the ability to participate in society, which is only part of what is found in the recommendations of the EC given to the governments of member countries on the way to design and implement lifelong education programs (Council of the European Union, 2018).

From everything stated in this chapter, it is evident that there is awareness of the need for proactive action in the field of e-inclusion. During the past twenty years, many steps have been taken to further e-inclusion, or reducing the digital divide, by both governmental and non-governmental organisations, as well as the private sector. In spite of all attempts, complete elimination the digital divide is not achievable given the ongoing developments in digital technologies and the Internet. It is the responsibility of all stakeholders to work tirelessly and never cease putting policies into place to ensure that every person, regardless of the group to which they belong, has an equal opportunity to develop and improve their quality of life in which digital technologies continue to play a major role. The qualitative comparative research on best practices in implementing e-inclusion public policies has been conducted on the cases of northern EU countries by Zdjelar (2022).

3. Research Methodology

3.1. Research Goals and Questions

Since the process of digital transformation is unstoppable, there is a growing need of educating capable e-included citizens to live in such envi-

ronment. The introductory part describes the reasons why e-inclusiveness requires special attention from the public administration. The main research goals arise from the previously described research problems. The research goals (RG) are:

- RG1: To conduct an analysis of the public policies and initiatives content focused on constructs of the GTCM of e-inclusion (Žajdela Hrustek, 2015): Access, Usage, Empowerment, Impact on quality of life of ageing vulnerable social group from 1990 until 2020.
- RG2: To identify on what constructs of GTCM of e-inclusion the public policies and initiatives of RG1 were focused on.
- RG3: To detect which public authority/ organization is the most focused on raising e-inclusion of vulnerable groups in the period from 1990 until 2020.

This research aims to answer the following research questions (RQ):

1. What construct of the proposed General Theoretical Conceptual Model of e-inclusion has been the most supported? (RQ1)
2. To what extent do analysed public policies systematically support raising aged population e-inclusion regarding the constructs of the proposed General Theoretical Conceptual Model of e-inclusion? (RQ2)
3. Were the constructs of the proposed General Theoretical Conceptual Model of e-inclusion continuously accordingly considered in the period from 1990 until 2020? (RQ3)
4. Which public authority/organization supported which perspectives of raising e-inclusion, regarding the constructs of the proposed General Theoretical Conceptual Model of e-inclusion and assured systematic approach on e-inclusion rate of vulnerable population groups? (RG4)

3.2. Research Design

The objective of this research is to assess the orientation of international public policies to raise e-inclusion rate, especially of vulnerable population groups. It is possible to expect to get impact on society issues caused by ageing nations and to decrease digital divide by implementing e-inclusion public policy measures. Given that the issue of e-inclusion of vulnerable population groups is significant from several aspects, the question is

which public institution is most dedicated to systematically addressing the e-inclusion regarding constructs of the GTCM of e-inclusion. European statistics have been tracking the rate of ICT and the Internet use for more than a decade, so the question arises of the effectiveness of the measures envisaged, because the problem in some EU countries persists.

The research method applied in this research is qualitative and it includes the content analysis of public policies in strategic documents, reports and other similar publications.

In order to answer the research questions, the following key indicators were identified:

- The artefacts, as qualitative results of research, of analysed public policies on mentioning activities that could increase e-inclusion
- the level of public policy complexity for supporting e-inclusion measured by number of GTCM of e-inclusion constructs that are represented in public policy
- the frequency of supporting each of the constructs in the period from 1990 until 2020
- the public authorities/organizations that issued the public policy documents.

The research methodology is briefly presented through following phases:

Phase 1: research of official web sources of the EU and globally relevant policy authorities to find policy documents including reports of their released results to prepare a content for the following phase of research and make a chronology of found artefacts.

Phase 2: determining key indicators for content analysis of public policy documents, based on constructs of the GTCM of e-inclusion, regarding their attributes to realise RG2.

Phase 3: qualitative content analysis of the contents of public policy documents by key indicators and making notes on finding by using codes that represents the attributes of constructs according the GTCM of e-inclusion to realise RG2 and RG3.

Phase 4: presenting findings through descriptive statistical analysis and commenting on the research results in order to answer the defined research questions.

Phase 5: proposing conclusions and recommendations based on the obtained research results.

4. Research Results

The first phase of the research was realised by searching the official web sites of the EU and globally relevant policy related to active ageing, preventing risks of poverty and social exclusion, developing digital society, developing digital economy, and using digital services. The search resulted with finding 69 documents that represent plans or reports of performed planned activities in the period of time from 1990 to 2020 by EU authorities or international organizations (UNESCO, WHO, OECD, EUROSTAT, Eurofound, ECDL Foundation, Good Things Foundation).

Key indicators that have been used to categorise the content of the documents are: information society, network accessibility, digital skills, empowerment, quality of life, specific e-services that have an impact on quality of life. On the other side, the authors used constructs of the GTCM of e-inclusion and their attributes that are: “Access”, “Usage”, “Empowerment”, “Impact on quality of life”. As presented in the introduction of this paper, since current EUROSTAT statistics on e-society show that the rate of e-inclusion of vulnerable population groups (elderly, disabled, low-educated individuals) is still lower than EU average, even the public policies are intended to make progress in the direction of positive trends in digital transformation.

During content analysis of 69 policy documents issued between 1990 and 2020, the authors have categorized them by year and constructs of the GTCM of e-inclusion. The results are presented in Table 1 and Table 2.

Table 1. *The number of public policy documents related to constructs of the proposed GTCM of e-inclusion*

	Access	Usage	Empowerment	Impact on quality of life
Number of documents	15	65	29	34
Share (Total – 69)	21.74%	94.2%	42.03%	49.28%

Source: Authors.

Data in Table 1 present the answer to RQ1. The 94.2% of public policy documents (65 out of 69) are related to the construct “Usage”, 49.28% are related to the “Impact on quality of life”. Only 21.74% of documents are related to “Access”.

Data in Table 2 present the answer to RQ2. Most of the public policy documents included in the analysis affect only one construct. Only 18.84% of all analysed documents account for complex, systematic measures that include all four constructs of e-inclusion regarding the GTCM of e-inclusion (Table 2).

Table 2. *The number of constructs of the proposed GTCM that analysed public policy documents contain*

Number of constructs in documents	Number of documents	Share (%)
1	34	49.28
2	12	17.39
3	10	14.49
4	13	18.84
Total	69	100

Source: Authors.

According to the data specified in Table 1 and Table 2, the usage of ICT and the Internet among vulnerable groups is still a significant matter regarding digital transformation.

Regarding RQ3, the constructs of the GTCM of e-inclusion were not considered continuously during the 1990-2020 period in the analysed documents, as it could be seen from Table 3. But it may be concluded that compared to other constructs, the “Usage” is the construct of the GTCM of e-inclusion that is almost continually considered in this period, followed by “Impact on quality of life”.

Table 3: *The number of public policy documents affected to constructs of proposed GTCM from 1990 until 2020*

Year	Access	Usage	Empowerment	Impact on quality of life
1990		1		
1993				1
1994		2	2	
1996				1

1998				1
1999		1		
2000	2	2	2	2
2001		1		
2002		2		
2003		1		
2004		1	1	1
2005		4	3	1
2006		3	1	1
2007		3	1	1
2009	1	4	1	2
2010	1	4	3	3
2011		1		1
2012		5	1	3
2013	1	3		1
2014	1	5	1	1
2015	2	4	3	3
2016	1	4	3	3
2017	3	4	3	3
2018	2	7	3	4
2019		1		
2020	1	2	1	1
Total	15	65	29	34
Share (%)	21.74	94.2	42.03	49.28

Source: Authors.

Regarding RQ4, 52.56% of the analysed documents were issued by the European Commission, followed by OECD (8.7%) and European Parliament in the observed period of time (5.8%).

The European Commission issued the “European i2010 initiative on e-inclusion: To be part of the information society” (EC, 2007a) in 2007, in 2009 the “Digital Europe comparison 2011–2015: high-level conceptual framework i2010” in 2009 (EC, 2009a) and “Europe 2020: a strategy for smart, sustainable and inclusive growth” (EC, 2010) in 2010. The “Flagship initiative: Digital Agenda for Europe – Employment and skills to combat poverty” implies the empowerment users and positive impact on quality of life.

The European Commission published a report “Ageing report – Economic and budgetary projections for the 28 EU member states (2013–2060)” (EC, 2009) regarding the pension reforms that were implemented at that time. One of the published facts read that “... the biggest increases in participation rates are projected for older workers (around 21 percentage points for women and 10 percentage points for men) in the EU for the age group 55–64, influenced by pension reforms and societal trends affecting women’s participation rates” (EC, 2015, p. 32). Regarding fact that the share of older workers grows in active workforce, the e-inclusion of that population group is getting more and more important for them to remain active and productive.

In the “European Strategy on the single digital market” of the EC (2015), it was stated that strengthening the use of digital technologies and online services should become a horizontal policy covering all economic activities and public administration. This alone draws attention to the fact that it is necessary to develop services and infrastructure, but also to strengthen the capacity of users to be able to use the services offered. The implementation of the mentioned strategy is monitored from the aspects of connectivity, digital skills, use of the Internet, integration of digital technology by companies, digital public services at the level of the EU and for each member country separately. Through monitoring the implementation of digitization measures in the member states in order to take advantage of the opportunities available to citizens and businesses of the single digital market, it was determined that the availability of fast and mobile Internet is increasing, that the public administration provides an increasingly wider range of online services, and that electronic commerce is increasingly more benefitting from citizens and businesses. In addition to infrastructure (current broadband Internet access), the European strategy on the single digital market is also focused on human potential (capital), which is reported through EUROSTAT, and which has already been discussed in this paper. According to the EUROSTAT data for 2016, and in the context of the European strategy on the single digital market, it is stated that “45% of people in the EU do not have basic digital skills. ICT professional skills are also lacking in many countries, employment of ICT professionals has increased by more than 4% annually over the last decade, while the number of ICT graduates has fallen by 40%.” (EC, 2015, p. 7).

The European Commission has published a report “European digital progress report 2016” (EC, 2016), which presented best practices of e-inclusion of EU Nord countries (examples of national initiatives from Denmark, Sweden, the UK). In the “European digital progress report 2017” (EC,

2017), the European Commission reported that in the category “Human capital: Digital inclusion and skills”, Finland, Luxembourg, the United Kingdom and Sweden achieved the highest marks under the DESI human capital dimension. Romania, Bulgaria, Greece and Cyprus received the lowest. The number of non-Internet users decreased further in 2016, especially in Member States with a high proportion of non-users. However, even today, around 14% of the EU population have never used the Internet. The share of non-Internet users continued its decline in 2016 to 14% (compared to 16% in 2015). As regards regular data on Internet usage, the number of new Internet users increased in the vast majority of member states last year. Proportionally, the most significant increases were observed in those with a relatively higher share of the “off-line” population; e.g. Poland reduced the share of people aged 16-74 who have never used the internet by five percentage points, while Croatia, Cyprus, Lithuania and Italy achieved a decrease of about three percentage points. Member States where the share of non-Internet users fell the most between 2010 and 2016 are Romania (-27 percentage points), Greece (-24 percentage points), Cyprus (-22 percentage points) and Portugal (-20 percentage points)” (EC, 2017, p. 42). The complexity of e-inclusion topic requests the integrative approach in supporting vulnerable population groups that are exposed to digital divide to prevent and avoid potential reasons for not being e-included.

Through the “Broadband Internet Strategy”, the EC is promoting the transformation of Europe into a gigabit society with the aim of fulfilling the indicators by 2025 (EC, 2016b). The key goal of the aforementioned policy document, adopted in September 2016, is to increase the availability of high-capacity networks to enable wider use of products, services and applications on the single digital market.

Insufficient accessibility of digital content to people with certain physical limitations (impaired people, blind people, elderly people, right to access certain content, language barrier, etc.) is also recognized as one of the causes of reduced e-inclusion of citizens (European Parliament and Council, 2019). Accessibility is especially important when it comes to public services and data, because the public administration started to publish data about its activities immediately upon the availability of web services, but it turned out that the pages were not adapted to the widest range of users.

The international organizations such as OECD, WHO, WEF, UN, UNESCO also have dealt with e-inclusion issues, more precisely, earlier than European Union public authorities, and this can be seen as a motivational stimulus for solving essential social issues of vulnerable population groups and their social exclusion.

5. Conclusion

The importance of e-inclusion of vulnerable groups is reflected in the sense of achieving today's global goal, which is the successful digital transformation of all aspects of society. The focus of this research was to explore the interest of public institutions and international organizations and their policies related to e-inclusion of vulnerable groups. Another point of research is to revisit the interest in constructs of e-inclusion according to the GTCM of e-inclusion (Žajdela Hrustek, 2015). The authors analysed 69 public policy documents published in the period from 1990 to 2020. According to the aforementioned constructs of GTCM: Access, Usage, Empowerment and Impact on the quality of life, it is indicative that during the observed period research results show that the 94.2% of public policy documents (65 out of 69) are related to the construct "Usage", 49.28% are related to the "Impact on quality of life". Only 21.74% of documents are related to "Access" (Table 1, the first research question), but the worrying thing is that a very small percentage 18.84%, of public policy documents included all four key constructs of the e-inclusion phenomenon related to vulnerable population groups (Table 2, the second research question). Regarding the third research question, which refers to the analysis of public policies in the period from 1990 to 2020, the results show that compared to other constructs, "Usage" is the construct of the GTCM of e-inclusion that is almost continually considered in analysing the time period, followed by "Impact on quality of life", and the important attribute of construct "Usage" are users' digital skills. And the results of the last research question, related to the institutions/levels of government which supported perspectives of raising e-inclusion, show that in the observed period of time, 52,56% analysed documents were issued by the European Commission, followed by OECD (8.7%) and European Parliament (5.8%).

In the Republic of Croatia, public authorities, as well as civil society organizations and private organizations, should be more proactive in relation to the e-inclusion of vulnerable groups, given that the results of research by the authors Žajdela Hrustek, Šimić and Čizmar (2022) show that 65% respondents agree or strongly agree that the costs of purchasing devices and equipment are too high. The same research also shows that the digital skills of members of vulnerable groups are unsatisfactory, especially those related to the use of digital services (45,6% of participants do not use the Internet for paying bills, shopping online/mobile banking or they often need help, and over 50 % of participants said they do not use or need digital public services).

Developing digital society and economy implies e-inclusive population, assured ICT infrastructure and developed e-services. The efforts have had positive impacts, but not in all member states. Some of the possible reasons why all of the member states have not been successful in e-inclusion of vulnerable population groups is national culture in providing adults education, the EU membership period, the development of ICT and broadband infrastructure, and the empowerment of vulnerable population groups to become e-inclusive.

Different levels of public administration from the EU level, national public bodies, units of regional self-government, and local self-government have a role (mandatory or voluntary) in the development of the digital society, but also a role to encourage the development of digitization in the field of all activities and sectors with a proactive approach, regardless of legal obligations (European Parliament, 2000). The role of public administration in a digital society is to be a support in the development of infrastructure and the development of its electronic services through which it provides support to citizens, but also to be a promoter–integrator–coordinator among numerous stakeholders to achieve synergistic effects, yielding benefits to everyone involved. The impacts of these activities can achieve the goals of digital transformation of society and economy, and digital transformation as a strategic goal is a decision of public authorities. The results of this research can be used to motivate actual public policy makers to improve public policies by incorporating integrated measures that address all four key constructs relevant to e-inclusion.

References

- Atarodi, S., Berardi, A. M., & Toniolo, A-M. (2019). Comparing local policy practices to implement ICT-based home care services for aging-in-place in Finland, France, Italy, Spain & Sweden. *Gerontechnology. International Society for Gerontechnology*, 18(2), 108–121, <https://doi.org/10.4017/gt.2019.18.2.005.00>
- Brenna, E. (2019). Adult education, the use of information and communication technologies and their impact on elderly's quality of life: A case study. *International Journal of Business and Social Science*, 10(8), 92–103, <https://doi.org/10.30845/ijbss.v10n8p11>
- Council of the European Union (2018). Council recommendation on May 22nd 2018 on key competences for lifelong learning (text relevant for EGP) (2018/C 189/01). Retrieved from [https://eur-lex.europa.eu/legal-content/HR/TXT/PDF/?uri=CELEX:32018H0604\(01\)](https://eur-lex.europa.eu/legal-content/HR/TXT/PDF/?uri=CELEX:32018H0604(01))

- De Hert, P., & Mantovani, E. (2010). Chapter three. The EU legal framework for the e-inclusion of older persons, VI. Legal framework to e-inclusion. In *Ageing and Invisibility* (pp. 83–115). IOS Press.
- European Commission (1993). White paper on growth, competitiveness, and employment. Retrieved from https://www.cvce.eu/obj/commission_white_paper_on_growth_competitiveness_and_employment_1993-en-b0633a76-4cd7-497f-9da1-4db3dbbb56e8.html#:~:text=Conclusions%20of%20the%20Commission%20White%20Paper%20on%20E%20Growth%2C,action%20to%20be%20taken%20regarding%20the%20employment%20market
- European Commission (1999). e-Europe – An information society for all. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=URISERV:l24221>
- European Commission (2002). Green paper on “Promoting a European framework for corporate social responsibility”. Retrieved from <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2002:0347:FIN:EN:PDF>
- European Commission (2004). e-Health—making healthcare better for European citizens: An action plan for a European e-Health Area. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52004DC0356>
- European Commission (2006). Ministerial declaration from Riga on e-Inclusion. Retrieved from https://ec.europa.eu/information_society/activities/ict_psp/documents/declaration_riga.pdf
- European Commission (2006a). i2010 eGovernment action plan: Accelerating government in Europe for the benefit of all. Retrieved from <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2006:0173:FIN:EN:PDF>
- European Commission (2007a). European i2010 initiative on e-inclusion “To be part of the information society” – Impact assessment. Retrieved from <https://joinup.ec.europa.eu/sites/default/files/document/2014-12/Commission%20Communication%20-%20European%20i2010%20initiative%20on%20e-Inclusion%20-%20to%20be%20part%20of%20the%20information%20society.pdf>
- European Commission (2008). Towards an accessible information society. Status and challenges of e-accessibility in Europe. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52008SC2916&qid=1614520140917&from=EN>
- European Commission (2009). 2009 ageing report – Economic and budgetary projections for the EU–27 member states (2008–2060) – European economy 2|2009. Retrieved from https://ec.europa.eu/economy_finance/publications/pages/publication14992_en.pdf
- European Commission, (2009a). Digital Europe comparison 2011–2015: High-level conceptual framework i2010. Retrieved from <https://europeanlaw.lawlegal.eu/ageing-well-in-the-information-society-action-plan-on-information-and-communication-technologies-and-ageing/>
- European Commission, (2010). Europe 2020: A strategy for smart, sustainable and inclusive growth. Retrieved from <https://op.europa.eu/en/publication-detail/-/publication/6a915e39-0aab-491c-8881-147ec91fe88a/language-en>

- European Commission (2010). Report on competitiveness for digital Europe (vol. i2010—ICT profiles). Retrieved from <https://joinup.ec.europa.eu/sites/default/files/document/2014-12/Europe%27s%20Digital%20Competitiveness%20Report%202010%20-%20Commission%20Staff%20Working%20Document.pdf>
- European Commission (2010b). e-Health Strategies – Country Brief. Retrieved from <http://www.ehealth-strategies.eu/database/documents/>
- European Commission (2013). eHealth Action Plan 2012–2020 – Innovative healthcare for the 21st century. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52012DC0736>
- European Commission (2015). A digital single market strategy for Europe. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015DC0192&from=EN>
- European Commission (2016). A new skills agenda for Europe – Working together to strengthen human capital, employability and competitiveness. Retrieved from <https://eur-lex.europa.eu/legal-content/hr/TXT/?uri=CELEX:52016SC0195>
- European Commission (2016a). Directive (EU) 2016/2102 of the European Parliament and the Council of 26 October 2016 on accessibility of public sector bodies' websites and mobile applications (Text relevant to the EEA). Retrieved from <https://eur-lex.europa.eu/legal-content/HR/TXT/PDF/?uri=OJ:L:2016:327:FULL&from=EN>
- European Commission (2016b). Connectivity for a competitive digital single market – Towards a European gigabit society. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0587&from=EN>
- European Commission (2017). White paper on the future of Europe. Reflections and scenarios for the EU27 by 2025. Retrieved from https://ec.europa.eu/info/sites/info/files/white_paper_on_the_future_of_europe_en.pdf
- European Commission (2019a). Digital economy and society index (DESI) 2018. Retrieved from <https://ec.europa.eu/digital-single-market/en/desi>
- European Commission (2019b). Open data in Europe 2019. Retrieved from <https://www.europeandataportal.eu/en/dashboard/2019> i https://www.europeandataportal.eu/sites/default/files/Zemlja-factsheet_Hrvatska_2019.pdf
- European Parliament (2006). Recommendation of the European Parliament and the Council of 18 December 2006 on key competences for lifelong learning. Retrieved from <https://op.europa.eu/en/publication-detail/-/publication/0259ec35-9594-4648-b5a4-fb2b23218096/language-en>
- European Parliament (2016). Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of websites and mobile applications of public sector bodies (Text with EEA relevance). Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L2102&from=EN>
- European Parliament and Council (2019). Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (Text with EEA relevance).

- Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019L0882>
- European Parliament and Council (2000). Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the internal market ("Directive on electronic business"). Retrieved from <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32000L0031>
- European Parliament (2000). Lisbon strategy for the period 2000–2010. Retrieved from https://www.europarl.europa.eu/summits/lis1_en.htm
- EUROSTAT (2021). e-society, Dataset: Individuals – internet use [ISOC_CIFP_IU], Last updated: 15/04/2020 23:00, Time frequency: Annual, Information society indicator: Internet use: never. Unit of measure: Percentage of individuals. Individual type: Individuals, 55 to 74 years old. Retrieved from <https://ec.europa.eu/eurostat/>
- Kiss, M. (2016). Vulnerable social groups: Before and after the crisis. European Parliament. European Parliamentary research service. Retrieved from [https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI\(2016\)586605](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2016)586605)
- Galdon Clavell G., Zamorano M. M., & Zavala Pérez J. M. (2018). ICTs and community policing: An ethical framework. In: G. Leventakis & M. Habersfeld (Eds.), *Societal implications of community-oriented policing and technology* (pp. 63–76). Springer, Germany: Springer Briefs in Criminology, https://doi.org/10.1007/978-3-319-89297-9_8
- Helsper, E. (2014). Digital inclusion in Europe: Evaluating policy and practice. Discussion paper, Harnessing ICT for social action, a digital volunteering programme, London school of economics and political science. Spain, 25 March 2014. Retrieved from <http://www.ec.europa.eu/social/BlobServlet?docId=11614&langId=en>
- Moreno, L., & Martinez, P. (2019). The harmonization of accessibility standards for public policies. *Computer*, 52(7), 57–66, <https://doi.org/10.1109/MC.2018.2888762>
- Olphert, C., Damodaran, L., & May, A. (2005). Towards digital inclusion: Engaging older people in the digital world. The digital world conference: Dundee, Scotland, <https://doi.org/10.14236/ewic/AD2005.17>
- Raggi, A., Corso, B., Minicuci, N., Quintas, R., Sattin, D., De Torres, L., & Leonardi, M. (2016). Determinants of quality of life in ageing populations: Results from a cross-sectional study in Finland, Poland and Spain. *PLoS One*, 11(7), e0159293, <https://doi.org/10.1371/journal.pone.0159293>
- United Nations (1990). Resolution 45/106 implementation of the international plan of action and on ageing and related activities. 68th plenary meeting. Retrieved from <https://undocs.org/en/A/RES/45/106>, accessed September 8th2019
- United Nations (2006). Convention on the Rights of Persons with Disabilities and Optional Protocol, (UNCRPD). Retrieved from <http://www.un.org/disabilities/documents/convention/convoptprot-e.pdf>
- United Nations (2015). Sustainable development in an ageing world: A call to UN member states on the development agenda beyond 2015. Retrieved from <https://sustainabledevelopment.un.org/post2015/transformingourworld>

- United Nations (2015a). Transforming our world: The 2030 agenda for sustainable development. Retrieved from <https://sustainabledevelopment.un.org/post2015/transformingourworld>
- United Nations (2017). Population facts: Population ageing and sustainable development. Department of economic and social affairs, population division, No. 2017/1. Retrieved from http://www.un.org/en/development/desa/population/publications/pdf/popfacts/PopFacts_2017-1.pdf
- United Nations, Economic and Social Commission for Asia and the Pacific (2019). Measuring the digital divide in the Asia–Pacific region for the United Nations economic and social commission for Asia and the Pacific (ESCAP). Retrieved from https://www.unescap.org/sites/default/files/Measuring%20the%20Digital%20Divide%20in%20the%20Asia-Pacific%20Region%20for%20the%20United%20Nations%20Economic%20and%20Social%20Commission%20for%20Asia%20and%20the%20Pacific_0.pdf
- United Nations, Economic Commission for Europe (UNECE) (2019a). “2018 active ageing index: Analytical report. Retrieved from https://unece.org/fileadmin/DAM/pau/age/Active_Ageing_Index/ACTIVE_AGEING_INDEX_TRENDS_2008-2016_web_with_cover.pdf, accessed March 18th 2021.
- United Nations (2020). Profiles of ageing 2019. Retrieved from <https://population.un.org/ProfilesOfAgeing2019/index.html>
- Zdjelar, R. (2022, March 16). *Spremnost javnih politika za e-uključivost populacije 54+* [Public policy readiness for 54+ population e-inclusion] [doctoral dissertation]. Faculty of Organization and Informatics. Retrieved from <https://repozitorij.foi.unizg.hr/islandora/object/foi%3A7055>
- Žajdela Hrustek, N. (2015, July 15). *Multidimensional and multiperspective approach for monitoring e-inclusion* [doctoral dissertation]. University of Zagreb, Faculty of Organization and Informatics.
- Žajdela Hrustek, N., Šimić, D., & Čižmar, Ž. (2022). An instrument for measuring needs of vulnerable groups in terms of digital inclusion. In: N. Vrček, L. Guãrdia & P. Grd (Eds.), *Central European conference on information and intelligent systems* (pp. 107–115). Varaždin, Croatia: Faculty of Organization and Informatics University of Zagreb.

E-INCLUSION OF VULNERABLE GROUPS: REVIEW OF INTERNATIONAL DOCUMENTS FROM 1990 UNTIL 2020

Summary

An ageing population is a global problem that carries with it significant implications for the economy and society. The older population makes nearly a third of the population. In the last thirty years, public policy has been finding solutions to alleviate the economic and social problems that arise as a result of the aging of nations. A present in which the digitalization of all domains of life is the primary theme for profitability and consistency of economic entities imposes new standards of behaviour and habits of citizens. This particularly affects the elderly population, which is expected to be e-inclusive in the digital society and economy, which often makes it difficult to use digital services, whether public or commercial. The results of the analysis of public policies for the period from 1990 to 2020 show that of all four key constructs of the General Theoretical Conceptual Model for e-inclusion (“Access”, “Usage”, “Empowerment” and “Impact on the quality of life”), the most represented constructs are “Usage” and “Impact on the quality of life”. What is somewhat worrisome is that in the observed period, a very small percentage (19%) of public policies included the connection of all four key constructs, and that public policies were related to vulnerable population groups, such as the elderly population. The results related to the institutions that most encouraged the e-inclusion of especially vulnerable groups in their strategies are the European Commission, the OECD and the European Parliament. It is precisely e-inclusion that is a necessary prerequisite for independence, active involvement in society and for improving the quality of life, especially for vulnerable groups of the population. All stakeholders should be aware of this, because otherwise, if digital transformation is carried out without e-inclusion of all groups, especially vulnerable groups, those who are already empowered are additionally strengthened, and those who could benefit the most from digital transformation benefits, “vulnerable groups” remain somewhere on the sidelines and continue to be underpowered and neglected.

Keywords: e-inclusion, digital divide, public policies, access, usage, empowerment, impact on quality of life

E-UKLJUČENOST RANJIVIH DRUŠTVENIH SKUPINA: PREGLED MEĐUNARODNIH DOKUMENATA OD 1990. DO 2020.

Sažetak

U ovom radu prikazana je kronologija razvoja javnih politika kojima je osnovni cilj briga za osjetljive populacijske skupine koje, osim starije populacije, uključuju i osobe s invaliditetom, kao i rezultati istraživanja na koje su konstrukte općeg teoretskog konceptualnog modela za e-uključenost usmjerene javne politike uzete u analizu. Usmjerenost javnih politika tijekom tri desetljeća značajno se mijenjala od sprječavanja rizika i siromaštva do poticanja e-uključenosti osjetljivih društvenih skupina. Rezultati analize javnih politika od 1990. do 2020. pokazuju da je od sva četiri ključna konstrukta općeg teoretskog konceptualnog modela za e-uključenost („pristup“, „upotreba“, „osnaživanje“ i „utjecaj na kvalitetu života“) najzastupljeniji konstrukt korištenje i utjecaj na kvalitetu života. Ono što je pomalo zabrinjavajuće jest to da je u promatranom razdoblju vrlo malen postotak (19 %) javnih politika uključivao povezanost sva četiri ključna konstrukta, a da su se pritom javne politike odnosile na ranjive skupine stanovništva, poput starije populacije. Najzastupljeniji konstrukt općeg teoretskog konceptualnog modela za e-uključenost u javnim politikama bili su korištenje i utjecaj na kvalitetu života. Prema rezultatima, institucije koje su najviše u svojim strategijama poštivale e-uključenost, posebice ranjivih skupina, jesu Europska komisija, OECD i Europski parlament. Upravo je e-uključenost neophodan preduvjet za samostalnost, aktivnu uključenost u društvo i poboljšanje kvalitete života, posebice ranjivih skupina stanovništva. Ovo trebaju osvijestiti svi dionici jer u suprotnom, ako se provodi digitalna transformacija, a da se pritom ne provodi e-uključenost svih skupina, posebice ranjivih skupina, dodatno se osnažuju oni koji su već osnaženi, a oni koji bi od digitalne transformacije mogli imati najveće koristi („ranjive skupine“) ostaju negdje po strani i dalje neosnaženi i zapostavljeni.

Ključne riječi: e-uključenost, digitalni jaz, javne politike, pristup, korištenje, osnaživanje, utjecaj na kvalitetu života